THE ALCHEMY OF CURE

The Story of the
Indian Pharmaceutical Industry

A picture of a cricket ground and the Panihati factory of the Bengal Chemical and Pharmaceutical Works Ltd., the first large pharmaceutical company in India that was established in Kolkata in 1901.

Cricket and modern pharmaceutical sciences both came to India from outside, and since the 1980s, both Indian cricket and the Indian pharmaceutical industry have risen spectacularly on the global stage.

The story of India's rise in cricket is well known; the story of the rise of modern Indian pharma less so.

THIS BOOK TELLS THAT STORY.

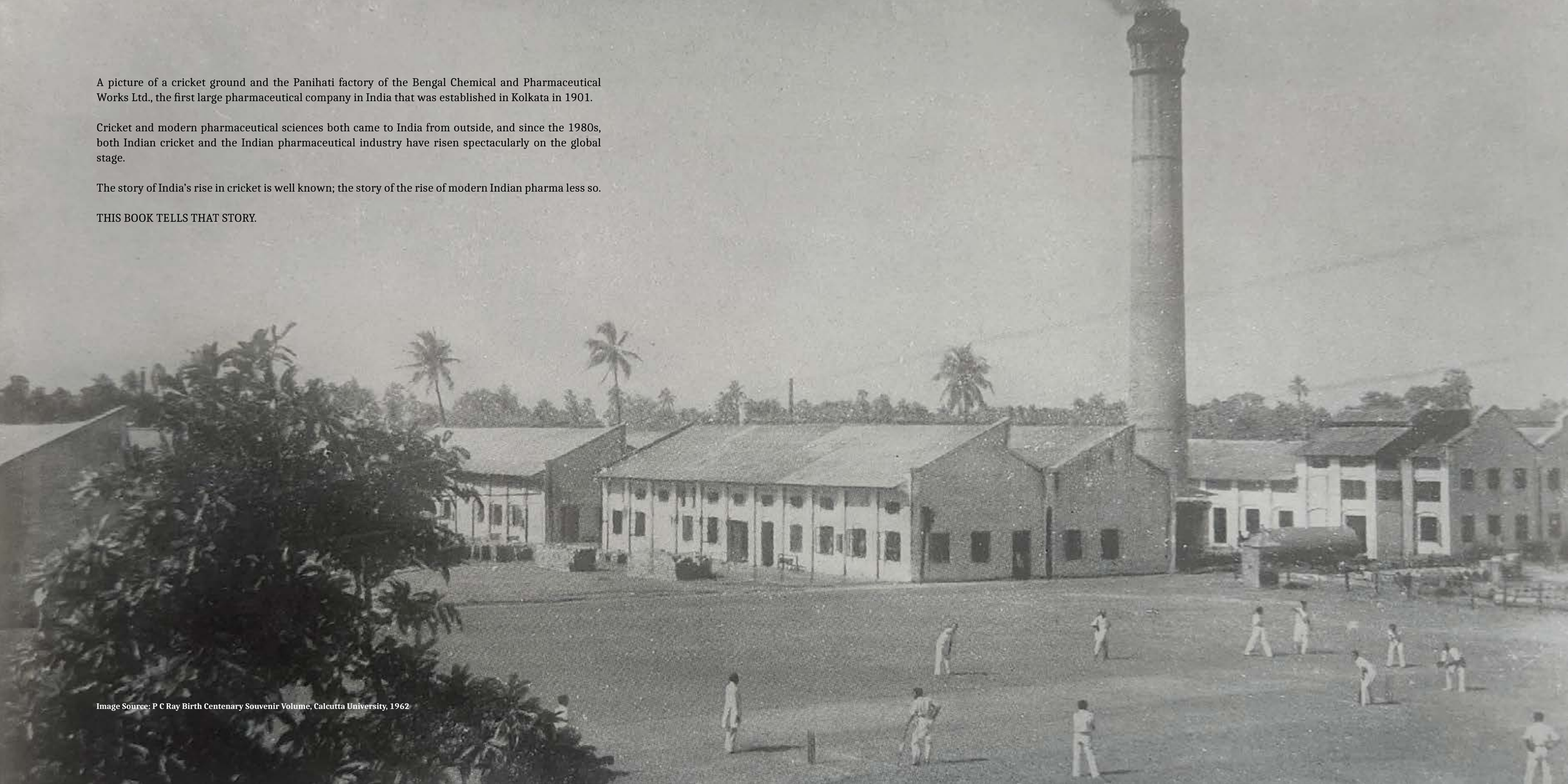
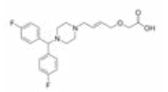
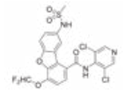


Image Source: P C Ray Birth Centenary Souvenir Volume, Calcutta University, 1962



Sun Pharma's
SUN-1334H



Glenmark's oglemilast
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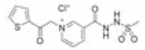
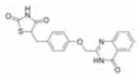
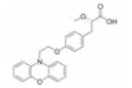


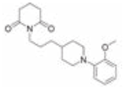
Torrent's TRC-4186



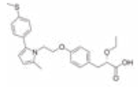
Dr. Reddy's balaglitazone
(DRF 2593)



Dr. Reddy's ragaglitazar
(DRF 2725)



Ranbaxy's parvosin
(RBx-2258)



Zydus's saroglitazar
(ZYH1)

The cover brings together images of parts of seven novel molecules developed by six Indian pharmaceutical companies—symbols of India's transition from generic manufacturing to original innovation. These compounds represent years of discovery research, scientific ambition, and the collective pursuit of new cures.

Image Source: Edmond Differding, *"The Drug Discovery and Development Industry in India—Two Decades of Proprietary Small-Molecule R&D"*, ChemMedChem, Vol. 12 (11), 2017: 790. Original licensed under CC-BY-NC-ND 4.0, with permission from the author.

The Alchemy of Cure
Published by: Indian Pharmaceutical Alliance

Year of Publication: 2025

25 YEARS
IPA
INNOVATION. QUALITY. GLOBAL REACH.

Prime Minister of India, Narendra Modi

सत्यमेव जयते

प्रधान मंत्री
Prime Minister

Heartiest congratulations and greetings to the Indian Pharmaceutical Alliance - IPA for its 25th anniversary. This milestone reflects your commitment to fostering a dynamic and robust pharmaceutical sector in India.

Over the years, India is making a mark in a mission to become the 'Pharmacy of the World,' providing high-quality, affordable, and accessible medicines to millions globally. This reputation has been built upon an unwavering commitment to excellence, quality, and a focus on innovation. In this journey, it is encouraging to see organisations such as IPA working to ensure that the highest standards of quality and best practices in pharmaceutical manufacturing are upheld.

During the last decade, several initiatives have been taken to further strengthen the pharma sector. The introduction of Production-Linked Incentive Scheme for the pharmaceutical industry has been instrumental in encouraging greater investment, diversity and capacity. In addition, with an ever-expanding network of Jan Aushadhi Kendras, we are also making affordable medicines more accessible to people across the country.

A thriving ecosystem for innovation, investment, and expansion in the pharmaceutical sector is pivotal in advancing healthcare solutions. It is against this backdrop that the alignment of efforts from industry stakeholders with broader national objectives is heartening.

As we progress towards our goal of building a Viksit Bharat by 2047, the role of the pharmaceutical sector becomes ever more crucial. Realising our collective dream of an Aatmanirbhar Bharat that is innovation-driven, remains central to our efforts.

With confidence in your continued dedication, I once again extend my best wishes to the Indian Pharmaceutical Alliance and hope that the 25th anniversary celebrations will be a huge success.

New Delhi
माघ 30, शक संवत् 1946
19 February, 2025

(Narendra Modi)

Rajkumari Amrit Kaur (1887-1964), Independent India's first health minister from 1947 to 1957 introduced various reforms and institutions that stimulated the healthcare system in India.

She was the President of the World Health Assembly in 1950 and helped establish the All India Institute of Medical Sciences (AIIMS) in 1956.

"*The country today demands cooperative effort from everyone. Private enterprise must come forward to contribute to the general welfare…No one can go forward without faith and courage and a spirit of adventure. This is a critical time for us. But all adventure-especially the great adventure of building up a country-is worthwhile and if undertaken in the right spirit, must succeed.*"

- Rajkumari Amrit Kaur, Speech at the inauguration of the Nydrazid (anti-Tuberculosis drug) synthesizing plant of Sarabhai Chemicals, Vadodara, 30th March, 1953

"*I realise that the health problems before us are colossal and extremely complicated and difficult. But let us not be deterred from doing our duty to the common man, whose well-being is our sacred trust. To overcome these difficulties we need courage and imagination and what is still more important, unity of purpose.*"

- Rajkumari Amrit Kaur, Third Meeting of the Central Council of Health, 1955. As reported in the Times of India, January 24, 1955.

Shri J P Nadda,

Hon'ble Minister for Health & Family Welfare and

Chemicals & Fertilizers

The Indian pharmaceutical industry is the pride of our nation, a symbol of resilience, innovation, and global leadership. It has not only transformed healthcare within India but also strengthened our commitment to Seva, Samarpan, and Sahyog (Service, Dedication, and Collaboration) by ensuring affordable and accessible medicines worldwide. This was reinforced during the COVID-19 pandemic, which reaffirmed India's role as a global healthcare leader, embodying the spirit of Vasudhaiva Kutumbakam-the world is one family.

From being import-dependent to becoming a global medicine manufacturing powerhouse, India has made meaningful strides. Today, it is the largest provider of generic medicines, supplying nearly 20% of the world's generics and contributing over 60% of global vaccine production. By significantly reducing the cost of life-saving medicines for diseases like HIV and TB, Indian pharma has ensured that no one is deprived of quality healthcare due to affordability or accessibility.

The collaboration between industry, government, and research institutions has been pivotal in shaping this success. The government remains committed to public health through transformative initiatives such as Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (PM-JAY), the world's largest health insurance program, providing financial protection to millions. Similarly, Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) has expanded access to essential medicines through thousands of Jan Aushadhi Kendras, ensuring affordability for all.

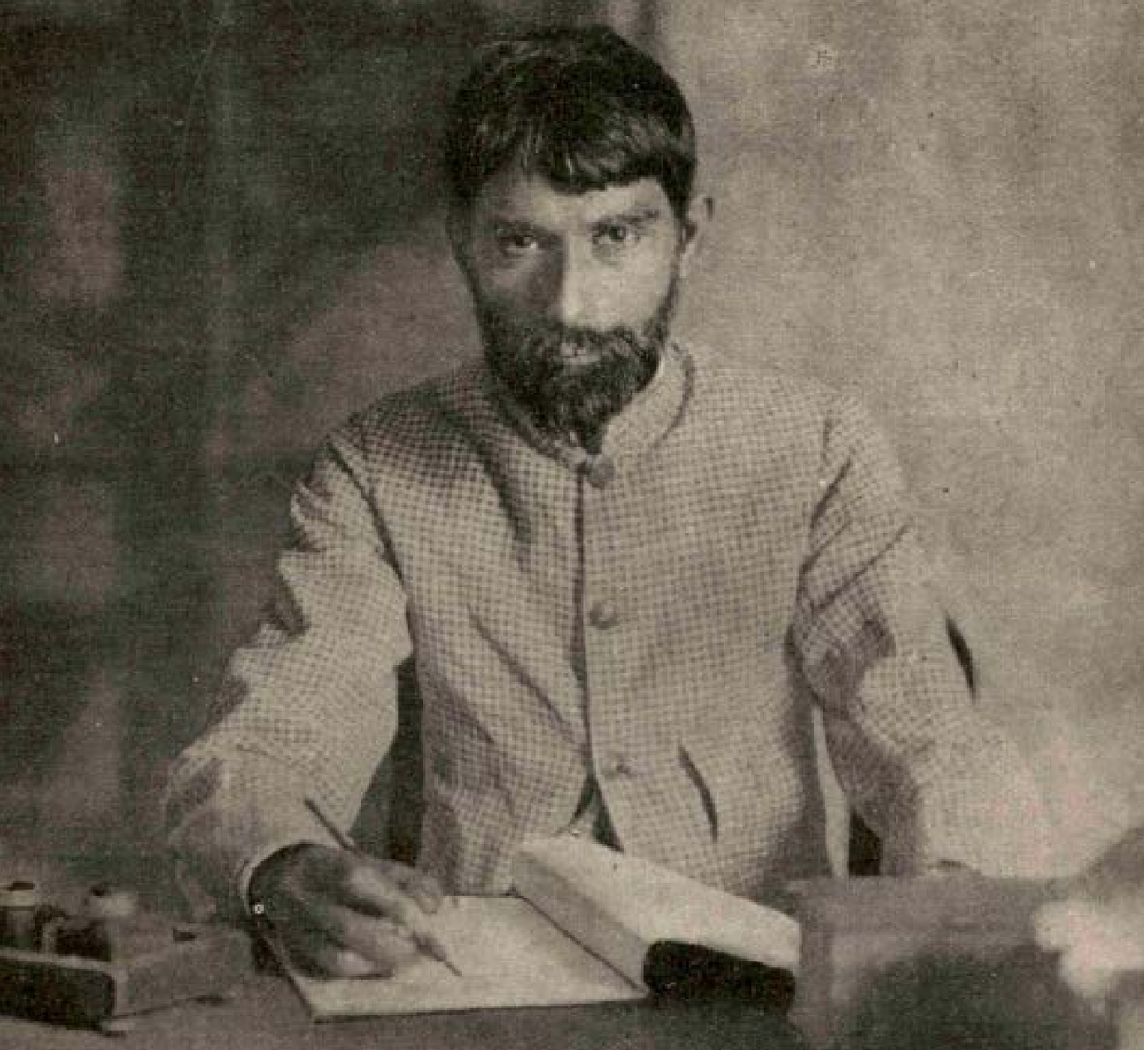
Under the visionary leadership of Prime Minister Narendra Modi, decisive steps have been taken to bolster the pharmaceutical sector and ensure long-term self-reliance. The Production Linked Incentive (PLI) Schemes is enhancing domestic manufacturing of critical Active Pharmaceutical Ingredients (APIs), thereby reducing import dependency and securing India's pharmaceutical supply chain. The Bulk Drug & Medical Device Parks Scheme is establishing cutting-edge infrastructure for economies of scale. Additionally, through Promotion for Research and Innovation Program Scheme and simplification of the regulatory landscape, the government is fostering an ecosystem for drug discovery and development in India.

As we look ahead to Viksit Bharat 2047, the Indian pharmaceutical industry stands ready to lead the next era of global healthcare transformation, shaping a future where quality healthcare is accessible to all and India continues to be the world's trusted healthcare partner.

On this momentous occasion, I extend my heartfelt congratulations to the Indian Pharmaceutical Alliance for its remarkable contributions. May the next 25 years bring even greater achievements, ensuring that affordable, high-quality medicines continue to reach every corner of the world.

(Jagat Prakash Nadda)

3rd March, 2025



Prafulla Chandra Ray (1861-1944), an Indian chemist, industrialist, historian, educationist and philanthropist scripted the story of the modern Indian pharmaceutical industry when he started Bengal Chemical and Pharmaceutical Works in Kolkata. We trace the story he helped begin.
Image Source: Wikimedia Commons; The Modern Review, August 1909

THE ALCHEMY OF CURE

The Story of the Indian Pharmaceutical Industry

Dr. Vikram Sarabhai (1919-1971), Indian scientist, institution builder, founder of India's space programme, and also a visionary industrial entrepreneur who built India's largest integrated pharmaceutical enterprise, Sarabhai Chemicals, between 1950 and 1966. In addition to manufacturing, he set up the Sarabhai Research Centre for research and development, Sarabhai Machinery to make pharmaceutical machinery and Operations Research Group (ORG) for market research of consumer and pharmaceutical products.
Image Source: Vikram Sarabhai Archives

INTRODUCTION

India's emergence as a global force has been shaped by several industries, but few have had as wide an impact as Information Technology and Pharmaceuticals.

While the IT sector's rise has been extensively documented, the evolution of India's pharmaceutical industry—equally transformative—has remained largely untold.

This is the story of India's transformation from being an importer of pharmaceutical products until the early 1980s to becoming a 'pharmacy of the world' - providing reliable supplies of affordable quality-assured medicines across the globe.

The transformation from a domestic market once dominated by multinational companies, now led by Indian firms that have scaled up manufacturing with remarkable capacity and efficiency.

The transformation of innovation as major Indian firms began the push for new drug discoveries.

The story of the Indian pharmaceutical industry is one of entrepreneurship and supportive policies with a nation-first approach to ensure that medicines and healthcare services are patient-centric, affordable and accessible.

In this process, it has been an Alchemy of Cure.

This book takes you through that journey, from the early twentieth century till date and highlights the important role that the Indian Pharmaceutical Alliance and its member firms have played over the past 25 years.

Dr. Yusuf K Hamied, Chairman, Cipla

Dr. Yusuf K Hamied (b. 1936), has led Cipla for over six decades, championed the cause of affordable healthcare and the Indian pharmaceutical industry, and made remarkable contributions in turning the tide against the global HIV-AIDS epidemic by making affordable and effective medicines.
Image Source: Cipla Archives

DR. YUSUF K HAMIED

THE SCIENTIST WITH A HEART

"My mantra in life has been to provide access to affordable medicines and that none should be denied medication. The disease profile in the emerging countries is frightening and is in continuous crisis. We need newer, adaptable technologies to prioritize healthcare, and create a world where every citizen can dream of a decent quality of life."

- Presentation at the Royal Society, London on being elected as Honorary Fellow, July 11, 2019

"In 1971, the MNCs controlled over 70% of the domestic pharma market. Out of the leading 50 pharma companies in India, 33 were foreign...During the past 30 years, there has been a significant change in the industry, in that indigenous companies now occupy a dominant position. The consolidated efforts of all concerned has led to the Indian pharma label now no longer considered inferior, but equal to the world's best. Today it stands for quality, trust and respectability – an achievement for which all Indians should be proud."

- Speech titled 'Indian Pharma Industry: Decades of Struggle and Achievements', 2005, Hyderabad

INDIAN PHARMACEUTICAL ALLIANCE

Abbott
ajanta pharma
Alembic
Touching Lives over 100 years
ALKEM
Inspiring Healthier Lives
AUROBINDO
Committed to healthier life!
CADILA PHARMACEUTICALS LIMITED
The Care Continues...
Cipla
glenmark
A new way for a new world
Dr.Reddy's
Emcure
INTAS
ipca
A dose of life
MACLEODS
LUPIN
MICRO LABS
Mankind
Serving Life
NATCO
Panacea Biotec
Innovation in support of life
Piramal
Pharma Limited
SUN
PHARMA
torrent
PHARMA
USV
zydus
Dedicated To Life

IPA

Samir Mehta

President, Indian Pharmaceutical Alliance and Chairman, Torrent Group

As the Indian Pharmaceutical Alliance (IPA) marks its 25th anniversary, we celebrate not just the transformative journey of the pharma sector but the story of India's growth as a reliable global medicines provider.

Over the past 25 years, the Indian pharmaceutical industry has witnessed unprecedented growth; it has grown from $3 billion in 1999 to a $58 billion market today, with equal contributions from domestic and global sales. From a modest export figure of $729 million in 1998-99, India now exports over $28 billion worth of medicines annually, serving more than 200 countries. Indian pharma today stands as one of the top five contributors to the country's trade surplus, with $20 billion net foreign exchange, a testament to its global competitiveness and commitment towards nation-building.

Our industry's defining moment came during the COVID-19 pandemic, when Indian pharmaceutical companies demonstrated remarkable agility and resilience, ensuring an uninterrupted supply of essential medicines to patients worldwide.

Now, as we look to the future, the Indian pharmaceutical industry stands on the cusp of transformation. With a renewed focus on innovation, we are advancing into complex generics, biosimilars, biologics, and novel drug discovery. IPA remains steadfast in its commitment to Innovation, Quality, and Global Reach. The thrust going forward will be to move from volume to value leadership.

To commemorate this silver jubilee milestone and the transformative journey of the sector, IPA is launching the "Pharma Archives" initiative, a collective effort to document and celebrate the evolution of Indian pharma. This coffee table book is a tribute to the pioneers, policymakers, scientists, and entrepreneurs who have shaped our industry's legacy. It is a reflection of where we started, how far we have come, and the limitless possibilities that lie ahead.

The story of Indian pharma is one of entrepreneurship, conducive government policies and an unwavering commitment to global health. May this book serve as both an inspiration and a guiding light for future generations as they carry this legacy forward.

19 February 2025

(Samir Mehta)

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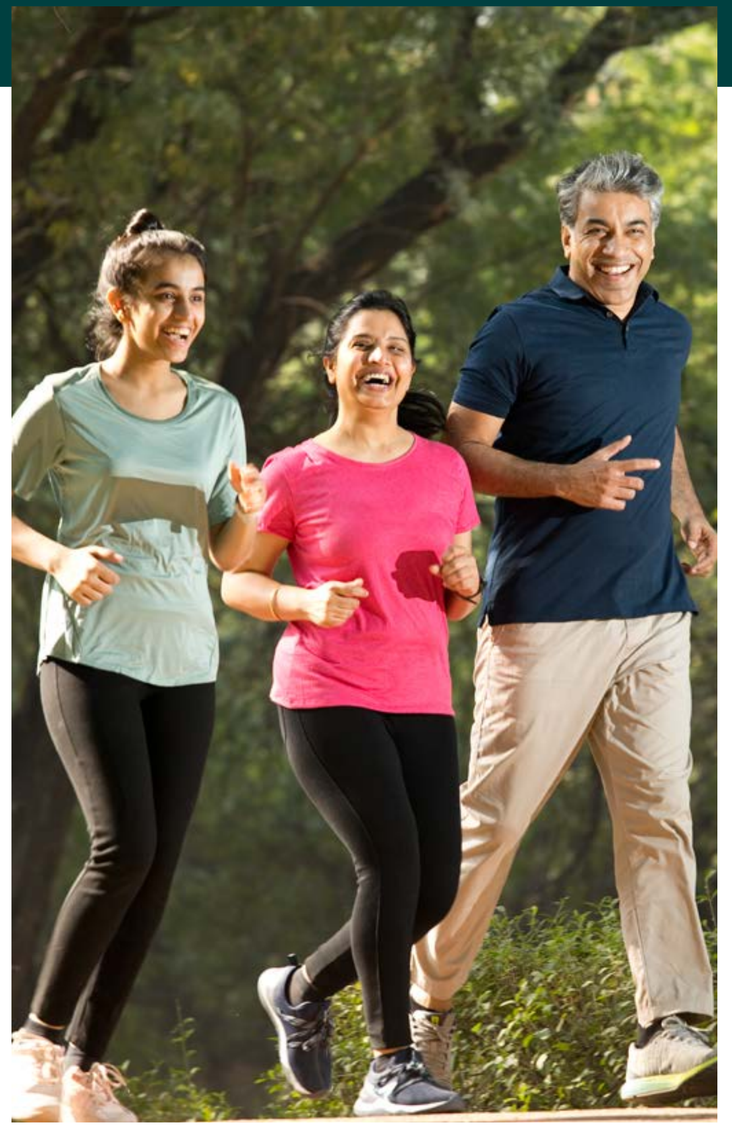


The R&D unit of Micro Labs, Bangalore where innovation is driven through process development and analytical research to support global pharmaceutical development programmes

Image Source: Micro Labs

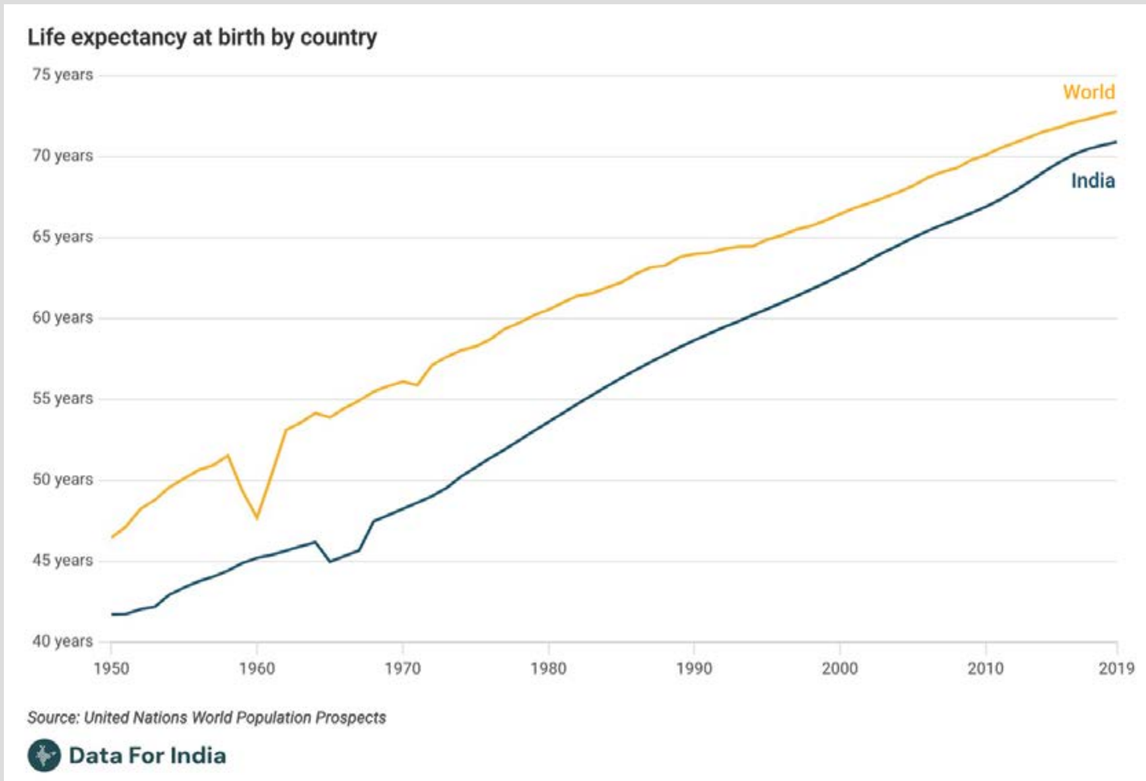
01

Tracing India's Pharma Shift

HEALTH TRANSITION IN INDIA

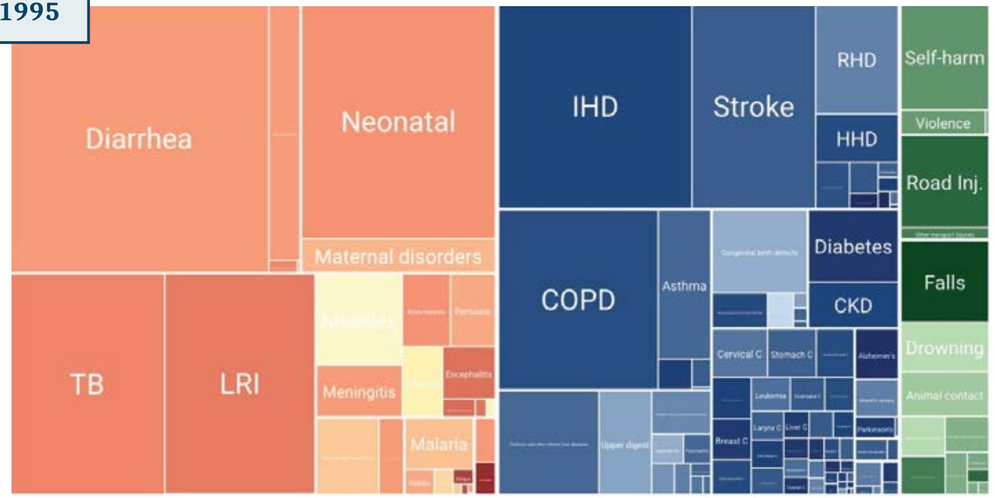
The advent of modern medicines, vaccines, public health systems, improved sanitation and rising incomes have greatly improved the quality of life for people around the world. While life expectancy at birth in India was only 25 years in the early twentieth century, it has steadily risen over the past century and converged with the global average of around 70 years.

India has undergone a significant epidemiological transition in recent decades. The share of communicable diseases in total deaths has declined to under 30% today. Ischemic Heart Disease (IHD) is now the leading cause of death, while illnesses such as diarrheal diseases and tuberculosis account for a much smaller proportion of mortality.



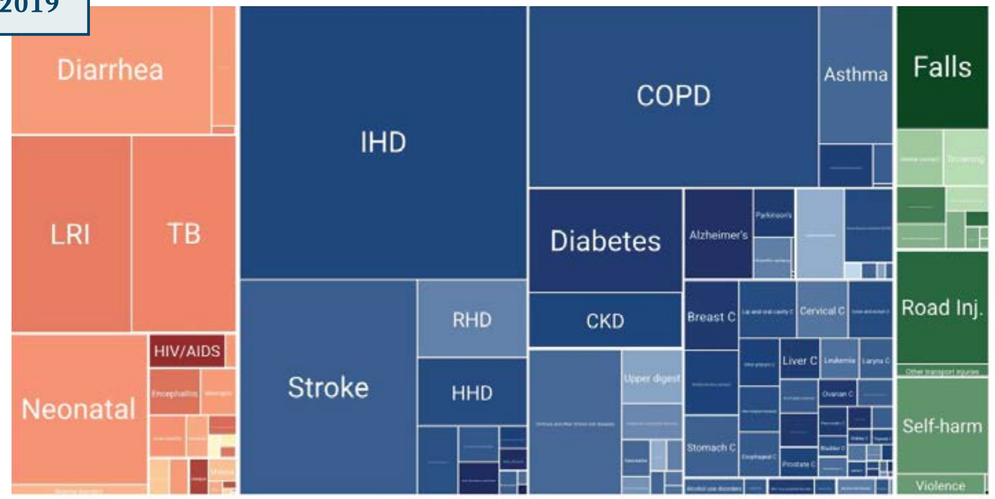
CAUSE OF DEATHS IN INDIA

1995



Communicable Diseases Non-Communicable Diseases Injuries

2019



Ihd=Ischemic Heart Disease. LRI=Lower Respiratory Infections. TB=Tuberculosis. HHD=Hypertensive Heart Disease.
RHD=Rheumatic Heart Disease. CKD=Chronic Kidney Disease. COPD=Chronic Obstructive Pulmonary Disease.

Image Source: Institute for Health Metrics and Evaluation, Data for India

This health transition has directly influenced the range of medicines produced by the Indian pharmaceutical industry. Reflecting the changing disease profile, the share of cardiac and anti-diabetic medicines has grown in recent decades, while the focus on drugs for communicable diseases has diminished.

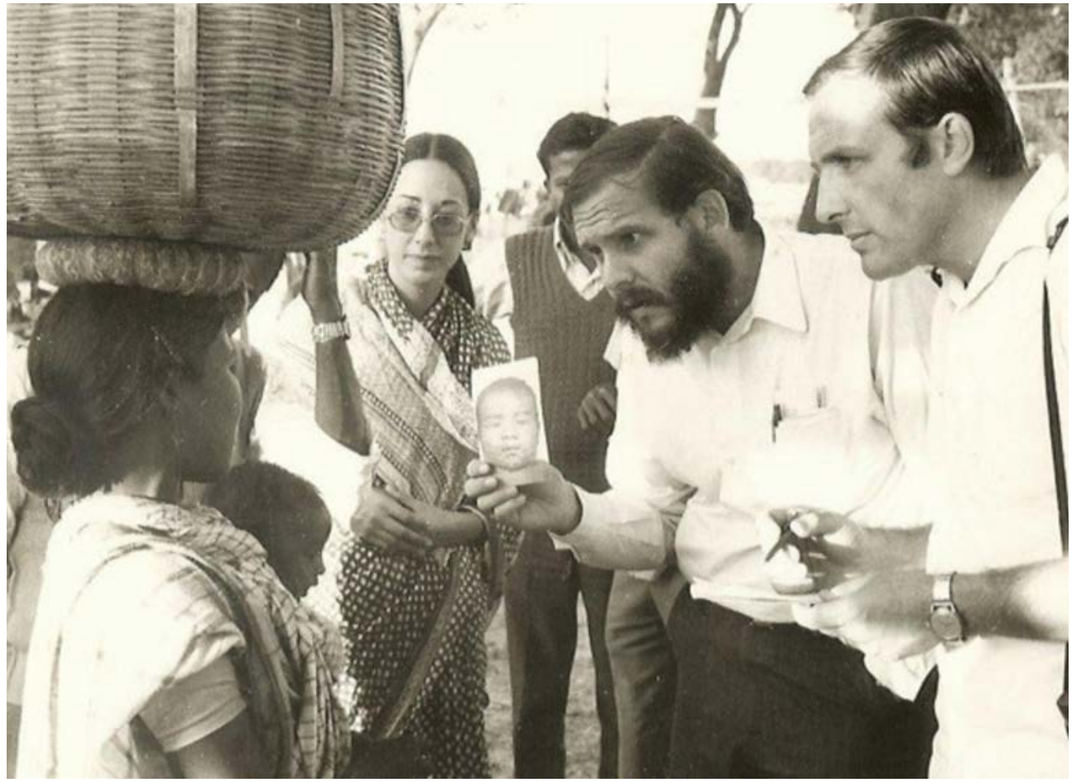
THERAPEUTIC CATEGORY SHARES IN INDIA, %	1990	2000	2024
CARDIAC	2.1	4.5	13.4
GASTRO INTESTINAL	19.0	18.8	12.0
ANTI-INFECTIVES	17.3	13.7	11.8
ANTI DIABETIC	0.4	1.2	9.1
VITAMINS/MINERALS/NUTRITIONAL	14.3	15.3	8.9
RESPIRATORY	14.6	13.6	7.5
PAIN/ANALGESICS	16.9	15.1	6.9
NEURO/CENTRAL NERVOUS SYSTEM	2.2	4.4	6.7
DERMA	3.3	3.0	6.3
GYNAECOLOGICAL	-	-	3.2
BLOOD RELATED	-	-	3.1
ANTI-NEOPLASTICS	-	-	2.2
OPTHALMOLOGICAL/OTOLOGICALS	0.9	1.5	1.9
UROLOGY	0.8	0.5	1.6
HORMONES	2.8	2.3	1.6
OTHERS	2.7	3.9	1.4
VACCINES	1.0	0.8	0.9
STOMATOLOGICALS	0.2	0.6	0.7
SEX STIMULANTS/REJUVE	-	-	0.5
ANTI MALARIAL	1.5	0.8	0.3
INDIAN PHARMACEUTICAL MARKET	100	100	100

Source: C-MARC, Pharmatrac

THE END OF SMALLPOX : A MAJOR ACHIEVEMENT IN THE 20TH CENTURY

Smallpox was a deadly disease that ravaged the Indian subcontinent for centuries. So feared was its impact that temples were built to propitiate smallpox-related deities that were believed to offer protection, and in some places, children were not counted as members of the family until they had survived a bout of smallpox.

Mass vaccination programmes in the 19th and 20th centuries, followed by a concerted push of the modern medical system in India after 1947, led to the eventual eradication of the disease.



Dr. Larry Brilliant shows a smallpox recognition card to a woman in an Indian village in 1973, helping her identify potential smallpox cases as part of the World Health Organization's eradication campaign.

Image Source: University of Michigan Online exhibit on Smallpox Eradication in India, 1972-1977

ORS: INDIA'S QUIET MEDICAL REVOLUTION

"Oral rehydration solution (ORS) is a discovery so simple, yet so profound, that it is often hailed as one of the most important medical advancements of the 20th century."

Once a leading cause of childhood deaths, diarrheal disease posed a massive public health challenge in India and globally. The breakthrough came with oral rehydration solution (ORS)—a simple, low-cost mixture of salts and sugars that replaces lost fluids and prevents dehydration.

Before ORS, treatment relied on intravenous fluids, which were expensive, difficult to transport, and required trained personnel—making them impractical in rural or crisis settings. Early efforts to explore oral rehydration, including those by Dr. Hemendra Nath Chatterjee in the 1950s, received little attention. But during the 1971 Bangladesh War, Dr. Dilip Mahalanabis demonstrated ORS's life-saving impact on a large scale, treating cholera patients with extraordinary success in refugee camps.

Since then, ORS has saved millions of lives and become a cornerstone of child health programs across India and the world. It was adopted by WHO and UNICEF. Many Indian pharmaceuticals firms now make ORS related products.

A sketch of Dr. Dilip Mahalanabis (drawn by Prof Sugata Dasgupta) illustrating the life-saving impact of ORS for millions worldwide.

Source: Rupak Chatterjee, Atanu Chandra, Alex George, Sugata Dasgupta, Oral Rehydration Solution: A Landmark Discovery in Medicine and the Legacy of Dr. Dilip Mahalanabis, The American Journal of Medicine, Vol 138, No 3, March 2025.

THE FIGHT AGAINST HIV-AIDS: INDIA'S LIFESAVING CONTRIBUTION

"Have you ever felt trapped? Like you're in a cage and you don't know how to get out. In 2008, when I first found out, I lost myself. Substances dictated everything and my life spiralled out of control. I was a victim and I believed there was no saving me.

I'm living with HIV.

I've got dreams like everyone else and I can still achieve them.

I've run marathons and I've summited Kilimanjaro. One of the greatest experiences of my life. Now I am happy, I am healthy, I am engaged and my partner is HIV negative.

We aren't told how to manage this virus. All that we are taught is that when you have it, your life is over.

But it's not. Life on ARVs [Antiretrovirals] can be normal. I used to think I was a victim, but now I am a warrior."

Image Source: Patient testimonial video, Courtesy Cipla, South Africa

The red ribbon became a powerful symbol of the global fight against HIV/AIDS. Advances in pharmaceutical research and manufacturing have played a critical role in transforming HIV from a fatal disease into a manageable condition for millions worldwide

"Since the early 1990's and to date I have also been fully committed to the fight against infectious diseases, most notably HIV/AIDS, essentially in Africa. The syntheses of all the then available antiretrovial drugs, Zidovudine, Lamivudine, Stavudine and Nevirapine were extremely difficult. I was instrumental in reverse-engineering these, developing newer routes of synthesis, make them in large quantities and also cost effective. In the year 2000, we repositioned the latter three drugs into one fixed dose combination tablet, Triomune, taken twice a day as against 12 individual tablets taken throughout the day. The separate tablets were collectively available at that time for $12000 per patient per year. On a humanitarian basis, we offered the world's first WHO approved combination drug to control HIV at below $1 per day. At that time, only a few thousand could afford treatment in Africa and there were 8000 deaths due to HIV per day. Today, due to this pioneering effort, over 17 million in Africa alone are being treated. HIV is no longer a death sentence, the stigma associated with it has been contained and survival rates are extremely high. The price of the most advanced 3 drug combination today is below 20 cents per day, $70 per year in Africa, most supplied from India, whereas similar drugs in the USA are supplied for over $24000 per year. The humanitarian initiative has already saved millions of lives in Africa and is ongoing."

- Dr. Yusuf K Hamied, Chairman, Cipla

Source: Presentation at the Royal Society, London on being elected as Honorary Fellow, July 11, 2019

INDIA'S PHARMACEUTICAL INDUSTRY TODAY

The pharmaceutical industry of India has grown rapidly over the decades to a production value of $58 billion in 2024. In nominal terms, it has clocked a compounded annual growth rate of 15% since 1947.

Today, the pharmaceutical industry employs several million people in manufacturing and distribution.

Eight states of India comprise over 80% of total production: Gujarat (16%), Telangana (15%), Maharashtra (15%), Andhra Pradesh (10%), Himachal Pradesh (10%), Karnataka (6%), Sikkim (5%), Uttarakhand (4%).

For four states, the pharmaceutical industry is the dominant industry with the highest share in total state's manufacturing gross value added: Sikkim (87%), Goa (46%), Himachal Pradesh (40%) and Telangana (32%).

3RD

largest pharma industry in the world by volume

$60

billion output value of the Indian Pharmaceutical industry

750+

US FDA-approved manufacturing plants – highest outside the US

5TH

largest net exporter of medicines in the world

11TH

largest pharma industry in the world by value

3RD

largest manufacturing sector of India (after Basic Metals and Chemicals)

10%

of all manufacturing sector output in India comes from the pharma industry

47%

of generic prescriptions in the US supplied by Indian pharma

2X

export orientation compared to overall manufacturing sector

20%

of global generic drug exports by volume

1ST

largest vaccine producer in the world

Source: Annual Survey of Industries 2022-23, Ministry-level Annual Reports, Statista, US FDA, IPA-IQVIA report, IPA-Bain exports strategy report.

Lupin's Pithampur facility Unit 3. Lupin's Pithampur facility spans over 52.5 acres and comprises of three manufacturing units, each equipped with advanced facilities to support diverse production capabilities, and designed to manufacture dermatological, ophthalmic, oral contraceptives, and inhalation products. The facility adheres to the highest levels of quality and regulatory compliance.

Image Source: Lupin Ltd.

THE CHANGING LANDSCAPE OF THE INDIAN PHARMACEUTICAL MARKET

Rank	1920	1971	1996	2004	2014	2024
1	SMITH, STANISTREET & CO.	SARABHAI CHEMICALS	GLAXO WELLCOME	CIPLA	SUN PHARMA	SUN PHARMA
2	BENGAL CHEMICAL AND PHARM. WORKS	GLAXO	CIPLA	GLAXOSMITHKLINE	ABBOTT INDIA	ABBOTT INDIA
3	W. E. SMITH AND CO.	PFIZER	RANBAXY	RANBAXY	CIPLA	MANKIND
4	LITTLE'S ORIENTAL BALM AND PHARM.	ALEMBIC	PFIZER	NICHOLAS PIRAMAL	ZYDUS	CIPLA
5	D. WALDIE AND CO.	HOECHST	KNOLL	ZYDUS-CADILA	GSK [GLAXOSMITHKLINE]	ALKEM
6	FRANK ROSS & CO.	LEDERLE	ALEMBIC	SUN PHARMA	MANKIND	INTAS
7	ALEMBIC CHEMICAL WORKS CO.	CIBA	TORRENT	DR. REDDY'S	ALKEM	TORRENT
8	KEMP AND CO.	MAY & BAKER	LUPIN	ARISTO	LUPIN	LUPIN
9	THOMSON & TAYLOR	PARKE DAVIS	HOECHST ROUSSEL	ABBOTT INDIA	TORRENT	ZYDUS
10	DATTA CHEMICAL WORKS	ABBOTT	NICHOLAS PIRAMAL	ALKEM	PFIZER	DR. REDDY'S
11	LEISTER ANTISEPTIC AND DRESSING CO.	MERCK SHARP & DOHME	AMBALAL SARABHAI ENTERPRISES	AVENTIS	MACLEODS	MACLEODS
12	DR. BOSE'S LABORATORY	SUHRID GEIGY	CADILA HEALTHCARE [ZYDUS]	LUPIN	EMCURE	ARISTO
13	ZANDU PHARMACEUTICAL WORKS	UNICHEM	PARKE DAVIS	MICRO LABS	INTAS	EMCURE
14	C. K. SEN & CO.	EAST INDIA PHARMA	SMITHKLINE	WOCKHARDT	ARISTO	GSK [GLAXOSMITHKLINE]
15	WESTERN INDIA CHEMICAL WORKS	SANDOZ	ARISTO	TORRENT	SANOFI INDIA	USV
16	PHILIPS AND CO.	DEY'S	E MERCK	NOVARTIS	DR. REDDY'S	GLENMARK
17	J.W WILSON AND CO.	BOOT'S PURE DRUG	CADILA	ALEMBIC	GLENMARK	IPCA
18	R. SCOTT THOMSON AND CO.	TEDDINGTON CHEMICAL FACTORY	HINDUSTAN CIBA GEIGY	UNICHEM	MICRO LABS	MICRO LABS
19	ANDHRA AYURVEDIC PHARMACY	WARNER HINDUSTAN	JOHN WYETH	USV	USV	PFIZER
20	A. CHANDLER	JOHN WYETH	WOCKHARDT	PFIZER	IPCA	ERIS LS
21	KAVIRAJ N.N. SEN AND CO.	RAPTAKOS BRETT	RHONE POULENC	INTAS	ALEMBIC	ALEMBIC
22	DR. H.L. BATLIWALLA	ROCHE	UNICHEM	CADILA PHARMA	WOCKHARDT	JB CHEMICALS
23	INTERNATIONAL PHARMACEUTICAL CO.	GERMAN REMEDIES	ALKEM	FDC	NOVARTIS	SANOFI INDIA
24	DACCA AYURVEDIC PHARMACY	E MERCK	GERMAN REMEDIES	GLENMARK	ERIS LS	FDC
25	RUSSA PHARMACEUTICAL WORKS	SMITH KLINE & FRENCH	HIMALAYA	WYETH	CADILA	AJANTA
26	ASIATIC CHEMICAL WORKS	RICHARDSON HINDUSTAN	IPCA	MANKIND	FDC	HIMALAYA
27	R. C. SEN AND CO.	BRITISH DRUG HOUSE	SUN PHARMA	MACLEODS	HIMALAYA	LA RENON
28	INDIAN DRUGS	BURROUGHS WELLCOME	FULFORD (I)	E MERCK	MSD	PROCTER & GAMBLE HEALTH
29	BOGRA MEDICAL STORES	GEOFFREY MANNERS	FDC	IPCA	INDOCO	CADILA
30	AYURVEDIC PHARMACEUTICAL CO.	INFAR	USV	HIMALAYA	FRANCO	CORONA

Based on paid-up capital. Joint Stock Companies of British India Directory Listing, 1921

Indian Pharmaceutical Retail Market Sales. Excludes exports. Source: ORG-MARG, 1971, Dec MAT

Indian Pharmaceutical Retail Market Sales. Excludes exports. Source: ORG-MARG, 1996, July MAT

Indian Pharmaceutical Retail Market Sales. Excludes exports. Source: ORG-IMS, 2004, Dec MAT

Indian Pharmaceutical Market Sales. Excludes exports. Source: Pharmatrac, 2014, Dec MAT

Indian Pharmaceutical Market Sales. Excludes exports. Source: Pharmatrac, 2024, Dec MAT

1920

Top firm's paid-up capital: Rs. 17 Lakh

1971

Top firm's sales: Rs. 16 cr.
Top 30 co. sales: Rs. 131 cr.
MNC Market Share of IPRM: 70%

1996

Top firm's sales: Rs. 484 cr.
Top 30 co. sales: Rs. 4,057 cr.
MNC Market Share of IPRM: 34%

2004

Top firm's sales: Rs. 1,128 cr.
Top 30 co. sales: Rs. 13,344 cr.
MNC Market Share of IPRM: 22%

2014

Top firm's sales: Rs. 7,271 cr.
Top 30 co. sales: Rs. 65,435 cr.
MNC Market Share of IPRM: 19%

2024

Top firm's sales: Rs. 18,067 cr.
Top 30 co. sales: Rs. 166,172 cr.
MNC Market Share of IPM: 15%
IPA Firms Market Share of IPM: 65%

'IPRM= Indian Pharmaceutical Retail Market'

REGULATIONS AND LEGISLATIONS

1911 **Indian Patents and Designs Act**

1940 Drugs and Cosmetics Act

1948 Pharmacy Act

1954 Drugs and Magic Remedies (Objectionable Advertisement) Act

1962 Drugs (Display of Prices) Order

1966 Drugs Prices Display and Control Order

1970 **The Patents Act - Replaced product patents with process patents**

Drugs (Price Control) Order

1978 Drug Policy

1979 Drugs Prices (Control) Order

1984 Hatch-Waxman Act in USA established the generic drug approval process

1986 Drug Policy

1987 Drugs Prices (Control) Order

1994 New Drug Policy

1995 Drugs Prices (Control) Order

2005 **The Patents (Amendment) Act - Re-established product patents**

2012 National Pharmaceutical Pricing Policy

2013 Drugs (Prices Control) Order

GOVERNMENT REPORTS AND INITIATIVES

1931 Report of the Drugs Enquiry Committee

1937 Origin of Central Drugs Laboratory, Kolkata

1949 Pharmacy Council of India established

1954 Report of the Pharmaceutical Enquiry Committee

Hindustan Antibiotics Ltd. set up

1955 First edition of Indian Pharmacopoeia published

1959 Justice N R Ayyangar's report on patent law revision

1961 Indian Drugs and Pharmaceuticals Ltd. set up

1975 Report of the Committee on Drugs and Pharmaceutical Industry (Hathi Committee Report)

1984 Kelkar Committee Report

1997 National Pharmaceutical Pricing Authority

1999 Pharmaceutical Research and Development & Price Control Policy Review Committees

2003 Mashelkar Committee Report on Drug Regulatory Issues

2004 Pharmexcil established to drive exports

2008 Department of Pharmaceuticals created under Ministry of Chemicals and Fertilizers

2021 Production Linked Incentive (PLI) scheme for Pharmaceuticals

2023 National Policy on Research and Development and Innovation in Pharma-MedTech Sector

ORIGINS OF INSTITUTIONS AND ASSOCIATIONS

1899 Haffkine Institute, Mumbai

1905 Central Research Institute, Kasauli

1911 Indian Council of Medical Research

1932 Banaras Hindu University, Department of Pharmaceutics

1933 Institute of Chemical Technology, Mumbai

1939 Indian Pharmaceutical Association

1940 Pharmaceutical & Allied Manufactures' & Distributors' Association Limited (PAMDAL)

1944 Indian Institute of Chemical Technology, Hyderabad

1947 L M College of Pharmacy, Ahmedabad

1950 National Chemical Laboratory, Pune

1951 Central Drug Research Institute, Lucknow

1961 Indian Drug Manufacturers Association (IDMA)

1965 Organisation of Pharmaceutical Producers of India (OPPI)

1975 All-India Organisation of Chemists and Druggists (AIOCD)

1991 Bulk Drug Manufacturers Association (BDMA)

1998 National Institute of Pharmaceutical Education and Research (NIPER) Mohali begins academic session

1999 **Indian Pharmaceutical Alliance (IPA)**

Post 2000 NIPERs in Ahmedabad, Guwahati, Hajipur, Hyderabad, Kolkata, Raebareli

ORIGINS OF IPA FIRMS

1907 Alembic

1910 Abbott India

1935 Cipla

1949 Ipca

1952 Cadila, Zydus

1959 Torrent Pharma

1961 USV

1968 Lupin

1973 Ajanta, Alkem, Micro Labs

1977 Glenmark, Intas

1981 NATCO, Emcure

1983 Sun Pharma

1984 Dr. Reddy's, Panacea Biotec

1986 Aurobindo

1988 Piramal Pharma

1989 Macleods

1991 Mankind Pharma

ENSURING AFFORDABILITY

India provides among the most affordable medicines in the world and maintains high quality standards while doing so. Strong manufacturing efficiencies of the Indian pharmaceutical industry coupled with government pricing regulations have led to a system where 'affordability' is placed at a high premium.

Condition	Pharmaceutical Compound	India's Rank out of 50 Countries [1=Most Affordable]	% Deviation from median price
Bacterial Infection	Azithromycin	1	-88%
Arthritis, Bowel Disease, Skin Disorders, among others	Adalimumab	1	-75%
Immunosuppression, Transplant Rejection Prevention	Tacrolimus	1	-88%
Epilepsy, Fibromyalgia, Generalized Anxiety Disorder, among others	Pregabalin	2	-91%
Asthma, Chronic Obstructive Pulmonary Disease	Salbutamol	3	-65%
Cardiovascular Disease, High Cholesterol	Atorvastatin	3	-84%
Depression, Bulimia, Obsessive-compulsive disorder (OCD), among others	Fluoxetine	3	-84%
Female Contraception	Drospirenone / Ethinylestradiol	3	-55%

Methodology: For 13 prevalent pharmaceutical compounds, across 50 countries, average prices of branded and generic drugs were recorded (dosage sizes were normalized) and their deviations from the global median price was taken. India was ranked fifth in the overall affordability listing after Thailand, Kenya, Malaysia and Indonesia.

Source: Medbelle 2019 Medicine Price Index; https://www.medbelle.com/medicine-price-index. The 50 countries in the study were: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Czechia, Denmark, Egypt, Finland, France, Germany, Greece, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Kenya, Lithuania, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Qatar, Russia, Saudi Arabia, Slovakia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, UAE, UK, USA.

Karan Munda, from Khunti, Jharkhand, was identified as a severely malnourished child and referred for treatment. In just 15 days, he gained 1.6 kg—highlighting how the pharmaceutical industry's efforts to ensure accessible and affordable healthcare are transforming lives in underserved communities.

Image Source: Glenmark

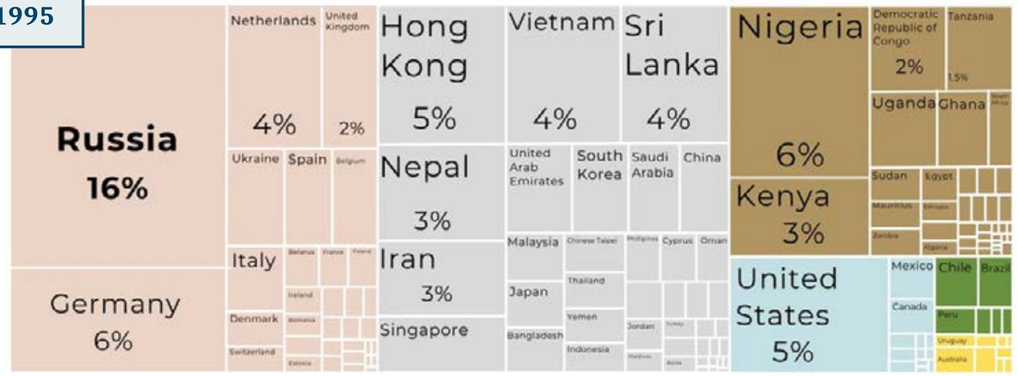
LOCAL TO GLOBAL

India was a net importer of pharmaceutical products until the mid-1980s. Since then, the country's ascent on the global pharmaceutical stage has been truly spectacular. In 1990, Russia was the primary export destination, but today the United States accounts for nearly one-third of total pharma exports, which reached close to $30 billion in 2024.

There has been a sustained outward thrust of Indian firms through exports, joint ventures, strategic alliances, overseas investments and acquisitions. Supporting this thrust are government trade bodies like Pharmexcil, which have played a key role in facilitating market access and international partnerships.

Today, pharma products made in India are found in every country, earning India the reputation of being the 'pharmacy of the world'.

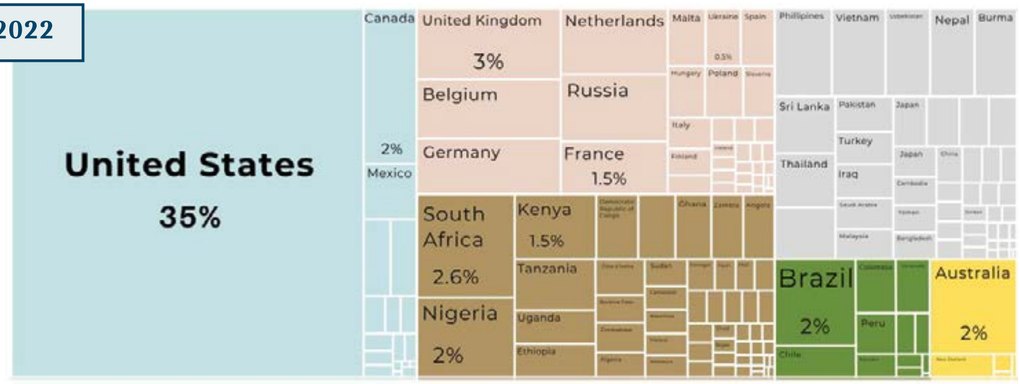
1995



PHARMACEUTICAL EXPORTS OF INDIA (1995)

Source: Observatory of Economic Complexity (OEC)

2022



PHARMACEUTICAL EXPORTS OF INDIA (2022)

Source: Observatory of Economic Complexity (OEC)

Seen here with his wife, Kim, legendary singer Art Garfunkel, one of Rolling Stone's "100 Greatest Singers of All Time," recently opened up about his journey with moderate-to-severe plaque psoriasis: "After struggling for decades, I finally started ILUMYA® about two years ago," he shares. "Experiencing clearer skin has helped me regain my confidence." ILUMYA, a treatment from Sun Pharma, is at the heart of the I LUV YA for The Long Haul campaign—an initiative reaching out to the nearly 8 million Americans living with this chronic autoimmune condition. Art's story brings visibility to the physical and emotional impact of psoriasis, inspiring others to seek lasting relief.

Image Source: Sun Pharma

Lupin's Somerset plant in New Jersey, USA, symbolizes India's bold leap into international markets, marking the shift from exporting generics to building deep, onshore footprints across key global regions

Image Source: Lupin Ltd.

INDIAN PHARMA'S PLANE FACT, FROM IMPORTS TO EXPORTS

October 17, 1947

Independent India's first Health Minister, Rajkumari Amrit Kaur, receives a case of penicillin at Palam aerodrome in Delhi—part of 93 cases gifted by the Canadian Red Cross.

The life-saving medicine arrived by special flight, marking a crucial moment in India's early public health journey.

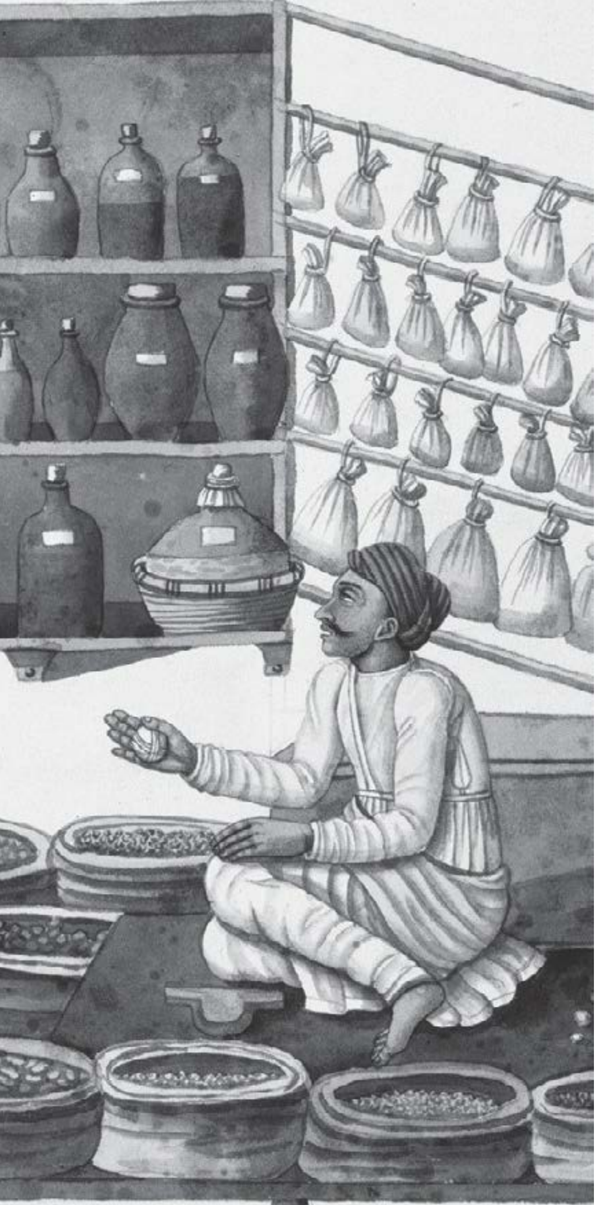
Standing to her left is Dr. Jivraj Mehta, then Director General of Health Services and later the first Chief Minister of Gujarat. On her right is Sardar Balwant Singh Puri of the Indian Red Cross.

Image Source: Wikimedia Commons

Image Source: DRL Archives

From the late 1980s, India became a net exporter of medicines and Russia was the primary destination in the 1990s. This picture shows Dr. K Anji Reddy (on the right), founder of Dr. Reddy's Laboratories in Hyderabad in 1984, handing over a consignment to the captain of an aircraft on February 28, 1995 watched by A M Drukov, Ambassador, Russian Federation. A consignment of 100 tonnes of life-saving medicines was sent from Hyderabad to Mineralnye Vody in Russia in the backdrop of a war in Chechnya, by the chartered aircraft AN-124 which was then the largest aircraft in the world.

More recently, airplanes were used extensively during India's Vaccine Maitri outreach programme by the Ministry of External Affairs to supply vaccines to countries in need, without any interruption, during the Covid-19 pandemic, demonstrating yet again how far India has progressed in the field since 1947.



Seller of medicines, eighteenth-century India
Image Source: British Library

02

The Dawn of Modern Medicine

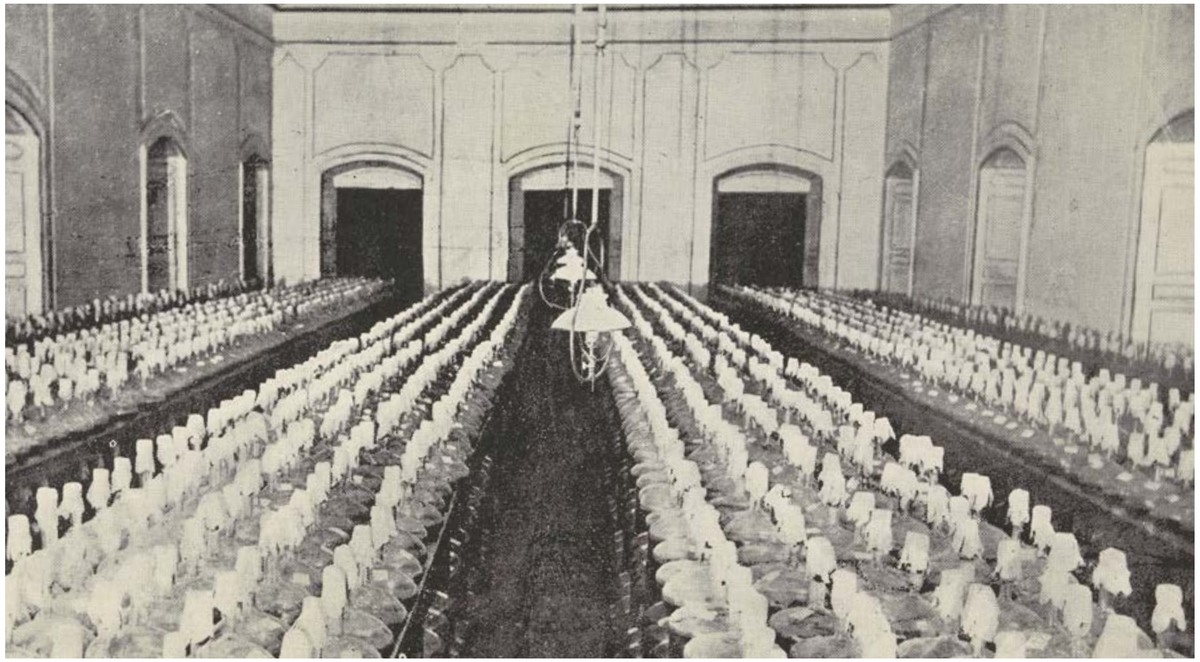
All societies over time developed traditional medical systems to deal with illnesses.

In India, traditional medical systems of knowledge such as Ayurveda, Unani and Siddha were used for centuries to treat diseases.

A new set of medical practices began to emerge in western Europe and USA in the late 19th and early 20th centuries, with the advent of modern chemistry, bacteriology and a better understanding of the human anatomy and disease propagation. These scientific breakthroughs unfolded against the backdrop of the “age of pandemics”, as cholera, plague, and influenza took over 70 million lives between 1817 and 1920.

India was the worst affected country in each of those pandemics, losing over 40 million people.

While the survival rates of Indians and Europeans in the Indian subcontinent were similar in the early nineteenth century, they had diverged by the end of the nineteenth century with a considerable survival advantage seen for the Europeans.



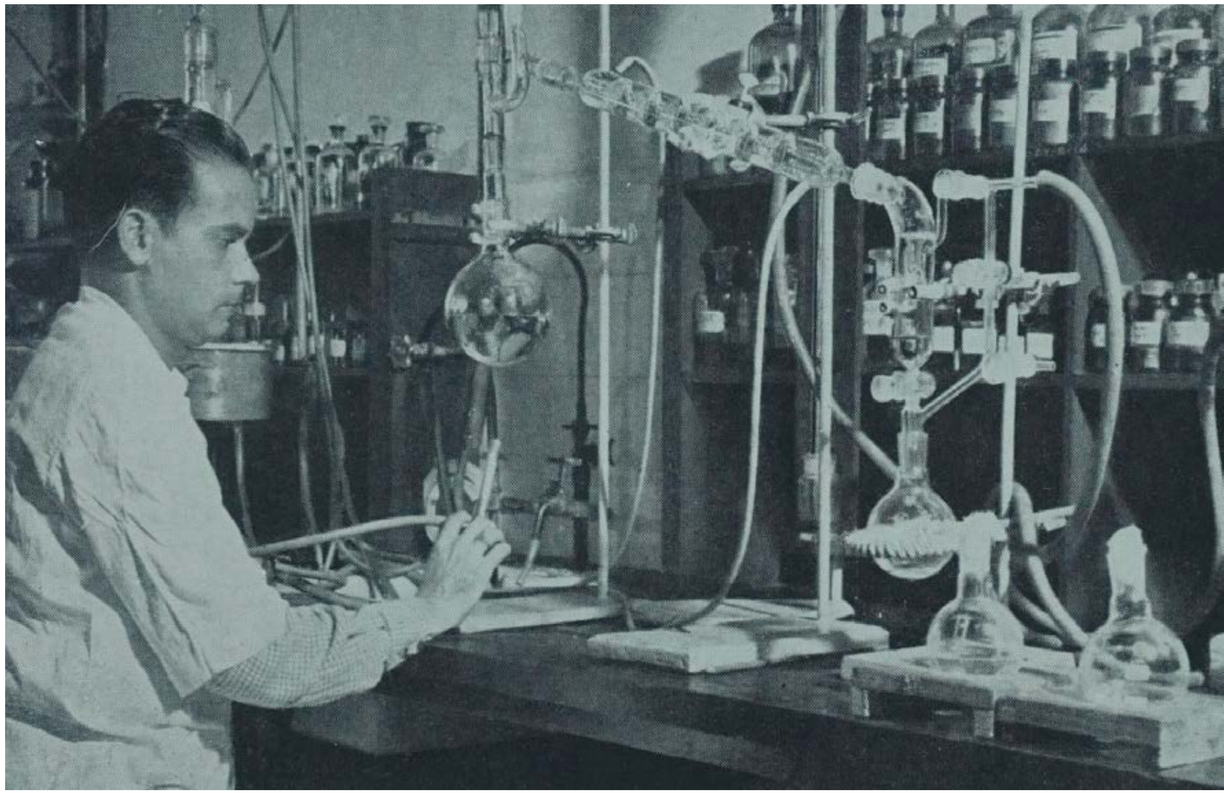
The Incubating Room, Plague Section, Haffkine Institute, Bombay. Represents over a million doses, 1927
Image Source: Souvenir for Eastern Association of Tropical Medicine, 1927, Wellcome Collection

Women students in a laboratory at the Lady Hardinge Medical College and Hospital, Delhi, 1921
Image Source: Wellcome Collection

This realization led a growing number of Indians to embrace the emerging medical knowledge.

'Daktari' medicine as it was known then, spread in India in the early 20th century with the importation of drugs and formulations from Germany, Switzerland and UK, countries that were leaders in the field.

This period saw the establishment of new research institutions such as the Haffkine Institute in 1899, which specialized in vaccines while pharmaceutical education spread slowly after its formal establishment at the Benares Hindu University in 1932.



Fractional distillation - a stage in the synthesis of drugs - underway at the Haffkine Institute, Parel, Bombay
Image Source: Haffkine Institute Diamond Jubilee, 1899-1959

" ...(The) pharmaceutical industry, in spite of the plentiful source of a number of raw materials, is still in an infant state. Perhaps one may account for this by saying that comparatively a very small percentage of the people in this country have acquired the habit of using allopathic medicines. Still one would be surprised at the vast amount of money spent in importing these allopathic medicines from foreign countries. Statistics for the last five years show that India imports annually drugs and medicines (excluding chemicals) worth about two crores of rupees."

- Dr. M C Tummin Katti (Indian Institute of Science Bangalore), 'Development of Pharmaceutical Industry in India' in *Current Science*, October 1932, Vol. 1, No. 4, pp. 96-97

A few budding Indian chemists who studied abroad returned with newfound knowledge and went on to establish chemical and pharmaceutical enterprises.

Among them was the distinguished chemist Prafulla Chandra Ray, who had studied in Edinburgh and later founded Bengal Chemical and Pharmaceutical Works Ltd. in 1901 in Calcutta, and laid the foundations of the modern pharmaceutical industry in India.

A few other prominent Indian firms were formed before 1930 such as Alembic (1907), Zandu (1910) and Bengal Immunity (1919). The first Drugs Enquiry Committee in 1930-31 led by distinguished pharmacologist Ram Nath Chopra laid the foundation for pharmaceutical industry related policies and legislations that were implemented in later years. Scientist Upendranath Brahmachari developed urea-stibamine in the 1920s, an effective treatment of the Kala-azar disease and Indian-American biochemist Yellapragada Subbarow made pathbreaking drug discoveries at Lederle Laboratories in USA in the 1930s-40s.

The colonial overseas drug trade was a significant force in the 19th century, with prominent medicine trading firms such as Smith, Stanistreet & Co., Kemp & Co., D. Waldie & Co., and Butto Krishna Paul & Co. playing key roles. Foreign firms like Bayer, Merck, Ciba, Sandoz, Roche, Parke-Davis, Burroughs Wellcome, Abbott (1910), Anglo-French Drugs (1923), Glaxo (1924), Boots Pure Drug (1929), Raptakos Brett (1930), Albert David (1938), and British Drug House (1939) expanded their operations in India in the early twentieth century.

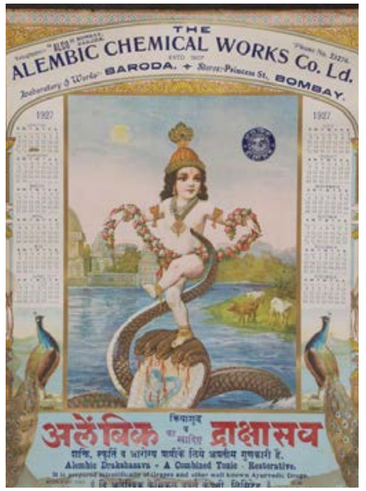
Swiss firm Roche's Sirolin was a popular product for coughs and colds for many decades. Seen here is Roche's Jacob Sassoon building in Bombay where Sirolin bottles are being labelled, 1948

Image Source: Roche Historical Collection and Archive

"Though the original object of the concern - Alembic Chemical Works - was the manufacture of rectified spirit and absolute alcohol, it was early recognised that the potentialities for the manufacture of pharmaceutical preparations and drugs were immense, as raw materials were abundant in India and only scientific skill and up-to-date machinery were wanting to turn them into finished products... The works employ nearly 300 workmen and 60 well-qualified men on the technical staff."

The Alembic Chemical Works: Some of the More Important Activities of a Pioneer Firm in Baroda State, Times of India, Oct 4, 1934, p.13

Alembic was founded in 1907 in Vadodara by industrial chemist Prof. Tribhuvandas Kalyandas Gajjar (1863-1920) and his students A S Kotibhaskar and B D Amin.



Advertisements for Alembic's Drakshasava, a combined tonic made of grapes and other ayurvedic drugs, 1927 and 1930

Image Source: Alembic Ltd.

Image on Left: Front view of the Alembic factory in Baroda, 1930s

Image Source: Alembic Ltd.

The momentum continued into the 1930s and 1940s, with a new wave of Indian enterprises taking root—Cipla (1935), Amrutanjan (1936), East India Pharma (1936), Tablets (India) (1938), FDC (1940), Dey's (1941), Sarabhai Chemicals (1943), and Amrut Mody's Unichem (1944)—each contributing to the strengthening of indigenous pharmaceutical capacity.

"The possibilities of manufacture of chemical and pharmaceutical products from Indian raw materials are exceedingly great. The necessity of such manufacture, which has long been keenly felt, has become all the more acute on account of the present war. The helpless position in which the Indian consumer finds himself today in not getting medicines which he needs and chemicals which he requires, is fully known to all. The Indian manufacturer also is in a helpless position. He is unable to manufacture what he used to do on account of the lack of the supply of bulk chemicals from abroad.. "

- Dr. Khwaja A Hamied, Bombay Chronicle, July 1941

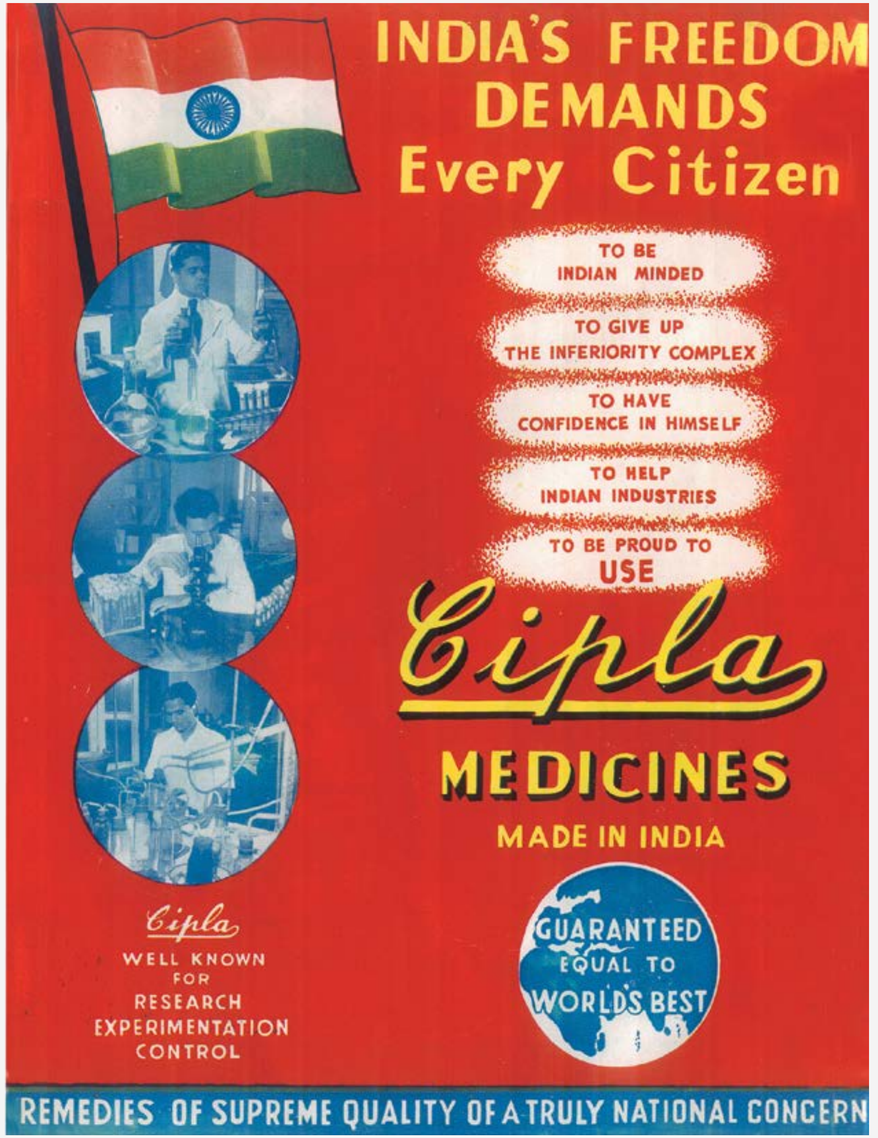
Among these, Cipla was a symbol of nationalist enterprise. Founded by Dr. Khwaja A Hamied (1898-1972), Cipla received support from Mahatma Gandhi, who visited the company's Mumbai facility - a moment that embodied the fusion of science, self-reliance, and the freedom movement. Recalling that moment in his autobiography, Dr. Khwaja A Hamied wrote: *"the visit of Mahatma Gandhi shall ever remain a landmark in the history of Cipla and an honour which I, my colleagues and all the workers of Cipla shall never forget,"* adding that Sardar Patel's presence alongside Gandhi was equally memorable. Decades later, this vision of science rooted in service was recognised globally—Nobel Laureate Alexander Todd (1907-1997), writing on Dr. Hamied's 70th birthday in 1968, remarked that, *"Dr. Hamied's great contributions to the development of the pharmaceutical industry in India is matched only by his lifelong services to his country at large."*

Equally transformative was the vision of the Sarabhai family, who played a pivotal role in shaping India's scientific and pharmaceutical landscape. Their investment in research-driven manufacturing laid the groundwork for future innovations, bridging the gap between chemistry, medicine, and nation-building.

As India stood on the threshold of independence, the seeds of a self-reliant pharmaceutical industry had already been sown. With the groundwork laid by pioneering Indian entrepreneurs, returning scientists, and visionary industrialists, the next phase would witness a decisive transformation—as independent India turned its focus to building public sector units, forging global partnerships, and asserting its place in the world of modern medicine.

The ideals of equitable healthcare found resonance in the constitution of the World Health Organization, formed in 1948:

"The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition."



A Cipla advertisement from 1948 that captures the hope, determination, and a drive for self-reliance in healthcare
Image Source: Cipla Archives

Mahatma Gandhi and Sardar Patel's visit to the Cipla factory in Bombay on July 4, 1939. From R to L: Dr. Sushila Nayar (later, Health Minister), Sardar Patel, Luba Hamied, Mahatma Gandhi and Dr. Khwaja A Hamied (Cipla's founder).

Gandhi wrote the following in the visitor book on the day: "I was delighted to visit this Indian enterprise."

Image Source: Cipla Archives

Penicillin production at Hindustan Antibiotics Ltd.
Image Source: HAL, Annual Report, 1955-56

03

A NATION'S PHARMA LEAP

At the time of Independence in 1947, India was not self-sufficient in the production of medicines and had few pharmaceutical firms. On the other hand, the development of penicillin and antibiotics production at scale during World War II in US and western Europe was radically transforming the global pharmaceutical industry. The new medicines were seen as miracle drugs drastically cutting down mortality and boosting life expectancy by years. India thus opened its doors to emerging technologies through international partnerships in public and private sectors.

"The slave mentality of a large number of medical men who prefer foreign products to those manufactured in India comes in the way of proper organization of pharmaceutical industry and leads to higher costs of production... I am confident that with the full cooperation of all the parties concerned, India will not lag behind any country not only in her national health but also in her contribution to the medical and pharmaceutical sciences and industry."

- Prof. Mahadeva Lal Schroff (1902-71), widely considered to be the founder of pharmacy education in India. Presidential address, 7th Indian Pharmaceutical Conference, Delhi, January 3-5, 1947

Two public sector units were set up with international assistance: Hindustan Antibiotics Limited (HAL) in 1954 and the Indian Drugs and Pharmaceuticals Ltd (IDPL) in 1961. Outside the two large public sector units, several private Indian firms also entered into joint ventures with large multinationals and there was growth of the pharmaceutical industry beyond Calcutta and Bombay, especially in the newly formed state of Gujarat. Several large multinationals also opened factories in India.

In this period, the Pharmacy Act of 1948 was introduced to regulate the pharmacy profession, leading to the establishment of the Pharmacy Council of India in 1949. Drug price regulations were introduced amidst the Indo-China war in 1962.

A comprehensive report of the Pharmaceutical Enquiry Committee in 1954 headed by S L Bhatia made several recommendations on kickstarting the bulk drugs industry and amending patent laws but there was little progress over the next decade.

By 1970, the Indian pharmaceutical industry had made some progress but was dominated by products sold by foreign multinational firms and India continued to be a net importer of medicines.

Image on the right: Prime Minister Jawaharlal Nehru with Indira Gandhi at the Hindustan Antibiotics Ltd. factory in Pimpri, 1956

Image Source: Wikimedia Commons

THE ANTIBIOTIC REVOLUTION

"I would like to stress an important point to our government and our enterprising capitalists. The possibility of a third world war is facing us menacingly and we do not know what would be the position of India in that set up, so far as her essential drug requirements are concerned. Steps should immediately be taken for the production of antibiotics like penicillin and streptomycin. It is not to be doubted that trained mycologists, biochemists and engineers are not available in India to look after this production. It is for the enterprising capitalists to bring them together and the state should help them liberally in this respect. If this does not materialise the Ministry of Health should itself set up a model factory and I am sure the capitalists would at once come in numbers. Any dilatoriness on this point seems to my mind bordering on apathetic negligence."

- Prof. N. K. Basu (1901-67), distinguished academic at the Benares Hindu University Department of Pharmaceutics, 9th All India Pharmaceutical Conference, January 2-5, 1949

Sir Alexander Fleming (1881-1955) discovered penicillin, an effective antibiotic substance, in 1928, which is one of the greatest discoveries ever made in the fight against diseases. Technologies to scale up production came in the 1940s during World War II, setting in motion three decades of rapid developments in the antibiotic revolution.

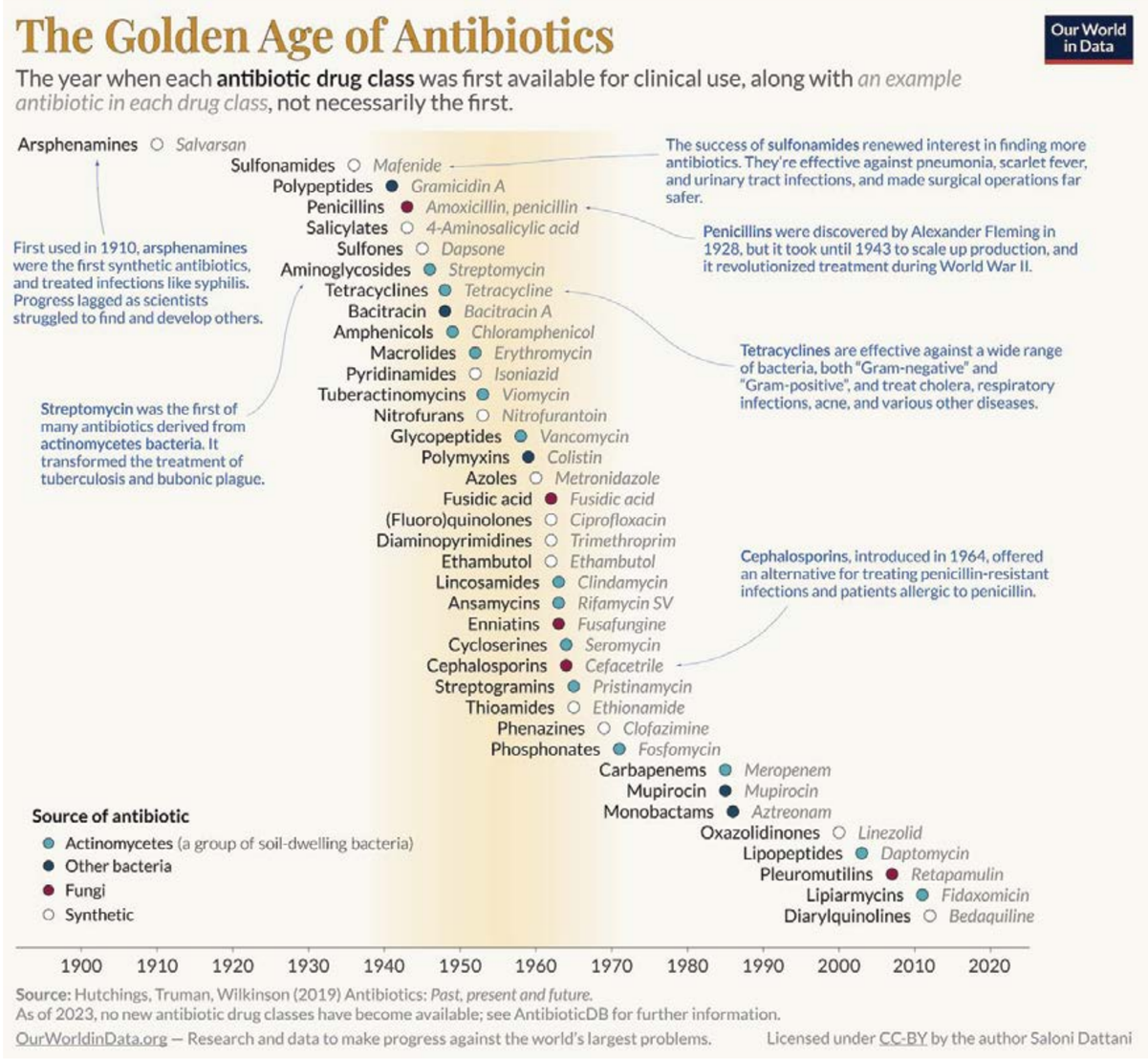
This picture, taken in Bombay in March 1953, shows Sir Alexander Fleming touring the Ampoule department of the Glaxo factory with Dr. Punshi
Image Source: GSK Heritage Archives

The Hindustan Antibiotics Limited (HAL) was set up by the government in 1954 in Pimpri, Pune, with the assistance of the World Health Organization (WHO) and UNICEF. It went on to produce penicillin and streptomycin (useful against tuberculosis) and even developed and sold an original antifungal antibiotic, Hamycin.

The Indian Drugs and Pharmaceuticals Ltd. (IDPL) was registered by the government in 1961 and with the technical assistance of USSR set up an antibiotics plant in Rishikesh in north India, a synthetic drugs plant in Hyderabad and a surgical instruments plant in Madras.

Several **private Indian firms** partnered with foreign multinationals in a quest to obtain the latest technologies. Examples include Atul Products and Cyanamid (India) and Cibatul; Ranbaxy Laboratories and Le-Petit of Italy; Pharmed and Dr. A. Wander, Switzerland; Sarabhai's with E. R. Squibb & Co. (USA), Merck (Germany) and Geigy (Switzerland). Sarabhai Chemicals made three specific ventures and rapidly grew to become the biggest pharma company of India by the 1970s. The Sarabhai Research Centre was set up in Vadodara and they also set up Operations Research Group (ORG), a market research organization.

In addition to Sarabhai Chemicals and Alembic in Vadodara, Ahmedabad-based firms such as Cadila and Torrent emerged in this period, making Gujarat an important pharma hub. In Mumbai, Ipca, USV and Lupin were formed in this period. The Indian Drug Manufacturers Association was formed in 1961. Despite this growth, a large share of investment by the organized sector pharma firms in this period was done by multinationals.



VIP Tour of Sarabhai-Squibb plant in Baroda (Vadodara), 1952
L to R: Nathan Hamilton, HRH Fatehsingh Gaekwad (Maharaja of Baroda), Rusi Vakharia, Jaysingh Gaekwad, Kathy Hamilton, Molly Vakharia, N.R. Nadkarni, Udaysingh Gaekwad, Mrs. Nadkarni, Susan Gaekwad (Maharani of Baroda).

Image Source: Nathan Hamilton

"Dr. Vikram Sarabhai laid the firm foundation of a full line pharmaceutical company to manufacture drugs and pharmaceuticals of international standards with the help of the best pharmaceutical companies in the world. He also recruited technical personnel of the highest qualifications in India and abroad and sent them for technical training to the plants of the collaborators."

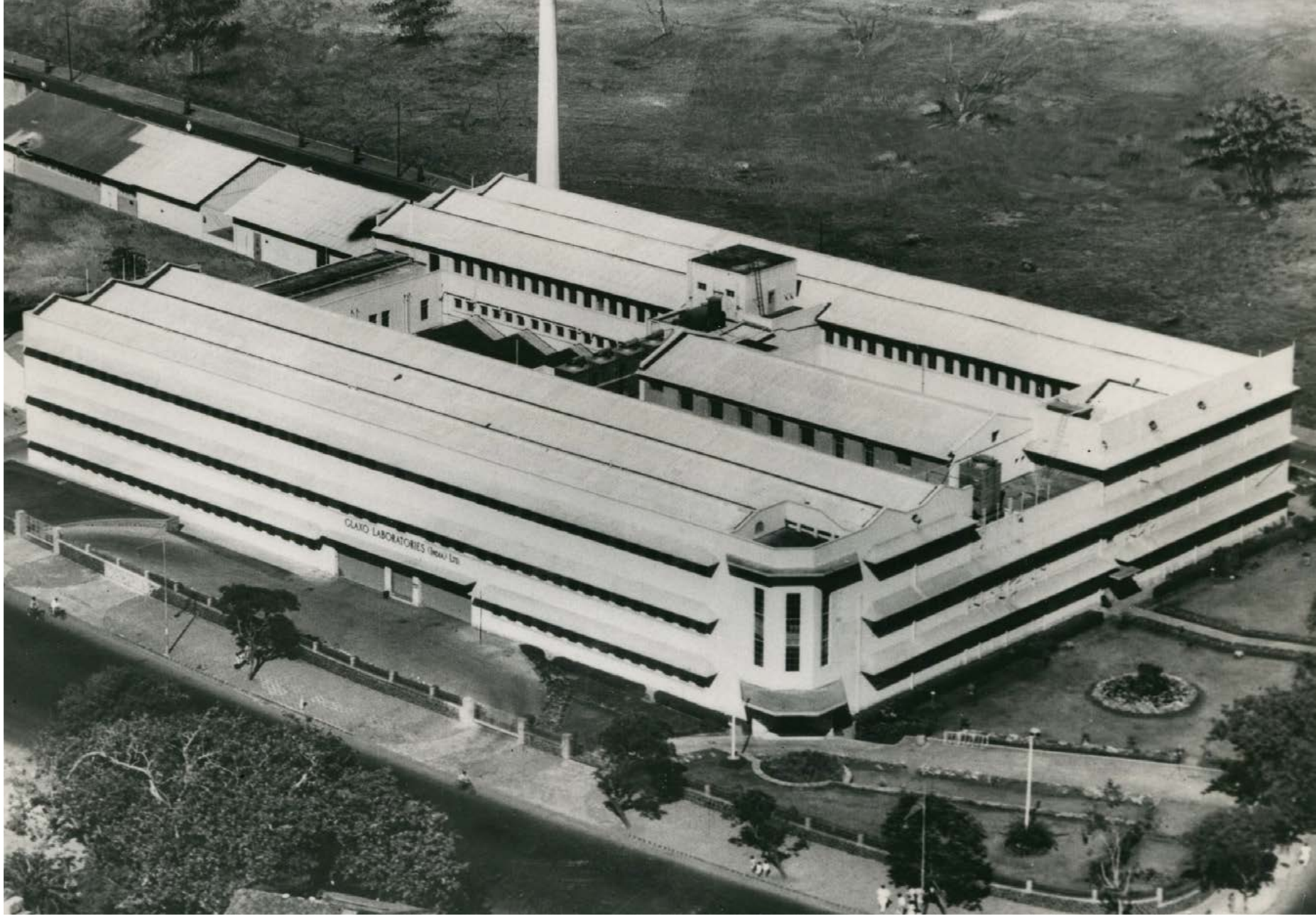
- K. J. Divatia, former Chairman of Sarabhai Chemicals in his book, Dr. Vikram Sarabhai: A Visionary Industrial Entrepreneur, 2013

The foreign firms from the colonial period continued to expand their operations in India between 1947 and 1970, often erecting large factories. Many new firms entered the market such as Lederle (1947), May & Baker (1948), Pfizer (1950), Biological Evans (1954), Hoechst (1956), Merck, Sharp & Dohme (1958), Boehringer-Knoll (1959), Wyeth (1960), Warner Hindustan (1963), Richardson Hindustan (1964) and Johnson & Johnson.

Most of them were based in Mumbai and the Mulund-Thane belt emerged as a pharma cluster. Swiss firm Ciba started a research centre for new drug discovery in 1963, a first among foreign firms in India, followed by a few others. In 1965, the Organization of Pharmaceutical Producers of India (OPPI) was formed to better represent the interests of MNCs in India.

By 1970, Glaxo had emerged as the largest foreign pharma firm in India, followed by Pfizer, and foreign firms controlled nearly 70% of the domestic market.

Image on the right: The Glaxo Factory in Worli, Mumbai, in the 1950s
Image Source: GSK Heritage Archives



Lupin factory in Nagpur

Image Source: Lupin Ltd.

04

Made in India

In September 1959, Justice N. Rajagopala Ayyangar stated in the Report on the Revision of the Patents Law that, "I have considered the matter with the utmost care and have reached the conclusion that the chemical and pharmaceutical industry of this country would be advanced and the tempo of research in that field would be promoted if the German system of permitting only process claims were adopted." This vision would take legislative form a decade later. Between 1970 and 2005, the Indian pharmaceutical industry completely transformed itself.

A new patent regime was introduced by the Indian government led by Prime Minister Indira Gandhi in 1970 (effective from 1972) whereby process patents replaced product patents. This unleashed entrepreneurial spirits that led to the vibrant growth of private Indian firms. Indian entrepreneurs could now take on larger MNCs from richer countries that until then benefited the most from product patents.

"We never opposed patents. We opposed monopoly...This Act, de facto, gave the Indian pharma industry the legal right and freedom to manufacture and market within our country almost any drug that was available internationally. It was the dawn of a Golden Age for the indigenous pharma industry"

- Dr. Yusuf K Hamied, Chairman, Cipla, in Speech titled 'Indian Pharma Industry: Decades of Struggle and Achievements', 2005, Hyderabad

PATENTS BILL PASSED UNANIMOUSLY BY LOK SABHA

NEW DELHI, August 29.

THE Lok Sabha at a special sitting today unanimously passed the Patents Bill, 1970, which seeks to amend and consolidate the 1911 Act on patents and designs.

...ures is going to be a landmark in the industrial development of our country; it also may form the basis for the transfer of technology for other developing countries," the Minister of Industrial Development, Mr. Dinesh Singh, who piloted the Bill, said winding up the general debate.

The House, which had earlier in the morning decided to sit for ten hours to pass the 163-clause Bill, quickly disposed of the measure in less than six and half hours as willing members refrained from speaking during the third reading.

"We have really done some solid work today," the Speaker, Mr. G. S. Dhillon, remarked as he adjourned the House till Monday.

Earlier Mr. Dinesh Singh, moving the Bill, said: "This represents the best possible consensus arrived at among the different sections of the House.

"Even the notes of dissent (on the joint committee report) appended say that it is mid-way between extremes of opinion expressed."

PROCESS PATENT

Mr. Dinesh Singh hoped that the new measure would provide the guidelines to other developing countries which had, like India, suffered from the exploitation of international cartels. The measure not only reduced the period of patent for food and drug articles from 16 years to seven years but replaced the product patent by process patent in respect of these fields.

the patented invention in India might require the patentee to grant him a licence. If the parties were not agreed on the terms, either of them might apply to the controller to settle the terms.

In respect of patents with the endorsement of "licences of right", royalty and other remuneration reserved to the patentee should in no case exceed five per cent. of the net ex-factory sale price in bulk of the patented article (exclusive of taxes levied under any law for the time being in force and any commission payable.

A patent could be revoked on the ground of non-working. This would induce the patentees to take prompt steps for working their patents in India. A large majority of the patents in India were owned by non-Indians. The fact that many of these patents were not worked in India was one of the very serious drawbacks facing the country's development, Mr. Dinesh Singh said.

PROTECTION TO INVENTOR

"We have taken care to give due protection to the inventor and reasonable remuneration to him for his creation. The Bill also provides the patentees ample opportunity to exploit their inventions. Unhampered availability of modern technology should be assured. "However, we have taken care to see that there is no unfair advantage taken of our economic underdevelopment," Mr. Dinesh Singh said pointing out to depositions before the United States Senate House committees on the "evils" indulged in by international drug cartels in developing countries.

Tracing the historical background, Mr. Singh said the present patent law was embodied in the Indian Patents

Patents Bill passed unanimously by Lok Sabha, Times of India, August 30, 1970

स्वतंत्र भारत

लोकसभा में पेटेंट विधेयक पारित

अर्थतंत्रको विदेशी और इजारेदारी शोषण से बचाने की दिशामें कदम-श्री दिनेशसिंह

Lok Sabha me Patent vidheyak paarit, Swatantra Bharat, August 30, 1970

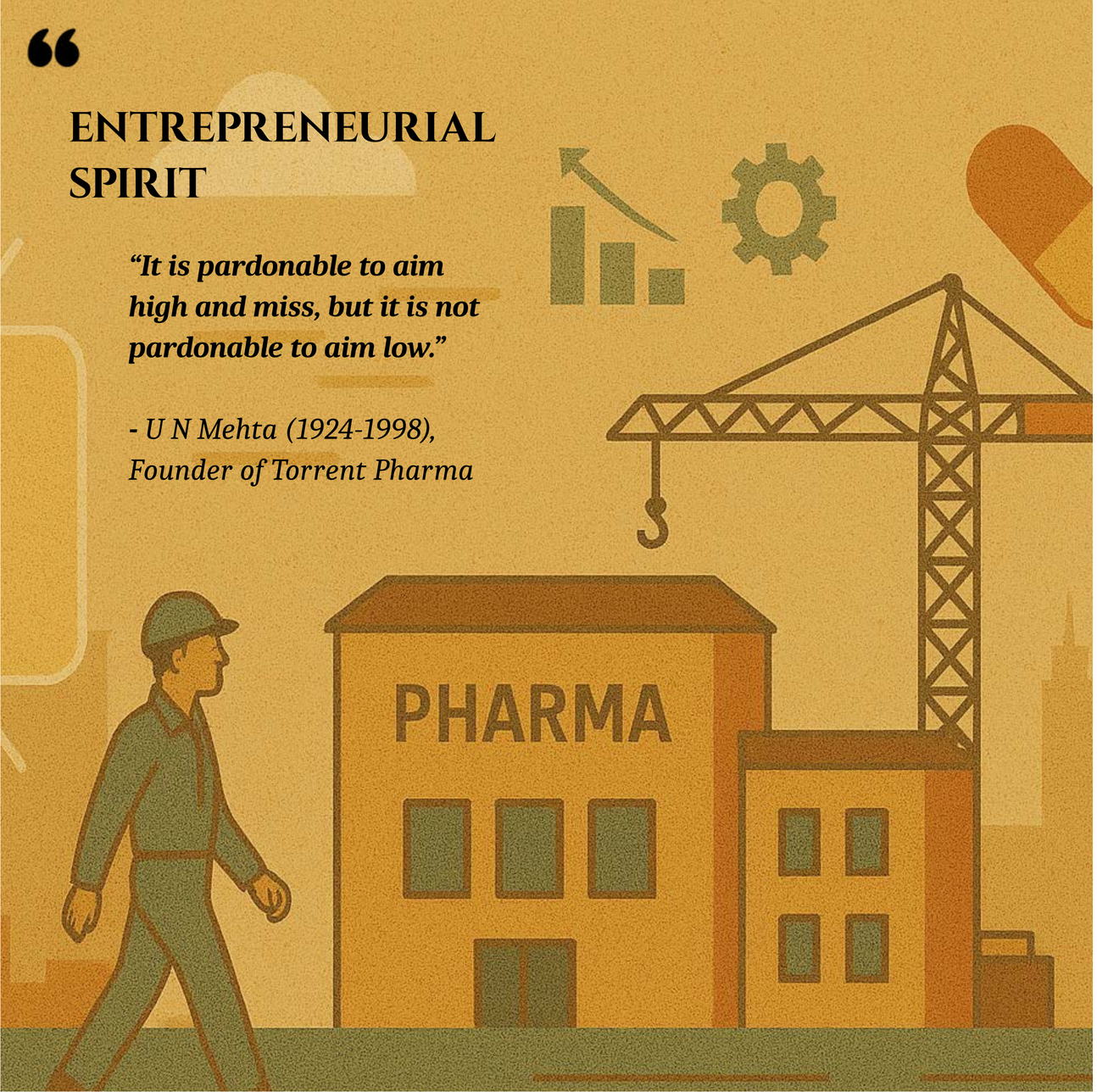
August 29, 1970.

"The measure not only reduced the period of patent for food and drug articles from 16 years to seven years but replaced the product patent by process patent in respect of these fields."

ENTREPRENEURIAL SPIRIT

"It is pardonable to aim high and miss, but it is not pardonable to aim low."

- U N Mehta (1924-1998), Founder of Torrent Pharma



"Apollo 11 has landed... As I sit alone in the living room of my tiny Hyderabad flat, my mind churns with emotions- pride, hope, joy and a new confidence that it is not wrong or foolish to dream... The records say Dr. Reddy's Laboratories was established on 24th February 1984. The truth is, the company was born on the day Armstrong stepped out of the astronauts' bay of Apollo 11 on to that cold lunar landscape..."

- Dr. K Anji Reddy (1941-2013), in his memoir, An Unfinished Agenda: My Life in the Pharmaceutical Industry, 2015

"Life is nothing but a school. You learn every day, if you want to learn. I had the desire to learn. Even now, I learn every day. Learning every day improves your management skills and helps you help others."

- Nichal H Israni (b. 1929), partition refugee who rose within the ranks of the pharmaceutical world to become Pfizer's youngest country head. He then went on to become a leading manager in Warner Lambert's Indian and Asian operations, before founding Blue Cross in 1980. Pharma Archives Oral History, IPA, 2025

"There is something about living by the sea. It injects a spirit of adventure. I grew up in Mumbai watching the sea and sunsets. World over, coastal cities have harboured explorers, adventurers, merchants and mendicants. Seekers all. Those of us who live or work close to the sea cannot but look at it and think of the world beyond."

- Dr. Habil Khorakiwala (b. 1942), Founder of Wockhardt in his memoir, Odyssey of Courage, 2017

"I spent 27 years working after my retirement from academia and proved myself as a capable entrepreneur, perhaps the only retired scientist in the country who has achieved this feat."

"When I started the business in a small shed, I never imagined that one day I would become the richest organic chemistry academic in the country who trained 109 PhD students before starting a company at age 60."

- A V Rama Rao (b. 1935), former Director of Indian Institute of Chemical Technology, Hyderabad and Founder of Avra Laboratories in his memoir, My Life, My Way, 2023

"While a student at Edinburgh I found to my regret that every civilized country including Japan was adding to the world's stock of knowledge but that unhappy India was lagging behind. I dreamt a dream that, God willing, a time would come when she too would contribute her quota."

- Prafulla Chandra Ray (1861-1944), Life and Experiences of a Bengali Chemist, 1932.

"A leader, if one chooses to identify one, has to be a cultivator rather than a manufacturer. He has to provide the soil and the overall climate and the environment in which the seed can grow. One wants permissive individuals who do not have a compelling need to reassure themselves that they are leaders through issuing instructions to others; rather they set an example through their own creativity, love of nature and dedication to what one may call the 'scientific method'."

- Dr. Vikram Sarabhai (1919-71) [quoted in K J Divatia, Dr. Vikram Sarabhai: A Visionary Industrial Entrepreneur, 2013]

THREE DOCTORATES

1960

Yusuf Khwaja Hamied (Cipla)
PhD Thesis, University of Cambridge
Chemistry of the Aphins

1967

Parvinder Singh (Ranbaxy)
PhD Thesis, University of Michigan
I. Mechanisms of Drug Release from Plastic Matrices
II. Solubilization and Hydrodynamic Factors in Dissolution Rate Processes

1968

K Anji Reddy (Dr. Reddy's)
PhD Thesis, CSIR-National Chemical Laboratory, Poona
Kinetic Study of Catalytic Oxidation of Toluene

THREE STALWARTS OF THE INDIAN PHARMACEUTICAL INDUSTRY

Until the 1990s, many Indian firms collaborated with Indian scientific institutions and laboratories such as CDRI Lucknow, NCL Pune and IICT Hyderabad to release drugs made by novel processes, after which the emphasis on research and development shifted to in-house operations within several large firms. The government maintained strict price controls until the 1990s for most medicines leading to an emphasis on cost consciousness among pharmaceutical firms. A push to self-sufficiency in bulk drugs manufacturing as recommended by the 1975 Hathi Committee report led to the emergence of Hyderabad as the 'bulk drugs' capital of India, as IDPL had begun its initial production there.

The opening up of the Indian economy in 1991 led to the rapid internationalization of Indian pharma firms. The loan license model of production gave way to contract manufacturing on a vast scale as thousands of small-scale producers entered the pharmaceutical industry in Maharashtra and Gujarat where many large firms were historically located and also in new clusters in Himachal Pradesh (Baddi), Goa and Sikkim for both formulations and bulk drugs. Rising life expectancy rates and incomes and the health transition in India also led to a steering away from the dominance of antibiotics for infections to medicines for chronic diseases.

"In the late 1980s, while we had already built a strong psychiatric portfolio, we realized that most of the companies were still predominantly selling antibiotics and not covering chronic diseases, which was a large unmet need in the Indian market. This is when we decided to enter into cardiac therapy and introduced several first-in-India medications that are still serving patients today. Our cardiac and psychiatric portfolio put together ended up being termed as the "chronic business" model, which has since spawned several companies and led to increased accessibility of live saving medications to lakhs of patients around the country."

-Sudhir Mehta, Chairman Emeritus, Torrent Group

The overall result was that within 35 years, India became a significant net exporter of medicines and Indian firms displaced the multinationals in the dominance of the Indian pharmaceutical market.

Image on the left: Sun Pharma's operations in Cluj-Napoca, Romania
Image Source: Sun Pharma

1980s

Change of fortunes

BUSINESS

PHARMACEUTICALS

Export Surge

New markets for bulk drugs

SHIPPING and air cargo agents in Bombay are in a tizzy. Until four years ago, their export cargo consisted largely of garments, leather, gems and jewellery. The growth in cargo traffic was steady, but far from spectacular. Today, all that has dramatically changed. Agents are furiously shipping out a new item: bulk drugs.

Bulk or base drugs are items such as ampicillin or iboprufen from which the more common pharmaceutical formulations are manufactured downstream. And they're poised to become the new star on the export firmament. In the four years between 1985-86 and 1988-89, exports have soared by a hefty 700 per cent (*see chart*), from Rs 33.4 crore to Rs 240 crore. Says Ramu Deora, chairman of the Basic Chemicals, Cosmetics and Pharmaceuticals Export Promotion Council (CHEMEXCIL): "It's a great success story. A decade ago, we were still finding our feet in the international bulk drugs market. Today, we are walking tall."

Certainly, there have been sweeping changes in bulk drug exports. India is now perhaps the largest manufacturer in the world of drugs like ethambutol, methyldopa and iboprufen. Indeed, Indian bulk drugs are eagerly sought after in Hamburg and London, principal centres of the global pharmaceutical trade, since they are marginally cheaper than other competing countries' products. This is partly because of the rupee's depreciation against other foreign currencies. Also, many manufacturers have consciously tried to keep prices down in order to gain a foothold in new markets.

The Soviet Union has always been a large buyer of Indian bulk drugs (it still accounts for 33 per cent of the export basket), but Europe (16 per cent) and the US (14 per cent) are catching up. Last year, Ranbaxy Laboratories shipped about Rs 28 crore worth of bulk drugs to such diverse markets as Canada, the US and the Far East. Says Pervinder Singh, Ranbaxy's vice-chairman and managing director: "About 90 per cent of our exports are to hard currency areas."

Strikingly, India's bulk drug czars are not the multinationals, but a bevy of wholly Indian-owned companies—Ranbaxy Laboratories, Lupin Laboratories, Gujarat Lyka, Cipla, Standard Organics, Dr Reddy's Laboratories, Cadila, Unichem and J.B. Pharmaceuticals. Lupin and its associated companies hope to close the year with Rs 24 crore worth of bulk drug exports. Deora's G. Amphrays notched up Rs 11 crore.

Their success is largely due to the liberal Indian patent law of 1970. "Indian patent laws have played a crucial role. They have ensured a reasonable price to the consumer and given companies the incentive to export," says Yusuf K. Hamied, managing director of Cipla. Under the law, a drug patent is valid in India for between five and seven years. In contrast, the Paris Convention—an international patent agreement which India has declined to sign—specifies a 20-year patent life. So Indian companies have been able to launch drugs here soon after they were introduced abroad. Example: Ranitidine was launched in the world market in 1983, and the Indian version followed in 1985.

Still, as Pervinder Singh points out: "It took at least six years for Indian companies to understand the significance of the Patents Act. After that followed a process of updating technology." Bulk drug manufacture is capital intensive and calls for fairly sophisticated knowhow.

Basically, however, exports have been fuelled by surplus domestic production capacities, rather than by any overwhelming desire to chip in to the national export effort. A senior pharmaceutical company executive cites the example of ampicillin: "The demand here is about 400 tonnes, but the capacity is about 500 tonnes." This is the big reason for the export surge; profits are only an ancillary reason. Manufacturers are cagey about profits, with most insisting that the margins are thin.

It's also true that the companies have been spurred by the vacuum in

Chart by B.K. Sharma

NAMAS BHOJANI

Bulk drugs godown: success story

"A decade ago, we were finding our feet....Today, we are walking tall."
RAMU DEORA
chairman, CHEMEXCIL

"It took six years for the industry to understand the Patents Act."
PERVINDER SINGH
managing director, Ranbaxy

Source: S N Vasuli, India Today, April 30, 1989

1990s

The Breakout Decade

GLOBALISATION
OUR OPERATING PHILOSOPHY

Ranbaxy's operations are guided by a global vision...
and one simple belief...
That the world can be our market.
This thinking inspires all our research projects,
technological developments, production operations,
quality standards, product portfolio, marketing strategies...
Indeed, every aspect of our business.

All our efforts are aimed at internationalising our company.
Our long-term strategies are planned through
an in-depth analysis of marketing opportunities worldwide.
We anticipate global demands and usage patterns
to project the optimum resource mix
required for our products in select niche markets.
This defines our research, production and sales objectives.

Our strategies and alliances are market specific.
These can take the form of overseas joint ventures,
licensing arrangements, transfer of technology,
marketing tie-ups or exports.

We are constantly building an international fraternity
of partners, business associates, stockists and distributors,
who work in tandem with our people
to actively promote our business.

We strive hard to retain the respect of the medical community
by consistently upgrading our products and services.
Our relationship with local people
in the communities where we operate
remains our enduring strength.

We consider it an honour
when a country allows us to do business within its shores.
We believe it is our duty to acknowledge that privilege
by respecting the culture, the traditions, and above all,
the laws of the land.

We believe the world is coming closer.
As part of the international family of pharmaceutical companies
entrusted with the health care of people around the globe,
a company of our size, character and diversity
has a small, but significant role.

We believe in nurturing a spirit of harmony
and international co-operation
with other companies that share our commitments.
Together, we could create better, safer, more effective medicines
to improve the quality of peoples' lives.

We dedicate ourselves to this...
our abiding philosophy.

Source: Ranbaxy 1991 Annual Report

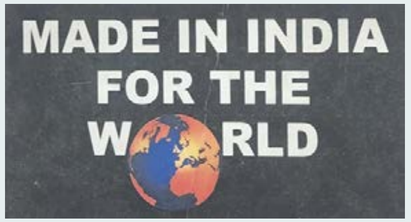
Indo-Soviet Pact on drugs

The Times of India News Service

NEW DELHI, May 24: A number of agreements in the area of drugs and pharmaceuticals have been signed between India and the USSR, setting the scene for a significant leap in bilateral co-operation in the area.

Source: Times of India, May 25, 1989

Dr. Parvinder Singh of Ranbaxy (left) with then Finance Minister Dr. Manmohan Singh at the Ranbaxy Research Awards function, 1992 | Image source: CSIR-CDRI Lucknow



Source: Ranbaxy ad, Indian Pharmaceutical Guide, 1999

1991 was a momentous year in Indian economic history as India liberalized and opened up under the new economic policies introduced by Prime Minister P V Narasimha Rao and the Finance Minister Dr. Manmohan Singh. Indian pharma firms seized this opportunity and began to globalize fervently.

While India was a net importer until the mid-1980s, exports of bulk drugs and formulations picked up after that exponentially, with Russia becoming a major market for many Indian firms. By 1994, over sixty Indian pharmaceutical firms had registered their products in Russia: Torrent (45 products), Cadila (38), Sun Pharma (22), Lupin (13), Wave (13), Ranbaxy (12), Lyka (12), Cipla (11), Themis (10).

The 1984 Hatch-Waxman Act in the US established the generic drug approval process, an opportunity that was seized by many Indian firms in the 1990s and early 2000s.

Indian pharma firms also earned global respect as they played an important role in providing affordable medicines to counter the HIV/AIDS epidemic in Africa. By the end of the decade, three Indian firms led by doctorates- Ranbaxy (Dr. Parvinder Singh), Cipla (Dr. Yusuf Hamied), and Dr. Reddy's Laboratories (Dr. K Anji Reddy) had emerged as the top three Indian pharma firms, setting new industry benchmarks in research and globalization. Other Indian firms such as Aurobindo, Lupin, Nicholas Piramal, Sun, Torrent and Zydus also scaled up rapidly.

"The Hatch-Waxman Act laid out an abbreviated procedure for the approval of generic drugs if they were identical to the branded drug without the need to prove safety and efficacy again. The clear and relatively inexpensive regulatory pathway spurred the quick introduction of generic drugs after their patents expired....When the Hatch-Waxman Act was passed in 1984, less than one in five prescriptions was filled in the USA by generic drugs. By 2000, one of two prescriptions was filled by generics, reflecting the explosive growth in the generic market, particularly in the 1990s."

-Dr. Anji Reddy, in his memoir - An Unfinished Agenda: My Life in the Pharmaceutical Industry (2015)

INDIA'S PENICILLIN SAGA

Penicillin production in India began at government-run Hindustan Antibiotics Ltd. (HAL) in Pimpri in the 1950s, with production rising to over 80 MMU (Million units of penicillin) in the 1970s. The Indian Drugs and Pharmaceuticals (IDPL) antibiotic plant in Rishikesh also entered the field in the 1960s with a capacity of over 100 MMU.

Alembic was the first private sector firm to get into penicillin production and its antibiotics plant in Vadodara was inaugurated by Lal Bahadur Shastri in 1961. Alembic's scientists developed a novel submerged fermentation process to make Penicillin-G. The Sarabhais bought Standard Pharmaceuticals in Kolkata which had a production license and set up a penicillin plant there with Squibb collaboration in the 1960s.

Since 1987, the government of India, whose penicillin plants produced most of the penicillin in the country, began looking for newer technology and entities to augment production of Penicillin-G amidst shortages and a tide of rising imports.

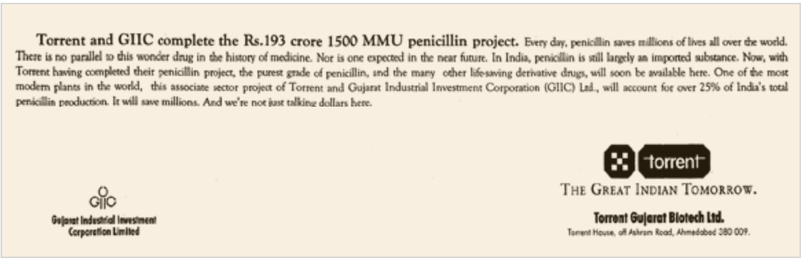
This led to a major private sector investment of Rs. 500 crore in the mid-90s to double capacity in a short period of time, leading to self-sufficiency in penicillin production, a landmark moment in the Indian pharmaceutical industry at that time.

Lal Bahadur Shastri inaugurating Alembic's penicillin production, 1961 | Source: Alembic

Torrent Gujarat Biotech, a tie-up between Torrent and Gujarat Industrial Investment Corporation (GIIC), invested in a large plant near Vadodara. JK Pharmachem, a tie-up between J K Industries and Tamil Nadu Industrial Development Corporation (TIDCO), invested in a large plant near Cuddalore. HAL tied up with MAX-GB, SPIC entered the fray and IDPL and Alembic continued their production lines.

However, since the late 1990s, predatory pricing from Chinese manufacturers changed the economics of the Indian penicillin industry, leading to rising imports and a collapse in domestic production over two decades. Only in recent years, active government policy through Production Linked Incentives (PLIs) is helping Indian firms get back into penicillin production and other Active Pharmaceutical Ingredients (APIs), best exemplified by the large investments made by Aurobindo Pharma and a few other firms.

The mid-1990s episode holds a good lesson on what can be achieved with public-private cooperation to reduce import dependency and Indian pharma firms are well poised to recreate that effort in the years ahead.



Torrent and GIIC complete the Rs.193 crore 1500 MMU penicillin project. Every day, penicillin saves millions of lives all over the world. There is no parallel to this wonder drug in the history of medicine. Nor is one expected in the near future. In India, penicillin is still largely an imported substance. Now, with Torrent having completed their penicillin project, the purest grade of penicillin, and the many other life-saving derivative drugs, will soon be available here. One of the most modern plants in the world, this associate sector project of Torrent and Gujarat Industrial Investment Corporation (GIIC) Ltd., will account for over 25% of India's total penicillin production. It will save millions. And we're not just talking dollars here.

Gujarat Industrial Investment Corporation Limited

torrent

THE GREAT INDIAN TOMORROW.

Torrent Gujarat Biotech Ltd.

Torrent House, off Ashram Road, Ahmedabad 380 009.

Source: Torrent ad, Times of India, April 1, 1995

WTO TRIPS TRANSITION, 1995-2005

The Paris Convention for the Protection of Industrial Policy was signed in 1883, mostly by European countries, and formed the basis for the founding of the World Intellectual Property Organization in 1967. India's 1970 Patent Act reflected a sharp departure from international norms as it did not recognize product patents in pharmaceuticals.

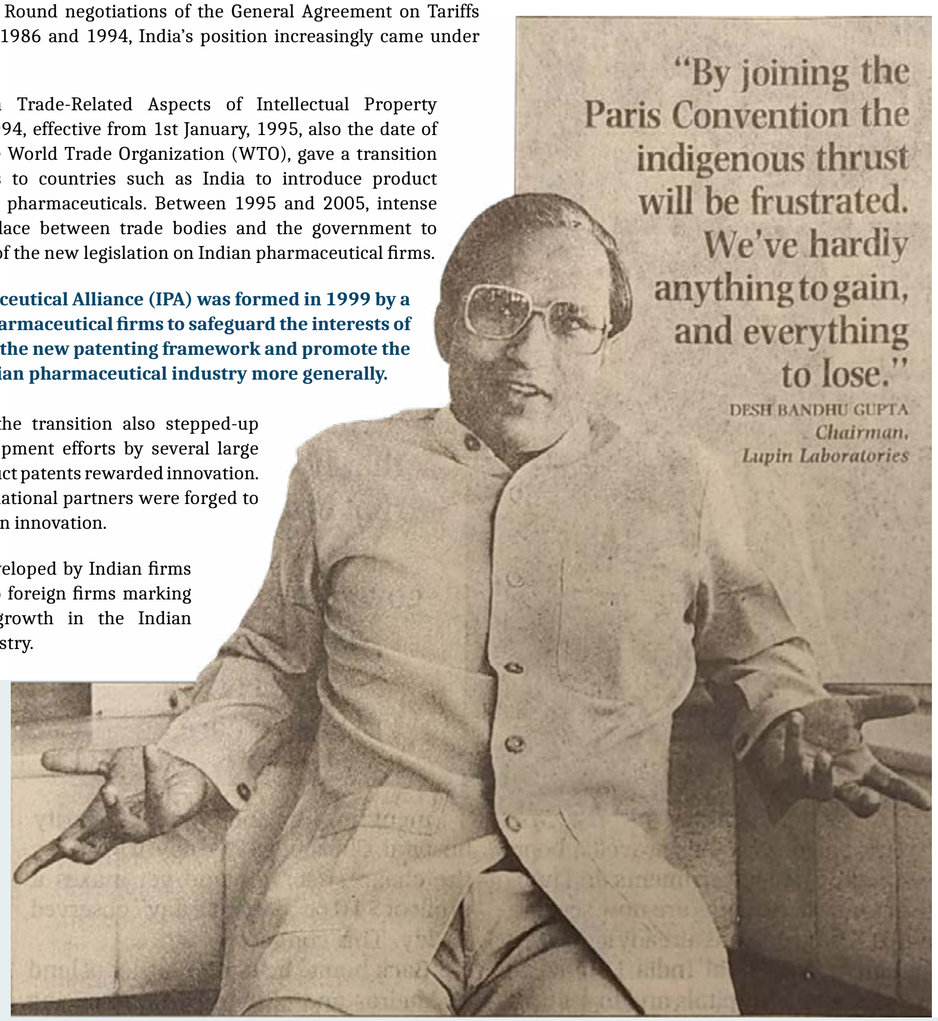
During the Uruguay Round negotiations of the General Agreement on Tariffs and Trade between 1986 and 1994, India's position increasingly came under pressure.

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) in 1994, effective from 1st January, 1995, also the date of establishment of the World Trade Organization (WTO), gave a transition period of ten years to countries such as India to introduce product patent legislation in pharmaceuticals. Between 1995 and 2005, intense negotiations took place between trade bodies and the government to mitigate the impact of the new legislation on Indian pharmaceutical firms.

The Indian Pharmaceutical Alliance (IPA) was formed in 1999 by a few large Indian pharmaceutical firms to safeguard the interests of Indian firms under the new patenting framework and promote the interests of the Indian pharmaceutical industry more generally.

The realization of the transition also stepped-up research and development efforts by several large Indian firms as product patents rewarded innovation. Alliances with international partners were forged to learn best practices in innovation.

A few molecules developed by Indian firms were out-licensed to foreign firms marking a new phase of growth in the Indian pharmaceutical industry.



Source: India Today, September 15, 1988

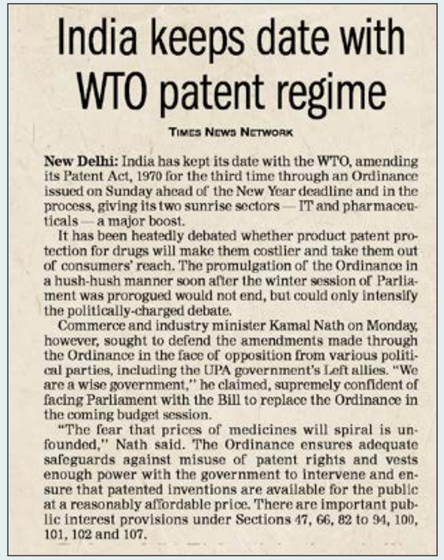
26TH DECEMBER 2004

TOWARDS A NEW PATENT REGIME

"We advocated for refining Section 3(d) of the Patent Act to ensure faster access to medicines by preventing patent evergreening. We worked on this with all stakeholders, keeping patient care as our priority. This has become a benchmark for balancing innovation and access to medicines and is now followed by several countries."

-Sudhir Mehta, Chairman Emeritus, Torrent Group (Pharma Archives Oral History, IPA, 2025). Sudhir Mehta was instrumental in securing the phrasing of Section 3 (d) of the amended patent law, that prevented patent evergreening. This regulation has played a vital role in the growth of the Indian pharmaceutical industry over the years.

Sudhir Mehta, Chairman Emeritus, Torrent Group



India keeps date with WTO patent regime

TIMES NEWS NETWORK

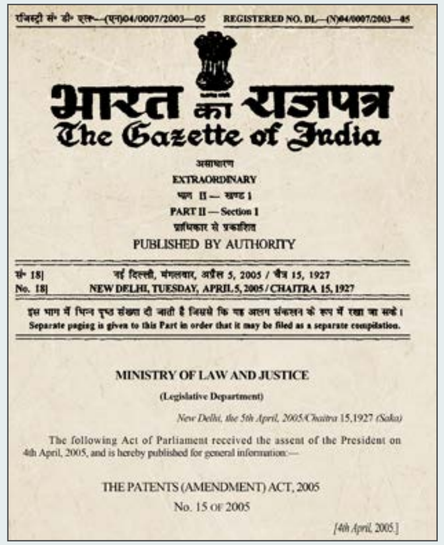
New Delhi: India has kept its date with the WTO, amending its Patent Act, 1970 for the third time through an Ordinance issued on Sunday ahead of the New Year deadline and in the process, giving its two sunrise sectors — IT and pharmaceuticals — a major boost.

It has been heatedly debated whether product patent protection for drugs will make them costlier and take them out of consumers' reach. The promulgation of the Ordinance in a hush-hush manner soon after the winter session of Parliament was prorogued would not end, but could only intensify the politically-charged debate.

Commerce and industry minister Kamal Nath on Monday, however, sought to defend the amendments made through the Ordinance in the face of opposition from various political parties, including the UPA government's Left allies. "We are a wise government," he claimed, supremely confident of facing Parliament with the Bill to replace the Ordinance in the coming budget session.

"The fear that prices of medicines will spiral is unfounded," Nath said. The Ordinance ensures adequate safeguards against misuse of patent rights and vests enough power with the government to intervene and ensure that patented inventions are available for the public at a reasonably affordable price. There are important public interest provisions under Sections 47, 66, 82 to 94, 100, 101, 102 and 107.

Source: Times of India, December 28, 2004, p. 15



रजिस्ट्री सं० डी० एल०-(एन)04/0007/2003—05 REGISTERED NO. DL—(N)04/0007/2003—05

भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग II — खण्ड 1
PART II — Section 1
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

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No. 18] NEW DELHI, TUESDAY, APRIL 5, 2005 / CHAITRA 15, 1927

इस भाग में भिन्न पृष्ठ संख्या दी जाती है जिससे कि यह अलग संकलन के रूप में रखा जा सके।
Separate paging is given to this Part in order that it may be filed as a separate compilation.

MINISTRY OF LAW AND JUSTICE
(Legislative Department)

New Delhi, the 5th April, 2005/Chaitra 15,1927 (Saka)

The following Act of Parliament received the assent of the President on 4th April, 2005, and is hereby published for general information:—

THE PATENTS (AMENDMENT) ACT, 2005
No. 15 OF 2005
[4th April, 2005.]

Cover page of The Patents (Amendment) Act, 2005, published on April 5, 2005

05

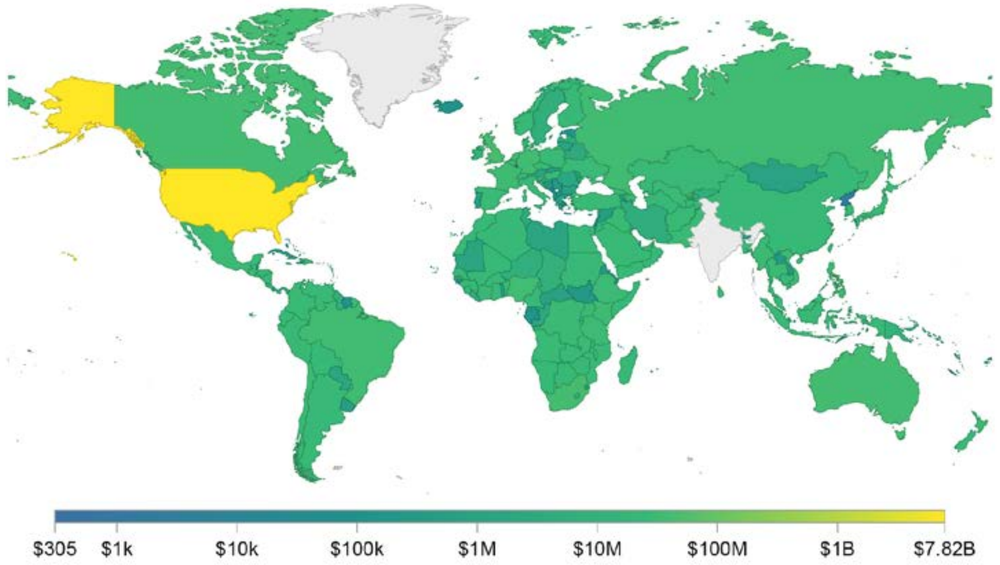
Pharmacy of the World

In 2005, India reverted back to a product patent regime in compliance with intellectual property rights regulations as part of being a member of the World Trade Organization. The transition occurred between 1995 and 2005 and the Indian Pharmaceutical Alliance worked to ensure that the new law did not unduly favour foreign firms in India. Strategic alliances and acquisitions by major Indian firms around the world secured several markets outside India.

USA emerged as the primary destination and Indian firms filed hundreds of ANDAs (Abbreviated New Drug Application) and DMFs (Drug Master Files) in regulated markets. Beyond the US, every continent and country was touched by Indian medicines leading to the tagline of India being called as the 'pharmacy of the world'.

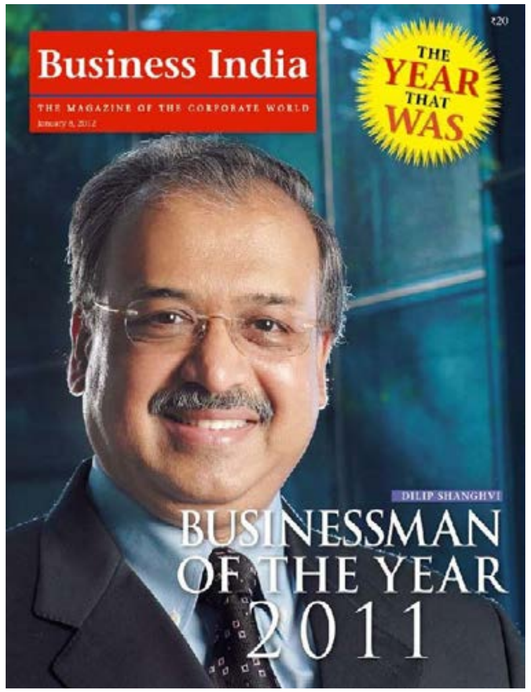
The thrust on globalization also became widespread across the industry and small firms developed a tremendous export orientation as entrepreneurs travelled the world for opportunities, aided in part by Pharmexcil, the government-run trade association, formed in 2004. Within India, a new drugs price control regime was introduced in 2013 that switched from a cost-plus to market-based pricing mechanism.

The health transition led to the growth of specific therapeutic segments in the Indian pharmaceutical market: Cardiovascular, Anti-Diabetic, Central Nervous System and Anti-neoplastics in particular. There were changes in distribution models and the growth of pharmacy retailing chains and contract research organizations. More firms added biologics and biosimilars to their product portfolios.



Indian Pharmaceutical Exports, 2022, USD Billion

Source: Observatory of Economic Complexity (OEC)



Dilip Shanghvi, founder of Sun Pharma, on the cover of Business India in 2012
Image Source: Business India, January 8, 2012

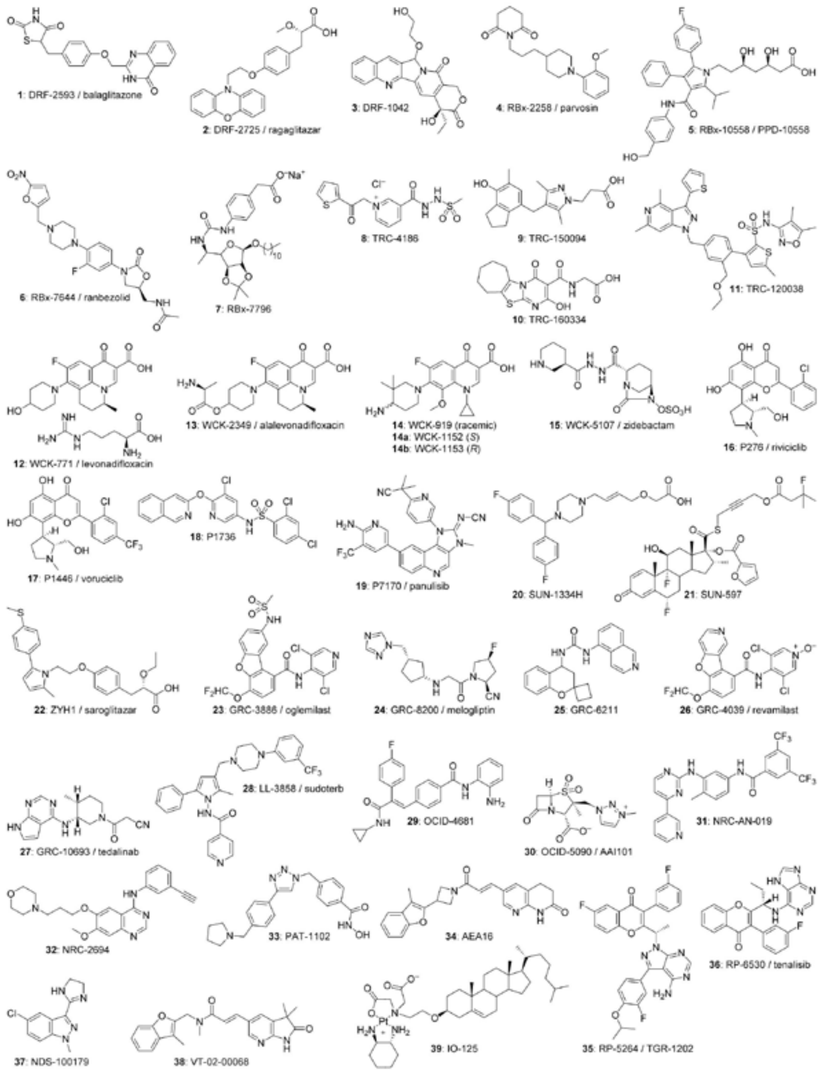
Over the past two decades under a new patenting regime, established large Indian firms continued to grow rapidly with a greater international focus while many relatively smaller firms also scaled up. By 2024, 16 Indian firms in the pharmaceutical industry had global revenues exceeding USD 1 billion: Sun Pharma (USD 6 billion); 2-4 USD Billion: Aurobindo, Dr. Reddy's, Cipla, Lupin, Zydus, Intas; 1-2 USD Billion: Biocon, Alkem, Glenmark, Torrent Pharma, Serum Institute of India, Mankind, Piramal Pharma, Macleods and Divi's Laboratories.

Sun Pharma, founded by Dilip Shanghvi in 1983, acquired Ranbaxy in 2015 to become India's largest pharmaceutical firm and the world's fifth largest 'specialty generic' pharma firm. Aurobindo Pharma, a leading manufacturer and exporter of formulations and Active Pharmaceutical Ingredients (APIs), emerged as the second largest Indian pharmaceutical firm by 2024.

By then, the 23 firms of the Indian Pharmaceutical Alliance (IPA) had grown to cover nearly 65% of domestic sales and 80% of Indian pharma exports. Contract Research and Manufacturing Services (CRAMS) became an important area of growth in the industry as large foreign and Indian firms outsourced drug development, manufacturing and services linked with research to other firms, in order to focus on their core competencies. Outside India, the policy focus on affordable healthcare in the US and growing US-India economic relations boosted the Indian pharma industry's orientation towards the US. More than a third of Indian pharma exports in 2024 went to the US.

"Many products we developed in India had global relevance—but were previously available only through expensive multinational brands. By offering them at more affordable prices, especially in out-of-pocket markets, we were able to expand into Southeast Asia, the Middle East, Africa, and South America."

- Dilip Shanghvi, Founder, Sun Pharmaceuticals. Pharma Archives Oral History, IPA, 2025



Large Indian pharma firms raised investments in research and development, filed thousands of patents, and worked towards discovering New Chemical Entities (NCE's) and New Biological Entities (NBE's). There was also a greater adoption of biotechnology in the new research thrust. Several firms succeeded in outlicensing molecules to partners outside India. Zydus pioneered a new chemical entity, Saroglitazar (Lipaglyn), a novel drug to treat diabetic dyslipidemia, and successfully took it from the laboratory to the market. This illustration shows chemical entities developed by large Indian firms such as Dr. Reddy's (DRF), Ranbaxy (RBx), Torrent (TRC), Wockhardt (WCK), Piramal (P), Sun, Zydus (ZY), Glenmark (GRC) and Lupin (LL) until 2017, mostly aimed at countering diabetes and cancer.

"The strategy was to keep investing in research - putting our resources optimally and wisely into areas where we saw potential for growth. Today we have 1400 scientists and seven research centres. We do research not only in small molecules but also in large molecules like biologicals. We do research in vaccines and product development across a range of dosage forms."

- Pankaj Patel, Chairman, Zydus, Pharma Archives Oral History, IPA, 2025

Image Source: Edmond Differding, "The Drug Discovery and Development Industry in India—Two Decades of Proprietary Small-Molecule R&D", ChemMedChem, Vol. 12 (11), 2017: 790

Satish Reddy, Chairman, Dr. Reddy's, alongside colleagues from German subsidiary, Betapharm, celebrating the subsidiary's 10th anniversary.

The Betapharm acquisition in 2006, was the biggest one by an Indian pharma company till then.

Image Source: DRL Archives

INDUSTRY'S RESPONSE TO COVID

The Covid-19 pandemic galvanized the Indian pharmaceutical industry to respond to the needs of the nation and the world by working round the clock to ensure that affordable medicines were available to consumers despite the lockdowns.

On IPA's urging, pharma manufacturing and the pharma ancillary industry were deemed to be 'essential services' by the government. Worker safety was a matter of high priority as medicine manufacturing was sustained during the lockdowns.

Pharma trade bodies held regular meetings with the government to remove bottlenecks in production and several pharma firms strove to develop diagnostic kits and medicines that could detect and counter Covid.

The disruption in API imports led IPA firms to ramp up production of key APIs such as Hydroxychloroquine to meet the skyrocketing domestic and global demand.

The pandemic also highlighted India's spectacular vaccine manufacturing capabilities. Covishield, made by Serum Institute of India in collaboration with Oxford-Astra Zeneca, was used for the mass vaccination of the Indian population. Along with Bharat Biotech's indigenously developed Covaxin and a few other vaccines, the Indian government successfully administered 2.2 billion doses by March 2023 and also provided vaccines to other countries in need.

Images on the Facing Page:

Top: Prime Minister Narendra Modi (second from left) toured the facilities of the Zydus Biotech Park in November 2020 during the Covid pandemic, amidst his appeal to the nation for 'Atma Nirbhar Bharat'

Bottom: Zydus Lifesciences Chairman, Mr. Pankaj Patel and Managing Director, Dr. Sharvil Patel seen in discussion with Prime Minister of India, Narendra Modi, during his visit to the Zydus Biotech Park in November 2020

Image Source: Zydus

Along with the rest of the industry, Dr. Reddy's played a key role in the fight against COVID-19, combining in-house innovation and strategic partnerships to deliver vaccines and treatments to millions of patients, with a strong focus on access and affordability.

Source: DRL Archives

RECENT GOVERNMENT POLICIES

In recent years, the government of India has rolled out several policies for the development of the Indian pharmaceutical industry. The Production Linked Incentive (PLI) scheme for manufacturing of Key Starting Materials (KSMs), Active Pharmaceutical Ingredients (APIs) and Drug Intermediates (DI), promotion of bulk drug parks and PLI for medical devices are some of the measures taken on the production side. While India was self-sufficient in penicillin production in the 1990s, competition from foreign predatory pricing had led to high import dependence that was being corrected after three decades through active government policy. Firms such as Aurobindo are now taking up the challenge to bolster India's production capabilities in penicillin and other KSM's, APIs and DI's.

To spur innovation, the scheme for Promotion of Research and Innovation in Pharma MedTech Sector (PRIP) was launched in 2023. On the distribution side, the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) aims to deliver affordable and high-quality generic medicines to the Indian public. Over 13,000 centres have been opened till date offering a product basket of over 2,000 drugs and 300 surgical items.

The inauguration of the Pradhan Mantri Bhartiya Jan Aushadhi Kendra at Chandlodia-B railway station in Ahmedabad in 2024.
Image Source: Deshgujarat.com, November 13, 2024

REFLECTIONS ON THE INDIAN PHARMA JOURNEY

Alkem founder, Samprada Singh, holding a pack of antibiotic Taxim (cefotaxime), which went on to become the first Indian pharma brand to cross Rs.100 crore in sales in 2006.

"If the quality of the product is high it will be sold in any corner of the world. We will give quality products to patients across therapy areas, and we will see that Alkem's products are accessible and affordable. I am convinced that the future of pharma industry in India is bright."

- Basudeo N Singh, Co-founder and Executive Chairman, Alkem. Pharma Archives Oral History, IPA, 2025

"When we started our journey at Wockhardt half a century ago, few would have imagined then that the Indian pharmaceutical industry would emerge as a globally competitive, research-based industry.

It is a tribute to both public policy and private enterprise that we are, as an industry, where we are. Many scientists and entrepreneurs have contributed to this process and India has several firms that have made their mark worldwide."

- Dr. Habil Khorakiwala, founder of Wockhardt, in his memoir, Odyssey of Courage, 2017

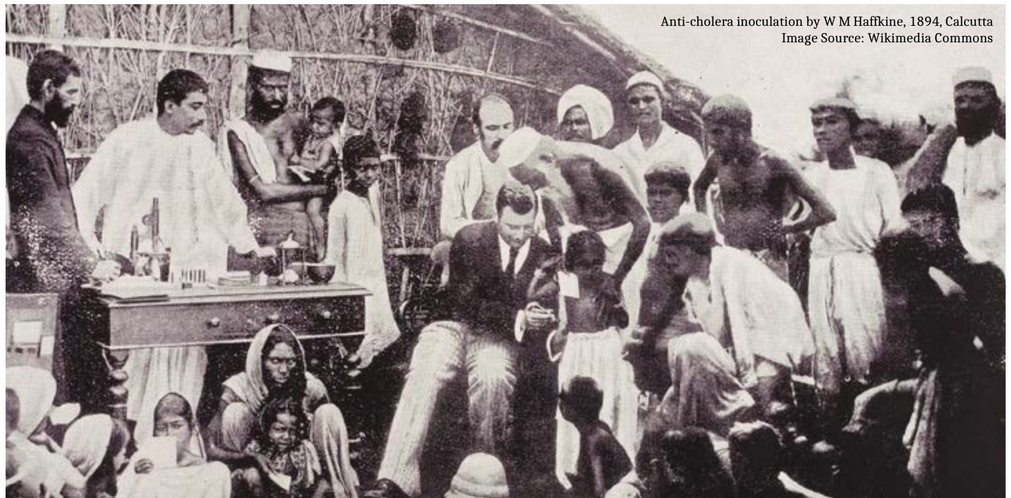
06

Vaccines and Biotech

India is currently the world's biggest vaccine-maker and has, over a century, acquired rich capabilities in research and production. Indian vaccine manufacturers have saved the lives of millions of people around the world by providing high-quality affordable vaccines for a range of infectious diseases by assisting public and private vaccination programmes. They have contributed significantly to global disease eradication campaigns led by the World Health Organization (WHO), GAVI (Global Alliance for Vaccines and Immunization) and United Nations Children's Fund (UNICEF) and recently, played an important role in supplying Covid-19 vaccines to dozens of countries around the world through the government of India's "Vaccine Maitri" initiative. Covid-19 also unveiled Indian pharmaceutical firms' capabilities in developing DNA and mRNA platform-based vaccines.

Early efforts at systematic vaccination in India began with smallpox vaccination campaigns in the nineteenth century, followed by campaigns on cholera, typhoid and plague in the early twentieth century. Vaccine development for countering cholera and plague was pioneered by scientist Waldemar Haffkine (1860-1930), and the laboratory he worked in Mumbai was renamed as the Haffkine Institute in 1925. By the 1930s, the Haffkine Institute was producing 1.5 million doses of the plague vaccine annually, even exporting outside India, and 40 million doses had been issued until then.

> ***"His laboratory equipment was of the meagrest, and his staff consisted in all of one Indian clerk and two peons. Still such was the genius of this great Russian that in no longer than three months he had evolved and tested experimentally his vaccine, which in its general lines remains unchanged to this day. On January 10, 1897, he demonstrated the harmlessness of the vaccine by injecting into his own body 10 cc of the product."***
>
> *- Lt.-Col S S Sokhey, Director, Haffkine Institute, Times of India, Jan 8, 1934, 'Haffkine's Plague Vaccine: What it has meant to India.'*



Anti-cholera inoculation by W M Haffkine, 1894, Calcutta
Image Source: Wikimedia Commons

Adar Poonawala, CEO, Serum Institute of India Pvt. Ltd., with the first shipment of Covishield as it was dispatched from Pune to locations across India, January 12, 2021
Image Source: Serum Institute of India Pvt. Ltd.

Apart from the Haffkine Institute, government-led institutions such as the Pasteur Institute of India in Coonoor (estd. 1907) and the Central Research Institute (CRI) in Kasauli (estd. 1905) were prominent in vaccine research and production in the colonial era. In the private sector, Bengal Immunity (estd. 1919) in Kolkata, led by Capt. N N Dutta, carved a mark for itself by becoming a major producer of sera.

Post-Independence, in Hyderabad, DVK Raju and GAN Raju founded **Biological Products Pvt. Ltd.** in 1953, better known today as Biological E. Ltd., and ventured into the vaccines business in 1962 by launching anti-tetanus serum. Over six decades, the firm built a wide portfolio in vaccines and biologics, specialty generic injectables and branded formulations and is currently the largest producer of tetanus vaccine in the world. In Mumbai, the Daftary-family-led **Bharat Serums and Vaccines (BSV)** emerged as an important producer of biological products since its inception in 1971.

The **Serum Institute of India Pvt. Ltd.** (SIIPL), part of the Cyrus Poonawalla Group that is headquartered in Pune, is a global leader in vaccine manufacturing, dedicated to providing affordable vaccines worldwide. Present across 170+ countries, including the US, UK, and Europe, SII holds the distinction of being the world's largest vaccine manufacturer. Founded in 1966 by Dr. Cyrus Poonawalla, SIIPL produces 1.5 billion doses annually, with a capacity of 3.5 billion per year.

SIIPL has been at the forefront of the global fight against COVID-19, delivering over 2 billion doses of the COVID-19 vaccine worldwide.

Guided by a strong commitment to improving global health, the company has played a pivotal role in reducing the prices of essential vaccines, such as Diphtheria, Tetanus, Pertussis, HIB, BCG, r-Hepatitis B, Measles, Mumps, and Rubella. Notably, they are the manufacturers of 'Pneumosiil,' the world's most affordable PCV, 'Cervavac' the first indigenous qHPV vaccine in India, and R21/Matrix-M™, the second Malaria vaccine to be authorized for use in children in malaria-endemic regions, 'MenFive', the first in the world Pentavalent (ACYWX) Meningococcal Polysaccharide Conjugate Vaccine, approved and WHO-prequalified for use in the pediatric population.

THE RISE OF BIOTECH

In 1976, Genentech was founded in USA by biochemist Herbert Boyer (discoverer of recombinant DNA technology) and venture capitalist Robert Swanson, kickstarting the modern biopharmaceutical industry.

In India, Kiran Mazumdar-Shaw founded **Biocon,** a pioneering biotech firm in 1978 in Bangalore and after two decades in enzyme production, pivoted to biopharmaceuticals in the late 1990s by manufacturing statins through fermentation processes. In the early 2000s, recombinant methods using a novel yeast system was used by Biocon to develop affordable insulin. Kiran Mazumdar-Shaw also helped set up the Association of Biotechnology Led Enterprises (ABLE) in 2003. Biocon is now a global biopharmaceutical firm addressing the needs of patients in over 100 countries, by finding ways to treat cancer, diabetes and autoimmune diseases. Its four global business segments include biosimilars, novel biologics, generics and research services.

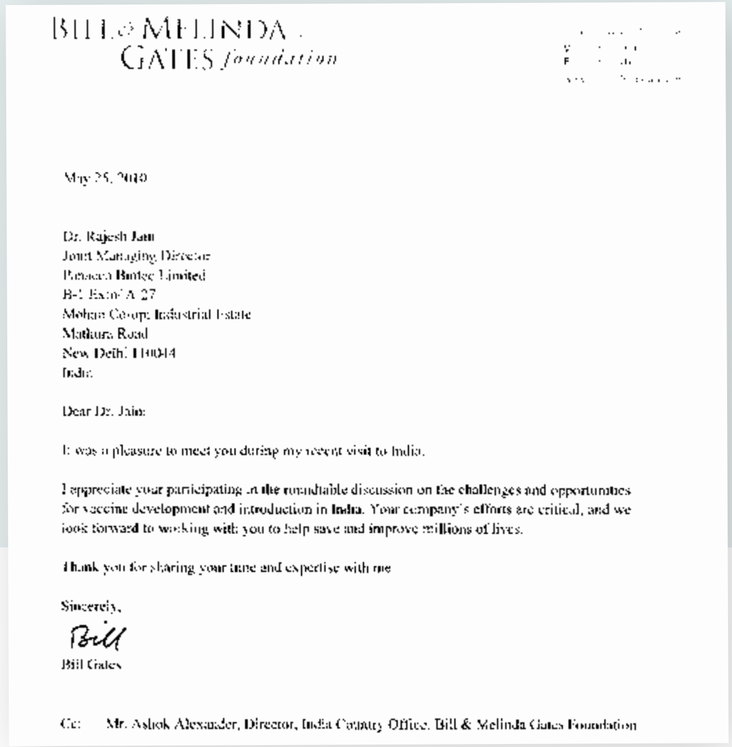
"When I looked around India, I felt that India was certainly a very strong pharmaceutical nation, but it was all based on synthetically derived generic drugs. And I just felt that there was a huge opportunity for biologics because India could not afford biologics. And I had many personal experiences of friends and family who couldn't afford recombinant human insulin...everything was related to the exorbitant cost at which these products were being marketed in India...We were importing all our insulins and 90% of those imports were animal insulins. Only 10% was recombinant human insulin and that was only something that the affluent patients could afford. So I just felt this was a very unethical, inequitable access to important life-saving medicines. And that's what basically got us on to this journey of developing recombinant human insulin using one of our proprietary recombinant DNA technologies that we had developed for enzymes."

- Kiran Mazumdar-Shaw, Executive Chairperson, Biocon, Pharma Archives Oral History, IPA, 2025

Kiran Mazumdar-Shaw, founder of Biocon, on the cover page of India Today, July 31, 1988.

Zydus developed a novel DNA plasmid-based Covid-19 vaccine, ZyCov-D, during the Covid-19 pandemic.

Image Source: Zydus



BILL & MELINDA GATES foundation

May 25, 2010

Dr. Rajesh Jain
Joint Managing Director
Panacea Biotec Limited
B-1 Extn/ A 27
Mohan Co-op. Industrial Estate
Mathura Road
New Delhi 110044
India

Dear Dr. Jain:

It was a pleasure to meet you during my recent visit to India.

I appreciate your participating in the roundtable discussion on the challenges and opportunities for vaccine development and introduction in India. Your company's efforts are critical, and we look forward to working with you to help save and improve millions of lives.

Thank you for sharing your time and expertise with me.

Sincerely,

Bill

Bill Gates

Cc: Mr. Ashok Alexander, Director, India Country Office, Bill & Melinda Gates Foundation

Letter from Bill Gates acknowledging Panacea's contributions in global preventive health including EasyFive-TT and Oral polio vaccines, 2010 | Image Source: Panacea Biotec

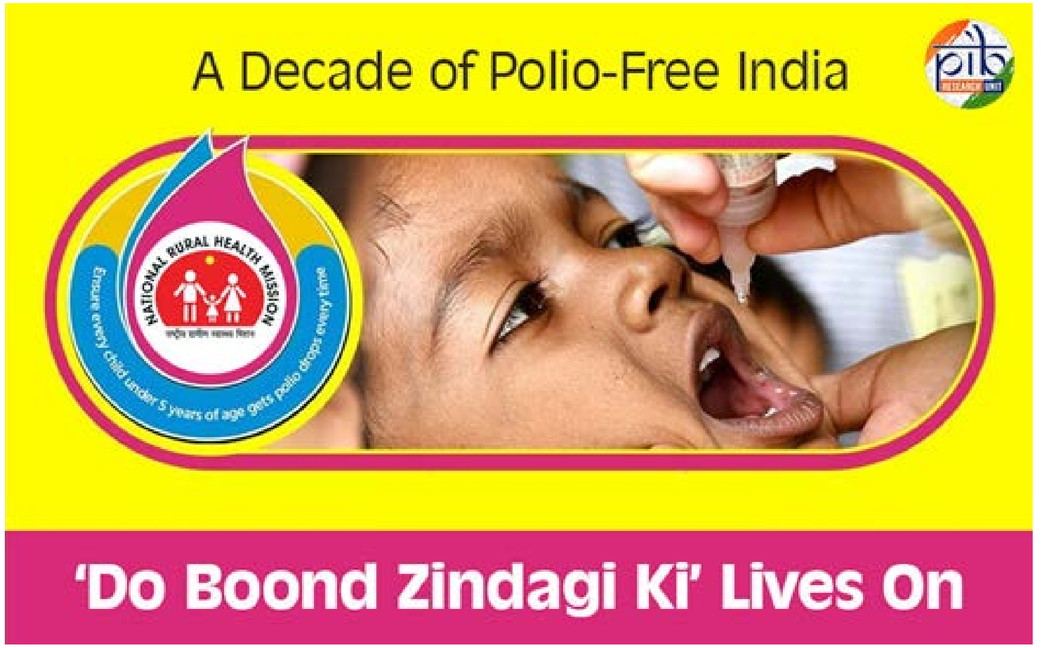
The Indian government set up the Department of Biotechnology (DBT) under the Ministry of Science and Technology in 1986, stimulating research and education in biotech. In north India, **Panacea Biotec**, founded in 1984, became a major vaccine producer and contributed significantly to the polio eradication programme.

In Hyderabad, **Indian Immunologicals** was established by the National Dairy Development Board (NDDB) in 1982 and has grown to be a major producer of veterinary and human biologicals in India with over 150 products. It also hosts one of the world's largest plants for veterinary vaccines. **Shantha Biotechnics,** founded in 1993 by Varaprasad Reddy, developed novel recombinant processes for making affordable Hepatitis B vaccines. Similarly, **Bharat Biotech,** founded in 1996 by Krishna Ella and Suchitra Ella, also developed affordable Hepatitis B vaccines. More recently, it developed Covaxin, an indigenously developed vaccine to counter Covid-19, in collaboration with the Indian Council of Medical Research-National Institute of Virology. These developments led to the creation of the Genome Valley cluster in Hyderabad, India's first organized cluster for Life Sciences. Over several decades, India has turned from being import-dependent to being a global leader in vaccine production and exports and has taken significant strides forward in the global biopharmaceutical industry. The role of biotech in the Indian pharmaceutical industry is expected to increase further in the decades ahead and Indian firms are well poised to make new and affordable high-quality medicines, vaccines, biologics and biosimilars, for a variety of ailments, around the world.

BECOMING POLIO-FREE IN 2014

"India's achievement of polio-free status in 2014 represents one of the most significant successes in global public health. The eradication of polio was not a singular event, but the culmination of decades of dedicated efforts, starting with India's participation in the Global Polio Eradication Initiative (GPEI) and complemented by the robust national immunization efforts under the Universal Immunization Programme (UIP). The strategic integration of new vaccines, innovative surveillance systems, and government-led immunization campaigns played a crucial role in making India polio-free. This achievement was made possible through the tireless efforts of the Government of India in partnership with key global organizations, including UNICEF, the World Health Organization (WHO), the Bill & Melinda Gates Foundation, Rotary International, and the Center for Disease Control and Prevention (CDC). Together, they mobilized resources, provided technical expertise, and created widespread public awareness about the critical need to vaccinate every child under five against polio."

- Ministry of Health and Welfare, Press Release, Nov 19, 2024, New Delhi



Lupin's Indore plant, established in 2007, manufactures specialized APIs and formulations with 1500+ employees

Image Source: Lupin Ltd.

Offering access and affordability, Zydus' innovation is impacting lives, helping patients live healthier and more fulfilled lives

Image Source: Zydus

07

Powering Innovation Ahead

"Both the medical profession and the pharmaceutical industry labour incessantly to destroy the reason for their existence. The tireless aim of the pharmaceutical manufacturer is to make obsolete his latest drug and relegate to scrap heap his newest equipment. Research workers are working tirelessly to outdate their own products, to minimise the side effects and to discover broader fields of application."

- Bhupendra V Patel (1914-74), distinguished pharmacologist and pioneering drugs controller, 15th All India Pharmaceutical Conference, Pilani, December 28-30, 1963

Scientists have transformed the modern pharmaceutical industry over the past century with numerous pathbreaking discoveries that have helped save millions of lives. While most new drugs launched in the world were based on research and development conducted in USA, western Europe and Japan, efforts in India too led to the discovery of new drugs. Arguably, India developed more new drugs than any country in the world has ever done, at its level of per capita income.

Between 1947 and 1990, new drug development in India was mostly driven by public sector enterprises and labs such as Hindustan Antibiotics developing Hamycin in 1961, an antifungal tropical antibiotic, and CSIR-CDRI Lucknow developing centchroman, a non-steroidal oral contraceptive in 1989. A few private Research & Development (R&D) labs of multinational firms such as Ciba-Geigy and Hoechst in Mumbai also led research efforts.

Since the 1990s, R&D activity of large Indian pharma firms took off. Over a hundred novel molecules have been developed by Indian pharmaceutical firms, many have been out-licensed and tested in clinical phase trials and some have been brought to the market. Ranbaxy's Synriam (anti-malarial), Zydus's Lipaglyn (for diabetes, dyslipidemia and hypertriglyceridemia), Orchid Pharma's Exblifep (Enmetazobactam) for the treatment of urinary tract infections and Wockhardt's EMROK for acute bacterial skin and skin structure infections are some examples of new drug discoveries by Indian firms that received regulatory approval.

Image Source: Emcure Pharmaceuticals

Prime Minister Jawaharlal Nehru touring the Central Drug Research Institute (CDRI) Lucknow laboratory in the 1950s. CSIR-CDRI developed several new drugs over the decades.

Image Source: Prime Ministers' Museum & Library

"CSIR developed the world's first non-steroidal once–a-week oral contraceptive drug that gave women the freedom to decide about pregnancy. Rightly named, Saheli, this drug is indeed a true friend as it helps to avoid pregnancy without any side effects. A product of over two decades of research at the CSIR-Central Drug Research Institute (CDRI), Lucknow, Saheli comprises a novel non-steroidal, biochemical namely, 'centrochroman'. This drug is not only unique due to its composition and mode of action but it is also very convenient to take. The recommended dose is taken twice a week for the first three months, followed by a once-a-week schedule. This drug was included in the National Family Welfare Programme in 1995."

Source: https://blog.mygov.in/csirs-novel-contraceptive-drug-a-womans-true-saheli/, December 2, 2016

TEN REMARKABLE INNOVATIONS FROM INDIA

01

ORS- “potentially the most important medical advance of the 20th century” (The Lancet)

Dr. Dilip Mahalanabis (1934-2022), graduate of the Calcutta Medical College, pioneered the usage of Oral Rehydration Therapy (ORT) by developing a simple Oral Rehydration Solution (ORS) during the Bangladesh War in 1971, drastically cutting down case fatality rates from cholera. ORT was then adopted by WHO and UNICEF and led to the mass scale production of ORS to treat dehydration caused by diarrhoea, saving millions of lives.

02

Saheli, world’s first non-steroidal oral contraceptive

Two decades of research at CSIR-CDRI Lucknow led to the development of a new chemical entity, Centrochroman, marketed as Saheli, an effective non-steroidal oral contraceptive that enhanced women’s agency. In 1995, it was included in India’s National Family Welfare Programme.

03

Triomune and the transformation of affordable therapies for HIV-AIDS

In 2000, Cipla introduced Triomune, a fixed-dose combination tablet at a fraction of the cost of medicines then available to treat HIV-AIDS, transforming the nature of the epidemic, saving the lives of millions of people around the world, and especially in Africa.

04

Out-licensing New Chemical Entities

In 1997, Dr. Reddy’s Laboratories became the first Indian company to out-license a new chemical entity developed in-house, the insulin sensitizer Balaglitazone, to Novo Nordisk. Since then, over a hundred new chemical entities developed by Indian firms have reached clinical trial phases, and some have witnessed licensing and option agreements with other firms, such as Torrent’s TRC-4186 compound for diabetic complications, Ranbaxy’s Parvosin for BPH, and a series of molecules developed by Glenmark, starting with Oglemilast in 2004 for the treatment of asthma and COPD to a landmark deal for ISB 2001 for oncology and autoimmune diseases in 2025.

05

Lipaglyn™ and other New Chemical Entities (NCEs) in the market

In the past fifteen years, several new chemical entities developed by Indian pharmaceutical firms have obtained regulatory approval for manufacturing and marketing. Since its approval in 2013, Zydus’s Lipaglyn (Saroglitazar) has over 1.5 million patients being treated for Metabolic associated fatty liver disease (MAFLD) and Metabolic associated steatohepatitis (MASH). Orchid Pharma’s Exblifep (Enmetazobactam) for the treatment of urinary tract infections received USFDA’s approval in 2024 and Wockhardt’s EMROK for acute bacterial skin and skin structure infections received Indian regulatory approval in 2019.

06

Novel Biologics and Biosimilars

Several Indian pharmaceutical firms such as Biocon, Zydus, Intas, Sun Pharma, Emcure, Lupin, Dr. Reddy’s Laboratories and Glenmark have developed or are currently developing novel biologics or biosimilars for a variety of diseases. Biocon introduced Insugen®, the world’s first recombinant human insulin (rh-Insulin) made on a proprietary Pichia pastoris platform in India in 2004, and Biocon Biologics has provided over 2.75 billion doses of rh-Insulin worldwide, till date.

07

ROTAVAC®, India’s first indigenously developed rotavirus vaccine

Developed since the 1980s through the efforts of Indian scientists, Dr. M K Bhan (1947-2020), Dr. Gagandeep Kang and others, ROTOVAC became an important part of immunization campaigns around the world to protect children from gastroenteritis due to rotavirus.

08

Vaccines for the World

Bharat Biotech’s indigenously developed Covaxin in collaboration with the Indian Council of Medical Research-National Institute of Virology, Serum Institute of India’s mass production of Covishield developed in collaboration with Oxford-Astra Zeneca, and indigenously developed COVID-19 DNA and mRNA vaccines are only a few examples from a long list of product and process innovations in India that are delivering vaccines to billions of people around the world.

09

Stempeucel®, India’s first indigenously developed biological drug with human stem cells

Developed by Stempeutics in Bengaluru for the treatment of Critical Limb Ischemia (CLI) due to Buerger’s disease and due to Atherosclerotic Peripheral Arterial Disease, it received manufacturing and marketing approval from the Drug Controller General of India (DCGI) in August 2020 and has been granted patent in over a dozen countries including the USA, UK, Germany, France, Italy, Australia, New Zealand, South Africa, Japan, China and Singapore.

10

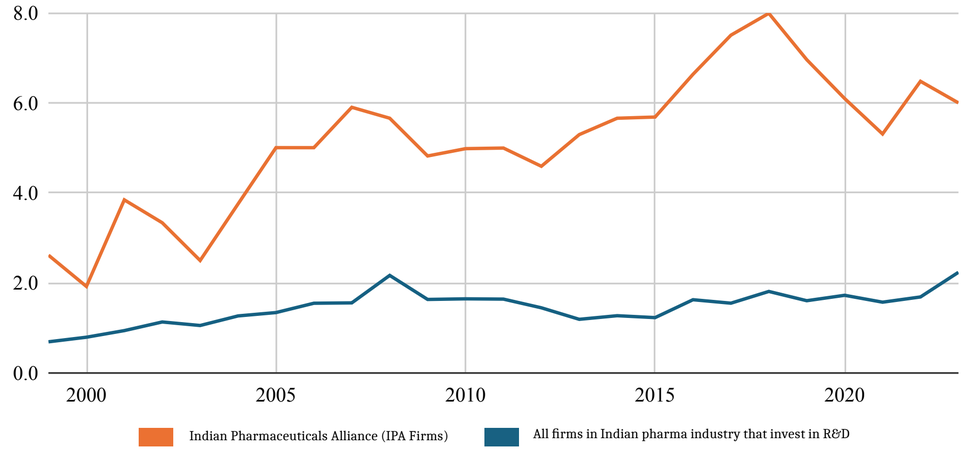
NexCAR19, India’s first indigenous CAR T-cell therapy

In October 2023, the CDSCO gave its first approval to an Indian CAR-T cell therapy, developed by ImmunoAct, incubated at the Indian Institute of Technology Bombay (IIT-B) and Tata Memorial Hospital, paving the way for an emerging field in the treatment of cancer that can also make it more affordable.

THE PATH AHEAD

The global industrial R&D expenditure by the pharmaceuticals and biotechnology sector was estimated to be over $240 billion in 2021, comprising 478 large firms: USA (263), China (79), Japan (25), UK (18), India (11), Germany (10). Pharmaceuticals and biotechnology is the largest industrial R&D sector of India, comprising about a third of the $6 billion total industrial R&D spend in India in 2021, and 85% of this spending was done by firms belonging to the Indian Pharmaceutical Alliance (CTIER Handbook, 2023; CMIE Prowess). R&D to sales ratios among firms of the Indian Pharmaceutical Alliance have risen from 1-2% in the 1990s to over 6% today, significantly higher than other R&D spending firms in the Indian pharmaceutical industry.

Median R&D to Sales Ratio (%) in Indian Pharma Industry



Source: CMIE Prowess data. N = 20+ for IPA firms and 200+ for industry

Alongside greater investments in R&D, Indian pharmaceutical firms have been granted thousands of patents in India and around the world for their products and processes. The quest is to continue this journey and assume leadership positions in product and process innovations in the future. An important driver of future innovation is likely to be the adoption of Artificial Intelligence (AI), Machine Learning (ML) and big data analytics integrated into drug discovery and development processes. Better selection of candidate drugs and collaborations with the best minds in industry and academia in India and outside can have a transformative impact on the culture of innovation in the Indian pharmaceutical industry.

The transition from existing strengths in chemistry and chemical engineering that led the growth of the Indian pharmaceutical industry since the 1970s to one increasingly linked with biology, biochemistry, biotechnology, novel biologics and biosimilars, is another area that can fuel innovative tendencies in the industry in the future.

Recent government policies to aid innovation such as the 2023 National Policy on Research and Development and Innovation in Pharma-MedTech Sector can also catalyse startups and established firms to invest more in research and development and move up the value chain in the global pharmaceutical industry. It is for the Indian pharmaceutical firms to think and act creatively and fulfil the dream and agenda set by pioneering scientists and industrialists such as Prafulla Chandra Ray, Vikram Sarabhai and K Anji Reddy, and take the nation's innovation potential to greater heights.

"I strongly believe that drug discovery is a noble, perhaps even a spiritual, pursuit. It is beyond bottom lines and investor relations. The mission is to improve the quality of life and life expectancy itself. This requires good science. But for science to be good, it has to result in affordable medicine. Indian enterprise is best positioned to deliver both."

- Dr. K Anji Reddy (1941-2013), in his memoir, An Unfinished Agenda: My Life in the Pharmaceutical Industry, 2015

Prime Minister Narendra Modi, during the first Global Innovation Summit of the Pharmaceutical Sector, 18th November 2021, organized by the Indian Pharmaceutical Alliance.

"The importance of innovation has been reinforced in the Covid-19 era in all walks of life. The disruption forced us to reimagine our lifestyles, the way we think and the way we work. In the context of the Indian pharma sector too, the speed, scale and willingness to innovate has been truly impressive…the same spirit of innovation is reflected in the step taken by the government to encourage growth in the pharma sector…this is the best time to move forward and scale new heights."

"It is important that we focus on innovation. The generic and branded generic business is only 20-25% of the global market whereas 75% comprises patent protected speciality products market. Till now I think it's not a business that we've participated in, but I am sure that in the next few years, that will change."

- Dilip Shanghvi, Sun Pharma

"IPA remains steadfast in its commitment to Innovation, Quality, and Global Reach. The thrust going forward will be to move from volume to value leadership.

- Samir Mehta, Torrent

"The future roadmap promises to centre on R&D, innovation, sustainability, upskilling and reskilling in its journey ahead from 'Make in India' to 'Discover and Make in India for the World".

- Satish Reddy, Dr. Reddy's

"If India has to really create its mark and continue to remain as a kind of a pharmacy of the world, then India should have a dream of making 100 new molecules from India by 2047."

- Pankaj Patel, Zydus

"The future of innovation in our industry is bright. With the novel medicines capabilities our industry is fast evolving, the India advantage in research and development, enabled by digital technologies such as generative AI, we have the potential to drive significant advancements."

- Vinita Gupta, Lupin

"Innovation is a global game. You need to play it globally, you need to look for talent globally, you need to hire wherever it exists, and make sure you're able to channelise those energies into developing something novel."

- Glenn Saldanha, Glenmark

08

THE INDIAN PHARMACEUTICAL ALLIANCE

The Indian Pharmaceutical Alliance (IPA) was started in 1999 by a few large Indian pharmaceutical firms to represent their interests in an effective manner and has since then grown to host 23 leading Indian research-based firms as of January 2025, whose cumulative sales cover nearly 65% of domestic sales, 80% of exports and 85% of private sector investment in pharma-related R&D.

Dilip G Shah (1941-2019), alumnus of the first batch of graduates of the Indian Institute of Management Ahmedabad (IIMA) in 1966, and who spent his career with Pfizer, served as the Secretary General of the IPA between 1999 and 2019. Since then, pharma industry veteran, Sudarshan Jain, has taken over the role.

In the initial years, IPA's concerns were mainly directed towards safeguarding Indian firms interests in the patent regime transition. When the Indian Patents Act of 1970 was amended in 2005, IPA strove for a specific wording of the Section 3 (d) clause to prevent patent ever-greening and to ensure that patents promoted innovations but did not extend monopolies by making trivial changes to existing innovations. For 25 years, IPA has endeavoured for rationalization of the price control mechanism, conducted research studies and worked closely with the government to promote the growth of the Indian pharmaceutical industry. During the Covid pandemic, IPA worked towards ensuring a continuous supply of medicines and bolstering the supply chain. However, this defining moment also prompted intense scrutiny of the industry's environmental impact. Today, the ability to lead the global pharma stage hinges not just on affordability or access, but also on environmental sustainability.

Indian pharma has made commendable strides and 7 Indian companies are among the top 11 in global pharma on the Dow Jones Sustainability Index, with Dr. Reddy's and Cipla among the Top-5 globally. IPA firms are advancing through renewable energy, zero-waste initiatives, and digital innovation. Sustainability is becoming a competitive edge, with growing focus on scope 1, 2, and 3 emissions. Supporting this transition, the Indian Pharmaceutical Alliance (IPA) is partnering with the UK's Centre for Process Innovation to boost decarbonisation. Indian pharmaceutical companies are well poised to lead sustainability inititatives at the global frontier.

IPA has worked to create a pharma ecosystem that maintains high quality standards, innovation and global reach. It strives to guide the Indian pharmaceutical industry towards a vision of reaching the size of $120-130 billion by 2030 and $450-500 billion by 2047.

From Left to Right: D S Brar (Ranbaxy), K Anji Reddy (Dr. Reddy's), and D G Shah (IPA) at an IPA event in early 2000s

ENSURING HIGH QUALITY STANDARDS

Between 2015 and 2025, IPA held ten Global Pharmaceutical Quality Summits (GPQS) to enhance quality in the Indian pharmaceutical industry with the following key objectives:

- Be the conduit of change through thought leadership, knowledge development, and best practice sharing
- Measure, benchmark, and disseminate the progress & achievements over time
- Expand the size and base of quality talent in India
- Deepen, and strengthen the industry's relationship with key stakeholders – both within and outside India
- Provide platforms for members and other stakeholders to interact and network

IPA-led deliberations have been influential in the introduction of Revised Schedule-M norms under the Drugs and Cosmetics Rules (1945) since January 2025, enforcing stricter manufacturing standards.

ADVANCING PHARMA QUALITY THOUGHT LEADERSHIP

Knowledge Development	20+ technical documents engaging 100+ members; best pratices disseminated 25K+ professionals	25+ Industry-leading events – Global Pharma Summit, Advanced GMP Workshops with 180+ sessions	Monthly webinars for learnings from inspections with 100+ global leaders
Collaboration	Regular dialogue with US FDA; engaged 60+ regulators	Engaged 120+ leaders in supporting quality operations, cGMP modules, Nitrosamine impurities; USP, PDA, WHO	Proposal for upgrading teachers' capabilities in industrial training, in collaboration with the Pharmacy Council of India (PCI)
Performance Benchmarking	Standardized performance view across Indian Pharma Companies	Benchmarked key Ops and Quality metrics to measure performance	Tracked improvements and facilitated cross learning across companies

IPA GPQS: EVOLVING WITH THE SYSTEM

2015

Phase 01: Activating and mobilising the forum

2016-2020

Phase 02: Sharing best practices for quality systems

2021-2024

Phase 03: Embedding best practices and capability building

2025 onwards

Phase 04: Building culture of quality and adopting technology at scale

"Quality, R&D and innovation are the need of the hour...I am also deeply appreciative of our pharma industry leaders who placed duty above profit and worked with the Government to fulfil domestic and global demand to manufacture four novel COVID vaccines.

Today, the world wants India to manufacture medicines and vaccines and we must leverage this unique opportunity by using our brand power and manpower. Quality is a top priority today and central and state regulators are working closely to ensure this."

- Dr. Mansukh Mandaviya, Minister for Chemicals & Fertilizers and Health & Family Welfare, Government of India, 8th GPQS, 2023

10th Global Pharmaceutical Quality Summit 2025. (L-R) Sudarshan Jain, Secretary General, IPA, Umang Vohra, MD & Global CEO, Cipla, Sathya Prathipati, Senior Partner, McKinsey, Sharvil Patel, Vice President, IPA & MD, Zydus Lifesciences, Nilesh Gupta, MD, Lupin, Dilip Shanghvi, Chairman & MD, Sun Pharma, Pankaj Patel, Chairman, Zydus Lifesciences, February 27-28, 2025, J.W. Marriott, Mumbai

2009

In Depth pharmaceuticals

Upping The Ante

by Gauri Kamath

India's pharma alliance is all set to engage in patent wars

STARTING LAST MONTH, FOUR YOUNG SCIENTISTS trained in intellectual property (IP) have been supplying Dilip Shah a list of what they believe to be invalid or frivolous patent applications. Shah is secretary-general of the Indian Pharmaceutical Alliance (IPA), a group of top home-grown drug companies such as Dr Reddy's, Sun Pharma, and Zydus Cadila that will challenge some of these patents before Indian authorities. Next, this four-member 'patent cell' will examine granted patents with a fine toothcomb.

This is just the IPA's latest salvo.

In under a decade, it has emerged as a powerful opponent of Big Pharma, top drug multinational companies (MNCs) on patent matters. "When it comes to IP issues, (other local industry associations) take a backseat," says one MNC corporate affairs manager who requested anonymity. "The IPA does a good job." Shamnad Basheer, human resource development ministry professor in IP Law at Kolkata's National University of Juridical Sciences says IPA has been "very instrumental" in influencing patent policy.

In the early to mid-2000s, as India's new patents law was written to signal a move to product patents on drugs instead of process, IPA lobbied for flexibilities. Its members made only generics of patented drugs, and faced an uncertain future. It achieved some. Like pre-patent-grant opposition that it now wants to leverage. According to a study by Basheer and his associate, just 3 per cent of the patents filed between 2005 and 2008 were challenged pre-grant. "Not every company has the time or resources to file patent challenges," says Sudhir Mehta, chairman, Torrent Pharma, an IPA member. The IPA move could partially address that.

IPA has also begun intervening in patent lawsuits. It recently asked to be impleaded in a case brought by German drug company Bayer against the Indian regulator, Drugs Controller General of India (DCGI). Bayer wants the court to stop DCGI from okaying Indian firm Cipla's generic of its patented liver cancer drug Nexavar. IPA supported Cipla's view that patents were not DCGI's mandate and a Bayer victory would set an unhealthy precedent that could delay legitimate generic entry. Bayer lost the first round and is in appeal.

Basheer says such intervention by an industry body where it informs the judges of the policy impact of an IP case is common in the US but new to India. "The IPA has taken the lead here."

MISSIONARY MAN: IPA's secretary-general Dilip Shah has zealously executed its vision

PHOTOGRAPHS: SUBHABRATA DAS

Early Success

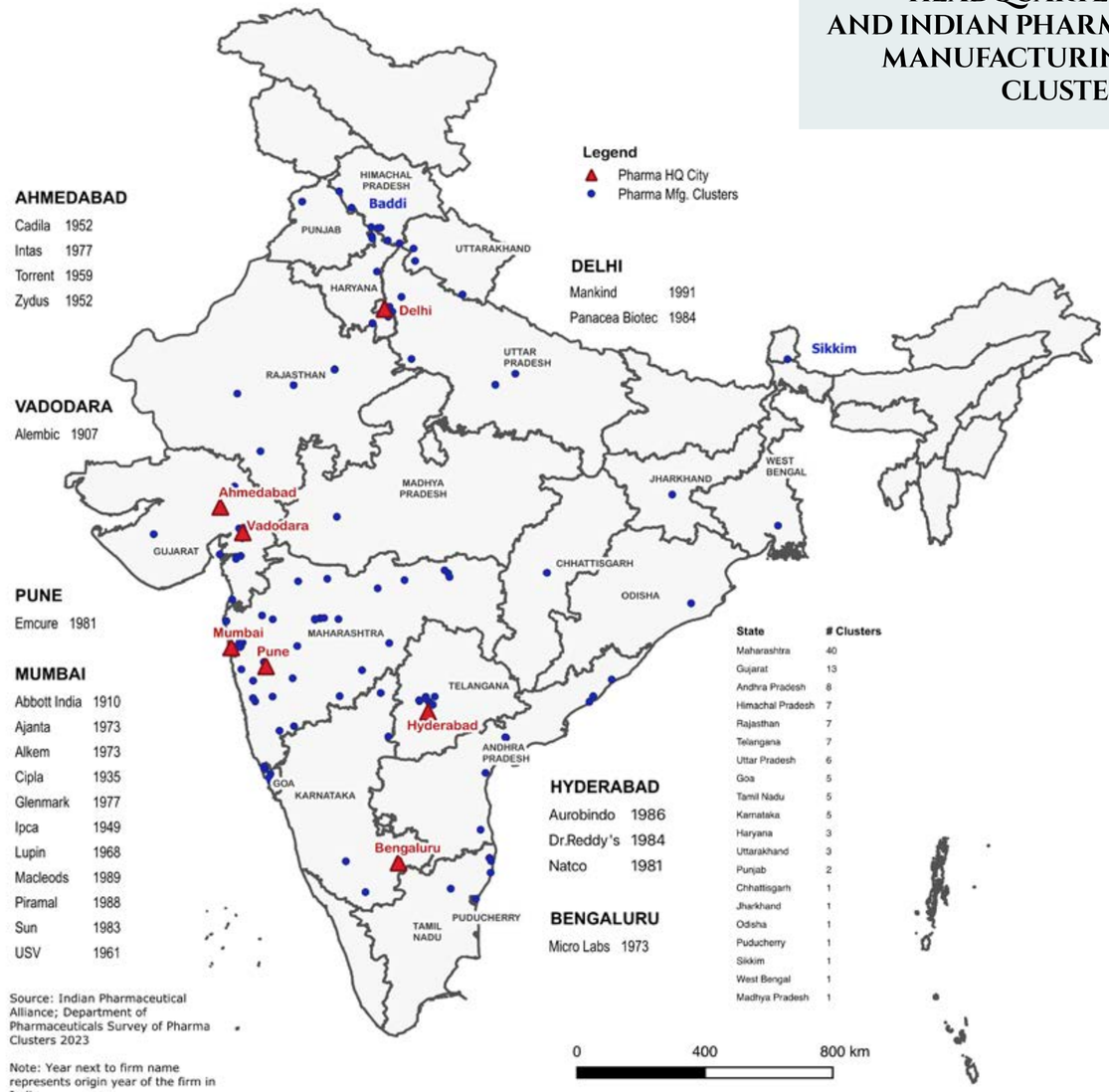
IPA saw the coming together of India's foremost pharma entrepreneurs: the late Parvinder Singh of Ranbaxy, Dr Reddy's Anji Reddy and Cipla's Yusuf Hamied in 1999. They realised that drug patents were inevitable. It was India's deal with the World Trade Organization (WTO), says Shah. "If we kept opposing it, at some point no one would listen. So why not structure it so it worked to our benefit."

Eight IPA members accounted for 30 per cent of the domestic pharma market, a third of its exports, and over 90 per cent of its research and development (R&D) expenditure. Most wanted to buy time to discover their own drugs — a long drawn-out process.

Source: Business World, December 7, 2009, p. 60

Courtesy: Smita Shah

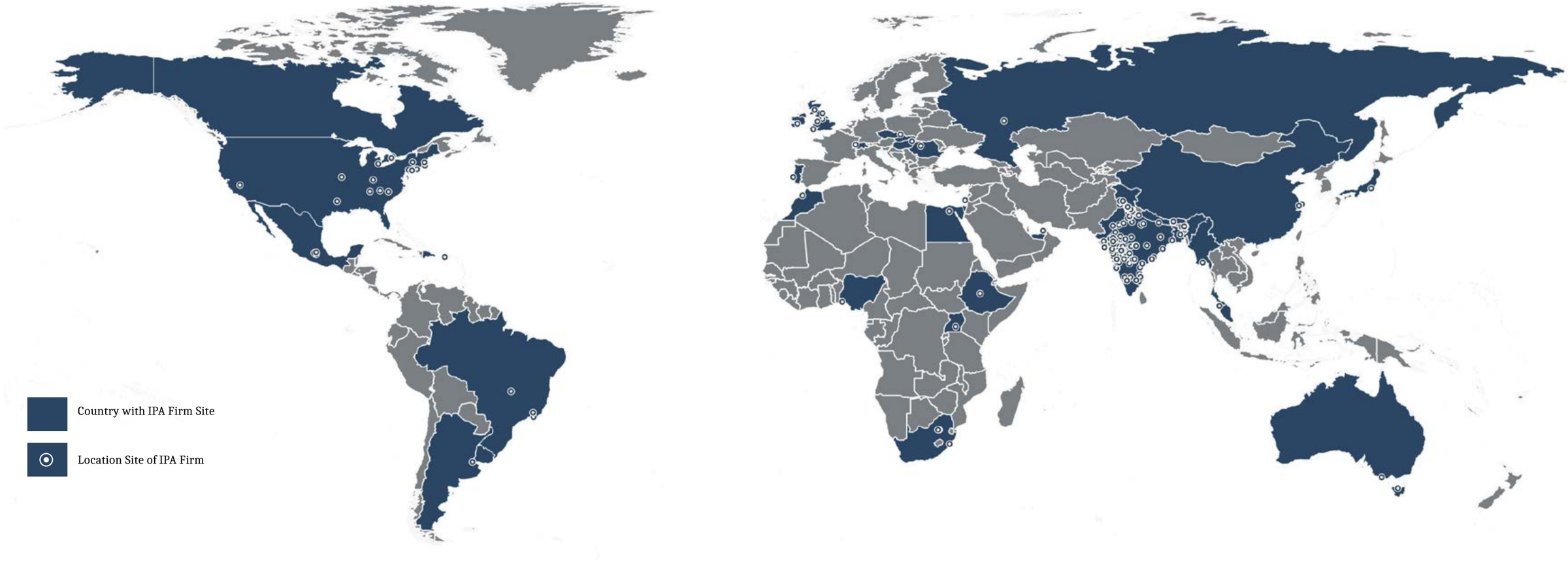
IPA FIRMS' HEADQUARTERS AND INDIAN PHARMA MANUFACTURING CLUSTERS



Source: Indian Pharmaceutical Alliance; Department of Pharmaceuticals Survey of Pharma Clusters 2023

Note: Year next to firm name represents origin year of the firm in India.

IPA FIRMS' MANUFACTURING SITES AROUND THE WORLD



Source: Indian Pharmaceutical Alliance, 2024.

IPA leaders Premchand Godha (Ipca), D G Shah (IPA), Nilesh Gupta (Lupin), Pranav Mody (J B Chemicals), Satish Reddy (DRL), Rajiv I Modi (Cadila), Prakash Mody (Unichem), Rajesh Jain (Panacea), Dilip Shanghvi (Sun Pharma) along with Lupin executives at the 83rd EC meeting held at Lupin's R&D Center, Pune, 2013

IPA delegation in Washington DC, USA, December 2019. From L to R: Pankaj Patel (Zydus), Satish Reddy (DRL), Dilip Shanghvi (Sun Pharma), Nilesh Gupta (Lupin) and Sudarshan Jain (IPA)

(L-R) Namita Thapar (Emcure), Satish Reddy (DRL), Dilip Shanghvi (Sun Pharma), Pankaj Patel (Zydus) and Nandini Piramal (Piramal) at the IPA Next-Gen Committee: Celebrating 25 years of IPA event, Aug 21, 2024, Taj Lands End, Mumbai

"The Indian Pharmaceutical Alliance (IPA) is very important in terms of helping the Indian pharmaceutical industry create a narrative. I believe that as an industry we're doing an extremely useful role globally in terms of providing high quality consistent supply of products at cost which would not have been possible if India was not marketing these products."

- Dilip Shanghvi, Pharma Archives Oral History, IPA 2025

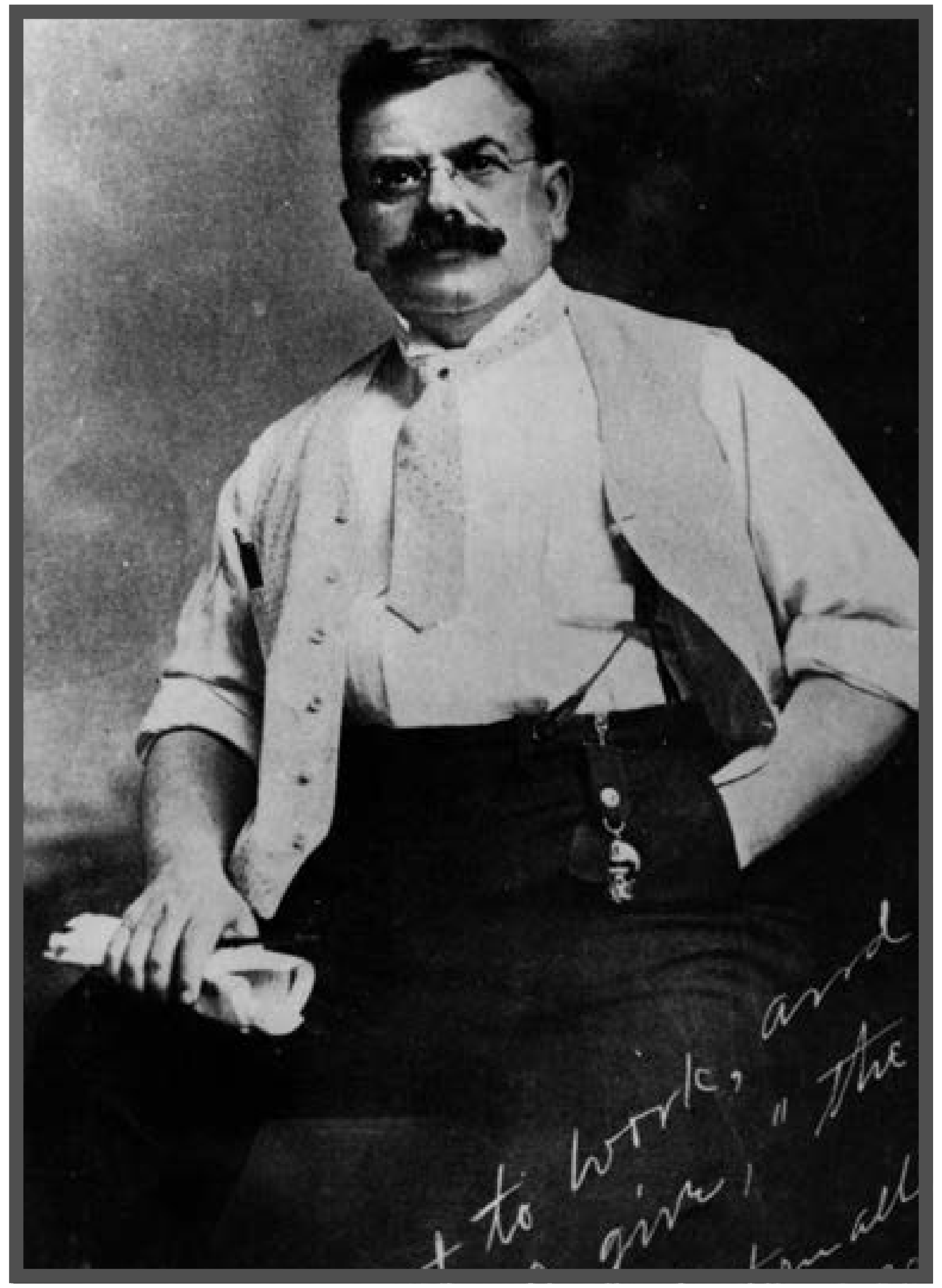
23 STORIES OF STRENGTH AND SCIENCE

65% of Domestic Sales

80% of Exports

85% of private sector investment in pharma-related R&D

ABBOTT INDIA



Dr. Wallace Abbot

Abbott India factory gate, Mumbai, 1971

Foundation Story

Abbott has been dedicated to meeting the healthcare needs of people in India for over a century with the establishment of its operations in the country through an agency in 1910. The company's origins trace back to 1888, when Dr. Wallace C. Abbott (1857-1921), a physician and drug store owner, began creating accurate and scientifically formulated medications in Chicago, USA.

Products and Places

Headquartered in Mumbai, Abbott in India offers over 600 diverse products providing comprehensive care across medicines, nutrition, diagnostics and medical devices. The company holds leadership positions in infectious and non-communicable diseases, including women's health, diabetes, cardiovascular, metabolics, neurology, vaccines, pain management, and gastroenterology. An important initiative, in alignment with the company's 2030 sustainability goals, is to upgrade over 300 primary health centres to health and wellness centres across several states in India, with the aim to make quality healthcare equitable and accessible.

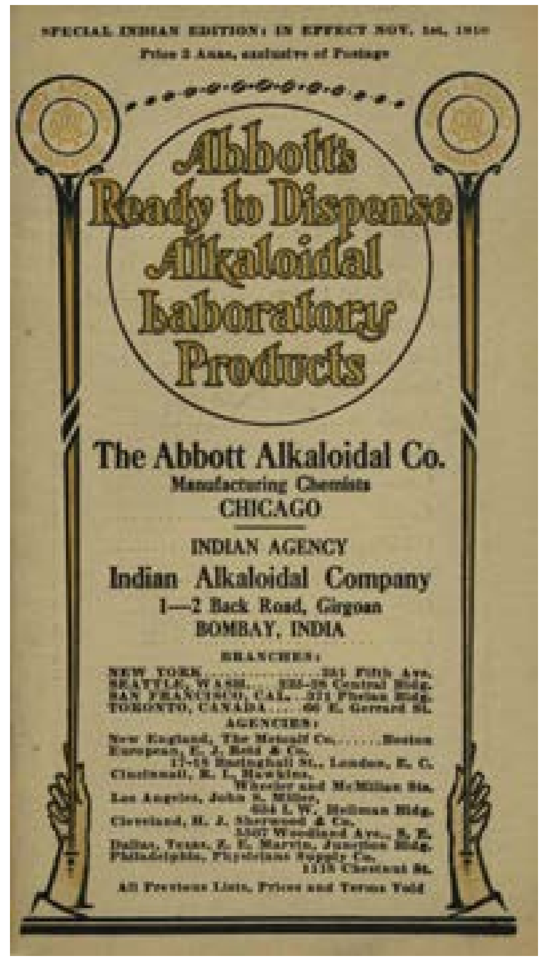
Meaning Behind The Name

Abbott is named after the company's founding father, Dr. Wallace C. Abbott.

Abbott

Growth Story

Since 1910, Abbott has steadily grown in India. Key milestones include a 1965 collaboration with Boots Pure Drug Co. Ltd. and the launch of its first manufacturing site in Goa in 1966. In 1983, Abbott expanded into diagnostics and later added divisions like diabetes care, point-of-care diagnostics, nutrition, and cardiovascular. In the early 2000s, a strategic restructuring led to the creation of Abbott India Limited through the global acquisition of Knoll. Today, Abbott is one of India's largest diversified healthcare companies and the second-largest pharmaceutical firm, employing over 12,000 people and continues to make a significant impact on the nation's health.


Abbott's Ready to Dispense Alkaloidal Laboratory Products

The Abbott Alkaloidal Co.
Manufacturing Chemists
CHICAGO

INDIAN AGENCY
Indian Alkaloidal Company
1—2 Back Road, Girgoan
BOMBAY, INDIA

The Indian Alkaloidal Company, Price List and Product Catalog, 1910

LEADING THE WAY IN THYROID HEALTH ACROSS THE CONTINUUM OF CARE

Since 1999, Abbott's Thyronorm® (thyroxine) has been a game-changer in the treatment of hypothyroidism (under-active thyroid). Imagine starting your day with a product trusted by over 10 million patients! That's the impact Thyronorm has had, according to IQVIA sales data.

Abbott was among the first to offer thyroxine treatment in India, making it accessible and affordable. The company went beyond just providing medication, and also launched digital, multi-channel campaigns and on-ground initiatives to educate people about thyroid disorders.

Thyronorm stood out by being the first brand to introduce multiple dose options. Today, it remains the only brand offering 13 strength variations, ensuring that every patient's unique needs are met.

Abbott continues to innovate, recently changing Thyronorm's packaging for better patient adherence and introducing QR-enabled smart packs. A new state-of-the-art manufacturing facility in Baddi was launched exclusively for Thyronorm making it easier for people to get the treatment they need.

Milestones

1888
Dr. Wallace C. Abbott makes medicines in Chicago, USA

1910
Abbott begins operations in India through agency - The Indian Alkaloidal Co.

1983
Abbott Diagnostics Division begins operations through distributors

1996
Pharmaceuticals manufacturing site in Goa commences operations

2006
Baddi manufacturing site for pharmaceuticals begins operations

2010
Acquisition of Piramal's domestic formulation business in India; Launch of nutrition division in India

2018
Global Innovation and Development hub for pharmaceuticals in Mumbai, serving over 30 countries

2021
Diversifying into Biosimilars

AJANTA

Purushottam (right), Mannalal (center) and Madhusudan Agrawal (left)

Yogesh Agrawal (right) and Rajesh Agrawal (left)

Foundation Story

In 1973, Purushottam Agrawal, pharmacy graduate from Nagpur University along with brothers Madhusudan and Mannalal Agrawal founded Ajanta Pharma with a modest investment of Rs. 10,000. Current managing directors, Yogesh Agrawal and Rajesh Agrawal, started to lead Ajanta in 2001, and transformed it into one of the leading pharmaceutical companies of India.

Ajanta Research Centre, Mumbai

Products and Places

Ajanta offers over 500 products globally, focussed on ophthalmology, cardiology, antimalarials, dermatology and other segments. Ajanta introduced several groundbreaking molecules in its various markets. It derives 31% of its turnover of Rs. 4,200+ crore from India, 25% from Rest of Asia, 21% from Africa and 23% from US generics.

Meaning Behind The Name

Ajanta Pharma was founded in Aurangabad, Maharashtra. It is a city with a long artistic and cultural history. It is globally known for its iconic Ajanta Caves. Since the company was founded in the city, the founders drew inspiration from Ajanta Caves to build a firm that would be known globally.

ajanta pharma

Growth Story

Ajanta started as an OTC company with brands like Pinkoo Gripe Water, Apcose-D and 30 Plus, an iconic product endorsed by Bollywood legend Jeetendra. Yogesh Agrawal and Rajesh Agrawal then transformed the company from OTC and Institutions to Branded Generics in India, and Emerging Markets and Generics in USA. Their approach has always been concentrated on offering differentiated products and targeting specific therapeutic segments and markets. This was achieved on the back of their strong focus on R&D where 850 scientists are creating innovative formulations. From 26 employees in 1980, the firm has grown to employ 11,000 people today and it operates seven manufacturing facilities and a large R&D Centre in India.

Ajanta's first manufacturing plant at Chikalthana, commissioned in 1973

First-to-Market

Ajanta is known for launching differentiated products in the first-to-market mode. Almost 50% of its branded generics portfolio consists of such products in its respective markets.

Ajanta has been doing this for over two decades for patient convenience and compliance by providing products with differentiated delivery systems or combinations.

It has been a pioneer in such launches across therapies where it has built iconic brands like Met XL in Cardiology, Feburic in Pain Management, Olopat in Ophthalmology and Biosilk in Dermatology. All these brands today enjoy leadership positions in their respective segments.

Milestones

1973
Company starts with re-packing of generic products

1979
First manufacturing facility set up in Chikalthana, Aurangabad

1986
Second manufacturing facility in India at Paithan

1992
Foray into international market

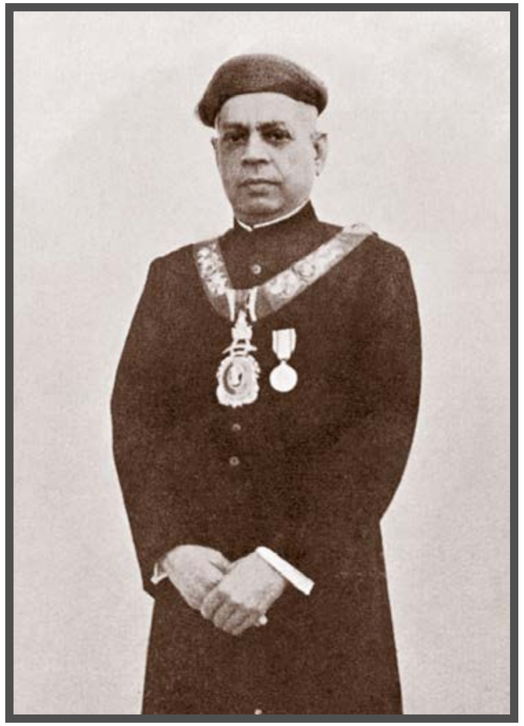
2000
Gets listed on the Indian Stock Exchanges

2005
Strategic shift from OTC to innovative specialized prescription products in Ophthal, Cardiology

2014
Entry into US market

2015
Focus on branded generics with presence in 30+ countries

ALEMBIC



Raj Mitra B D Amin

Ramanbhai Amin

Chirayu Amin

Foundation Story

Alembic was founded in 1907 in Vadodara by industrial chemist T. K. Gajjar (1863-1920) and his students A. S. Kotibhaskar and B. D. Amin. After B. D. Amin, the firm was led by his son Ramanbhai B Amin (1913-2000), and his grandson Chirayu Amin respectively, for several decades. Current managing directors, Pranav Amin and Shaunak Amin represent the fourth- generation leadership at Alembic.

Products and Places

Alembic's iconic Althrocin brand of Erythromycin dominated the market for several decades. It now has a well-diversified product portfolio, including animal health. Over half of its Rs. 6,000 crore turnover is now generated abroad, mostly in the US.

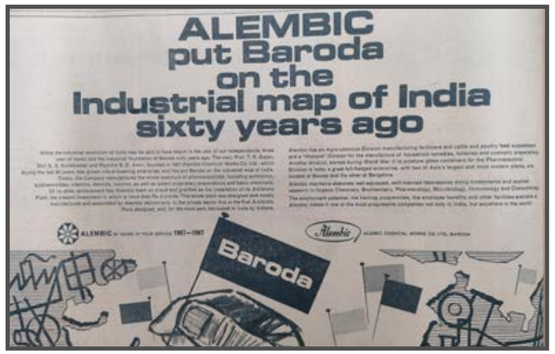
Meaning Behind The Name

The name "Alembic" traces its origins to an ancient distillation device, historically used to purify and transform liquids. The initial business of the firm was distillation of spirits.

Alembic
Touching Lives over 100 years

Growth Story

Alembic kickstarted the modern pharmaceutical industry in Gujarat when it began producing cough syrups, vitamins, tonics and sulphur drugs in the early 20th century. After Independence, Alembic rode the antibiotic revolution wave by making penicillin through a novel process in 1961 and Erythromycin in 1971. It was mostly focused on the domestic antibiotic market and began to diversify into different therapies and global geographies since the 1990s. It has grown to employ nearly 17,000 people and currently has nine manufacturing facilities.



Alembic put Baroda on the Industrial Map of India
Image Source: Economic Times, November 22, 1967

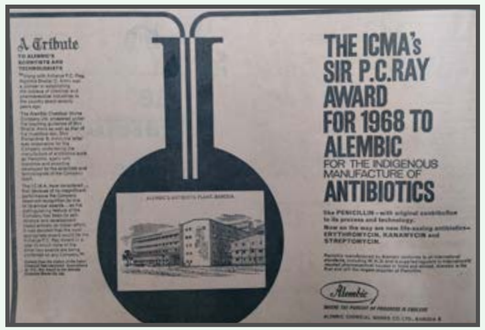


Image Source: Economic Times, December 31, 1968

Pioneering Indigenous Manufacturing of Antibiotics

Alembic pioneered the production of antibiotics in the Indian private sector and has contributed to the antibiotics revolution in India since the 1960s. Previously, Hindustan Antibiotics and Glaxo had both received technical assistance from abroad to make penicillin in India. Alembic won the 1968 P C Ray award for its effort to manufacture penicillin, developed completely in-house by the company's scientists.

Milestones

1907
Started manufacturing tinctures and alcohol at Vadodara

1940
Began production of cough syrups, vitamins, tonics and sulphur drugs

1961
Inaugurated penicillin plant with Lal Bahadur Shastri in attendance

1967
Initiated bulk manufacturing of Vitamin B12

1971
Manufactured Erythromycin for the first time in Indian history

1972
Launched Althrocin, a brand of Erythromycin

1997
Althrocin moves to become top selling brand in India

1999
Started production of synthetic, organic API

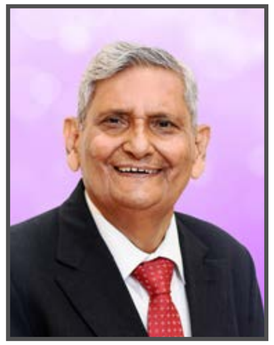
2011
Alembic Pharmaceuticals demerged from Alembic group and listed as separate entity

2020
Achieved milestone of $250 million sales in the US front-end

ALKEM

Alkem's R&D facility, Taloja

Samprada Singh



B N Singh

Foundation Story

Alkem Laboratories was founded in 1973 in Mumbai by cousins Samprada Singh (1925-2019) and Basudeo Narain Singh when they decided to enter into pharmaceutical manufacturing after successfully running a distribution business in Bihar, and a few other ventures for nearly two decades.

Products and Places

Alkem is a market leader in the anti-infectives segment in India and among the top three companies in supplements, gastrointestinal and pain management segments. It is also growing its portfolio of drugs for chronic ailments. Its well-known brands include Pan, Clavam, Taxim-O, A to Z, Pipzo and Uprise-D. Globally, Alkem has a meaningful presence in the US, Latin America, Australia, and several Asian and European countries. Alkem derives 70% of its total turnover from India, 19% from the US, and 11% from other parts of the world.

Meaning Behind The Name

The name Alkem is inspired from 'Alchemy', the medieval forerunner of chemistry concerned with attempts to convert base metals into gold. The name represents a quest for perfection and an association with chemistry. Surprisingly, the name suggestion had come from a salesman at a bookstore, following one of the founder's insistence on a name starting with 'A'.

Growth Story

Since its inception five decades ago, Alkem has grown significantly to become the fifth-largest pharmaceutical company in the Indian market with a turnover of nearly Rs. 13,000 crore and an employee strength of over 21,000. From its single facility in Taloja near Mumbai in 1978, Alkem now hosts 19 manufacturing facilities and cutting-edge R&D centres in India and the US. After establishing a strong domestic base in anti-infectives and few other segments, Alkem began to expand its reach in international markets, especially to the US with high value-products using the First-To-File exclusivity provision available under US laws.

Alkem combines scientific excellence with a people-first philosophy to drive progress and shape the next era of growth.

Brand Power

With one of the largest sales teams in the Indian pharmaceutical industry, Alkem ensures that its brands reach customers far and wide. Alkem's focus on building large, high-impact brands and its strong product lifecycle management have been instrumental in its success. It has created iconic brands like Pan, Clavam and the anti-infective Taxim, which was the first brand in India to cross Rs. 100 crore in sales in 2006 and still holds 80% market share today. Alkem has 17 brands in the top 300 brands list of the Indian pharmaceutical market.

Alkem's manufacturing facility in Sikkim

Milestones

1973-2003
Set up 4 manufacturing facilities; Established R&D centre at Taloja, Navi Mumbai

2006-2007
Taxim became first brand to hit Rs. 100 cr in India; Alkem among first to set up pharma manufacturing in Sikkim

2007-2010
Expanded international operations, mainly in the US and Australia

2010-2011
Became the No.1 company in Anti-Infectives segment in India; Ventured into biotech with acquisition of Enzene Biosciences

2015
Listed on the Indian stock exchanges

2019
Total revenue crossed $1 billion

2023
Launched the world's first biosimilar of cancer drug cetuximab in India

2024
Entered into Medtech segment by signing a licensing deal with Exactech for large joint replacements; Inaugurated GCC at Airoli, Navi Mumbai

AUROBINDO PHARMA

P V Ramprasad Reddy

K Nityananda Reddy

APL Unit-VII, Telangana

Foundation Story

Aurobindo Pharma was founded in 1986 in Hyderabad by P V Ramprasad Reddy and K Nityananda Reddy and a group of highly committed professionals. Together, they built a global pharmaceutical powerhouse.

Products and Places

Beginning with semi-synthetic penicillin, Aurobindo Pharma established its name as a trusted provider of antibiotics. Other key product categories include specialty & injectables, biosimilars and ARVs, focused on therapeutic areas such as cardiovascular, central nervous system, anti-diabetic, respiratory and oncology. The company's acquisition strategy has expanded its geographical presence multi-fold in the USA, Europe and rest of the world. Its consolidated revenue of Rs. 29,000 crores is split as follows: USA (49%), Europe (25%), growth markets (8%), ARVs (3%) and APIs (14%).

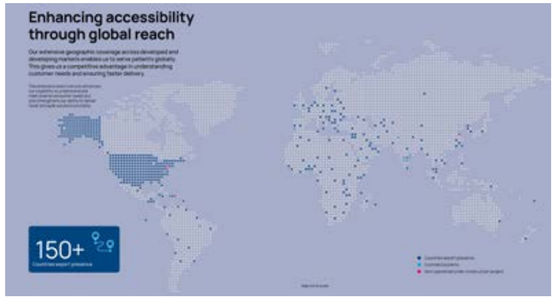
Meaning Behind The Name

Aurobindo Pharma's name honors Sri Aurobindo (1872-1950), a visionary Indian philosopher and nationalist who championed holistic progress. Reflecting his philosophy, the company has set its motto as "Committed to Healthier Life".

AUROBINDO
Committed to healthier life!

Growth Story

Aurobindo Pharma started its operations in 1988-89 with a single manufacturing unit in Pondicherry, primarily focused on producing active pharmaceutical ingredients (APIs). In 1992, Aurobindo Pharma commenced API exports, followed by an initial public offering in 1995, marking its entry into formulations production. Over the years, it has expanded its manufacturing footprint globally through a network of 29 facilities, with 50+ billion dosages and 19,000 MT API capacity. Today, it has nine R&D centers with over 1,500 scientists and is one of the largest Indian pharmaceutical firms, employing over 37,000 people globally.



Towards making India self-sufficient in Intermediates and APIs

Aurobindo Pharma through its subsidiary Lyfius Pharma has made a significant strategic investment of Rs. 2,500+ crore in a state-of-the-art Penicillin G manufacturing facility with a production capacity of 15,000 MT per year aligning with the Indian government's Production Linked Incentive (PLI) scheme for the pharmaceutical sector. It will enhance domestic production of critical Key Starting Materials (KSMs), Drug Intermediates (DIs), and Active Pharmaceutical Ingredients (APIs), reduce import dependency and support local industrial growth.

An aerial view of Aurobindo's Lyfius Pharma manufacturing plant at Kakinada, Andhra Pradesh

Milestones

1986
Aurobindo Pharma founded by P V Ramprasad Reddy and K Nityananda Reddy

1988
Started operations with a single manufacturing unit in Pondicherry

1992
Commenced API exports, marking the beginning of international expansion

1995
Went public and started formulations production

2007
Acquired AuroLife in the US and Pharmacin in the Netherlands

2016
Entered biosimilars and vaccines segments

2021
Acquired 9 OTC brands, filed first biosimilar with EMA

2024
Inauguration of Penicillin-G plant by Hon'ble Prime Minister of India

CADILA

Indravadan Modi

Dr. Rajiv Modi and his father, Indravadan Modi

Old Cadila Plant, Ghodasar

Foundation Story

Cadila Laboratories was founded on March 13, 1952 by Indravadan Modi (1926-2012), a graduate of UDCT (now, ICT) Mumbai, and his business partner R B Patel, in Ahmedabad. Modi's wife, Shilaben Modi (1931-2016), played a vital role in the company's early days, inspiring the development of one of India's first indigenously produced gripe water. Cadila Pharmaceuticals, born out of a restructuring in 1995, is today led by their son, Dr. Rajiv Modi.

Products and Places

The current focus therapy areas include gastroenterology, cardiology, oncology, gynecology and diabetology. In 2024, it launched an aqueous formulation of cholecalciferol, setting a new benchmark in the treatment of Vitamin D deficiency. The firm has a global presence including the US, Japan and Africa and a turnover of over Rs. 3,000 crore.

Meaning Behind The Name

The name Cadila was chosen to denote Chemicals and Drugs Industrial Laboratories.

CADILA PHARMACEUTICALS LIMITED

The Care Continues...

Growth Story

Since 1995, Cadila Pharmaceuticals has grown to operate several manufacturing plants including one in Ethiopia in Africa. Cadila's R&D initiatives involve a team of over 350 scientists working on discovery, APIs, formulations, and drug marketing and also collaborations projects to come out with innovative products.

Making Medicines in Ethiopia, Africa

Cadila's visionary move to establish Ethiopia's first WHO-cGMP-compliant plant in Addis Ababa in 2007 marked a major milestone. With an initial capacity of 390 million tablets, 165 million capsules, and 1.44 million litres of liquid, the facility became a hub of growth and innovation. In 2022, Cadila deepened its commitment with a new formulation development lab, inaugurated by Ethiopian Ambassador Dr. Tizita Mulugeta Yimam.

This state-of-the-art laboratory, spanning two floors, is dedicated to developing innovative formulations for solid orals, injections, and analytical testing. The laboratory's inauguration marks a significant milestone in Cadila's commitment to Africa, which the company considers its "second home".

Milestones

1952
Founded in1952, Cadila introduced its first products - Livirubra, a vitamin supplement in liquid form

1967
First factory premises at Ghodasar

1995
Restructured and rechristened as Cadila Pharmaceuticals

2004
First WHO-cGMP-compliant plant in Addis Ababa, Ethiopia

2004
Developed innovations for the treatment of cardiovascular diseases, lung cancer, and tuberculosis: Polycap, Mycidac-C, Risorine, Rabeloc IV, and Immuvac

2020
Launched Anti-Allergic Drug Bilastine in India

2022
Launched Tarzed for Early-Stage Breast Cancer

2024
Launched the world's first aqueous formulation of cholecalciferol, setting a new benchmark in the treatment of Vitamin D deficiency

CIPLA

Dr. Khwaja Abdul Hamied at work in a lab in Berlin, in 1926
and at work in his later years

Dr. Yusuf Hamied at work in a lab in Cambridge, circa 1959 and in recent years

Foundation Story

Cipla was founded in 1935 in Mumbai by Khwaja Abdul Hamied (1898-1972), a doctorate in chemistry from Humboldt University, Berlin. He led the firm until 1972 after which his son, Yusuf Hamied—also a chemistry PhD from Cambridge—expanded Cipla into a global pharmaceutical leader focused on affordable medicines.

Mahatma Gandhi's visit to Cipla in 1939

Products and Places

Cipla has a well-diversified product portfolio with leadership in India in respiratory, anti-infectives, cardiac, central nervous system, opthal, and urology. Cipla derives around 43% of its consolidated turnover of Rs. 26,000 crore from India, 30% from North America, 12% from South Africa, Sub-Saharan Africa and Global Access, and the remaining from Europe and rest of the emerging markets.

Meaning Behind The Name

Cipla is the acronym for the firm's original name 'The Chemical, Industrial and Pharmaceutical Laboratories Limited'.

Growth Story

Inspired by the ideals of self-reliance and self-sufficiency during India's freedom movement, Cipla began to scale up its production of APIs and formulations since the 1970s, through active collaboration with govt-run CSIR labs. In the 2000s, it attracted global attention for slashing the price of anti-HIV/AIDS drugs through a novel production technology, helping change the course of the deadly epidemic in Africa and around the world. From its original base in Mumbai Central, Cipla has grown to have 46 global manufacturing facilities and a team of over 30,000 employees worldwide.

Image Source: Amit Pasricha

Pioneering Palliative Care

Established in 1997, the Cipla Palliative Care and Training Centre (CPC) in Pune supports patients with advanced stages of cancer and their families through in-patient and out-patient services. Since its inception, CPC has served over 25,000 patients directly through the centre addressing their physical, social, emotional and spiritual care through a multidisciplinary team.

In FY24-25, Cipla Foundation provided palliative care services to over 57,000 patients through its 30+ partnerships in over 35 cities in India. This reflects Cipla's enduring commitment to compassionate and accessible care.

Source: Cipla Archives

Milestones

1935
Dr. K A Hamied founded CIPLA - Chemical Industrial Pharmaceutical Laboratories

1939
Mahatma Gandhi visited the Cipla laboratory in Mumbai Central, on July 4, 1939

1972
Produced its first inhaler, pioneering inhalation therapy in India

1985
All three bulk-drug plants accorded US FDA approval, one of the first to gain this recognition in pharma

2001
Created the world's first triple-drug fixed-dose combination for HIV-AIDS; offered this to 'Doctors without Borders' at $350/ year/ person

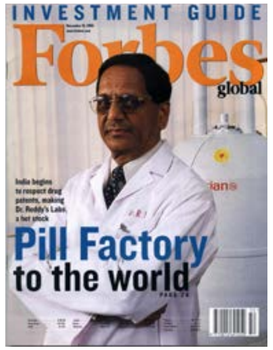
2013-16
Acquired Medpro, South Africa, followed by InvaGen and Exelan, USA, for access to local markets, government and institutional businesses

2020
During the pandemic, Cipla once again came to the forefront of care ensuring access to diagnosis and treatment

2025
Cipla ranks among top two by brand count in India, is #2 in Rx and #3 overall in South Africa's private market, and remains a leading generics player in US

DR. REDDY'S

From Left to Right: Satish Reddy, Dr. K Anji Reddy, G V Prasad.



Dr. K Anji Reddy on the cover of Forbes magazine, December 10, 2001

Foundation Story

Dr. Reddy's Laboratories (Dr. Reddy's) was founded in 1984 by Dr. K Anji Reddy (1941- 2013) in Hyderabad. Anji Reddy was a graduate of UDCT (today, ICT Mumbai), PhD in Chemical Engineering from NCL Pune, and employee of the public sector enterprise Indian Drugs & Pharmaceuticals Ltd (IDPL) in Hyderabad between 1967 and 1973, after which he began his entrepreneurial journey with several ventures. Dr. Reddy's is currently led by his son-in-law, G V Prasad and son, Satish Reddy.

Products and Places

Driven by its purpose of 'Good Health Can't Wait', and emphasis on access, affordability and innovation, today Dr. Reddy's core businesses are generics and APIs. Over the years, oncology has been a key focus therapy area, alongside gastro-enterology, cardiovascular, diabetology, pain management and dermatology. The company has also been investing in novel molecules, digital health solutions, biosimilars and consumer health as future growth drivers. The company has revenues of Rs. 29,000 crore with India, the United States, Russia & CIS, China, Brazil and Europe as its main markets.

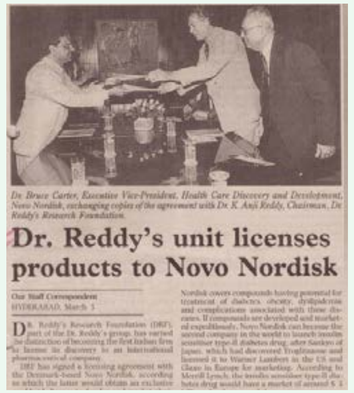
Meaning Behind The Name

Named after the founder's family surname.

Growth Story

The pioneering spirit and quest for excellence on which the company was founded drove significant industry-firsts such as expansion into international markets and investment in drug discovery in the 1990s, first-to-market launches in several countries, listing on the NYSE in 2001, adoption of voluntary disclosures in 2003 and science-based commitments in sustainability. Its early focus on research made Dr. Reddy's the first Indian company to out-license a novel drug in 1997 to an innovator! Today, the company has 19 manufacturing units – including a World Economic Forum recognized 4IR Digital Lighthouse factory – and 8 global R&D centers, employing over 26,000 people.

Dr. K Anji Reddy during the NYSE listing in 2001



Dr. Bruce Carter, Executive Vice-President, Health Care Discovery and Development, Novo Nordisk, exchanging copies of the agreement with Dr K. Anji Reddy, Chairman, Dr Reddy's Research Foundation.

Dr. Reddy's unit licenses products to Novo Nordisk

Our Staff Correspondent
HYDERABAD, March 5

Dr. Reddy's Research Foundation (DRF), part of the Dr. Reddy's group, has earned the distinction of becoming the first Indian firm to license its discovery to an international pharmaceutical company.

DRF has signed a licensing agreement with the Denmark-based Novo Nordisk, according to which the latter would obtain an exclusive ... Nordisk covers compounds having potential for treatment of diabetes, obesity, dyslipidemia and complications associated with these diseases. If compounds are developed and marketed expeditiously, Novo Nordisk can become the second company in the world to launch insulin secretagogue type-II diabetes drug, after Sankyo of Japan, which had discovered Troglitazone and licensed it to Warner Lambert in the US and Glaxo in Europe for marketing. According to Merrill Lynch, the insulin secretagogue type-II diabetes drug would have a market of around $ 3

1997

A Quest for Globalization

Dr. Reddy's was one of the first Indian pharma firms to seize opportunities presented by rising globalization. From the 1990s onwards, the company was among the earliest to expand into Russia, the US, China, Brazil and others. In 2001, it became the first Indian pharma company to receive 180- day marketing exclusivity from the USFDA, and subsequently to launch the first authorized generic in 2006 and the world's first monoclonal antibody biosimilar in 2007. The company marked its 40th year with its biggest ever acquisition of the global consumer brand Nicotinell, a novel joint venture with Nestle India, widening access to Sanofi's vaccines in India, and the India launch of the world's only approved immuno-oncology therapy for RM-NPC, Toripalimab. Over the years, a bold and entrepreneurial approach to business has led to several major global acquisitions and a diversified portfolio of products and services. Today, Dr. Reddy's has a business presence in 76 countries with employees representing 53 nationalities, currently serving over 700 million patients globally with the aim of reaching 1.5 billion patients by 2030.

Milestones

1984

Dr. Reddy's Laboratories founded by Dr. K Anji Reddy

1991

First mega-brand Omez (Omeprazole) launched in India and became DRL's first Rs. 1 bn brand and a leader in Indian pharma

1996

Dr. Reddy's Foundation established to give back to society

2001

Introduced concept of 'Self-Managed Teams' in Indian pharma to provide skilling and livelihood opportunities to youths around plant sites

2002

Led the way in building a Zero Liquid Discharge (ZLD) plant based on membrane technology in Miryalaguda to treat and recycle all effluents in-house

2020-21

Combined in-house efforts with open-innovation partnerships for a diverse portfolio including vaccine and therapeutics for mild, moderate and severe COVID-19. Helped in reaching over 5 M patients, especially in LMICs

2023-24

Strategic collaborations: Nerivio device for migraine, Sanofi's vaccines, JV with Nestle, acquisition of global consumer brand Nicotinell, launch of Toripalimab, and denosumab biosimilar

EMCURE

Satish Mehta

Foundation Story

Satish Mehta founded Emcure Pharmaceuticals in Pune in the early 1980s with a mission to enhance the physical and mental well-being of fellow Indians by providing high-quality and affordable medicines. He earned a Post Graduate degree in Chemistry from Pune University and an MBA from the Indian Institute of Management (IIM), Ahmedabad.

Products and Places

Emcure has a significant presence in Gynecology, Cardiovascular, Anti-Infective, VMN (Vitamins, Minerals and Nutrients), HIV antivirals, Oncology/anti-neoplastics, Hormones and Blood-related therapeutic areas. It derives around half of its consolidated revenue of Rs. 6,600 crore from India, a fifth from Europe, and the rest from Canada and the Rest of the World markets.

Meaning Behind The Name

Emcure is an abbreviation for “Effective Medicine to Cure”, reflecting the company’s commitment to improving lives.

Emcure®

Growth Story

Emcure started its journey in the 1980s as a contract manufacturer for multinationals and transitioned to making its own medicines in the mid-1990s. Since then, it has grown by focusing on domestic manufacturing and exports. It invested significantly in R&D and made strategic acquisitions abroad. The success of its flagship brand, Orofer, to treat anaemia and other innovative solutions have contributed to the firm’s development. Together with its biotech subsidiary Gennova, Emcure manufactures APIs, formulations and biologics for markets around the world and employs over 11,000 people.

Satish Mehta, with family members, at Emcure’s National Stock Exchange listing ceremony in 2024.

A Strong Foundation in Innovation

The firm’s R&D capabilities grew over several decades, driven by a strong foundation in chemistry, particularly chiral chemistry. It has developed and marketed over ten chiral molecules which have demonstrated greater efficacy and safety, and they require lesser dosage than their non-chiral counterparts. Examples include S(-) Amlodipine Besilate, Metoprolol Succinate, Dexrabeprazole Sodium, S(-) Etodolac, Dexketoprofen Trometamol.

Outside chiral compounds, Emcure has also developed complex oncology compounds, peptides and made significant strides in biologics, and a notable achievement was the development of an mRNA vaccine, developed by its subsidiary - Gennova. The R&D team at Emcure comprises over 500 scientists and the activities are spread across its five dedicated facilities, located in Pune and Ahmedabad.

Milestones

1981
Emcure Pharmaceuticals Pvt. Ltd. incorporated

1983
First manufacturing facility in Bhosari, Pune

1995
Started focusing on Indian domestic branded generics

2001
Gennova Biopharmaceuticals Ltd. incorporated

2002
First chiral product launched

2014
Acquired Tilomed Laboratories, UK

2021
Emcure’s subsidiary - Gennova’s mRNA vaccine enters trials

2024
Emcure gets listed on the Indian Stock Exchanges

GLENMARK

Gracias Saldanha

Blanche Saldanha

Glenn Saldanha

Foundation Story

In 1977, the late Gracias Saldanha (1938–2012) founded Glenmark Pharmaceuticals in Mumbai, by investing his provident fund savings. His wife, Blanche Saldanha, later joined him, playing a key role in expanding Glenmark's international operations. She continues to serve as a valued Board member today. Their son, Glenn Saldanha, an NYU Stern MBA, took the helm as CEO in 2000 and invested deeply in research and development, leading to breakthroughs in chemical entities and biologics.

Products and Places

Glenmark's extensive portfolio encompasses branded, generic, and OTC medicines, with a strong presence in key therapeutic areas such as Respiratory, Dermatology, and Oncology. The company is dedicated to providing innovative and affordable treatments, reaching patients in over 80 countries worldwide. With operations in India, North America, Europe and Emerging Markets, Glenmark achieved a revenue of INR 12,000 in FY24, underscoring its global impact and commitment to accessible healthcare.

Meaning Behind The Name

Gracias Saldanha named his company Glenmark after his two sons, Glenn and Mark.

Glenmark
A new way for a new world

Growth Story

Glenmark began its journey in 1979 with the launch of Candid®, a dermatology breakthrough, followed by Ascoril®, a trusted respiratory care product. Over decades, Glenmark expanded into oncology, transforming into an innovation-driven global organization. In 2004, its first out-licensing deal for GRC 3886 set the stage for global partnerships. Glenmark's flagship hypertension product, Telma, was featured as a Harvard Business case study for the expertise in market leadership. During COVID-19, it introduced FabiFlu®, benefiting over 5 million patients. The establishment of Ichnos Sciences, now Ichnos Glenmark Innovation (IGI) drives cutting-edge oncology research. In 2022, Glenmark launched RYALTRIS®, now marketed in 43 countries. Today, Glenmark stands as a multinational powerhouse, driven by research, resilience, and its founding values.

Innovation Focus

'Striking biologics pact a great achievement'

Rupali Mukherjee | TNN

Mumbai: After licensing the country's first novel biological entity to Sanofi, Glenmark Pharma MD Glenn Saldanha, who recently took over as CEO from his father, told TOI it was "tough", adding that "the deal validates the cutting edge work in the drug discovery R&D area at a global level". Excerpts from the interview.

How does it feel? Will you term it as your greatest achievement till now?

To be the first company across emerging markets to strike an outlicensing deal of this magnitude in the novel biologics space—which is extremely tough and at the same time most promising—is definitely a big achievement for us. The molecule, which has been outlicensed, has been developed by us in-house and this is a great achievement for an Indian company.

How difficult was the development of the NBE after you acquired the molecule three years back?

Given the very early stage at which the programme was acquired, it was almost akin to developing an in-house programme from scratch. The monoclonal antibody's space is an evolving technology and a lot of effort went into staying at the cutting edge by Glenmark. Globally, a number of Big Pharma companies have invested substantial amounts in the area of monoclonal antibodies and a number of these drugs are able to address unmet medical needs effectively. If you see the list of the largest selling drugs in the world, 4 out of the top 5 will be Mabs in 2014.

Glenn Saldanha

Was it tough to convince Sanofi?

It was a long process, which involved several rounds of due diligence. But we are extremely happy to get a partner like Sanofi who is committed to the area of novel biologics. It took close to 18 months for the deal to be finalized.

What's the risk in development of new drugs?

There is a considerable risk of failure as there are several stages of clinical development. The GBR 500 has shown promising results with no toxic effects till completion of Phase 1. But if it succeeds, it's a multi-billion-dollar opportunity. Over the next two months, we will receive $50 million.

How is the landscape for Indian companies pursuing research?

Drug discovery research is a long gestation activity and could take over a decade for getting a drug to market. We see a lot of activity on the Indian space in getting small molecules i.e. new chemical entities, to clinical trials. It is important that Indian companies have the patience and the resources to be in drug development space because there are highs and lows. But you need to keep moving forward and keep evolving every few years.

On the other hand, the novel biologics space is relatively new and we would take a few years before we develop capabilities in this area.

Image Source: Times of India, May 17, 2011

Milestones

1977
Glenmark established by its Founder Emeritus, Late Mr. Gracias Saldanha

2000
Listed on Indian stock exchanges

2005
Entered a deal with Teijin Pharma for the Japan rights of its novel molecule Oglemilast, earning an upfront payment of $6 M

2006
Established R&D centre in Switzerland, for New Biological Entity (NBE)

2010
Out-licensed its first-in-class GRC 15300 molecule to Sanofi-Aventis for $25 M (upfront payment)

2012
Out-licensed its first New Biological Entity GBR 500 molecule to Sanofi-Aventis for $55 M (upfront and milestone payments)

2020
Launched FabiFlu® (Favipiravir) for mild to moderate COVID-19; exported to 24 countries by June 2021

2025
IGI, Glenmark's biotech arm, discovered several innovative multispecific antibodies for oncology

INTAS

Binish Chudgar

Hasmukh Chudgar

Foundation Story

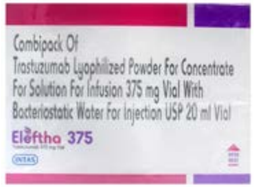
Intas was founded in 1977 in Ahmedabad and incorporated in 1985, by Hasmukh Chudgar, a pharmacy graduate from the L M College of Pharmacy. The second-generation leadership comprises of his sons, Binish Chudgar, Nimish Chudgar and Dr. Urmish Chudgar.

Products and Places

Intas has over 10,000 product registrations worldwide. In India, it has established leadership in key therapeutic segments like Oncology, Neurology, Cardio-Diabetology, Gastroenterology, Urology, Dermatology, Immunology and Neurology and also in animal health. Overseas, the company is particularly well known for its range of products in Oncology and other hospital-based therapeutic areas in the EU. Intas derives around 40% of its total turnover of Rs. 20,000+ crores from India, and the rest mainly from Europe and USA.

Growth Story

In the 1970s, it focused on chronic segments like neurology and thereafter Intas steadily widened its portfolio to include gastroenterology, cardiology, dermatology and r-DNA biotech products for cancer care in the 2000s. Since then, it has strengthened its base through oncology, biotechnology, animal healthcare and other therapeutic categories along with a string of acquisitions, it has grown into a leading, vertically integrated global pharmaceutical formulation development, manufacturing, and marketing company. Its R&D team has 800+ scientists and Intas currently has 17 manufacturing sites, 23,000+ employees and products sold in 85+ countries.



Intas Head Office

Biosimilars: Innovation for Accessibility and Affordability

Intas is a pioneer in the development of biosimilars, with a mission to provide life-saving therapies at an affordable cost. The biosimilars portfolio is designed to reduce the financial burden on patients while maintaining the highest standards of efficacy and safety. The philosophy of 'biosimilars for billions' guides a commitment to global accessibility.

Bevacizumab (Bevatas): Intas launched Bevatas, a biosimilar for Bevacizumab, to treat various cancers, including colorectal, ovarian, cervical, and lung cancers.

Trastuzumab (Eleftha): Eleftha, a biosimilar for Trastuzumab, addresses HER2-positive breast cancer.

Ranibizumab (Razumab): Intas launched Razumab, the world's first biosimilar for Ranibizumab, to treat retinal disorders. Since its launch, Razumab has restored vision for over 300,000 patients across India, underscoring the transformative impact of the innovation in the field of ophthalmology.

Milestones

1977
Founded in Ahmedabad by Hasmukh Chudgar

1985
Incorporated as a private company

1999
Launch of Revac-B, its first recombinant biotech product

2000
Intas' Biologics Business Unit launched with a focus on developing rDNA protein products and plasma-derived products

2008
Acquisition of Actavis and formation of Accord Healthcare, wholly owned subsidiary, set up for Europe market

2010
Acquired multiple European injectable products from Taro

2016
Acquired Fawdon pharma manufacturing site in UK

2022
Licensing agreement between Accord and Myovant for a new treatment for prostate cancer patients in Europe

IPCA

Premchand Godha (Bottom row, left), M R Chandurkar with other managers at IPCA, Mumbai, 1976

Premchand Godha (center) with partners Ajitabh Bachchan (left) and M R Chandurkar (right)

Foundation Story

Ipca Laboratories was founded in 1949 by a group of medical practitioners in Mumbai. It was taken over by a new management team in 1975 comprising Premchand Godha, M. R. Chandurkar and Ajitabh Bachchan. It is today led by Premchand Godha.

Products and Places

Ipca initially maintained a strong presence with its anti-malarial product, Lariago. Today, Ipca has leading brands in Pain, Rheumatology, Antimalarials and Haircare therapy and has a wide portfolio across therapeutic categories.

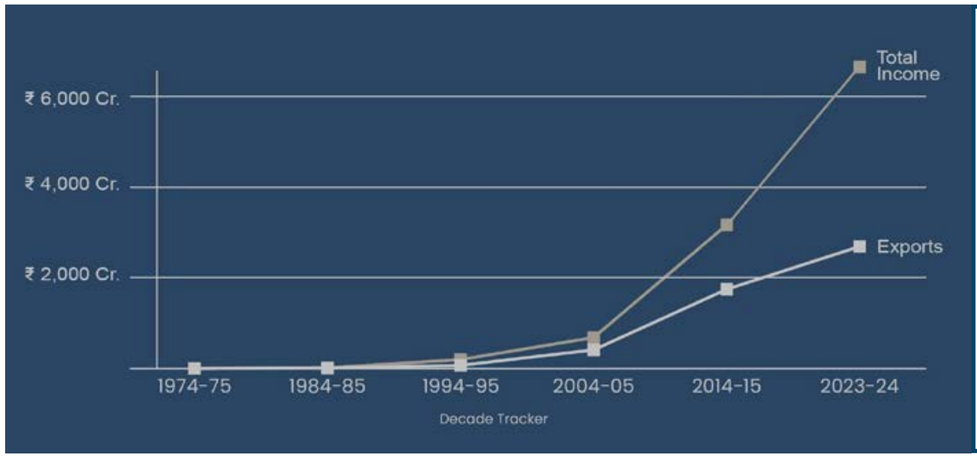
It derives over half of its total revenues of Rs. 6,000 crore from domestic sales and the balance from exports across the globe to over 100 countries.

Meaning Behind The Name

Originally incorporated as Indian Pharmaceutical Combine Association Ltd. (IPCA).

Growth Story

From a single factory, Ipca has grown into a global player, with a presence in over 100 countries. Focused initially on exports to Sri Lanka, Afghanistan, Kenya and Libya since its founding days, Ipca soon began developing its presence in the domestic market. Today, it is a fully-integrated pharmaceutical company that manufactures over 350 formulations and 80 APIs for various therapeutic segments via 15 API and 11 formulation manufacturing facilities with businesses spanning across the globe, employing over 17,000 people.



1974-75
Exports: 50 L
Total Income: 1 cr

1984-85
Exports: 9 cr
Total Income: 15 cr

1994-95
Exports: 69 cr
Total Income: 197 cr

2004-05
Exports: 411 cr
Total Income: 685 cr

2014-15
Exports: 1,753 cr
Total Income: 3,178 cr

2023-24
Exports: 2,700 cr
Total Income: 6,300 cr

Milestones

1949
Indian Pharmaceutical Combine Association was incorporated

1975
Present management took over company

1977
Started marketing branded formulations in Indian market

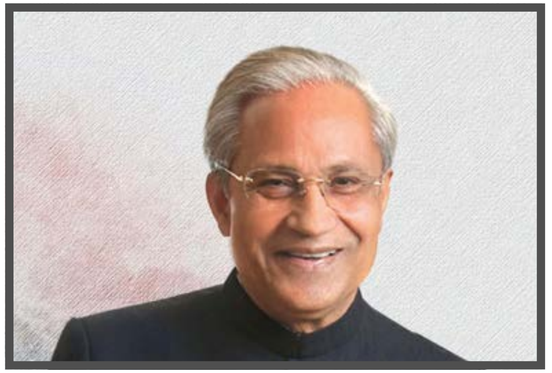
1994
Ipca went public with its maiden IPO

2005
Forbes Asia, selected Ipca, for the third consecutive year, as 'Best under a Billion Company' in Asia

2016
Ipca won the 'Clinical Trial result of the year' at the first annual CARE awards, USA

2023
Acquired controlling stake in Unichem Laboratories Ltd

LUPIN



Dr. Desh Bandhu Gupta

Vinita Gupta and Nilesh Gupta

Aurangabad formulation plant, 1979

Foundation Story

Dr. Desh Bandhu Gupta (1938–2017), fondly known as DBG, began his professional journey as a science professor at the Birla Institute of Technology and Science, Pilani, after his post-graduation in science. However, guided by a deep conviction to make healthcare accessible and equitable, DBG left the teaching profession and moved to Mumbai. After gaining experience in both Indian and multinational pharmaceutical companies, he set out to pursue his vision of creating a company that stood for high-quality, affordable medicines of social priority. In 1968, with Rs. 5,000 borrowed from his wife, Manju Gupta, Lupin was born. Lupin is now led by DBG's children, Vinita Gupta and Nilesh Gupta.

Products and Places

Lupin's leadership spans multiple therapeutic areas including cardiovascular, respiratory, diabetes, gastrointestinal, and women's health and Lupin is a leading provider of anti-TB medicines globally. In FY24, Lupin reported consolidated revenues of Rs. 20,011 crore, with 37% of its revenues from North America, 34% from India and 10% from Europe, the Middle East and Africa. Its specialty business in the US commenced with the launch of Suprax in 2004.

Meaning Behind The Name

The name "Lupin" is derived from the lupin flower — resilient, regenerative, and medicinal. It thrives in the toughest conditions while enriching the soil around it. This symbolism aligned perfectly with DBG's mission: to create an organization that could withstand challenges, uplift communities, and deliver medicines of social and therapeutic relevance to those who needed them most.

Growth Story

Lupin commenced operations as a manufacturer of iron and folic acid tablets and soon evolved to producing drugs to combat tuberculosis (TB). Over the next five decades, Lupin built deep capabilities in the research and production of APIs, formulations and biosimilars, as well as in building meaningful onshore presence with a wide array of products across multiple therapeutic areas. What started with two employees - a part-time typist and a peon-and-packer - has evolved into a global pharmaceutical powerhouse. Today, Lupin employs over 23,000 people and its products are marketed in more than 100 countries. Its footprint includes 15 world-class manufacturing facilities and 7 research centers across India, the U.S., Brazil, Mexico, and the Netherlands.

Lupin Research Park – Lupin's state-of-the-art research facility - Pune, Maharashtra, India.

Lupin's advertisement for anti-TB medicines in 1978
Source: Times of India, 29th April, 1978

Pioneers in the Fight Against Tuberculosis

Since the 1970s, Lupin has been a relentless force in the battle against TB. Today, it stands as the world's largest provider of anti-TB drugs, supplying cost-effective, high-quality treatments to patients in low and middle-income countries in partnership with organizations such as the WHO.

Lupin's leadership in TB is underpinned by its vertical integration across the supply chain, its strength in fermentation technology, deep API capabilities, and GMP-compliant manufacturing facilities. The company has been a fore-runner in addressing multi-drug-resistant TB, reinforcing its commitment to public health.

Milestones

1968
Lupin is founded by Desh Bandhu Gupta

1981
Production of Ethambutol begins

1989
Mandideep and Ankleshwar Plants received USFDA approvals

1993
Lupin Laboratories Ltd. makes Initial Public Offering

2001
Sets up Lupin Research Park — it state-of-the-art R&D Centre in Pune

2008-2010
Makes acquisitions in South Africa, Australia, and Germany as part of its global expansion

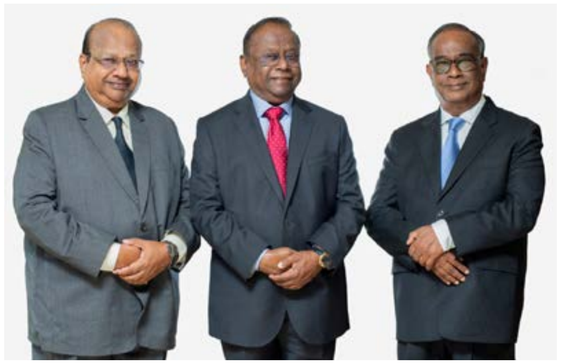
2011-2025
Further expands global presence through acquisitions in Philippines, Mexico, Netherlands, Brazil, France, and UK

2021-2024
Initiates forays into Diagnostics, Digital Health, and CDMO

MACLEODS

Palghar factory set up in 1991

The Macleods factory in Daman



From L to R: Banwarilal Bawri, Girdharilal Bawri and Dr. Rajendra Agarwal

Foundation Story

Macleods was founded by medical graduate Dr. Rajendra Agarwal in Jaipur in the 1980s, along with his brothers, Girdharilal Bawri and Banwarilal Bawri, and registered as a company in 1989. The family had earlier started with a small medical shop in the early 1970s and then established a bigger distribution firm before setting up Macleods.

Products and Places

Headquartered in Mumbai, Macleods currently engages in developing, manufacturing, and marketing a wide range of formulations across several major therapeutic areas including anti-infectives, cardiovascular, anti-diabetic, dermatology, and hormone treatment. It has a turnover of over Rs. 8,000 crore.

Meaning Behind The Name

The name was inspired by Dr. John Macleod (1915-2006), who authored the book 'Macleod's Clinical Examination', which every clinician reads during medical years to understand the process of clinical examination.

Growth Story

Macleods first explored anti-TB medicines which in the 1980s were expensive and no company had the entire line of primary first-line and second-line TB medications. Dr. Rajendra Agarwal moved to Mumbai in the 1980s, set up the first manufacturing unit in Palghar in 1991, R&D centre in Mumbai in 2002, and soon developed a product portfolio in the anti-TB, anti-infectives, and corticosteroids therapeutic segments. From 50 employees and 20 med-reps in Jaipur at the time of its inception, Macleods has grown to employ more than 19,000 people, including 8,000 field personnel. The R&D team has grown from 50 scientists in 2002 to 2,000 scientists today across six R&D centres. It also has 8 manufacturing units in India and international subsidiaries in USA, the UK, EU, South Africa, Ukraine, Spain, Nigeria, Kenya, Malaysia, Germany, and the Philippines, in addition to a branch office in Kazakhstan and an associate in Indonesia.

Diversified and Quality-Compliant Manufacturing Capabilities

Macleods operates eight manufacturing units in India, capable of producing a wide range of formulations in multiple dosage forms, including oral solids (tablets and capsules including soft gelatin capsules), oral liquids, dry syrups, topicals, granules, inhalers and aerosols, and injectables. Most of them are certified by the WHO or US FDA.

Site facility in Baddi, Himachal Pradesh

Milestones

1989 — Macleods Pharmaceuticals Ltd. established

1991 — Set up a facility in Palghar, Maharashtra

1994 — Launched world's 1st FDC of anti-TB medication Macox range (Macox, Macox ZH, Macox Plus)

2002 — Established in-house R&D unit at Mumbai

2005 — Launched first brand of Diacerein-Orcerin (osteoarthritis) & Olmesartan-Olmesar (antihypertensives) in India

2013 — Company enters top 10 rankings in Indian Pharmaceutical Market

2021 — Acquisition of Makmed, Russia

2022 — Commissioned Dahej facility for manufacturing Key Starting Materials

MANKIND PHARMA

From Left to Right: Arjun Juneja, Ramesh Juneja, Rajeev Juneja and Sheetal Arora

Mankind Pharma's First Head Office in Meerut

Foundation Story

Mankind was founded in 1991 in Meerut by Ramesh Juneja, a former medical representative and sales executive, with a starting capital of Rs. 50 lakhs. Along with his brother Rajeev Juneja, brother-in-law PK Arora and nephew Sheetal Arora, Mankind commenced operations in 1995 and rapidly scaled up to become the fourth largest pharmaceutical firm by value over the past seven years.

Products and Places

Mankind Pharma has a diverse range of pharmaceutical formulations across acute and chronic therapeutic areas, as well as several consumer healthcare products. The company has created some of India's most recognizable healthcare brands, including: Prega News (85% market share in pregnancy test kits), Manforce Condoms (30% market share), Gas-O-Fast, Health OK and Unwanted-72, all of which dominate their respective categories. Mankind's marketing strategy blends grassroots outreach with modern digital engagement, ensuring its brands remain household names. It derives 92% of its turnover of over Rs. 10,000 crore from India and the rest from abroad.

Meaning Behind The Name

The company derives its name from the founders' vision of building a pharmaceutical company that contributed positively toward 'mankind'.

Growth Story

From its early days, Mankind identified and tapped into underpenetrated rural and semi-urban markets, providing affordable medicines in unserved markets. Initially, the company branded painkillers and antibiotics from external manufacturers before transitioning to in-house production in 2007 with its first manufacturing plant in Himachal Pradesh. Mankind has navigated shifting disease patterns, expanding beyond acute care into chronic and specialty segments. Along with strategic acquisitions, Mankind has grown to host 30 manufacturing facilities, employ over 23,000 people, and its products are exported to 20+ countries. It is now positioned among the top 100 listed companies in India.

India's First Fully Integrated Dydrogesterone Facility in Udaipur

Accessibility across the Rural-Urban Spectrum

Mankind has built a strong pan-India presence across the rural-urban spectrum and transformed the accessibility of medicines, reaching the remotest parts of the country with a field force of over 16,000, and ties with 13,000+ stockists.

Milestones

1995
Commenced operations (Founded in 1991)

2004
Entered chronic pharmaceutical segment

2007-10
Entered consumer healthcare by launching Manforce and Prega News brands

2012
Set up first R&D centre at IMT Manesar, Haryana

2015
Set up subsidiaries in the US and Singapore

2020-21
Launched dedicated specialty divisions for cardiovascular, respiratory, central nervous system and diabetes segments

2023
Listed on Indian stock exchanges

2024
Acquired 100% stake in Bharat Serums and Vaccines (BSV)

MICRO LABS

From Left to Right: D C Surana, Ghewarchand Surana and Anand Surana

Micro Lab's Manufacturing unit in Bangalore

Foundation Story

Ghewarchand Surana (1941-2008) or GCS moved from Pali district in Rajasthan to Bangalore to assist his brother-in-law in his silk business, became a manager with Dadha Pharma, started a pharma distributorship in 1968 and founded Micro Labs in 1973 with an acquired plant in Chennai. From the family's base in Bangalore, GCS's sons, Dilip Surana and Anand Surana, have led and expanded the firm over the past few decades.

Products and Places

From an initial offering of antibacterial compounds, antiseptics and vitamins, the firm today has a diversified portfolio, from oral solids to injectables, in fever and pain management, cardiology, diabetology, gastroenterology, neurology and ophthalmology. Micro Labs derives around half of its turnover of Rs. 6,000 crore from India, a quarter from regulated markets such as USA, Australia and countries in Europe and a quarter from the rest of the world.

Meaning Behind The Name

The name 'Micro Labs' reflects a commitment to precision and excellence in healthcare and an underlying belief that health truly lies in the small details, as even the tiniest nuances can have a significant impact on patient outcomes.

Growth Story

After successfully establishing two manufacturing units in Tamil Nadu, Micro Labs forayed into exports during the early 1990s. Over the next twenty years, it expanded its manufacturing presence in multiple geographies in India. Today, the company headquartered in Bangalore, Karnataka, owns 14 oral formulation plants, including an injectable unit, a bulk drug facility, offices in the US, UK, Germany, Australia and Nigeria and representative offices in many emerging markets. The company that started out with a small team of ten, half a century later, has grown into a team of 13,000 employees across the globe.

Modern formulations units using Industry 4.0 technology and stringent quality controls to ensure effective drug delivery and global regulatory compliance

Dilip Surana, holding Dolo-650, a flagship Micro Labs product
Image Source: Nishant Ratnakar, Forbes India, February 8, 2022

Dolo during Covid

Dolo-650 significantly impacted communities during the pandemic by becoming the go-to fever medication for COVID-19 patients. Its easy availability and affordability and innovation in dosage size and tablet shape, made it accessible to many, ensuring that those suffering from fever had a reliable treatment option. The drug's popularity surged as it was frequently prescribed by doctors and shared widely among patients via social media, turning it into a household name. Its efficacy and safety profile contributed to a perception that Dolo-650 was more effective than other paracetamol brands, reinforcing its status as a trusted medication.

Notably, while API prices were rising during the pandemic due to shortages of raw materials and supply chain challenges, Micro Labs did not increase the price of Dolo-650, ensuring continuous production and supply. The name Dolo itself traces its origin to the firm's product Dolopar in 1973, based on the Latin word, 'dolor', denoting pain.

Milestones

1973
Started operations with the first manufacturing plant in Chennai

1980
Started operations at Hosur

1990
Bangalore manufacturing units become operational

2004
Expanded operations with a US FDA-approved plant in Goa

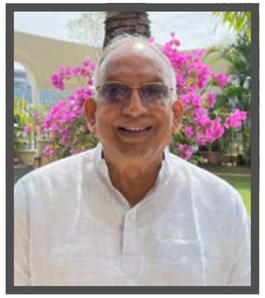
2006
Established Asia's one-of-a-kind ophthalmic plant in collaboration with Bausch + Lomb

2013
Ventured into the European and US markets with new products

2023
Dolo became India's No. 1 brand in paracetamol solids

2024
Acquired Swipha, a leading pharmaceutical company in Nigeria to expand reach in Africa

NATCO



V C Nannapaneni

Rajeev Nannapaneni

Former President, Dr. A.P.J. Abdul Kalam presenting the National Award to Dr. A.K.S. Bhujanga Rao (right), President (Technical) then, along with Chairman V. C. Nannapaneni, for the successful commercialization of indigenous technology on May 11, 2008.

Foundation Story

With a vision and purpose at heart, Venkaiah Choudary Nannapaneni left USA to be in India in early 1981 to start a pharmaceutical business. V.C. Nannapaneni graduated in B. Pharmacy in 1967, M. Pharm in 1968 from Andhra University and Master's degree in Pharmaceutical Administration from the Brooklyn College of Pharmacy, US. Prior to founding NATCO, V.C. Nannapaneni had worked at Time Cap Labs, Inc., New York, overseeing timed release preparations and quality assurance. His son, Rajeev Nannapaneni, is currently the CEO of NATCO. Over the last two decades, he has been instrumental in taking NATCO to greater heights.

Products and Places

NATCO launched homegrown brands which coupled with several other successes propelled the company to be in the top 25 in IPM in the 1990s and the company went on to become a brand leader in the generic oncology segment in India, pioneering affordable cancer treatment. A notable milestone was the launch of VEENAT in 2003, a generic version of Imatinib, which captured over 40% of market share. In 2017, NATCO entered the cardiology and diabetology segments in domestic markets. NATCO entered the Crop Health Sciences business by extending its chemistry skills from pharma to agrochemicals and has enabled it to become one of the quality conscious players in the industry

Growth Story

NATCO Pharma commenced production in 1983-84, launching its own brands. NATCO has 9 state-of-the art manufacturing facilities and 2 R&D centers across India with regulatory approvals from US FDA, EDQM, WHO GMP, ANVISA, Health Canada, etc. Today, NATCO operates in more than 50+ markets with over 4,800 employees, with an annual turnover of more than half-a-billion dollars as of FY 2024-25.

NATCO Pharma formulations facility, Kothur

NATCO Pharma formulations facility, Visakhapatnam

Packshot of the blockbuster drug Veenat which made cancer care accessible

The Battle Against Cancer
A patient's record of how Veenat improved his health and reduced the effect of leukemia on him.

"I was diagnosed with Chronic Myeloid Leukemia (CML) on March 4, 2003. The moment I heard cancer, I was shocked, panicked and had a feeling of the world collapsing in front of my eyes. I was treated at Nizam Institute of Medical Sciences for nine months. Interferon Alpha 2B injections were prescribed, but my condition did not improve (RT PCN for BCR-ABL was 67%). The doctor changed my medicine to Veenat 400 mg by NATCO. Even after that, my body's response was poor. Doctors thought of a bone marrow transplant. At this juncture, Dr. Senthil J Rajappa increased my drug dose to 600mg. After three months, miraculously my reports showed improvement. Within a span of six months, my response was very good (BCR-ABL was almost nil). It shows that Veenat works tremendously on CML patients. My health has improved and am leading a normal life. Now, I can say confidently that the longevity of my life is due to the wonderful drug Veenat. I am very thankful to the Chairman, Rajeev sir and other senior officials of NATCO for saving many patients like me with anti-cancer medicines."

- Sanjeeva Reddy, CML patient, Dilsukhnagar, Hyderabad

Milestones

1981-83
Incorporated NATCO Pharma Division of Kothur, Telangana and commenced production respectively

1992
Listed on the Indian stock exchanges

1997
Inaugurated NATCO Research Centre (NRC) Sanathnagar, Telangana

2008
NATCO's first Paragraph IV filing in the US market

2012
Granted India's first compulsory license by the govt. under the new patent rules, for selling innovator's patent-protected anti-cancer drug

2015
Launched generic Sofosbuvir in India and Nepal for Hepatitis C

2017
Launched Glatiramer Acetate injection in the US

2022
Launched the generic version of Revlimid (Lenalidomide capsules) in the US market being First-to-File in the USA

PANACEA BIOTEC

Soshil Kumar Jain with Ravinder Jain, Rajesh Jain and Sandeep Jain

Soshil Kumar Jain inaugurating the facility at Baddi, Himachal Pradesh.

Dr. Rajesh Jain (right) receiving the Thomson Reuters' Intellectual Property & Science Award, 2015

Foundation Story

Panacea Biotec (as Panacea Drugs Ltd.) was founded in 1984 in Delhi by Soshil Kumar Jain with co-founders Ravinder Jain, Dr. Rajesh Jain, and Sandeep Jain.

Products and Places

The international pharmaceutical formulations product portfolio covers therapeutic areas such as pain, diabetes and cardiovascular, oncology, renal disease, osteoporosis management and gastro-intestinal care, with a presence in ~100+ markets across CIS, Latin America, Middle East, Asia and Africa. It is one of the largest vaccine manufacturers in India and is well acknowledged by the United Nations (UN) Health Agencies in partnering the Global Polio Eradication Initiative (GPEI) with supplies of billions of doses of WHO Pre-qualified vaccines in more than 100 countries worldwide. It has a turnover of Rs. 600 crore.

Meaning Behind The Name

The word 'Panacea' has Greek origins, meaning 'all-healing'.

Panacea Biotec
Innovation in support of life

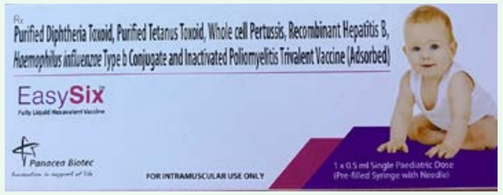
Growth Story

Since 1984, Panacea Biotec grew rapidly to become a research-based pharmaceutical and biotech company with manufacturing sites in Lalru (Punjab), Baddi (Himachal Pradesh) and other places. It collaborated with government labs in India and various partners outside India to develop new medicines and vaccines, and built partnerships with global public health organizations. In 2022, it divested its domestic pharmaceutical brand portfolio to focus on vaccines, international pharmaceuticals, nutrition, and global markets.

First commercial batches of PacliAll (nano-particle bound by human albumin) from Baddi

From Eradicating Polio to Combating Deadly Infectious Diseases

India achieved zero cases of Polio on January 13, 2011, with Panacea Biotec delivering over 10 billion doses of Oral Polio Vaccines (OPV) for India's polio eradication program to the Government of India, UNICEF, and Rotary India Foundation. Millions of Indians who have turned 18 years or older having been vaccinated by Panacea Biotec's vaccines, are now leading healthier lives.



In 2017, Panacea Biotec launched EasySix® (DTwP-HepB-Hib-IPV) in India, the world's first whole-cell pertussis (wP)-based, fully liquid hexavalent vaccine having purified diphtheria toxoid (D), purified tetanus toxoid (T), wP, recombinant Hepatitis B (HepB), Haemophilus influenzae type b conjugate (Hib), and Inactivated Poliomyelitis Trivalent Vaccine (IPV). It supplies vaccines to United Nations agencies, governments, and public health organizations around the world. It is fully integrated from discovery to markets for all vaccine platforms and technologies that are used in marketed products.

Milestones

1984
Founded by Soshil Kumar Jain

1995
First Indian biotech company to be listed on Indian stock exchange

2003
WHO prequalification for tetravalent vaccine (DTwP-HepB) and Oral Polio Vaccine

2005
Launch of world's first wP based fully liquid Pentavalent vaccine, Easyfive (DTwP-HepB-Hib)

2008
Panacea Biotec launches Sitcom, best-in-class product for treatment of piles (or haemorrhoids)

2014
Strategic alliance with Apotex Inc. for development, license, and supply of complex generic drugs in USA, Canada, Australia and NZ

2017
Launch of world's first wP based fully liquid Hexavalent vaccine (DTwPHepB- Hib-IPV) – EasySix

2024
Panacea Biotec and ICMR initiate the first Phase III clinical trial of a Dengue vaccine in India

PIRAMAL PHARMA

Foundation Story

Piramal Group forayed into the pharmaceutical business in 1988 through the acquisition of Nicholas Laboratories. Piramal's pharma business has been led by Ajay Piramal and Dr. Swati Piramal and more recently by their daughter, Nandini Piramal.

Ajay Piramal

Dr. Swati Piramal

Nandini Piramal

Products and Places

Today, it derives nearly 60% of its business from CDMO services of which half is innovation-related work, 30% from complex hospital generics and 10% from India consumer healthcare. It derives 20% of its turnover of Rs. 8,000 crore from India, 41% from North America, 25% from Europe, 4% from Japan, and 10% from other places.

Meaning Behind The Name

Named after the founder's family surname.

Piramal Pharma Limited

Growth Story

Between 1988 and 2010, through a series of mergers and acquisitions, alliances and organic growth, the firm grew to become a Top-5 pharma firm of India. In 2010, it sold its domestic formulation business to Abbott. Since then, it has scaled up its pharma business in CDMO (Contract Development and Manufacturing Organization), inhalation anesthesia, complex injectable and intrathecal products, and the Indian consumer healthcare segment. Currently, it has 17 development and manufacturing sites and over 7,000 employees.

Diversified Healthcare Focus

Piramal Pharma has a diversified healthcare focus through three business verticals.

Piramal Pharma Solutions offers end-to-end integrated CDMO services across the spectrum of the drug life cycle including discovery, development, and commercial manufacturing of drug substances and products. It has a global network of development and manufacturing facilities and a diverse customer base of over 500 companies.

Piramal Critical Care is one of the leaders in inhaled anesthetics and a global player in hospital generics, selling its products in over 100 countries, reaching more than 6,000 hospitals, including surgical centres and veterinary clinics.

Piramal Consumer Healthcare, the India Consumer Healthcare business consists of over 30 OTC products across various categories such as analgesics, skincare, vitamin/ mineral supplements, kids' wellness, digestives, women's health, and hygiene and protection.

Milestones

1988
Piramal Group acquired Nicholas Laboratories to enter the pharmaceutical business

1992
Set up new formulation plant at Pithampur in Madhya Pradesh

1993
JV with Allergan of USA, makers of ophthalmic products; Bought Roche India's domestic formulation business

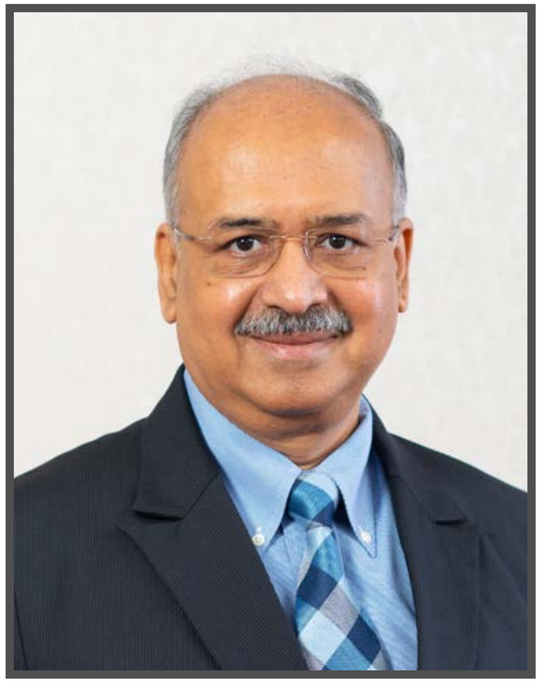
1996
Acquired Boehringer Mannheim for domestic formulations and its manufacturing facility at Mahad

2005
First international acquisition of inhalation anaesthetic products, Isoflurane and Halothane that led to the birth of the critical care business, IP and marketing authorization

2010
Piramal Healthcare sold its domestic formulations business to Abbott Laboratories of Illinois, US for $3.72 billion

2021
The pharmaceuticals business got vertically demerged from Piramal Enterprises Limited and Piramal Pharma Limited ('PPL') became an independent entity, listed in 2022

SUN PHARMA



Dilip Shanghvi

State-of-the-art R&D Centre at Tandalja, Gujarat, India

Foundation Story

Dilip Shanghvi grew up in Kolkata in a family involved in the wholesale distribution of generic medicines. Fuelled by a passion for solving problems and a vision to create a lasting impact on people's lives, he embarked on his entrepreneurial journey. In 1983, with a modest loan of Rs. 10,000 from his father, he founded Sun Pharma with just five psychiatry products and a two-person team.

Products and Places

Sun Pharma offers a diverse portfolio spanning specialty, generics, branded generics, difficult to make technology-intensive products, over-the-counter (OTC), ARVs, APIs and intermediates. It is a leading specialty generics company in the US and has a strong presence in emerging markets. Additionally, Sun Pharma has a presence in over 60 countries, including those in the EU, Australia, Japan, Brazil, Mexico to name a few and serves patients in more than 100 countries. It derives 31% of its global revenues of INR 478 Billion from India, 32% from USA, 18% from emerging markets, 14% from rest of the world and 5% from API.

Meaning Behind The Name

Sun was chosen as the name as it is the perennial source of all energies.

Growth Story

From humble beginnings in the 1980s, Sun Pharma has grown rapidly to become a leading global specialty generics and India's No. 1 pharmaceutical company. Driven by a strong commitment to R&D, it serves healthcare professionals and patients in over 100 countries. With six state-of-the-art R&D facilities, 40+ manufacturing sites and a diverse workforce of 43,000+ spanning 50 cultures, Sun Pharma is helping build a healthier world with its vision of reaching people and touching lives globally.

Mohali, Punjab, India

Innovative product, Ilumya for treatment of plaque psoraisis

Gemcitabine InfuSMART, first ready to administer bag for oncology treatment

Strong Focus on Innovation

Scientists at Sun Pharma are driven by a passion for innovation and commitment to provide better healthcare to humanity at large. Sun Pharma's early investments in R&D, beginning in 1991 has enabled it to make technology a key differentiator. Pioneering technologies such as InfuSMART, Benzalkonium Chloride-Free formulations, Polistirex, Wrap Matrix, and Gastro Retentive have been developed to address unmet medical needs, enhancing patient convenience, compliance, and safety. Beyond generics and OTC products, it markets several innovative products globally, including its flagship drug, Ilumya, for plaque psoriasis, now available in 20+ countries. The company's innovative portfolio and pipeline focuses on three core therapeutic areas—dermatology, ophthalmology, and onco-dermatology—with seven new molecules currently in clinical trials.

Milestones

1983
Sun Pharma was established

1991
First R&D Center, Sun Pharma Advanced Research Center (SPARC) set up in Gujarat

1994
Launched IPO, oversubscribed 55 times

1997
First international acquisition, Caraco Pharmaceutical Laboratories facilitated entry into USA

2013
Launched first generic version of cancer drug, DOXOrubicin Hydrochloride, in USA

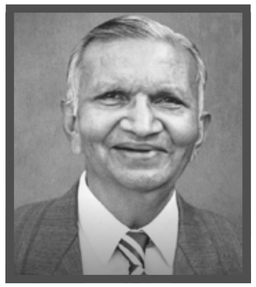
2015
Acquired Ranbaxy in a US$4 billion landmark transaction to become the world's 5th largest specialty generic pharma company and No. 1 in India

2018
Launched innovative product, Ilumya™ (tildrakizumab-asmn) in USA

2022
Global revenue crossed US$5 billion

TORRENT PHARMA

U N Mehta with his cycle as a medical representative



U N Mehta

Sudhir Mehta, Chairman Emeritus & Samir Mehta, Chairman, Torrent Group

U N Mehta Institute of Cardiology and Research Center, 1997

Foundation Story

Uttambhai Nathalal Mehta (1924-1998), who grew up in Palanpur, Gujarat, was a science graduate from Wilson College in Mumbai, and worked as a medical representative for Sandoz before starting his own firm in 1959, later renamed as Torrent Pharmaceuticals.

Products and Places

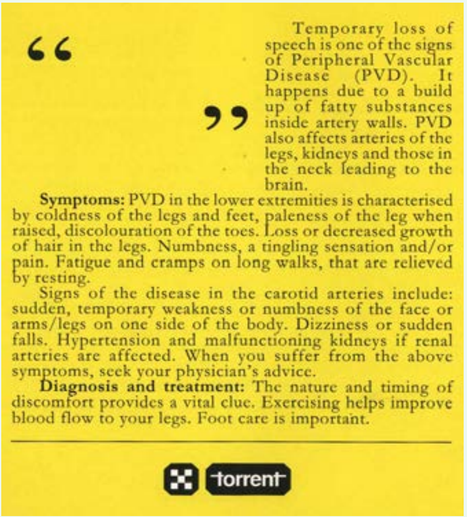
From its early popular brands Trinicalm and Trinicalm Plus in the 1970s, Torrent has grown to have a major presence in the therapeutic segments of cardiovascular, central nervous system, gastro-intestinal, women's healthcare, Vitamins Minerals Nutritional (VMN) and Cosmo-Dermatology. It also has a significant presence in diabetology, pain management, and gynecology segments. Around 100 of its brands enjoy leadership positions in their respective markets, with 20 brands amongst top 500 Brands of the country. It derives over 50% of its total revenue of Rs. 11,000 crore from India, 10% from USA, 10% from Brazil, 10% from Germany and 17% from other regions.

Meaning Behind The Name

Torrent refers to a 'rushing stream' especially in the way it conceives products and services. Owing to a series of "First in India" product launches, it earned the nickname 'Turant', meaning "Fast in Execution" among the healthcare professionals.

Growth Story

Torrent's early growth was based on psychiatry related products, pioneering the concept of niche marketing in India and innovative combination drug therapies. International business took off in the 1980s with exports to Russia. Over a period, Torrent increased its R&D capabilities, executed strategic acquisitions in India and abroad, and built up its manufacturing strength to eight manufacturing plants, 5 of which are US FDA approved. With over 2,000 product registrations and employee strength of over 16,000 across the globe, Torrent has expanded its presence in 50+ countries and is today No. 1 amongst the Indian pharma companies in Brazil and Germany. Today, Torrent Group is a diversified conglomerate with significant presence in Power and City Gas Distribution sectors as well.



"Temporary loss of speech is one of the signs of Peripheral Vascular Disease (PVD). It happens due to a build up of fatty substances inside artery walls. PVD also affects arteries of the legs, kidneys and those in the neck leading to the brain.

Symptoms: PVD in the lower extremities is characterised by coldness of the legs and feet, paleness of the leg when raised, discolouration of the toes. Loss or decreased growth of hair in the legs. Numbness, a tingling sensation and/or pain. Fatigue and cramps on long walks, that are relieved by resting.

Signs of the disease in the carotid arteries include: sudden, temporary weakness or numbness of the face or arms/legs on one side of the body. Dizziness or sudden falls. Hypertension and malfunctioning kidneys if renal arteries are affected. When you suffer from the above symptoms, seek your physician's advice.

Diagnosis and treatment: The nature and timing of discomfort provides a vital clue. Exercising helps improve blood flow to your legs. Foot care is important.

torrent

Public Health Awareness Campaigns and Innovation

Beyond making medicine, Torrent has contributed to innovative public health awareness campaigns to promote prevention, alongside cures. Adverts from a campaign that ran 60+ 'yellow coloured' ads between June, 1996 and September, 1998 in the Times of India, Hindu and Telegraph newspapers, received a "Public Service Campaign" award. Torrent has also been consistently working towards innovative drug delivery systems for better patient solutions. Long Acting Injectables, Nasal Spray and Dermatological Foams are some of the areas where it has worked extensively and achieved success. These innovations have added to the therapeutic armamentarium to healthcare professionals for patients suffering from schizophrenia, severe postoperative pain, and various dermatological conditions.

Milestones

1959
Torrent founded by U N Mehta

1972
Trinicalm and Trinicalm Plus launched

1983
Entered international markets with first export order to USSR

1996
Inauguration of own state-of-the-art R&D Centre at Bhat, Ahmedabad

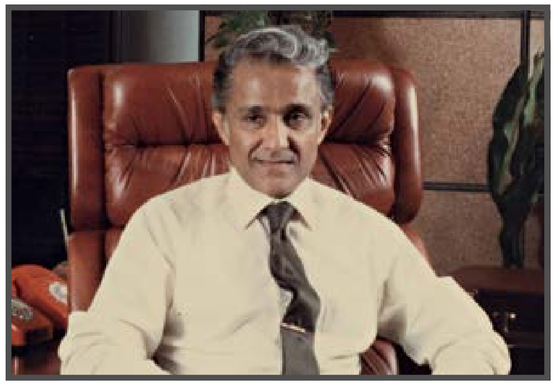
2003
Subsidiaries set up in USA and Philippines

2005
Acquired Heumann Pharma GmbH & Co Generica KG, a Pfizer group company, in Germany

2017
Acquired Unichem's India and Nepal business and Sikkim facility

2022
Acquired Curatio Healthcare

USV



Arvind Vithal Gandhi

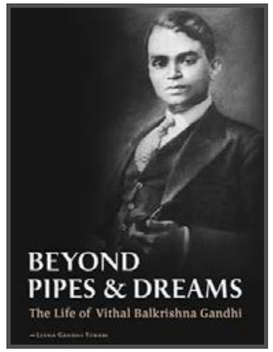
Leena Gandhi Tewari

Prashant Tewari

Foundation Story

USV was founded by Vithal Balkrishna Gandhi (1896-1969) in 1961 in Mumbai, as a joint venture with the American company, US V & P (Vitamin and Pharmaceuticals).

Born in Ratnagiri, V B Gandhi was educated at Columbia University. He was a Municipal Corporator and twice-elected member of the Lok Sabha. After V B Gandhi, the firm was led by his son, Arvind Vithal Gandhi (1930-1986), and for the past four decades by A V Gandhi's daughter Leena Gandhi Tewari and his son-in-law Prashant Tewari.



Cover page of biography of V B Gandhi by Leena Gandhi Tewari

Products and Places

Based in Mumbai, USV entered the diabetes segment in 1963 with its first timed-disintegration capsule, setting the stage for its leadership in oral antidiabetic therapies. Over the years, trusted brands like Glycomet, Jalra, and Udapa strengthened its position as India's leading diabetes care company. In 1989, USV entered into cardiology with Ecosprin, synonymous with aspirin, followed by Ecosprin AV, Ecosprin Gold, Tazloc and Roseday, establishing itself as a key player in cardiovascular health. Today, USV has a major presence in diabetology and cardiology and overall sales of Rs. 5,200 crore in FY 2024-25.

Meaning Behind The Name

USV derives its name from the American firm, US Vitamin & Pharmaceuticals, with which it initially had a joint venture.

Growth Story

Starting with multivitamins to address India's nutritional needs, the company steadily expanded its portfolio in diabetology and cardiology. USV built up its R&D capabilities and ventured into the global market in the 1990s, as a leading supplier of Metformin API. Today, its products reach over 65 countries, in the form of formulations, generics, and biosimilars. The firm operates 8 world class plants and employs over 8,000 people.

Access to high quality and affordable medicine to manage heart health

"USV, inaugurated a dedicated new manufacturing plant in Baddi, Himachal Pradesh to improve access to high quality and affordable Ecosprin AV. The plant was inaugurated by Mr. Debabrata Bhadury, Director, USV, in the presence of USV Chairperson Ms. Leena Gandhi Tewari and Managing Director Mr. Prashant Tewari. The product is also available in a more patient friendly pack. The new facility further strengthens USV's leadership in the cardiology segment. This modern state-of-art facility contributes further to USV's commitment and responsibility of saving lives through offering quality medicines. The plant uses high-tech machinery and advanced technology in manufacturing and automated process checks to assure product quality and efficacy. This meets the long-term endeavor of contributing effectively to the well-being of patients with heart ailments by enhancing patient outcomes. In the recent past USV has made great strides in new facilities, technologies, efficiencies, and capacities."

Source: Economic Times, March 14, 2024

Milestones

1961
Started as a joint venture with US V & P (Vitamin and Pharmaceuticals) by V B Gandhi

1963
Entered vitamins, diabetes market with Aquasol A, MVI, Vi-Syneral, and DBI-TD (a time-release antidiabetes product)

1986
Became an independent entity, establishing itself as an Indian company; Renamed as USV Ltd

1989
Entered cardiology with the launch of Ecosprin; Established the first API MFG plant in Chiplun

2004
Introduced Glycomet GP, which became India's No.1 diabetes brand

2007
Partnered with Sebapharma, Germany, offering baby and personal care products

2018
Acquired German generics firm Juta Pharma

2019
Launched the first biosimilar, PEG GCSF, an EMEA approved product, entering international biosimilars market.

ZYDUS

Ramanbhai Patel

Pankaj Patel and Sharvil Patel

Foundation Story

Cadila was founded in 1952 by Ramanbhai B Patel (1925-2001), formerly a lecturer in the L M College of Pharmacy. He was then joined by his friend and his business partner, Indravadan Modi. In 1995, Cadila Healthcare emerged after restructuring, renamed as Zydus Lifesciences in 2022. Zydus is today led by Pankaj Patel as the Chairman and Dr. Sharvil Patel as the Managing Director.

Products and Places

Zydus has a well-diversified product portfolio. On the India formulations front, the chronic segment share has risen to over 40% of the business. Over 35% of consolidated revenues of around Rs. 20,000 crore are derived from India while ~50% of the total revenues are from the USA. Zydus is the fifth largest generic company in the USA in terms of prescriptions.

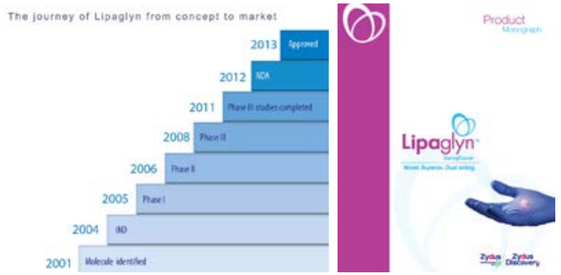
Meaning Behind The Name

Zydus is a derived word interjecting the alphabet 'D' into the name of the GrecoRoman God of all divinities – Zeus or Zyus – responsible for the welfare of people.

zydus
Dedicated To Life

Growth Story

Since 1995, Zydus has rapidly scaled up into an innovation-led, global organisation alongside significant acquisitions in India and abroad. It broke new ground when it developed a New Chemical Entity (NCE), Lipaglyn (Saroglitazar Mg) in 2013. Zydus is the only Indian company to have launched Twinrab - first in the world novel biologics for rabies prophylaxis exposure, ZYCOV-D - novel plasmid DNA vaccine and the world's first ADC biosimilar, Ujvira. With a robust pipeline and 1400 researchers, Zydus is making novel medicines to treat rare and orphan disease like Primary Biliary Cholangitis (PBC), unmet healthcare needs like Metabolic-Associated Fatty Liver Disease (MAFLD), Metabolic-Associated Steatohepatitis (MASH), Cryopyrin-Associated Periodic Syndromes (CAPS) and Amyotrophic Lateral Sclerosis (ALS) besides other chronic diseases



Development of LipaglynTM (Saroglitazar)

New Chemical Entity: Saroglitazar Lipaglyn

Developing a New Chemical Entity (NCE) is considered to be the gold standard of innovation in the pharmaceutical industry. In 2013, the Drug Controller General of India (DCGI) approved the launch of Lipaglyn (Saroglitazar) in India. This novel drug developed by Zydus has over 15 lakh patients being treated for Metabolic associated fatty liver disease (MAFLD) and Metabolic associated steatohepatitis (MASH).

Pankaj Patel, Chairman, Zydus, was conferred the Padma Bhushan by the President of India, Droupadi Murmu in January, 2025. The accolade reflects his lifelong commitment and relentless contributions to India's leadership in lifesciences through innovation and research.

Milestones

1952
Cadila Laboratories founded by Ramanbhai B Patel

1995
Cadila Healthcare of the Zydus Group emerges after restructuring

2001
Acquired German Remedies

2004
Established subsidiary in USA to market formulations

2013
Saroglitazar Lipaglyn received DCGI regulatory approval

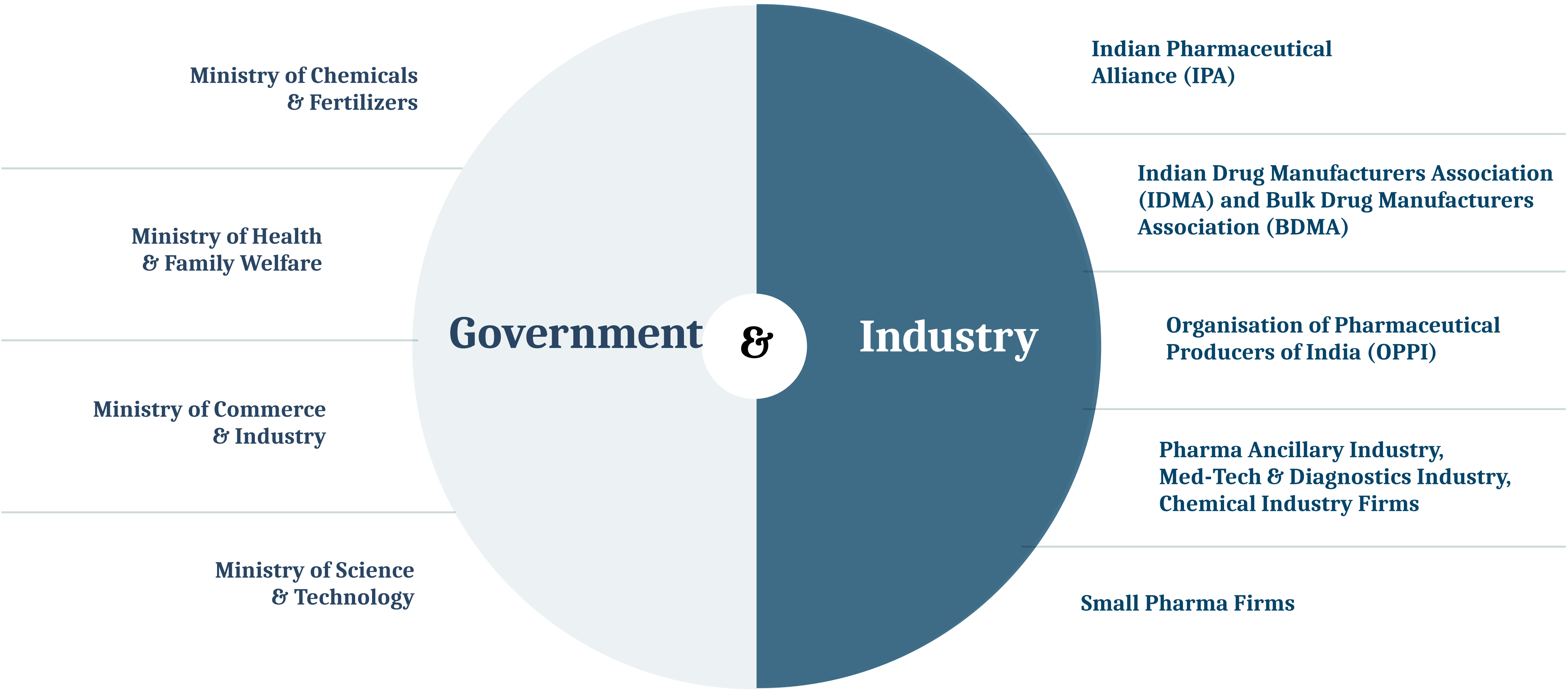
2014
Exemptia, world's first biosimilar of adalimumab, launched in India

2019
Zydus Wellness completes acquisition of Heinz India and becomes one of India's largest FMCG companies

2022
Cadila Healthcare renamed to Zydus Lifesciences

09

The Pharma Ecosystem



Government

- Ministry of Chemicals & Fertilizers (Department of Pharmaceuticals)

  aims to encourage the pharmaceutical sector, regulate complex issues related with pricing, research and development and intellectual property rights

- Ministry of Health & Family Welfare
  - Central Drugs Standard Control Organisation (CDSCO) and State government health authorities regulate drug standards
  - Pharmacy Council of India regulates the pharmacy profession and education
  - Indian Council of Medical Research (ICMR)

- Ministry of Commerce & Industry
  - Office of the Controller General of Patents, Designs & Trade Marks administers issues related with patents
  - Pharmexcil aims to promote pharma trade

- Ministry of Science & Technology

  Department of Science & Technology (DST), Department of Biotechnology (DBT), Council of Scientific & Industrial Research (CSIR)

Industry

- Large Indian pharma firms represented by the Indian Pharmaceutical Alliance
- Several multinational pharma firms, some of which are represented by the Organisation of Pharmaceutical Producers of India (OPPI)
- Large number of pharma firms that are part of associations such as the Indian Drug Manufacturers Association (IDMA) and Bulk Drug Manufacturers Association (BDMA)
- Tens of thousands of small pharma firms
- Pharma Ancillary industry, Med-Tech & Diagnostics industry and Chemical industry firms

In addition, there are educational institutions, pharmacists, doctors and hospitals, medical representatives, staff and workers of firms, distributors and much more. The next section highlights a few of these stakeholders.

PHARMA ANCILLARY INDUSTRY

Over the past six decades, the rapid growth in production of bulk drugs and formulations has been associated with the rise of a vibrant pharma ancillary industry in India.

ACG (Associated Capsules Group), founded in Mumbai in 1961, is now the second-largest manufacturer of capsules and the largest co-manufacturer of pharma consumables and related machinery in the world. It has 28 factories and two research centres across four continents.

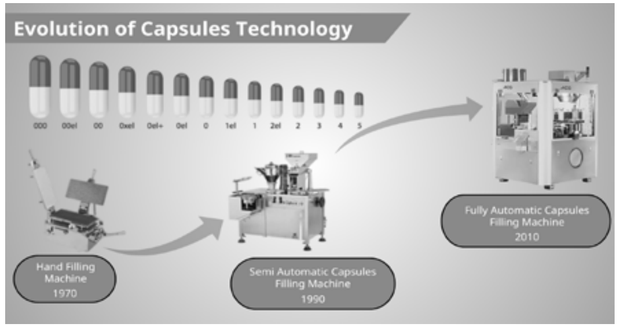
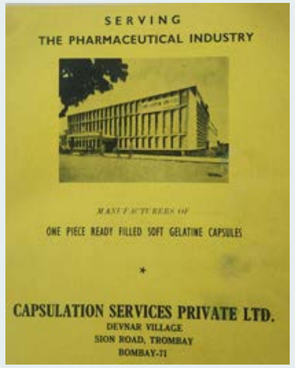


Image on the right: The historical evolution of capsules and capsule filling machines in India | Source: ACG

"The ancillary industry has risen to the occasion and grown as fast as, and in many cases exceeded, the growth of the Indian pharma industry...And many of the Indian ancillary companies are today rising to a leadership position in the world, in terms of quality of their offerings, and also in terms of the range and cleverness of their design of machines which gives the pharma industry incredible amount of technology coming in through the ancillary industry."

- Ajit Singh, Chairman, ACG Group, Pharma Archives Oral History, IPA 2025

Early advertisements of different firms in the pharma ancillary industry



Source: Indian Pharmaceutical Guide, 1964

Quality Control Services

Dr. Homi Ruttonji Nanji (PhD, B. Pharm-London, FRIC, FRSA) set up Italab or Industrial Testing and Analytical Laboratories in 1948, after a Professorship in Pharmaceutical Chemistry at the University of Bombay. He also managed the pharmaceutical firm, Pharmed, with Swiss collaboration, became president of prominent pharmaceutical industry associations, and was appointed to numerous government committees.

Italab opened branches across India and even set up Italab (Japan) in 1961, one of the earliest overseas ventures by an Indian pharma entrepreneur. The high standards of quality control measures set by Italab with its motto of providing "Accurate, Impartial and Reliable Services" has led to the creation of a dynamic quality control service industry in India today.

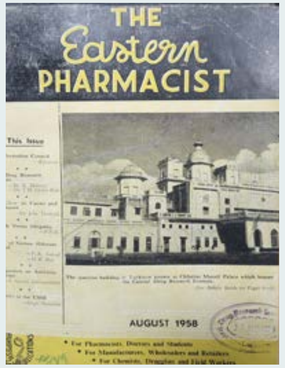
Italab Private Ltd.

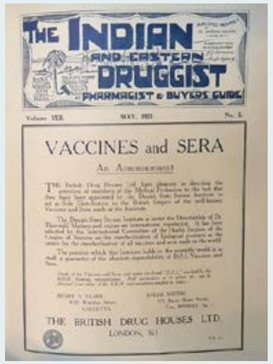
Dr. Homi Ruttonji Nanji
(1909-1967)

Pharmaceutical Journalism

Numerous magazines, journals and guides have helped in effective knowledge transmission in the Indian pharmaceutical industry. The Indian and Eastern Druggist from 1920 to the late 1930s, the Eastern Pharmacist from 1958 to 2001, the Express Pharma Pulse since 1994, publications by trade associations and new-age digital media have provided timely information about various aspects of the industry.

Pharmacist Mohan Bazaz, former President of the Pharmacy Council of India and President of the Indian Pharmaceutical Congress Association in 1990, edited the Eastern Pharmacist and wrote 528 consecutive monthly editorials over 44 years (Jan 1958- Dec 2001). He also helped bring out the annual Indian Pharmaceutical Guides and played an important role in fostering a culture of pharmaceutical journalism in India.





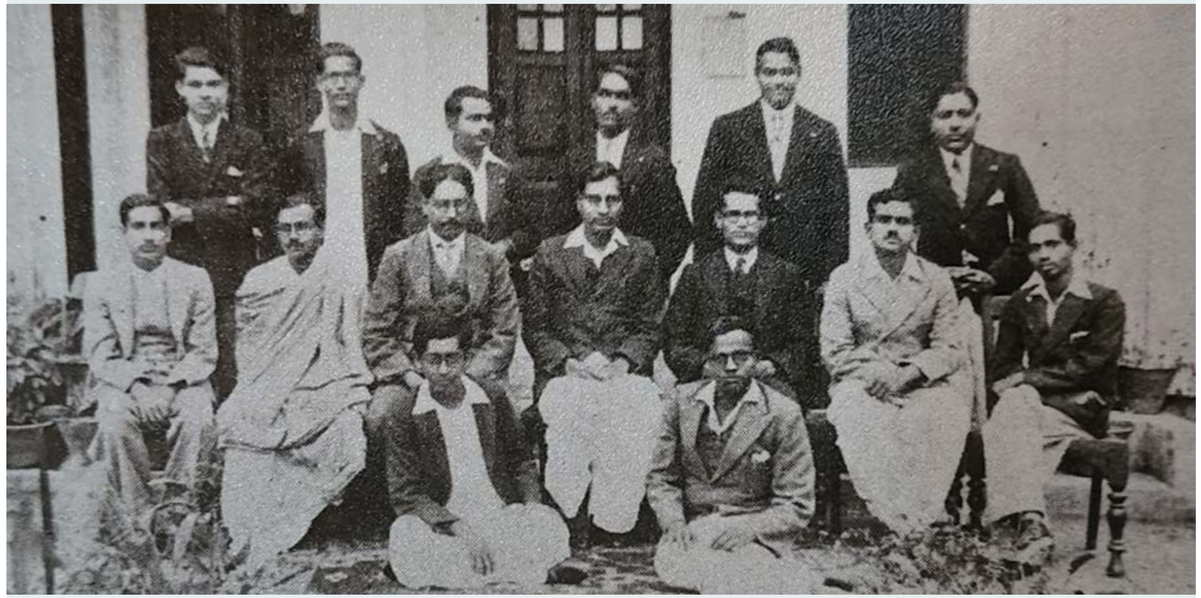
Source: The Indian and Eastern Druggist 1931 and 1927 (Left & Right), The Eastern Pharmacist 1958 (Middle)

PHARMACY EDUCATION

Formal pharmaceutical education in India began in 1932 at the Banaras Hindu University (BHU), organized by Mahadeva Lal Schroff (1902-1971) who was educated in Chemistry in the USA (Cornell University and MIT). He is today considered to be the founder of pharmacy education in India.

B. Pharm courses began at BHU in 1937, followed by Panjab University (1944), Bombay University (University Department of Chemical Technology or UDCT, 1947), Gujarat University (Lallubhai Motilal or L.M. College of Pharmacy, Ahmedabad, 1950), Madras University (Madras Medical College, 1950), Rajputana University (Birla College, Pilani, 1950), Andhra University (Waltair, 1951), Saugar University (Sagar, Madhya Pradesh, 1956) and Nagpur University (1956).

Many of these colleges are the alma mater of prominent Indian entrepreneurs in the pharma industry. In turn, industrialists gave back to their alma mater and helped start new institutions. The Bombay College of Pharmacy was established in 1957, with the generous support of Apostolos Raptakos (1889-1964), founder of Raptakos, Brett & Co, and Amrut V Mody (1914-99), founder of Unichem.



The first batch of B. Sc (Pharmaceutical Chemistry) graduates (1936) from BHU with their teachers. M. L. Schroff is seen seated on a chair, fourth from right. Indian and Eastern Druggist, 1937, 18, 17

Image Source: Harkishan Singh, Pharmaceutical Education, 1997

The Pharmacy Act of 1948 laid down Education Regulations in 1953, and has since periodically revised them. The number of institutions giving B. Pharm degree rose from 8 in 1957 to 62 in 1995 with a total intake capacity of nearly 3,000 students. Many of them also offered Masters and PhD programmes.

The push for a national institute of pharmacy began as early as in 1953 by the Indian Pharmaceutical Association, and it finally culminated in the government's decision to set up the National Institute of Pharmaceutical Education and Research NIPERs in Mohali in the 1990s under the Ministry of Chemical and Fertilizers. Dr. Parvinder Singh of Ranbaxy was instrumental in getting the project off the ground.

Following the NIPER Act in 1998, NIPERs have also been set up in Ahmedabad, Hajipur, Hyderabad, Kolkata, Guwahati and Raebareli. Along with the rapid rise of private educational institutions in the past two decades, by 2024, the number of pharmacy graduates and diploma-holders in India every year had risen to over 300,000, from over 5,000 colleges.

RANKING OF PHARMACY EDUCATION INSTITUTIONS, 2024

Rank	Institution Name	City	State / UT
1	Jamia Hamdard	New Delhi	Delhi
2	NIPER Hyderabad	Hyderabad	Telangana
3	Birla Institute of Technology and Science, Pilani	Pilani	Rajasthan
4	JSS College of Pharmacy	Ooty	Tamil Nadu
5	Institute of Chemical Technology	Mumbai	Maharashtra
6	JSS College of Pharmacy	Mysore	Karnataka
7	Panjab University	Chandigarh	Chandigarh
8	Manipal College of Pharmaceutical Sciences, Manipal	Udupi	Karnataka
9	NIPER Mohali	Mohali	Punjab
10	SVKM's Narsee Monjee Institute of Management Studies	Mumbai	Maharashtra
11	S.R.M. Institute of Science and Technology	Chennai	Tamil Nadu
12	NIPER Guwahati	Guwahati	Assam
13	Amrita Vishwa Vidyapeetham	Coimbatore	Tamil Nadu
14	NIPER Raebareli	Lucknow	Uttar Pradesh
15	NIPER Ahmedabad	Gandhinagar	Gujarat

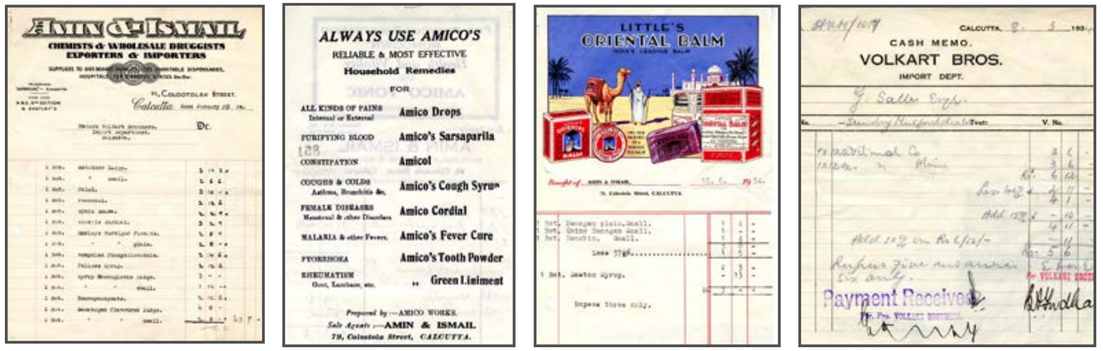
Source: National Institutional Ranking Framework, Ministry of Education, Government of India, 2024.
NIPER= National Institute of Pharmaceutical Education and Research

PHARMACISTS AND PHARMACIES

Pharmacy houses emerged during colonial India to conduct the overseas drugs trade and dispense medicines locally. European chemists and druggists like Smith, Stanistreet & Co., Kemp & Co., Treacher & Co. rose to prominence and a few Indian firms followed suit in major cities.

The Pharmacy Act of 1948 was passed to regulate the profession of pharmacy in India, after which the number of registered pharmacists grew from a few hundred in 1950, to well over a million today. The number of pharmacies also stands at around a million. Recent years have witnessed the emergence of pharmacy retailing chains and e-pharmacies.

Pharmacists, chemists or druggists have been the backbone of the modern pharma retailing world for nearly a century. As the cartoon from 1988 at the bottom of the page illustrates, it is also a world that lives on fine margins.



Pharmacy Bills in India, 1930s | Image Source: Roche Historical Collection and Archive

Image Source: India Today, June 30, 1988. Cartoon by Ajit Ninan

Customer purchasing Glaxo products at a high-end chemist in Madras city, in the 1950s

Image Source: GSK Heritage Archives


Doctor Chamber

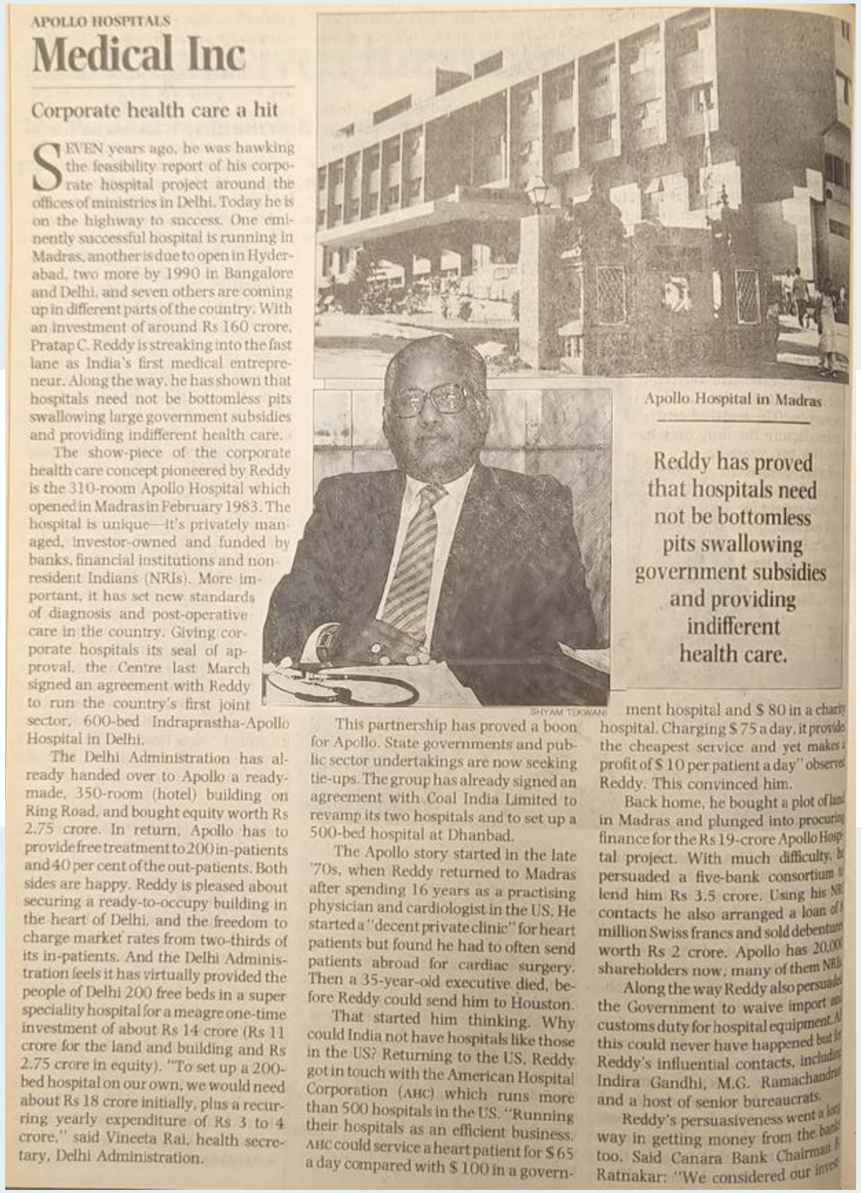
DOCTORS & HOSPITALS

“Always consult your doctor before taking treatment”

These words in an advertisement from the Drugs Control Administration of Gujarat in 1966 highlight the critical role doctors play in the prescription of medicines.

Daktari medicine, as it was once called, rose with the rise of the medical profession, as the number of registered practitioners in India grew from a fifty thousand at the time of independence to over a million today.

Image Source: Indian Pharmaceutical Guide, 1966


APOLLO HOSPITALS

Medical Inc

Corporate health care a hit

SEVEN years ago, he was hawking the feasibility report of his corporate hospital project around the offices of ministries in Delhi. Today he is on the highway to success. One eminently successful hospital is running in Madras, another is due to open in Hyderabad, two more by 1990 in Bangalore and Delhi, and seven others are coming up in different parts of the country. With an investment of around Rs 160 crore, Pratap C. Reddy is streaking into the fast lane as India's first medical entrepreneur. Along the way, he has shown that hospitals need not be bottomless pits swallowing large government subsidies and providing indifferent health care.

The show-piece of the corporate health care concept pioneered by Reddy is the 310-room Apollo Hospital which opened in Madras in February 1983. The hospital is unique—it's privately managed, investor-owned and funded by banks, financial institutions and non-resident Indians (NRIs). More important, it has set new standards of diagnosis and post-operative care in the country. Giving corporate hospitals its seal of approval, the Centre last March signed an agreement with Reddy to run the country's first joint sector, 600-bed Indraprastha-Apollo Hospital in Delhi.

The Delhi Administration has already handed over to Apollo a ready-made, 350-room (hotel) building on Ring Road, and bought equity worth Rs 2.75 crore. In return, Apollo has to provide free treatment to 200 in-patients and 40 per cent of the out-patients. Both sides are happy. Reddy is pleased about securing a ready-to-occupy building in the heart of Delhi, and the freedom to charge market rates from two-thirds of its in-patients. And the Delhi Administration feels it has virtually provided the people of Delhi 200 free beds in a super speciality hospital for a meagre one-time investment of about Rs 14 crore (Rs 11 crore for the land and building and Rs 2.75 crore in equity). "To set up a 200-bed hospital on our own, we would need about Rs 18 crore initially, plus a recurring yearly expenditure of Rs 3 to 4 crore," said Vineeta Rai, health secretary, Delhi Administration.

This partnership has proved a boon for Apollo. State governments and public sector undertakings are now seeking tie-ups. The group has already signed an agreement with Coal India Limited to revamp its two hospitals and to set up a 500-bed hospital at Dhanbad.

The Apollo story started in the late '70s, when Reddy returned to Madras after spending 16 years as a practising physician and cardiologist in the US. He started a "decent private clinic" for heart patients but found he had to often send patients abroad for cardiac surgery. Then a 35-year-old executive died, before Reddy could send him to Houston.

That started him thinking. Why could India not have hospitals like those in the US? Returning to the US, Reddy got in touch with the American Hospital Corporation (AHC) which runs more than 500 hospitals in the US. "Running their hospitals as an efficient business, AHC could service a heart patient for $ 65 a day compared with $ 100 in a government hospital and $ 80 in a charity hospital. Charging $ 75 a day, it provides the cheapest service and yet makes a profit of $ 10 per patient a day" observed Reddy. This convinced him.

Back home, he bought a plot of land in Madras and plunged into procuring finance for the Rs 19-crore Apollo Hospital project. With much difficulty, he persuaded a five-bank consortium to lend him Rs 3.5 crore. Using his NRI contacts he also arranged a loan of 9 million Swiss francs and sold debentures worth Rs 2 crore. Apollo has 20,000 shareholders now, many of them NRIs.

Along the way Reddy also persuaded the Government to waive import and customs duty for hospital equipment. All this could never have happened but for Reddy's influential contacts, including Indira Gandhi, M.G. Ramachandran and a host of senior bureaucrats.

Reddy's persuasiveness went a long way in getting money from the banks too. Said Canara Bank Chairman G. Ratnakar: "We considered our invest-

Apollo Hospital in Madras

Reddy has proved that hospitals need not be bottomless pits swallowing government subsidies and providing indifferent health care.

SHYAM TEKWANI

Simultaneously, the number of hospitals (public and private) rose from a few thousand to over seventy thousand today.

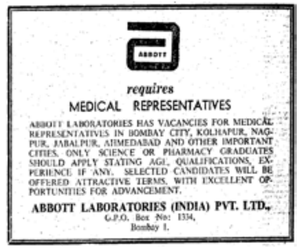
Dr. Prathap Chandra Reddy, founder of Apollo Hospitals, opened the field for corporate hospitals in the 1980s and played a pioneering role in the development of hospitals in the private sector.

Prathap Reddy, Apollo Hospital, 1988

Source: India Today. September 15, 1988

Zydus' Prognostic tests like CanAssist empower clinicians to take informed decisions and avoid chemotherapy when not required

Image Source: Zydus



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requires

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ABBOTT LABORATORIES HAS VACANCIES FOR MEDICAL REPRESENTATIVES IN BOMBAY CITY, KOLHAPUR, NAGPUR, JABALPUR, AHMEDABAD AND OTHER IMPORTANT CITIES. ONLY SCIENCE OR PHARMACY GRADUATES SHOULD APPLY STATING AGE, QUALIFICATIONS, EXPERIENCE IF ANY. SELECTED CANDIDATES WILL BE OFFERED ATTRACTIVE TERMS, WITH EXCELLENT OPPORTUNITIES FOR ADVANCEMENT.

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G.P.O. Box No: 1334,
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AUROBINDO PHARMA LIMITED, Hyderabad, is a multi-product, multi-locational bulk drugs, drug intermediates and sterile bulk drugs manufacturing company. Aurobindo is today the largest producer of Semi-synthetic antibiotics with global marketing strengths. Aurobindo is poised to achieve more than Rs.500 crores sales turnover this year. Dynamic thrust is being given to the Formulation Division as a Strategic Business Unit. And now, AUROBINDO enters the commercial capital of India to market branded formulations, for which we require :

MEDICAL REPRESENTATIVES
MUMBAI

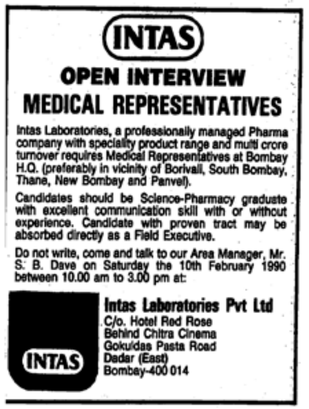
The incumbent should be a Science Graduate, responsible for achieving targets in the assigned territories with good communication skills. A minimum of 1-2 years of experience as M R in Mumbai is essential. Age : Below 26 years.

Candidates who enjoy taking up challenges may please attend a

WALK-IN-INTERVIEW

at	at
Hotel City Point, Dadar, Mumbai, on 1st April, 99 at 10 am for Central & Southern Mumbai candidates	**Aurobindo Pharma Ltd,** A4/64, Bal Nagar Co-operative Housing Society Ltd., Andheri West, Varsova-Bori Road, Mumbai - 400 061. Ph: 6361480 on 1st April 99 at 10 am for candidates from Western Track

1990 : Aurobindo



INTAS

OPEN INTERVIEW
MEDICAL REPRESENTATIVES

Intas Laboratories, a professionally managed Pharma company with speciality product range and multi crore turnover requires Medical Representatives at Bombay H.O. (preferably in vicinity of Borivali, South Bombay, Thane, New Bombay and Panvel).

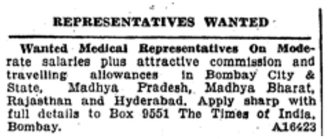
Candidates should be Science-Pharmacy graduate with excellent communication skill with or without experience. Candidate with proven tract may be absorbed directly as a Field Executive.

Do not write, come and talk to our Area Manager, Mr. S. B. Dave on Saturday the 10th February 1990 between 10.00 am to 3.00 pm at:

INTAS

Intas Laboratories Pvt Ltd
C/o. Hotel Red Rose
Behind Chitra Cinema
Gokuldas Pasta Road
Dadar (East)
Bombay-400 014

1990 : INTAS



REPRESENTATIVES WANTED

Wanted Medical Representatives On Moderate salaries plus attractive commission and travelling allowances in Bombay City & State, Madhya Pradesh, Madhya Bharat, Rajasthan and Hyderabad. Apply sharp with full details to Box 9551 The Times of India, Bombay. A16423

1950 : Unknown Classified

Invitation to

SCIENCE/PHARMACY/VETERINARY GRADUATES

be the PROFESSIONAL SERVICE REPRESENTATIVES of

IPCA

THE EXPANDING PHARMACEUTICAL COMPANY WITH FUTURE

Rush your handwritten application with photograph if you meet the following requirements:

- 22 to 28 years age
- 2 to 3 years pharmaceutical selling experience
- Evidence of achievements in sports, debates and extra-mural activities
- Fluency in spoken English
- Fluency in more than one Indian languages
- Close contact with the Medical Profession and Trade

Headquarters will be major towns in the States of Gujarat, Haryana, Punjab, Jammu & Keshmir, Uttar Pradesh, Bihar, Orisse and Coastal Andhra.

Please state your present salary and allowances. In IPCA you can expect better terms and conditions.

Write to:
Sales Manager
IPCA LABORATORIES PRIVATE LTD
48, Kandivli Industrial Estate
Bombay 400 067

1976 : IPCA

Join the Winning Team !

OPEN INTERVIEW

Sun Pharmaceutical Industries Ltd., is poised for a massive expansion for extensive and specialised service to all Medical Specialities.

To spearhead and spread future growth we require young dynamic individuals to join us as

PROFESSIONAL SERVICE REPRESENTATIVES / LADY MEDICAL REPRESENTATIVES

Based at : BOMBAY

Young, Dynamic, Science graduates below 24 years of age with 6-12 months selling experience.

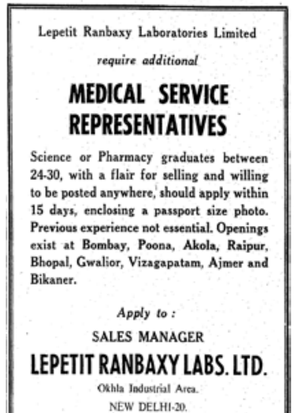
We provide attractive salary, matching perks & lucrative productivity linked incentives.

Interested candidates, please come for an **OPEN INTERVIEW** alongwith bio-data & passport size photograph on SUNDAY, the 25th NOVEMBER, 1994 between 10.00 a.m. & 2.00 p.m. and contact : Mr. M. R. Gopalakrishnan, Sr. Manager (Personnel & IR) of SUN PHARMACEUTICAL INDUSTRIES LTD., F.P. 145, RAM MANDIR ROAD, VILE PARLE (EAST) BOMBAY.

SUN PHARMACEUTICAL INDUSTRIES LTD.

Leadership Through Focussed Research

1994 : Sun



Lepetit Ranbaxy Laboratories Limited

require additional

MEDICAL SERVICE REPRESENTATIVES

Science or Pharmacy graduates between 24-30, with a flair for selling and willing to be posted anywhere, should apply within 15 days, enclosing a passport size photo. Previous experience not essential. Openings exist at Bombay, Poona, Akola, Raipur, Bhopal, Gwalior, Vizagapatam, Ajmer and Bikaner.

Apply to :

SALES MANAGER

LEPETIT RANBAXY LABS. LTD.

Okhla Industrial Area.
NEW DELHI-20.

1964 : Ranbaxy

LUPIN

Requires

MEDICAL REPRESENTATIVES
(MALE / FEMALE)

(Gross Salary Rs.75,000/- inclusive of incentives)

Openings exist at
Bombay

Fast facts:

- Ever growing Product Range that is well accepted in the market
- One of the finest marketing team in the country
- Scientifically designed classroom & field training
- Handsome stipend & attractive daily allowances
- Free insurance from the date of joining.
- Attractive sales incentives
- Faster career growth opportunities due to sheer expansion and policy of promoting from within. (All present 150 Area Managers joined Lupin as MRs,just a few years ago)

Our four minimum requirements:

- Chemistry/Pharmacy/Microbiology Graduate with atleast 2nd class, or appeared for final exams, having secured 1st class in HSC.
- Fluency in written and spoken Eglish.
- Willingness to travel and work anywhere in India.
- Age below 24 years.

If you find this interesting, send your bio-data immediately to :

Regional Sales Manager,
Lupin Laboratories Limited,
Raj Industrial Complex, Second Floor,
No. 29 A, C Wing, Military Lane, Marol,
Andheri (E), Bombay-400 059.

1994 : Lupin

Source: The Times of India Digital Archive

MEDICAL REPRESENTATIVES

IDPL Med Reps at a meeting in office
Image Source: Hands that Heal, 1977, Documentary, Films Division of India

In the 1974 thriller, Benaam, the hero played by Amitabh Bachchan, is a med-rep working with Glaxo. The company and its brand, Glaxose-D, a glucose based energy drink, found prominent mentions in the film including a 20-second segment on an upcoming ad campaign.

Image Source: Screengrab from Benaam, Courtesy: Youtube

With a penchant for travel and persuasion, medical representatives or better known as 'med-reps' have played a critical role in connecting pharmaceutical firms and doctors.

The number of 'Med-Reps' in India has risen from a few hundred in 1950 to well over a hundred thousand today. Med-reps, as individuals, teams and divisions within firms, have witnessed growing specializations based on geographic and therapeutic categories and continue to be the torchbearers of new medicinal knowledge transmission.

A med-rep (right) in conversation with a doctor (left)
Image Source: Hands that Heal, 1977, Documentary, Films Division of India

An Indian physician kept consistently informed about Parke-Davis products through its sales team in the 1990s

Image Source: Parke-Davis at 100, Wellcome Library

10

Who's Who of the Industry

Science & Entrepreneurship: Prafulla Chandra Ray (1861-1944)

Indian chemist, industrialist, historian, educationist and philanthropist who laid the foundation for the modern Indian pharmaceutical industry when he started Bengal Chemical and Pharmaceutical Works in 1901 in Calcutta.

Vaccines: Waldemar Haffkine (1860-1930)

Russian-French scientist spent two decades in India developing vaccines for deadly diseases such as cholera and plague and established a laboratory in Mumbai, now known as the Haffkine Institute.

Research Laboratories: Shanti Swarup Bhatnagar (1894-1955)

Indian chemist, scientific and academic administrator was the first Director General of the Council of Scientific and Industrial Research (CSIR), that laid a solid foundation for Indian industrial research.

Pharma Industry Scientist: Yellapragada Subbarow (1895-1948)

Indian American biochemist who made pathbreaking drug discoveries at Lederle Laboratories in USA in the 1930s-40s.

Public Policy in Health: Rajkumari Amrit Kaur (1887-1964)

Independent India's first health minister from 1947 to 1957 introduced various reforms and institutions that stimulated the healthcare system in India.

Pharmacology: Ram Nath Chopra (1882-1973)

Distinguished pharmacologist who headed the first Drugs Enquiry Committee Report in 1930-31 that laid the foundation for pharmaceutical industry related policies and legislations.

Dr. Nitya Anand (1925-2024), medicinal chemist, played an important role in drug discovery research at CDRI Lucknow, and for the pharma industry.

Source: https://fellows.ias.ac.in/profile/v/FL1974002

Dr. A V Rama Rao (b. 1935), chemist, played an important role in the development of drug technologies at NCL Pune and IICT Hyderabad, and for the pharma industry.

Source: CSIR-IICT @ 70 years

MEMBERS OF THE DRUGS ENQUIRY COMMITTEE, 1930-31

Chairman: Lieut.-Col. Ram Nath Chopra, MA, MD (Cantab), LRCP (London), MRCS (Eng.), IMS Professor of Pharmacology, School of Tropical Medicine and Hygiene, Calcutta. Members: Rev. Fr. J F Caius, Pharmacologist, Haffkine Institute, Bombay; Harry Cooper, Smith Stanistreet & Co., Calcutta; Maulvi Abdul Matin Chaudhury, MLA

MEMBERS OF THE PANEL ON FINE CHEMICALS, DRUGS AND PHARMACEUTICALS, 1947

Chairman: Col. Sir R N Chopra, MD, IMS. Members: Lt. Col. Sir S S Sokhey, MD, IMS; Dr. J N Ray, Dr. K A Hamied, Dr. H Hasan, Dr. V Subrahmanyan, C J Fielder, N Adhikari, M B Amin, Dr. B B Dikshit, Dr. K Ganapathi, Dr. B C Guha and Dr. M K Maitra (Secretary)

MEMBERS OF THE PHARMACEUTICAL ENQUIRY COMMITTEE, 1954

Chairman: Major General S. L. Bhatia. Members: Dr. K Vasudeva Rao, Dr. B B Yodh, Dr. J C Ghosh, Dr. T N Banerji, Dr. R C Shah, Dr. T R Seshadri, Dr. H R Nanji, K R Chandran, P M Nabar, Dr. A. Nagaraja Rao, Dr. B Shah (Secretary)

MEMBERS OF THE COMMITTEE ON DRUGS AND PHARMACEUTICAL INDUSTRY, 1975

Chairman: Jaisukhlal Hathi. Member Secretary: Dr. P R Gupta (Advisor-Drugs, Ministry of Petroleum & Chemicals). Members (MP's): Yashpal Kapur, Vasant Sathe, Dr. Ranen Sen, K S Chavda, C M Stephen. Members (Other): Dr. M L Dhar (CDRI-Lucknow), Dr. B D Tilak (NCL-Pune), S S Marathe (BICP), P S Ramachandran (Drugs Controller), Dr. B Shah (DGTD), Dr. B V Ranga Rao (JNU), Dr. M K Rangnekar (FDA-Maharashtra), Vinod Kumar

MEMBERS OF THE EXPERT COMMITTEE ON A COMPREHENSIVE EXAMINATION OF DRUG REGULATORY ISSUES, INCLUDING THE PROBLEM OF SPURIOUS DRUGS, 2003

Chairman: Dr. R A Mashelkar (Director General-CSIR). Member-Secretary: Ashwini Kumar (DCG-I). Members: Dr. S P Agarwal (DGHS), Julius Rebeiro, Vijay Karan, Amarendra Sharan, Dr. M D Nair, Bijon Mishra (Consumer Coordination Council); Presidents of Indian Pharmaceutical Alliance (IPA), IDMA, OPPI, AISSDMA, AIOCD, Indian Pharmaceutical Association; Representatives (JS Level officers) of Dept. of Chemicals & Petro Chemicals, Ministry of Home and Ministry of Law, Joint Secretary I/C drugs, Department of Health; Health Secretaries / Drug controllers of the States of Karnataka, West Bengal, Maharashtra, Delhi, Bihar and Madhya Pradesh

SELECTED PHARMACOLOGISTS OF INDIA, THOSE BORN BEFORE 1930

Upendranath Brahmachari (1873-1946), Ram Nath Chopra (1882-1973), Yellapragada Subbarow (1895-1948), V Ishwaraiah (1898- 1983), Bishnupada Mukerjee (1903-79), Rustam Jal Vakil (1911-74), Moreshwar V Nadkarni (1917-1995), Sachindra Nath Pradhan (1919-2009), Krishna Prasad Bhargava (1925-91), Nitya Anand (1925-2024), P C Dandiya (b.1926), PSRK Haranath (b. 1927)

SCIENTISTS LINKED WITH PHARMACEUTICAL RESEARCH, ON WHOM THE INDIAN NATIONAL SCIENCE ACADEMY HAVE PUBLISHED BIOGRAPHICAL MEMOIRS:

Ram Nath Chopra (1882-1973), Sahib Singh Sokhey (1887-1971), Amulya C Ukil (1888-1970), Premankur De (1893-1954), Jyotish C Gupta (1894-1969), Ramanlal C Shah (1899-1969), J C Ray (1899-1975), C Dasgupta (1899-1989), B B Dikshit (1902-77), Bishnupada Mukerji (1903-79), U P Basu (1903-69), Bashir Ahmad (1904-57), K Ganapathi (1911-2004), Nirmal K Dutta (1913-82), M L Dhar (1914-2002), M J Thirumalachar (1914-99), Anil B Biswas (1917-79), Asima Chatterjee (1917-2006), Amiya B Kar (1918-76), S H Zaidi (1918-2008), B M Gupta (1920-92), T Ramakrishnan (1922-2008), P N Saxena (1925-99), M M Dhar (1927-2003), Swarn Nityanand (1929-2012), R S Kapili (1935-2005)

PIONEERS OF PHARMACEUTICAL INDUSTRY COMPILED BY HARKISHAN SINGH, THOSE BORN BEFORE 1915

Prafulla Chandra Ray (1861-1944, Bengal Chemical and Pharmaceutical Works), Tribhuvandas Kalyandas Gajjar (1863-1920, Alembic), Harry Cooper (1888-1935, Smith, Stanistreet & Co.), Apostolos Raptakos (1889-1964, Raptakos, Brett & Co.), Khwaja Abdul Hamied (1898-1972, Cipla), Homi Ruttonji Nanji (1909-67, Pharmed), Amrut Vithaldas Mody (1914-99, Unichem)

INDIAN PHARMACEUTICAL ASSOCIATION, FOUNDED IN 1939

Presidents: 1939-1970: B N Vyas, B C Guha, H K Sen, H R Nanji, M L Schroff, N K Basu, K C Chatterjee, B Mukherji, H R Nanji, S Rangaswami, M L Khorana, A Raptakos, B V Patel, V P Basu, A V Mody; 1970-1990: D Chakravarty, G B Ramasarma, J N Banerjee, K J Divatia, K N Shanbhogue, V A Padval, Parvinder Singh, B N Thakore, R S Baichwal, Ramanbhai Patel; 1990-present: Devinder Pal, P M Naik, C L Kaul, S N Desai, P D Sheth, C K Kokata, P D Sheth, S Priolkar, B Suresh, C G Murty, J A S Giri, Rao Vadlamudi, T V Narayana

Image on the Right: The Ciba Research Centre in Goregaon, Mumbai, was set up in 1963 as the first private institute for fundamental chemical and biological research in South Asia. Three large buildings housed 80 laboratories. The first director of the Centre in 1963 was Dr. T R Govindchari.

Image Source: Novartis Heritage & Company Archives

INDUSTRY ASSOCIATIONS

INDIAN PHARMACEUTICAL ALLIANCE (IPA), FOUNDED IN 1999

Presidents: D S Brar (1999-2001, Ranbaxy), K Anji Reddy (2001-03, Dr. Reddy's), H F Khorakiwala (2003-05, Wockhardt), Dilip Shanghvi (2005-07, Sun Pharma), Sudhir Mehta (2007-09, Torrent Pharma), Pankaj Patel (2009-11, Zydus), Prakash Mody (2011-13, Unichem), Satish Reddy (2013-15, Dr. Reddy's), Nilesh Gupta (2015-17, Lupin), Glenn Saldanha (2017-19, Glenmark), Satish Reddy (2019-21, Dr. Reddy's), Samir Mehta (2021-present, Torrent). Secretary Generals: Dilip G Shah (1999-2019), Sudarshan Jain (2019-present)

INDIAN DRUG MANUFACTURERS ASSOCIATION (IDMA), FOUNDED IN 1961

Presidents: K M Parikh (1961-63), G P Nair (1963-73), Bhai Mohan Singh (1973-76), A Patani (1976-79), K M Shah (1980-81), J B Mody (1982-83), H F Khorakiwala (1984), C I Gandhi (1985-86), I A Modi (1987), V Shah (1988), N I Gandhi (1989-90), M Dadha (1991-92), A R Thakore (1993-94), D B Mody (1995-96), Dinesh Patel (1997-98), G Nair (1999), N H Israni (2000-02), Y Majmudar (2003-04), S G Kare (2005-06), B N Singh (2007-08), N R Munjal (2009-11), M U Doshi (2012-13), S V Veeramani (2014-16), D R Chowdhury (2017-19), M H Doshi (2020-21), Viranchi Shah (2022-24), Bharat Shah (2025-present)

ORGANISATION OF PHARMACEUTICAL PRODUCERS OF INDIA (OPPI), FOUNDED IN 1965

Presidents: H R Nanji (1966, Pharmed), K C Roy (1967-69, Merck Sharp Dohme), B S Bhagat (1970-73, Rallis), S V Pillai (1974-75, Pfizer), S Mitra (1976-78, Cyanamid), H N D Gupta (1979, East India Pharma), S K Bhattacharya (1980-81, Sandoz), G Daniel (1982-84, Hoechst), R N Langrana (1985, Abbott), C M Hattangdi (1986-87, Parke-Davis), S Agarwala (1988-90, Rallis), D K Bose (1990-92, Burroughs Wellcome), H Dhanrajgir (1992-94, Glaxo), A S Mehta (1994-96, Wyeth), D Bhadury (1996-98, Hoechst Marion Roussel), H R Khusrokhan (1998-2000, Glaxo), P Gupta (2000-01, Infar), T Ray (2001, Abbott), R Shahani (2001-07, Novartis), Ranga Iyer (2007-09, Wyeth), R Shahani (2009-13, Novartis), Shailesh Ayyangar (2013-17, Sanofi), A Vaidheesh (2017-20, GlaxoSmithKline), S Tyagi (2021-22, Boehringer Ingelheim), S Sridhar (2021-22, Pfizer), S Pattathil (2022-24, AbbVie India), B Akshikar (2024-present, GlaxoSmithKline)

Mural at CIBA's Bhandup plant titled *Nature, Science and Health* by K K Hebbar, 1960s | Image Source: Novartis Heritage & Company Archives

GOVERNMENT

HEALTH MINISTERS OF INDIA

Rajkumari Amrit Kaur (1947-57), D P Karmarkar (1957-62), Sushila Nayyar (1962-67), Sripati Chandrasekhar (1967), Satya N Sinha (1967-69), K K Shah (1969-71), Uma Shankar Dikshit (1971-73), R K Khadilkar (1973), Karan Singh (1973-77), Raj Narain (1977-78), Morarji Desai (1978-79), Rabi Ray (1979-80), B Shankaranand (1980-84), Mohsina Kidwai (1984-86), P V Narasimha Rao (1986-88), Motilal Vora (1988-89), R N Mirdha (1989), Rafique Alam (1989), N Routray (1989-90), Rasheed Masood (1990), Shakeelur Rehman (1990-91), Chandra Shekhar (1991), M L Fotedar (1991-93), B Shankaranand (1993-94), P V Narasimha Rao (1994-95), A R Antulay (1995-96), Sartaj Singh (1996), H D Deve Gowda (1996), S I Shervani (1996-97), Inder Kumar Gujral (1997-98), Dalit Ezhilmalai (1998- 99), A K Patel (1999), N T Shanmugam (1999-2000), C P Thakur (2000-02), Shatrughan Sinha (2002-03), Sushma Swaraj (2003- 04), A Ramadoss (2004-09), P Lakshmi (2009), Ghulam Nabi Azad (2009-14), Harsh Vardhan (2014), J P Nadda (2014-19), Harsh Vardhan (2019-21), Mansukh Mandaviya (2021-24), J P Nadda (2024-present)

DRUGS CONTROLLER GENERAL OF INDIA (DCGI)

1945-1975: N R Sharma, P M Nabar, S K Borkar, P S Ramachandran. After 1975: S S Gothoskar, P K Gupta, P Dasgupta, Ashwini Kumar (1999-2006), M Venkateswarlu (2006-08), S Singh (2008-11), G N Singh (2012-18), S Eswara Reddy (2018-20), V G Somani (2020-22), R S Raghuvanshi (2022-present)

INDIAN COUNCIL OF MEDICAL RESEARCH

Director Generals: C G Pandit (1948-64), B L Taneja (1964-69), P N Wahi (1969-74), C Gopalan (1974-79), V Ramalingaswami (1979- 86), A S Paintal (1986-91), S P Tripathi (1991-94), G V Satyavati (1994-97), N K Ganguly (1998-2007), V M Katoch (2008-15), Soumya Swaminathan (2015-17), Balram Bhargava (2018-22), Rajiv Bahl (2022-present).

MINISTRY OF CHEMICALS & FERTILIZERS

Ministers since 1975 who served for more than a year at the Ministry of Chemicals & Fertilizers, which was earlier known by different names: P C Sethi, H N Bahuguna, V Sathe, R J Singh, M S Gurupadaswamy, Narasimha Rao, R L S Yadav, S S Barnala, S S Dhindsa (2000-04), R V Paswan (2004-09), M K Alagiri (2009-13), Ananth Kumar (2014-18), D V S Gowda (2018-21), M Mandaviya (2021-24), J P Nadda (2024-present).

Secretary to the Ministry, 1975-2008: P J Fernandes, S Krishnaswami, K V Ramanathan, S Ramathan, B B Singh, D V Kapoor, H K Khan, M S Gill, K K Mathur, N R Banerji, D Chatterjee, A Varma, V N Kaul, V Kohli, P Sinha, S Reddy, A Ramanathan, V S Sampath

Secretary, Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers
Ashok Kumar (2008-10), Mukul Joshi (2010-11), K J Cyriac (2011-12), D S Kalha (2012-13), Aradhana Johri (2013-14), V K Subburaj (2014- 16), J P Prakash (2016-19), P D Vaghela (2019-20), S Aparna (2020-23), Arunish Chawla (2023-24), Amit Agrawal (2024-present)

Chairman, National Pharmaceutical Pricing Authority (NPPA), Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers:
Since Sep 1996: Kamal Pande, Arun Kumar, R Ramanathan, B S Baswan, P K Mishra, A Kshetrapal, V Bansal, Ashok Kumar, A K Banerjee, S M Jharwal (2009-11), G Balachandran (2011), C P Singh (2012-14), I Srinivas (2014-15), B Singh (2015-18), Shubhra Singh (2018-21), K K Pant (2021-24), P Krishnamurthy (2024-present)

DIRECTOR-GENERALS OF PHARMACEUTICALS EXPORT PROMOTION COUNCIL OF INDIA (PHARMEXCIL)
P V Appaji (2004-16), R U Bhaskar (2017-2024), R Bhanu (2024-present)

11

Testimonials

Dr. Vinod K Paul,
Member, NITI Aayog

The Indian pharmaceutical industry plays a pivotal role in shaping the well-being and prosperity of our nation. It is a sector driven by innovation, research, and the relentless pursuit of making healthcare accessible and affordable. Over the years, India's commitment to accessible and high-quality medicines has made India the largest trusted provider of generic drugs globally.

The Government has played a vital role in fostering this growth through progressive policies, investment incentives, and robust regulatory frameworks. Initiatives like the PLI scheme and Bulk Drug Parks are strengthening India's position as a leading pharmaceutical manufacturing hub, while the establishment of six National Institutes of Pharmaceutical Education and Research as 'Institutes of National Importance' has reinforced India's commitment to research and innovation.

The COVID-19 pandemic was a defining moment that demonstrated India's pharmaceutical strength to the world. Facing unprecedented challenges, Indian pharma not only safeguarded domestic healthcare but also emerged as a reliable global supplier of life-saving medicines and vaccines worldwide. India successfully administered 2.2 billion vaccine doses in the world's largest COVID-19 vaccination drive, deploying vaccines made on the soil of India. The Industry also ensured an uninterrupted supply of critical drugs across the nation.

As the pharmaceutical industry evolves, our focus must remain on next-generation therapies, digital health, and research-driven innovation. India is already emerging as a preferred destination for global clinical trials. Strengthening public-private partnerships, expanding R&D investments, regulatory simplification and fostering innovation will be key to make India the global life sciences innovation hub.

Congratulations to the Indian Pharmaceutical Alliance's (IPA) for their 25-year milestone. It is a testament to the industry s resilience, vision, and transformative impact on patient care. As we step into the future, let us work together to ensure that Indian pharma continues to lead in innovation, global health equity, and delivering world-class healthcare solutions for enerations to come.

Amit Agrawal,
Secretary, Department of Pharmaceuticals,
Ministry of Chemicals and Fertilizers, Govt. of India

I congratulate the Indian Pharmaceutical Alliance on its 25th anniversary. Over the past few decades, the Indian pharmaceutical industry has emerged as a global leader, making high-quality, affordable medicines accessible to millions around the world. lhe COVID-19 pandemic has reaffirmed India's role in ensuring equitable access to medicines and vaccines, showcasing our capability to respond to global health challenges with speed and at scale.

Today, India is not only the 'Pharmacy of the World' but also a key player in ensuring global health security. As we celebrate its remarkable journey, it is evident that the future of patient care will be shaped by the strengthening of research and development (R&D) capabilities, embracing digital transformation and a commitment to healthcare security.

The rapid adoption of artificial intelligence, digital therapeutics and precision medicine is revolutionising drug discovery, manufacturing and patient-centric solutions. India has the potential to lead this transformation, leveraging its scientific talent and robust industrial base to pioneer next-generation therapies, biosimilar and personalised medicine. Strengthening Of R&D in cutting-edge areas like genomics, biologics and novel drug delivery systems will hold the key to maintaining our global edge.

Furthermore, India's success in designing population-scale digital public infrastructure (DPI) in the fom of Aadhaar, UPI and Co-WIN has demonstrated the power of scalable DPI in democratising access and delivery. The creation of a National Health Stack and initiatives like the Ayushman Bharat Digital Mission will similarly help foster an interconnected healthcare ecosystem, advancing equitable patient care.

The next phase of India's pharmaceuticals sector journey will be defined by seamless convergence of science, technology and policy. With continued collaboration across industry, academia and government, we will not only drive global healthcare innovation but also strengthen India's position as a trusted partner in ensuring health security for all. The future of the Indian pharmaceutical sector is bright, with its contribution to global healthcare all set to grow from strength to strength with time.

S Aparna, IAS Retd.,
CEO, Gujarat Rajya Institution for Transformation &
Ex-Secretary, Department of Pharmaceuticals, Govt. of India

India's pharmaceutical industry has played a pivotal role in transforming healthcare, not just within our borders but across the world. India has built a reputation for delivering quality generic medicines at affordable prices to both low-income and advanced nations, establishing itself as a global pharma manufacturing powerhouse. India has the highest number of United States Food and Drug Administration (USFDA) approved pharmaceutical facilities and WHO's Good Manufacturing Practices (GMP) compliant plants including approvals from various global regulatory authorities.

In the last quarter century, the Indian pharmaceutical industry showcased relentless adaptability, entrepreneurship and commitment to making healthcare accessible to the world. During the recent COVID-19 pandemic, the industry's resilience and commitment to patients worldwide was evident in its ability to develop, manufacture, and supply critical medicines and vaccines at an unprecedented scale.

The next quarter century will be defined towards building value leadership. To attain this, it will be fundamental for India to build differentiation based on innovation with a focus on research. The Indian government has taken several measures to create a conducive investment environment and global pharma leadership such as the Production Linked Incentive (PLI) Schemes, Promotion of Bulk Drug Parks and Pharma MSME Clusters. Industry has been encouraged to prioritise quality, strengthen supply chains and expand capacities to build a stronger brand of Indian Pharma.

Furthermore, collaboration among stakeholders in the pharma sector – regulators, industry, start-ups and academia, and between pharma and digital will be the main driver of growth. The next frontier lies in precision medicine, AI-driven drug discovery, and sustainable manufacturing, paving the way for a healthier and more equitable future. Government has supported industry to deepen its focus on research and expansion into new Age Therapeutics with the launch of the Scheme for Promotion of Research & Innovation Program (PRIP) in 2023. The government has initiated the transformation of NIPERs to keep pace with the growing demand for high skilled R&D professionals.

Going forward, the focus must be on strengthening R&D capabilities, embracing digital transformation, and fostering a robust regulatory environment that encourages innovation while ensuring quality. I congratulate the Indian Pharmaceutical Alliance on its 25-year milestone and commitment to sector's growth. This coffee table book comprehensively chronicles the journey of the industry, from its modest beginnings to its global prominence. This book underscores the Indian pharma sector's entrepreneurship, adaptability and, above all, commitment to supplying affordable medicines for patients around the world. I wish the industry all the very best in making Indian pharma a global benchmark.

Dr. P D Vaghela, IAS Retd.,
Ex-Secretary, Department of Pharmaceuticals, Govt. of India

I congratulate IPA for celebrating 25 years of its stellar service to the nation in the form of providing affordable and quality drugs not only to the people of India but also to the people all over the world.

My experience of working with IPA as Secretary, Pharmaceuticals and Convener of Empowered Group 3 (which was tasked to make PPE, N95, testing kits, Ventilators and life saving medicines) has been one of the most pleasant ones. It was with their active and dynamic leadership that we could keep on manufacturing and distributing medicines despite the lockdowns. Also, we could add up additional capacity and additional plants for new drugs required for the treatment of Covid. IPA was also one of the most important stakeholders in providing inputs while envisaging PLI schemes for APIs and medical devices as well as Schemes for establishing Bulk Drug Parks and Devices Parks.

I fondly remember the contribution of IPA and other industry stakeholders including Pankaj Patel, Sudhir Mehta, Kiran Mazumdar Shaw, Satish Reddy and others when Department of Pharmaceuticals prepared vision papers for Pharma R&D policy and introducing a framework for Ease of Doing Business for revamped drug approval regime based on international best practice and India's unique needs. Also, maximum and unseen public private partnership was demonstrated in fighting the Covid pandemic.

It is heartening to see tremendous research efforts by industry with regard to exploring new molecules, biologics, biosimilars, complex generics, etc. There are exciting opportunities for a breakthrough in research with the help of AI and AI based research tools and applications as some of the countries have already demonstrated. I am sure, with the commitment of the leadership of the pharma industry, the Indian pharma industry will become the world's No.1 by volume and among the top five in value terms.

I wish all the success to IPA in its endeavours.

Prof. Bejon Kumar Misra,
Founder, Patient Safety & Access Initiative of India Foundation

As I sit to write reflecting the journey I have travelled with the leading pharma companies in India and overseas, it takes me to 2010 when I for the first time met Late Shri Dilip Shah, fondly called Dilip Bhai. He was the Founder Secretary General of the Indian Pharmaceutical Alliance (IPA) and I was laying the foundation of Partnership for Safe Medicines (PSM) India Initiative as a consumer organization, to tackle the menace of Spurious and NSQ Medicines.

Each day was filled with uncertainty and fear as there was a debate globally to find one definition for counterfeit and unsafe medicines. The road to the truth can often feel lonely and daunting, but I am incredibly grateful to the dedicated professionals and innovators in the pharma industry like Dilip Bhai, who touched my life in profound ways. Each day of my journey with IPA has revived the strength of the human spirit and the advancements that can stem from compassion and innovation. Today it is Shri Sudarshan Jain, present Secretary General of IPA, who continues to be bold, honest and committed towards patients, which he demonstrates through his relentless commitment towards making healthcare more accessible and affordable.

I stand here today, not just as the founder of Patient Safety and Access Initiative of India Foundation, but as a partner, ready to embrace each new day to empower the citizen-consumer to make an informed choice based on credible information. The relationship inspires me and countless others who navigate the complexities of healthcare challenges, to say with a smile: WE SHALL OVERCOME. This is a small tribute to the 23 leading pharma companies in India, committed to patient care globally, which began in a modest manner in August 1999 with only top six homegrown pharma companies to discover, develop and deliver quality-assured medicines equitably to the patients without any discrimination.

Dr. V Mohan,
Chairman, Dr. Mohan's Diabetes Specialities Centre & Madras Diabetes Research Foundation, Chennai

India's growth has improved the economy and living standards, albeit paradoxically has propelled diabetes and obesity. India is home to over 101 million people living with diabetes, and this number is projected to rise significantly in the coming decades. The burden of diabetes and its complications—ranging from cardiovascular diseases to kidney failure - is a growing public health challenge. However, thanks to the relentless efforts of the Indian pharmaceutical industry, access to high-quality, cost-effective medications has improved drastically, helping millions manage the disease better.

Over the past two decades, Indian pharma has played a crucial role in making essential diabetes medications, including insulin, oral anti-diabetic drugs, and newer therapies like SGLT2 inhibitors and GLP-I receptor agonists, affordable and accessible. The cost of insulin, for example, is significantly lower in India compared to global markets including several of our neighbouring countries, ensuring that people from all socio-economic backgrounds can receive the treatment they need.

Beyond medications, Indian pharma has actively invested in patient education programs, awareness campaigns, and digital health initiatives. Industry-led efforts such as free diabetes screening camps, mobile health applications for glucose tracking, and subsidized medication programs have empowered patients to take control of their health. Pharma-driven training for healthcare professionals in tier 2 and 3 cities has also improved early diagnosis and treatment adherence.

Looking ahead, the focus must be on integrated care models, leveraging Al-driven diagnostics and stronger public-private partnerships to curb the diabetes epidemic. With continued innovation, collaboration, and a patient-first approach, Indian pharma will remain a key driver in transforming diabetes care and overall healthcare outcomes. I wish Indian pharma the very best in the future.

Dr. Bhim Sen Singhal,
Director of Neurology, Bombay Hospital & Research Centre

Going forward, the focus must shift towards higher value drugs, precision medicine, and technology-enabled diagnostics. Strengthening industry-academia collaborations and fostering innovation will be critical in addressing India's growing neurological and mental health challenges. With sustained efforts, Indian pharma will continue to be a global leader in ensuring better health outcomes for millions.

Prof. Shiv Kumar Sarin,
Director, Institute of Liver and Biliary Sciences

Indian pharma has played a key role in addressing this burden [of liver diseases] by making life-saving liver disease medications widely accessible. The introduction of low-cost direct-acting antivirals (DAAs) for hepatitis C has led to cure rates exceeding 95%, bringing India closer to the goal of eliminating hepatitis C as a public health threat. Affordable generic medicines, tenofovir and entecavir, for hepatitis B have enabled millions to receive long-term treatment without financial hardship. Moreover, generic immunosuppressants have significantly reduced the cost of post-liver transplant care, making liver transplants more viable for Indian patients.

There is also place for drugs for diabetes and obesity for NAFLD. Through public awareness campaigns, early screening programs, and digital health initiatives, Indian pharma has improved and made disease management accessible and affordable. The integration of AI-driven approaches is paving the way for early detection and tailored treatments for liver diseases. Moving forward, the focus must be on early-stage interventions, novel therapeutics for fatty liver diseases, and continued innovation in regenerative medicine and hepatology. With its commitment to innovation and affordability, Indian pharma is set to redefine metabolic and liver disease care - not just for India but for the world.

Dr. Ratna Devi,
CEO and Co-founder of DakshamA Health and Education

The way forward involves increased investment in R&D for novel drugs, stronger regulatory frameworks, and a patient-centric approach emphasizing affordability and safety. Digital health integration, AI-driven drug discovery, and partnerships with global research organizations can enhance efficiency. Government initiatives like “Pharma Vision 2020” and the expansion of production-linked incentives (PLI) will help boost self-reliance. A patient-focused path involves greater investment in R&D for next-generation therapies, biosimilars, and personalized medicine while maintaining low-cost production.

For Indian pharma to maintain global leadership while serving patient needs, it must balance affordability with innovation, strengthen trust through quality assurance, and embrace digital transformation. Addressing concerns about drug quality, regulatory oversight, and ethical pricing should be a priority. A collaborative approach among industry, government, patient organisations and healthcare providers will ensure better healthcare outcomes for all.

Dr. Devi Shetty,
Founder and Chairman of Narayana Health

The Indian pharmaceutical companies have done a great job in innovation and quality and getting the country recognized for what we are...We brought down the price, not by the quality, but by improving the quality...We have that kind of capability. We are a reservoir for the world. When COVID hit, which country could produce a vaccine at the number that was required? We are the only country which could scale up our operations. So we need to get that eminence in the global scenario that we are the real pharmacy of the world and we are the ones who can make any cutting-edge medicines. We need to really change the perception of our pharmaceutical industry from the global perspective. And that will only happen by creating an awareness about what we are.

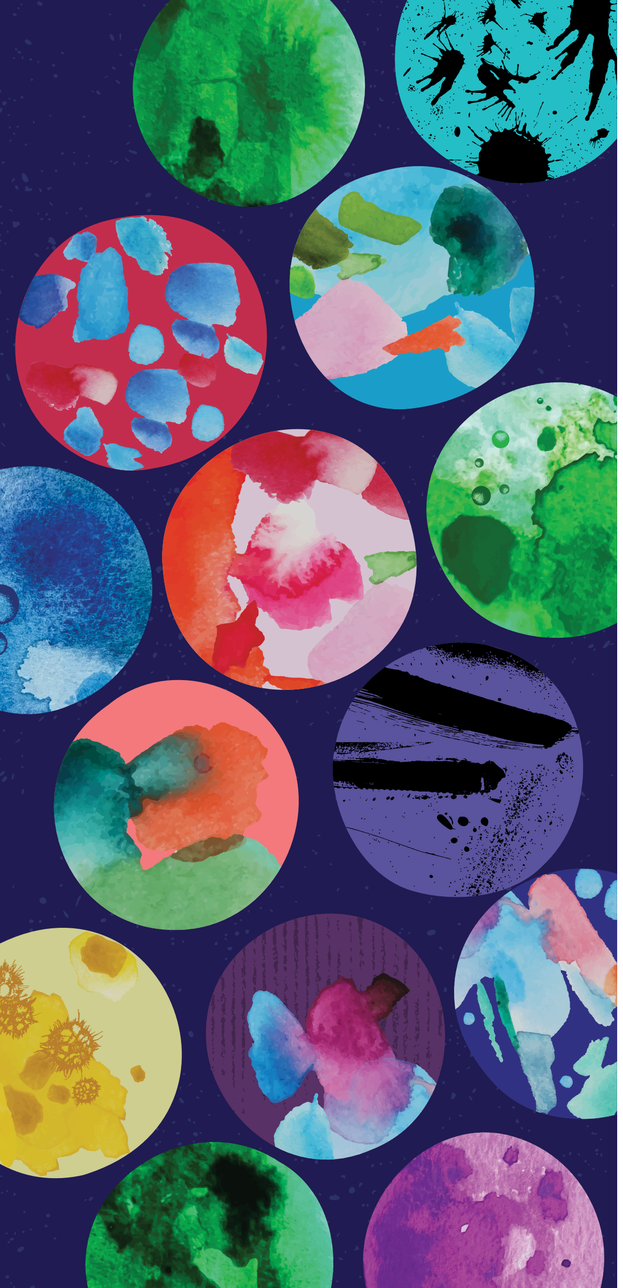
Prof. Dulal Panda,
Director, NIPER-SAS Nagar

Since its inception, the IPA has significantly contributed to the growth of the pharma sector in India. I take this opportunity to congratulate IPA on completing 25 years of its establishment... From the first batch of students admitted in 1998 till date, NIPER-SAS Nagar has trained highly skilled manpower and contributed to the growth of the Indian pharmaceutical industry. We have remained engaged with the pharmaceutical industry through collaborative and consultation projects. As the industry evolves from volume-based to value-based business, NIPER-SAS Nagar remains committed to adapting its educational and research programs to meet the expectations of the new regime...I am sure together we can achieve the target of Viksit Bharat and meet national and global healthcare needs.

Prof. Shailendra Saraf,
Director, NIPER-Ahmedabad

NIPERs are also in the process of establishing Centres of Excellence in several areas such as Medical Devices at NIPER-Ahmedabad, Bulk Drugs at NIPER-Hyderabad, Phytopharmaceuticals at NIPER-Guwahati, continuous manufacturing and flow chemistry at NIPER-Kolkata, Novel Drug Delivery systems at NIPER-Raebareli, Biopharmaceuticals at NIPER-Hajipur, and anti-Viral research at NIPER-SAS Nagar, thus becoming New Temples of Innovation in India. Harnessing the strengths and innovation capabilities of the Indian Industry and Academia will greatly help in transforming India into becoming a powerhouse of Pharmaceutical Innovation & Production.

The journey of the Indian pharmaceutical industry has only begun.
The Indian Pharmaceutical Alliance will work with all the stakeholders to take the industry to newer heights.



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References and Credits

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An extensive list of readings on the pharmaceutical history of India is hosted by the India Pharma Archives website. Selected books are presented below:

- 10+ books by Padma Shri Dr. Harkishan Singh (1928-2020), scientist and doyen of pharmaceutical history research, written between 1994 and 2013, including *Pioneers of Pharmaceutical Industry*. His archival collection is kept at the Pharmaceutical Heritage Centre, NIPER SAS Nagar.
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- Published books on Indian pharmaceutical firms include those on Alembic, Alkem, Cipla, Dr. Reddy's, Ranbaxy and Zydus while books on pharma firms outside India relevant to India include those on Glaxo, Pfizer, Roche, Abbott and Novartis.

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Prime Minister's Office Team; ACG Team; Biocon Team; Serum Institute of India Team, Smita Shah, for the personal collection on D G Shah; Edmond Differding, for molecule images; Nathan Hamilton's online photo album on Flickr.com

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Archives & Libraries

IIM Ahmedabad Archives, Vikram Sarabhai Library (IIMA), Vikram Sarabhai Archives (Ahmedabad), Haffkine Institute Library, Central Drug Research Institute (CSIR-CDRI, Lucknow), National Chemical Laboratories (CSIR-NCL, Pune), Indian Institute of Chemical Technology (CSIR-IICT, Hyderabad), NIPER-Pharmaceutical Heritage Centre, Central Secretariat Library (Delhi), Prime Ministers' Museum & Library (PMML, Delhi), Films Division of India, Cipla Archives (Mumbai), Dr. Reddy's Laboratories Archives (Hyderabad), GSK Heritage Archives (London), Roche Historical Collection and Archive (Basel), Novartis Heritage & Company Archives (Basel), Wellcome Collection, British Library, RPS Library (London), India Today Magazine, Economic Times, ProQuest Historical Newspapers: Times of India (Digital), Wikimedia Commons (Digital), Getty Images.

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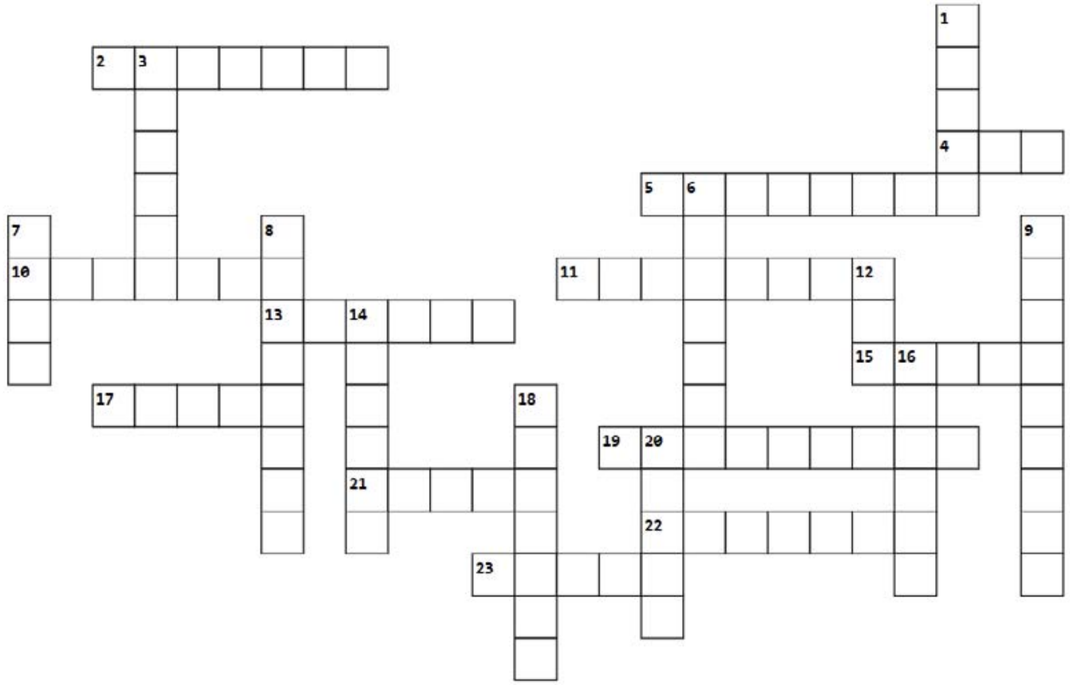
Check your Pharma IQ



Across

2. The first word of this firm's name has its origin in Greek, meaning 'all-healing'.
4. This firm's founder was also a municipal corporator in Bombay and an elected Member of Lok Sabha.
5. This firm's origins lies in a family-run pharmacy in Jaipur.
10. This firm's founder has a degree in public health from Harvard.
11. This firm's founder once worked with the public sector pharma firm IDPL.
13. This firm's founder opted out of job placements at IIM Ahmedabad.
15. This firm received India's first compulsory license after the 2005 Patent Act revision.
17. This firm's founder was born in a village in Bihar and did B.Com at Patna University.
19. This firm sells a product called Dolo-650.
21. This firm's name and logo derives itself from a flower.
22. This firm's founder was once a medical representative for Sandoz.
23. This firm counts Mahatma Gandhi as one of the visitors to its factory.

Down

1. This firm developed Saroglitazar (Lipaglyn).
3. This firm takes its name from a historical site near Aurangabad.
6. This firm kickstarted the modern pharma industry in Gujarat.
7. This firm once had members of the Bachchan family on its board.
8. This firm's name is the combination of the names of the founder's two sons.
9. This firm is named after a famous Indian philosopher who founded an ashram in Pondicherry.
12. This firm's founder started out with a two-member team selling psychiatry related products in Kolkata.
14. This firm's founder was born in a village in Gujarat and studied at UDCT or ICT Mumbai.
16. This firm was founded by a physician in 1888.
18. This firm began operations in western Uttar Pradesh with an initial focus on small towns and villages.
20. This firm launched the world's first biosimilar for Ranibizumab, to treat retinal disorders.

A stylized map of India formed by the word "medicine(s)" in multiple languages—
celebrating Indian pharma's global footprint and its role in healing across cultures