Panacea Biotec

Innovation in support of life

Panacea Biotec Ltd.

Corporate Presentation

March 25, 2019

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Panacea Biotec

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Company Overview

Panacea Biotec at a Glance

Panacea Biotec
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Research based biotechnology company with strong foundation of over two decades

#4 in vaccines[1]

#11 pharma co. in represented mkt.[2]

#15 biotechnology co. in India[1]

Amongst Top 50

Innovators In India[3]

Amongst 6

WHO pre-qualified Suppliers of pentavalent vaccine[4]

EasySix™

1st fully liquid wP based Hexavalent Vaccine globally

Launched 1st Generic in India

PacliALL: Albumin bound paclitaxel

CABAPAN : Cabazitaxel

1 R&D center multi disciplinary

50+ Scientists

1,500+ Patents filed globally

460+ granted approval

US ANDAs

3 approved; 4 pending for approval;

12 under development[5]

c.9

Vaccines under development

c.25

Niche generics in development in ROW

1. Biospectrum KPMG Survey October 2016. 2. AIOCD AWACS MAT MARCH 2017. 3. Innovation Awards 2016 by Clarivative Analytics. 4. UNICEF Supply Division report..

5. Includes 7 partnered projects

Panacea Biotec at a Glance (Cont'd)

Panacea Biotec
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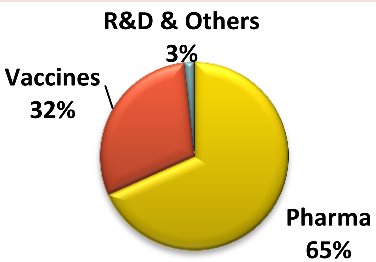
Manufactures niche, high value niche Pharmaceutical formulations and Vaccines

Key business segments

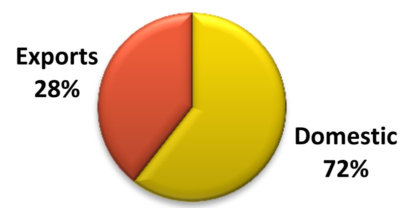
Pharma – formulations	Vaccines
▪ Focus on Organ Transplantation, Oncology, Diabetes, Orthopedics, Gastro amongst others through 6 SBUs in sales & marketing in India ▪ **4 brands ranked 1st in their therapeutic segment in India** ▪ Exports of branded pharmaceutical formulations to 30+ countries including US, Germany, Russian Federation	▪ **One of the Largest Indian vaccine supplier to UNICEF** ▪ Dedicated SBU for Vaccine for sales & marketing in India ▪ Full range of fully liquid wP based tetravalent, pentavalent and hexavalent vaccine viz. Easyfour-TT, Easyfive-TT and EasySix^{TM} ▪ Covering ~10K paediatricians in India

Diversified operating revenue base (FY18, Standalone)

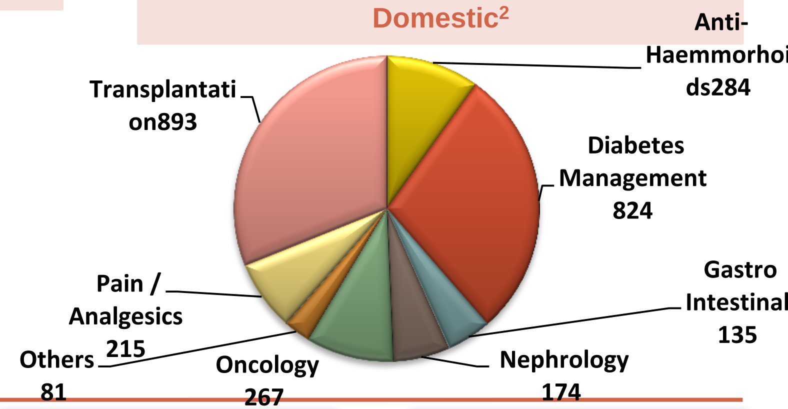
Business segment (INR 5,766mn)



Geography (INR 5,766mn)



Pharma Therapeutic areas Domestic[2]



Key financial and valuation metrics

INR14.62bn	INR 5,766 mn	17%	INR 4bn	2.54x
Market Cap[1]	FY18 Operating Revenue	FY18 EBITDA[2] margin	Mar'18 Net Worth	Mar'18 Net Debt / Equity

1. Market data as of 25June 2018 (NSE). 2. Domestic revenue based on Internal sales as of March 2018, EBITDA includes other income

Pharmaceutical Business

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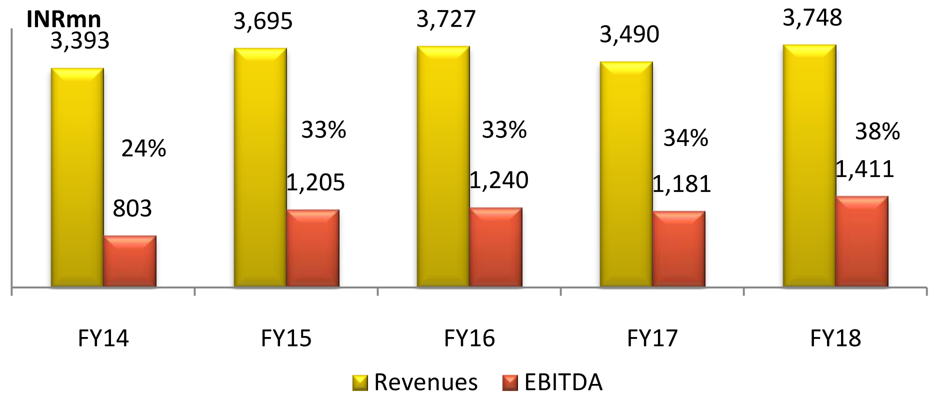
Background

- The Pharmaceuticals Business has established a strong presence in Organ Transplantation, Nephrology, Oncology, Diabetes, Pain and Fever, Gastroenterology and Orthopedics therapies in the domestic market through six Strategic Business Units.
- Dosage forms comprise tablets and hard and soft gelatin capsules and other forms such as ointments, gels, liquid orals and injectables for oncology.
- In addition to the domestic market, PBL has an established presence in ~30 markets including USA, Germany, CIS countries, LATAM, Africa, Middle East and other Asian countries.
- operating margins has improved from 24% in FY14 to ~38% in FY18.

Revenues & profitability



KEY THERAPIES

Transplant

Nephrology

Oncology

Diabetes Management

Gastro and Ortho

Pain/Fever

MARKETS

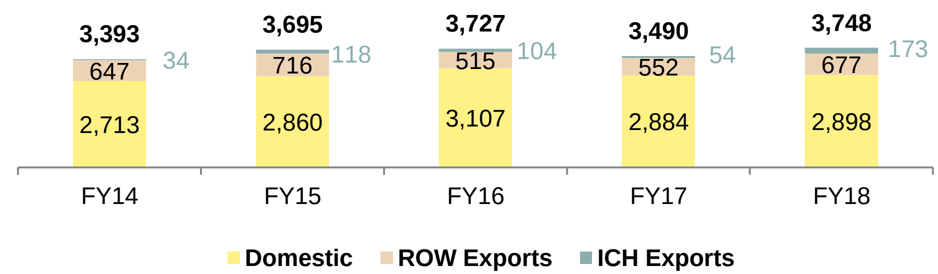
Domestic - Trade and Institutional

Emerging markets (ROW)

Regulated markets (ICH)

Revenue share by markets *

INRmn



Source: Company

*Note: *Gross revenues; Excludes other income and contract manufacturing income*

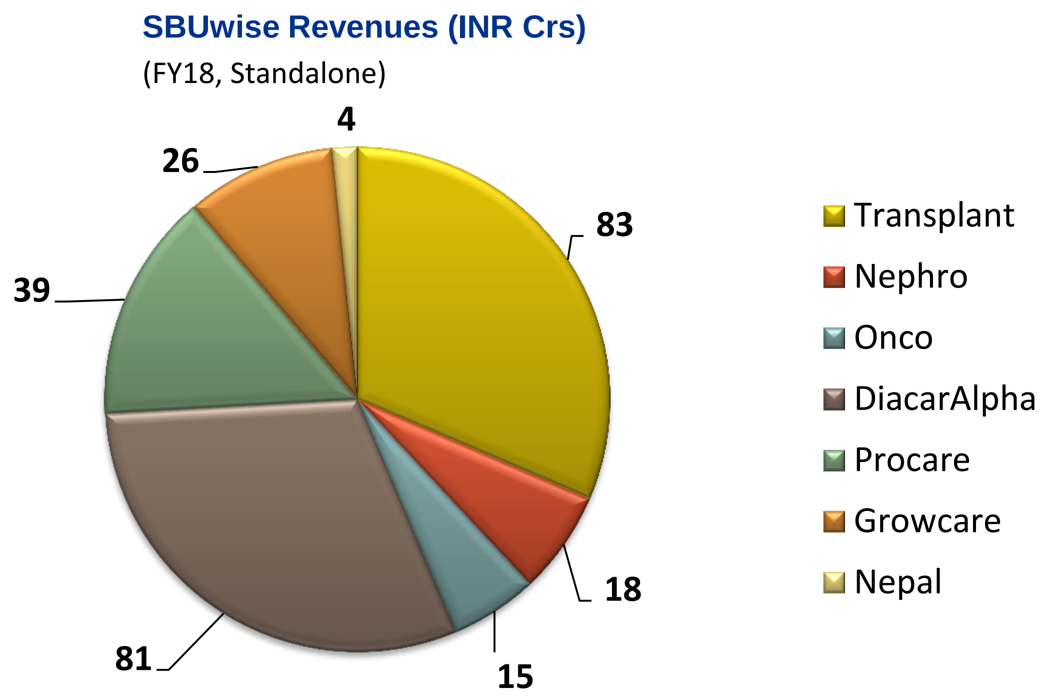
Global Footprint

Significant focus on exports

Pharmaceutical Business – Domestic Pharma Business

Background

- The Domestic Pharma business is managed through 6 SBUS
- Therapeutic focus on Organ Transplantation, Oncology, Diabetes Management , Gastro, Ortho, Pain, Cough & Cold etc.
- Major Brands include Pangraf, Panimun Bioral, Mycept, Glizid M, Sitcom, PacliAll, Willgo, Livoluk Fibre & Alphadol etc.



Pharmaceutical Business – ROW Countries

Background

- In addition to the domestic market, PBL has an established presence in ~30 markets in including CIS countries, LATAM, Africa, Middle East and other Asian countries.
- Therapeutic focus on Organ Transplantation, Oncology, Pain, Cough & Cold, Diabetes Management & Gastro etc.

Organ Transplant

- Tacrolimus
- Cyclosporine
- Mycophenolate Mofetil
- Valganciclovir
- Alphacalcidol
- Tacrolimus ER
- Mycophenolic Acid
- Sirolimus
- Everolimus
- Lanthanum Carbonate
- Mycophenolate MR

Oncology

- Albumin bound Paclitaxel
- Bendamustine
- Gemcitabine
- Doxorubicin Liposome
- Pemetrexed
- Docetaxel
- Azacitidine
- Bortezomib
- Oxaliplatin
- Sorafenib
- Everolimus

Diabetic

- Gliclazide + Metformin
- Gliclazide MR
- Metformin
- Glimperide
- Teneligliptan
- Vildagliptan
- Vildagliptan+Metformin

Gastro

- Euphorbia Prostata
- Lactulose
- Lactulose + Isabgol
- Ornidazole

Pain

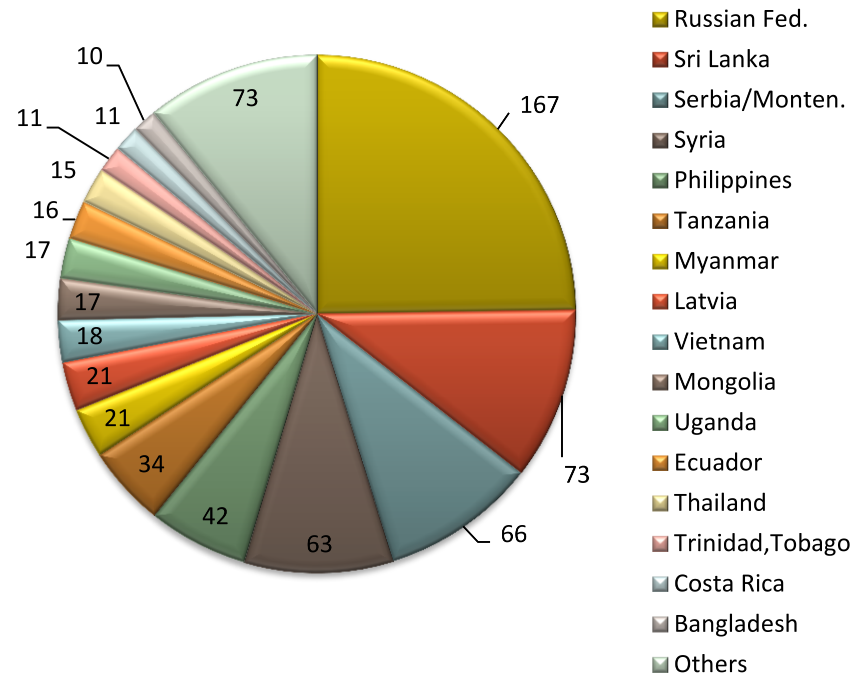
- Nimesulide
- Paracetamol + Tramadol
- Kondronova
- Aceclofenac ER tab
- Aceclofenac gel

Cough & Cold

- Toff plus
- Toff Expectorent
- Toff DC tabs

Country wise Revenues (INR Mn)

(FY18, Standalone)



Mission and Vision

Innovative company thriving to make a significant difference in the lives of people

Mission

Innovation in Support of Life

Vision

Leading Health Management Company

Goal

To Meet Every Healthcare Need with a Panacea Biotec Brand and Service

Objective

Take Ideas from Grey Cell to Markets in a Proactive Manner

*"**Pursuing our mission 'Innovation in Support of Life'** to make human lives happier and healthier, we will continue to remain rooted in our values of Quality, Innovation and continuous Learning"*

Soshil Kumar Jain

Chairman, Panacea Biotec

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Journey So Far…

2017-18
- Long Term Collaboration with Serum Institute of India Ltd. for hexavalent vaccine for Institutional Markets
- Received EIR from USFDA for its Oncology and Oral Solid Dosage pharmaceutical facility at Baddi

2016-17
- Expansion of collaboration with Apotex for Launch of Prasugrel in US
- Initiates supply of OPV to Govt. of India from Vaccine Formulation Facility at Baddi
- Expansion of collaboration with Bionpharma Inc. – 6 more complex generic pharmaceutical products added
- Launch of generic version of Rizatriptan Benzoate Tablets in collaboration with Bionpharma Inc.
- Launch of World's first wP based fully liquid Tetravalent & Hexavalent Vaccines Easyfour & EasySix™
- Received USFDA approval for its Oncology and Oral Solid Dosage pharmaceutical facility at Baddi

2013-15
- Restructuring of Debts under the CDR mechanism
- Regained WHO pre-qualification for Pentavalent Vaccine Easyfive, restart supplies
- Collaboration with Apotex for development, manufacturing, supply and sale of 2 products in the USA, Canada and ANZ

2011-12
- Delisting of Easyfive from list of WHO pre-qualified vaccines
- Surrender of WHO pre-qualification of Oral Polio Vaccine
- Received first product approval from USFDA for Tacrolimus

2008-09
- Received Supply Award of US$222mn from UNICEF for Easyfive Vaccine for CY2010-2012
- Received WHO pre-qualification for Pentavalent Vaccine Easyfive
- Starts Commercial production at its new Vaccine Formulation Plant at Baddi

2006
- Set up WHO cGMP complaint Pharmaceuticals formulation facility at Baddi
- Inauguration of Biopharmaceutical R&D Centre at New Delhi
- Raised US$100mn FCCB

2005
- Launched world's first wP based fully liquid pentavalent vaccine Easyfive in India

2002/03
- Received WHO pre-qualification for Oral Polio Vaccine
- Set up Recombinant Vaccine Bulk Production Plant in Punjab

1997
- 1st Product Patent in several countries

1995
- IPO of INR 180mn

1993
- Name changed to Panacea Biotec Ltd.

1988/89
- Established production facilities for vaccines and pharma in New Delhi

1984
- Incorporated as Panacea Drug Pvt. Ltd.

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Key Highlights

Key Highlights

1. Strong Product Portfolio with significant brand market share in respective therapeutic segment
2. Established R&D capabilities with multi-disciplinary Research & Development center
3. Robust product pipeline of promising niche products to fuel long term future growth
4. State of the art manufacturing facilities – cGMP compliant and US FDA approved
5. Extensive sales and distribution network providing end to end visibility
6. Growing collaborations and alliances with renowned National and International bodies
7. Highly experienced Promoters and Senior Management Team

1. Strong Product Portfolio – Domestic

Brands	Therapy	AIOCD Rank[2]	Sales FY18 (INRmn)[1]	% of Total Sales[1]
Glizid Family	Anti Diabetic	1	752	26%
PanGraf	Anti-Neoplastics	1	428	15%
Mycept & Mycept S	Anti-Neoplastics	1	245	9%
Sitcom Family	Piles Management	2	192	7%
Nimulid Family	Pain / Analgesics	2	108	4%
Panimun Bioral	Anti-Neoplastics	1	112	4%
PacliAll	Anti-Cancer	2	90	3%
Thank OD Family	Piles Management	3	105	4%
Livoluk Family	Gastro Intestinal	5	113	4%
Total			**INR 2,145mn**	**74%**

4 brands are ranked 1st in their respective therapy area

8 brands feature amongst top 5 ranks in their respective therapy area

9 brands feature amongst top 10 ranks in their respective therapy area

Top 10 brands account for 76% of total domestic pharma sales

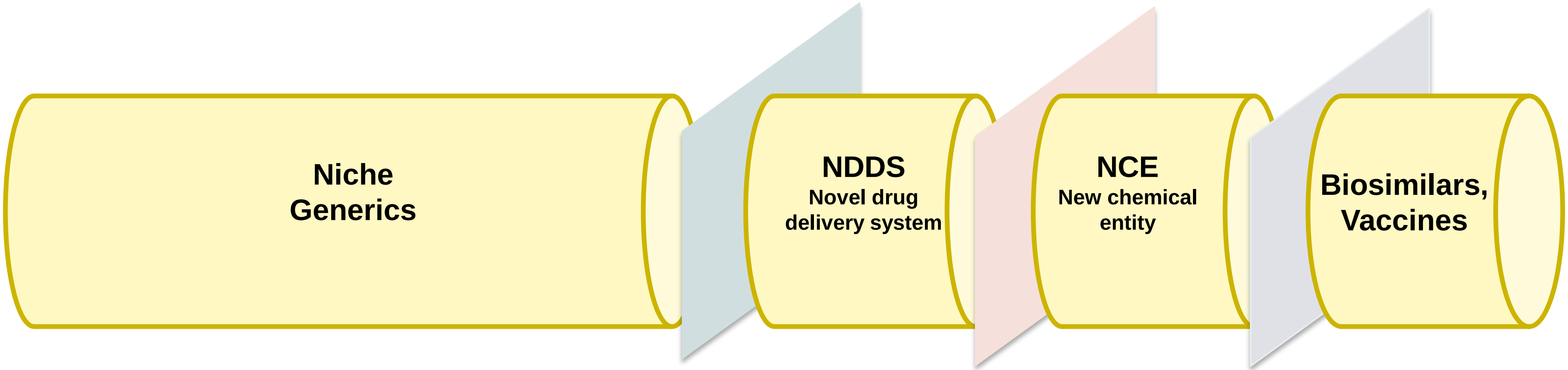
Brand	Therapy	AIOCD Rank[2]	Sales FY18 (INRmn)
First Fully Liquid Hexavalent Vaccine Easysix™ (DTwP-Hep B-Hib-IPV)	Pediatric vaccine	2	773

Strong performance of new brand launched

Source: AIOCD March 2018.

1. Based on standalone domestic formulation internal sales for FY18. 2. Rank as per AIOCD MAT March 2018

2. Established R&D Capabilities



Generics/Branded Generics					
US	**Europe**	**Emerging Markets**	**NDDS/ Differentiated Generics**	**NCE**	**Bio-similars, Vaccines**
▪ 3 ANDAs Launched ▪ 4 under review ▪ 12 under development – Includes 7 partnered	▪ 2 MA granted – Includes 1 in-licensed product ▪ 5 under development	▪ 37 product registrations ▪ 25 under development	▪ 5 NDDS products under development	▪ 5 Best in Class NCE – 2 in Metabolic Disorder – 2 in Central Nervous System – 1 in Anti-infective	▪ 4 Bio-similars and 9 vaccines under development

Note: MA - Marketing Authorization.

3. Robust Product Pipeline – Vaccines

Proprietary features which distinguish us from Competition, High growth segment

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Products	Current Stage of Development				Commentary
	Pre-clinical trials	Phase I/II	Phase III	Completed	
EasySix™ Hexavalent Vaccine					▪ Sales of INR 773 mn in FY2018 ▪ Registration in developing countries initiated ▪ Collaboration with Serum Institute of India for Institutional Sales – PBL to earn royalty on Serum's sales ▪ Patented by the Company
Bivalent OPV (Type 1 & 3)					▪ WHO pre-qualification received on 10.12.2018
DengiAll™ Dengue Vaccine					▪ Technology in-licensed from National Institutes of Health, USA ▪ Funding of INR 290mn sanctioned by Technology Development Board, ▪ Phase I/II clinical trials in progress in India
Nucovac™ Pneumococcal Conjugate Vaccine					▪ Phase I/II studies completed on 10 valent vaccine in Adult and pediatric ▪ Permission received from DCGI for conducing phase I clinical trial of 11valent vaccine
Sabin-IPV					▪ Technology in-licensed from Intravacc, Netherlands through WHO ▪ Technology Transfer completed, development in progress
Typhoid Conjugate Vaccine					▪ Pre-clinical studies completed

Note: IPV – Inactivated Polio Vaccine, Source: Company internal

3. Robust Product Pipeline - Pharma

Products	Current Stage of Development	Commentary
Albumin bound Paclitaxel	▪ ANDA acceptance received from USFDA	▪ Partnered with Apotex for the USA, ANZ, Canada ▪ Patent litigation settled with Innovator in USA ▪ US launch on 01.04.2022 as Authorized Generic ▪ Largest selling product in India ▪ Exporting to Sri Lanka, Turkey also ▪ Dossier filing for other countries in progress
Doxorubicin Liposome	▪ Pilot Bio studies completed and Pivotal Bio to be initiated	▪ Partnered with Apotex for US, ANZ, Canada ▪ Filing planned in 2020 ▪ Launch planned in 2021/22
Memantine ER Capsules	▪ ANDA filed with USFDA	▪ Approval awaited from USFDA
Bendamustine Injection	▪ ANDA filed with USFDA	▪ Already commercialised in India ▪ Approval awaited from USFDA
Cyclosporine Sofgel Capsules	▪ ANDA Filed with USFDA	▪ ANDA Acceptance letter awaited from USFDA

- 12 ANDAs (7 partnered) under development; 25 products under development for other emerging markets
- Azacitadine : supplemental abbrevaited new drug application (s-ANDA) filed with USFDA for site approval, under collaboration with Natco Pharma and Breckenridge Inc.
- Other ANDAs under development include Mycophenolate DR, Tacrolimus ER, Mycophenolate Liquid, Sirolimus Liquid, Valganciclovir Liquid, Tacrolimus Ointment, Sirolimus Tablet, Docetaxel (Single & Multi) and Bortezomib

4. State-of-the-Art Manufacturing Facilities

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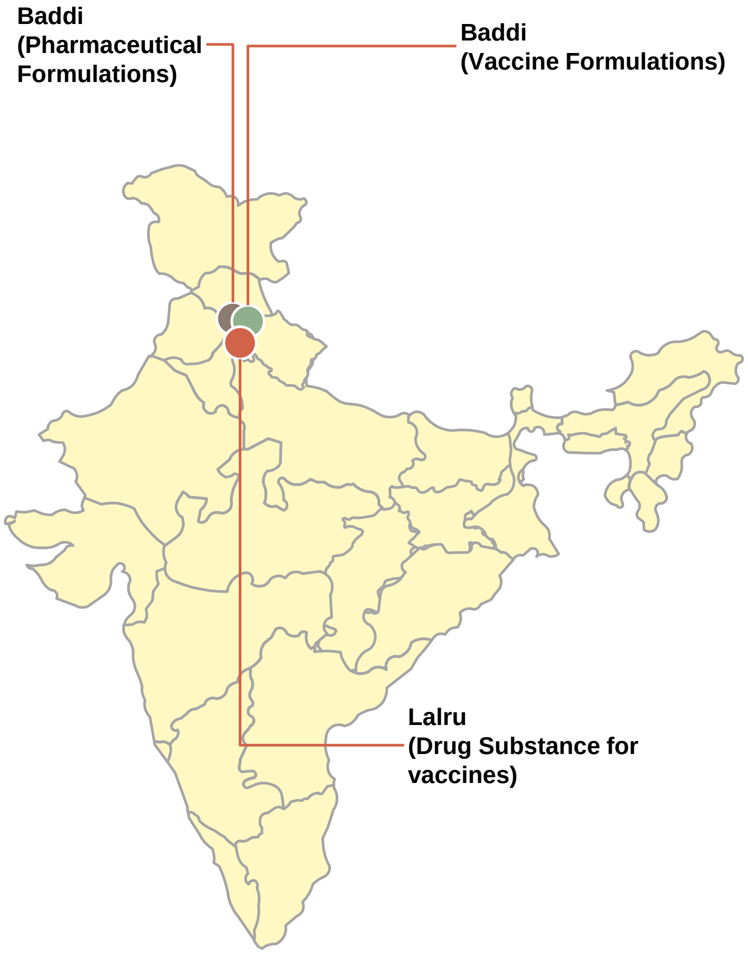
Baddi
(Pharmaceutical Formulations)

- Established in 2006
- Manufacturing of oral, topical and injectable
- Separate Facility for Onco Injectables commissioned in 2012
- Oral Solid dosage pharmaceuticals facility is WHO cGMP compliant and approved by USFDA, BfArM Germany, PIC/S, ANVISA Brazil, TGA Australia etc.
- Equipped for: Bi-layer tablets, Tablet-in-Tablet, Mini-tablets, Complex Sustained release coatings and Delayed release coatings, soft Gel Capsules
- Oncology injectable facility is WHO cGMP compliant and approved by USFDA
  - It is equipped for Conventional, Nano particular, Liposomal, Lyophilized products



Baddi
(Vaccine Formulations)

- Has two filling lines, one for filling of injectable liquid Vaccines in pre-filled syringe ("PFS") and another switchable line for filling of liquid & lyophilized Vaccines in vials
- Licensed to produce 10 vaccines in different presentations
- WHO prequalified facility for Pentavalent vaccine and bivalent Oral Polio vaccine

Lalru
(Vaccine, Antigens & Biopharmaceuticals)

- Dedicated blocks for manufacture of recombinant, viral bacterial and tetanus drug substance
- Integrated block for cell culture based vaccines
- All are WHO cGMP compliant

5. Pan-India Sales and Distribution Infrastructure and Export to Key Markets

Extensive sales, marketing and distribution network

2
Warehouses

28
C&F Agents

c.725
MRs/BDEs/ESMD engaged in sales & marketing

30+
Exports to US, Germany & other countries

- **Good Distribution and Storage Practices followed at all** the warehouses
- **Direct online sales to patients at affordable prices** providing benefits to socially economically weaker patients
- **Well-established supply chain management system designed for creating end to end visibility and controls** right from sourcing of materials till collection of receivables for both the pharmaceuticals and vaccines products
- **Expertise in cold chain management for storage and distribution of vaccines** for sending temperature controlled products overseas and across India directly from its Vaccine Formulation Facility at Baddi

Established relationship with prescribers

1,500
distributors for pharma formulations

325
distributors for vaccines

c.100k
Doctors Coverage[1]

1. *Internal data system.*

6. Key Strategic Alliances

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APOTEX – ADVANCING GENERICS

- Research, development, license and supply of two drug delivery-based generic products in the US, Canada, Australia and New Zealand
- Collaboration recently expanded to launch Prasugrel, a shared First to File ("FTF") opportunity in the USA in Oct-17

BIONPHARMA

- Collaboration to market generic Tacrolimus and Rizatriptan Benzoate Tablets in the USA
- Collaboration recently expanded for Development, Manufacturing, Supply and sales of 7 more complex generic pharmaceuticals products for the USA

NIH – National Institutes of Health – Turning Discovery Into Health

- For in-licensing of technology for development and commercialization of tetravalent dengue vaccine

SERUM INSTITUTE OF INDIA – Cyrus Poonawalla Group

- Strategic collaboration for Hexavalent vaccines EasySix for introduction in national immunization programs of India and other developing countries.

SANDOZ, **BAYER**, **gsk GlaxoSmithKline**

- Strategic manufacturing collaboration for some of their products for India and other countries

Zydus dedicated to life, **Mylan** Seeing is believing, **Abbott**

- Out-licensing of Company's product on non-exclusive basis for marketing in India

7. Experienced Board of Directors

Led by a highly experienced board most of whom have been with the company for 15+ years

Name & Designation	Joining year	Years of experience
Executive Directors		
Soshil Kumar Jain ▪ *Chairman*	1984	62
Dr. Rajesh Jain ▪ *Managing Director*	1984	33
Sandeep Jain ▪ *Joint Managing Director*	1984	32
Mrs. Sunanda Jain ▪ *Executive Director*	2018	
Sumit Jain ▪ *Director - Operations & Projects*	2005	17
Ankesh Jain ▪ *Director - Sales & Marketing*	2016	7

Name & Designation	Joining year	Years of experience
Independent Directors		
R L Narasimhan ▪ *Director*	2001	50
N N Khamitkar ▪ *Director*	2001	50
K M Lal ▪ *Director*	2005	50
Ashwini Luthra ▪ *Director*	2018	48
Manjula Upadhyay ▪ *Director*	2015	28
Mukul Gupta ▪ *Director*	2016	37

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Recent Updates

Recent Updates

Key Update	Details
USFDA Acceptance for ANDA of Paclitaxel Protein bound particles	■ US FDA accepts Company's ANDA submitted under section 505(j) of the Federal Food, Drug and Cosmetic Act (FD&C Act) for Paclitaxel Protein Bound Particles for injectable Suspension, 100mg/via.
Collaboration with Serum Institute of India Pvt. Ltd.	■ Under the collaboration SII is entitled to manufacture & sell fully liquid Whole cell Pertussis (wP) and Salk based Injectable Polio Vaccine (IPV) based Hexavalent vaccine (DTwP-HepB-Hib-IPV) developed & commercialized by Panacea Biotec. ■ In next 2 years both SII and PBL will work together to get the Hexavalent Vaccine introduced in the National Immunization Program of Government of India and developing countries by working closely with key stakeholders including but not limited to National Governments, World Health Organization (WHO), Global Alliance for Vaccines & Immunization (GAVI), Bill and Melinda Gates Foundation (BMGF) and other United Nation Agencies, etc.
Settlement with Celegene	■ entered into a Settlement Agreement, with Celgene Corporation, and its subsidiary Abraxis BioScience, LLC, for settlement of disputes regarding patents covering Abraxane drug product and Panacea Biotec's ANDA for paclitaxel protein bound particles for injectable suspension, 100mg/vial, a generic version of Abraxane. Abraxane has sales of ~US$ 630 mn in USA as reported by IMS, MAT, Dec 2017.
Collaboration with Natco Pharma & Breckenridge	■ entered into a tripartite agreement with Natco Pharma Ltd. ("Natco") and Breckenridge Pharmaceutical Inc. ("Breckenridge") for the manufacture and supply of Azacitidine Injection for the U.S. market having annual sales of about UU$140 million in USA as reported by IMS, MAT, Dec 2017
WHO Pre-qualification of Bivalent Oral Polio Vaccine (Type 1 & 3)	■ On 07.12.2018 received prestigious WHO pre-qualification for the Bivalent Oral Polio Vaccine (Type 1 & 3).
Cyclosporine ANDA Filing	■ Filed ANDA for Cyclosporine Softgel Capsules with USFDA on March 8, 2019

Note: ANDA: *abbreviated new drug application ; WHO = World Health Organization*

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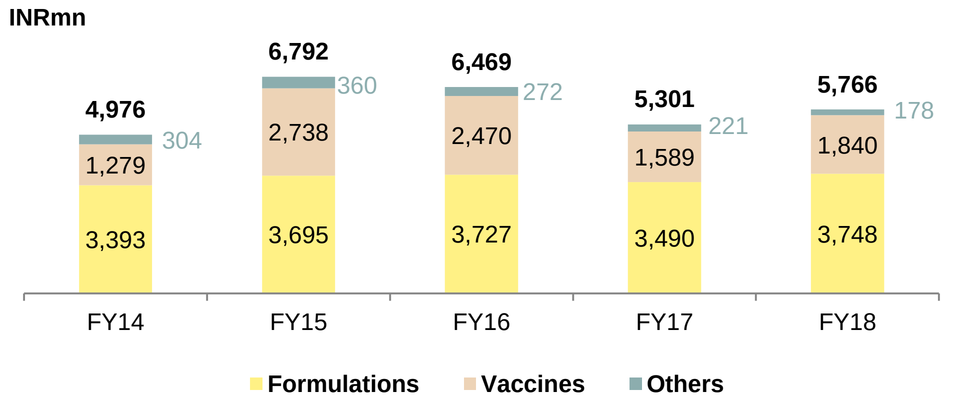
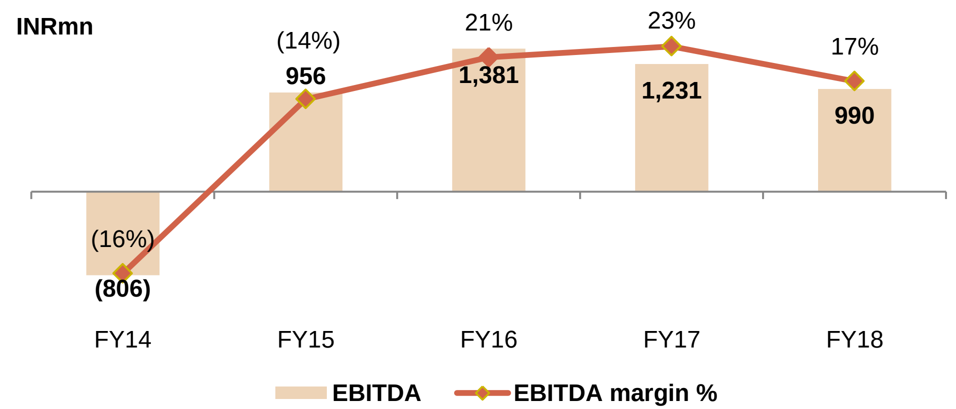
Financial Overview

Financial Overview: Standalone

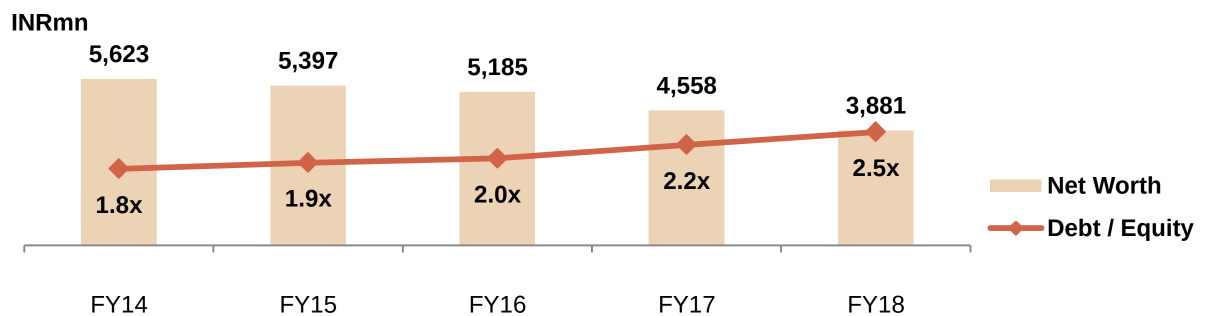
Operating Revenue (net)



EBITDA[1]



Net worth and debt / equity



Note:

- The Company expects FY19 revenues and EBITDA lower than FY18 due to loss of institutional vaccine business and non-availability of working capital to meet the pharma sales requirements. Consequently net debt/ ebitda is expected to be higher.
- The Company is in process of raising long term funds in the form of Debt and/or equity to resolve its debts with existing lenders and meet increased working capital requirements.
- Consequent to improved liquidity and easing of working capital pressures post debt refinancing, we expect business to stabilize and potentially show an improved revenue/ EBITDA trajectory from FY20 onwards.
- As part of the above, the Company is also in process of transferring its pharmaceutical formulation business into a wholly owned subsidiary company viz. Panacea Biotec Pharma Limited.

Source: Company Disclosures.

1. EBITDA = Operating expenses - Operating revenue.+ Other Income

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Future Growth Strategy

Future Growth Strategy

Pharma Business

Short Term (1-2 years)

- Growth in Branded Formulations Pharma exports to ~25 Emerging Markets
- Scaling up of existing niche generic business in US
- Growth in Domestic Branded Formulation business by increase in Per Man Per Month Productivity from ~Rs.5lacs to ~8lacs.
- Initiating Registration of PacliAll in EU, Japan, Emerging and Developing Countries
- Prepare and execute a 100 day sales & marketing operating plan to improve patient and channel connect and drive sustainable growth
- Augment senior management team to recoup market share in key therapies and provide long-term strategic oversight to the business

Medium Term (2-5 years)

- Launch of PacliALL, doxorubicin Liposome and other 21 ANDAs in US market under existing collaborations with Apotex, Bionpharma Inc. etc.
- Launch of ~25 Branded New Products in existing and new emerging markets
- Launch of ~16 Branded New Products in domestic market
- Emerging Market partners will have access to Brand Building, sales force effectiveness processes and Skin in the game.

Long Term (5 years +)

- Launch of ~5 ANDAs in US market every year
- Launch of products in the EU and Japanese markets.
- Launch of 10 new products in Domestic, Emerging and Developing Countries every year.

Note: PAHO - Pan American Health Organization.

Future Growth Strategy

	Short Term (1-2 years)	Medium Term (2-5 years)	Long Term (5 years +)
Vaccines Business	▪ Scaling up **EasySix™** vaccine Sales in Private Market India with target of catching up 1million new born babies/year. ▪ Continuing Supplies of Oral Polio Vaccine to Govt. of India in 2019. ▪ Participation in Govt. of India business for Pentavalent vaccine (Easyfive) – demand of 80 million doses p.a. ▪ Initiate and implement measures for rationalizing costs and improving profitability	▪ Global Eradication of Polio ▪ Introduction of **EasySix™** vaccine in Govt. of India and UNICEF / PAHO Program. ▪ Introduction of **EasySix™** vaccine in Pvt. Markets and National Program of Developing Countries. ▪ Launch of **DengiAll™** Dengue Vaccine in India and introduction in India's National Immunization Program ▪ Launch of NucoVac™ (Pneumococcal) Vaccine in India (Private and National Program) ▪ Launch of Typhoid Conjugate Vaccine in India	▪ Scale up of Sales of DengiAll™ vaccine and NucoVac™ (Pneumococcal) vaccine in Private Market and Developing Countries National Program etc. ▪ Launch of aP based combination vaccines ▪ Launch of Niche private market Branded Vaccines which are currently under advanced stage of pre-clinical studies in India and Developing Countries.
Other Initiatives	▪ Monetize surplus real estate owned by the company to bring down debt ▪ Implement measures to rationalize fixed corporate and R&D costs		

Note: PAHO - Pan American Health Organization.

Panacea Biotec

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Thank You