January 12, 2021

Listing Department
BSE Limited
P J Towers, Dalal Street, Fort,
Mumbai–400001

Code: 532321

Listing Department
National Stock Exchange of India Limited
Exchange Plaza, Bandra Kurla Complex,
Bandra (E),
Mumbai–400051

Code: CADILAHC

Re.: Investor Presentation

Dear Sir / Madam,

Please find enclosed the investor presentation to be made to select investors on Tuesday, January 12, 2021 at 10:05 IST at J. P. Morgan Investor Conference.

Please bring the above information to the knowledge of investors at large.

The said presentation is being uploaded on the website of the Company.

Thanking you,

Yours faithfully,
For, **CADILA HEALTHCARE LIMITED**

DHAVAL NARENDRA SONI

Digitally signed by DHAVAL NARENDRA SONI
Date: 2021.01.12 14:37:35 +05'30'

DHAVAL N. SONI
COMPANY SECRETARY

Encl.: As above

J.P. Morgan 39th Annual Healthcare Conference

Cadila Healthcare Ltd. I Dr. Sharvil Patel, MD | 12-Jan-2021

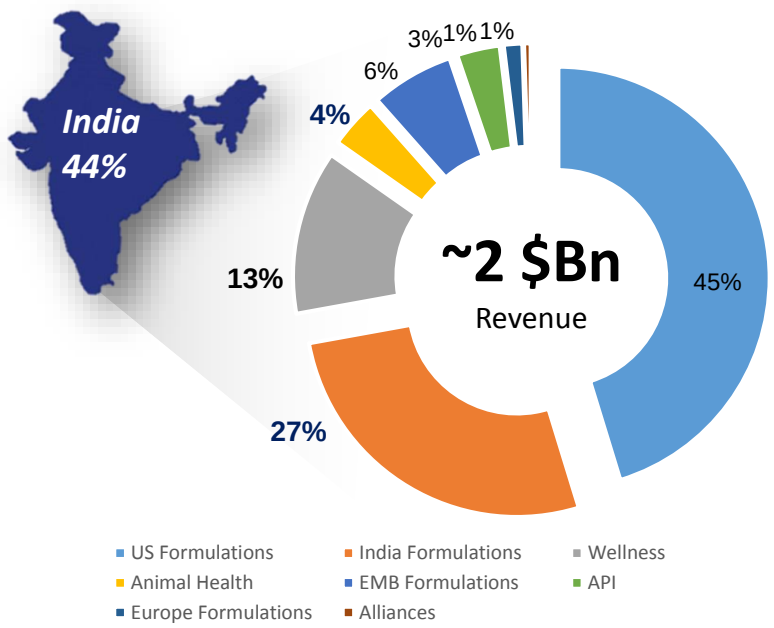
Context

1. Zydus Corporate Overview
2. Strategic Growth Themes

Zydus – Corporate Overview

~ 70 years	$ 6.92 Bn[1]	~$155 Mn[2]	36	25000 +
Business excellence	Market cap	R&D spend in FY20	Manufacturing facilities	Employees

Sales Split (FY20)[2]



Global Gx Business

4th

Largest pharmaceutical company in US (total Prescriptions[3])

Global Branded Gx

5th

Largest pharmaceutical company in India[4]

Wellness

1st

in 5 out of 7 product categories (Sugar-free, Nycil, Glucon-D, Nutralite, EverYuth#)

Animal Health Business

2nd

Largest animal healthcare company in India

NCE & NBE

1st

*NASH therapy approved in India (**Saroglitazar**)*

Biologics & Vaccines

Largest

integrated biologics and vaccines portfolio across Indian pharma cos.

Team Analysis, Internal Data, # Rank within scrubs and peel offs sub-categories

[1] As on 11th January, 2021, $1 = USD 1 = INR 73
[2] All spends and revenue figures at $1 = USD 1 = INR 71
[3] IQVIA NPA Generic TRx MAT Nov 20, [4] AWACS MAT Dec'20

Context

1. Zydus Corporate Overview
2. Strategic Growth Themes

Zydus is focusing on 4 strategic themes to drive its future growth

- **Focus on Key Geographies**
- **Innovation**
- **Cost Optimization & Quality**
- **Digitalization**

India formulation business crossed a milestone of $500 Mn which contributes ~27% of overall revenues

Key Geographies | Innovation | Cost Opt. | Digitalization

5th … largest pharma player by revenues*

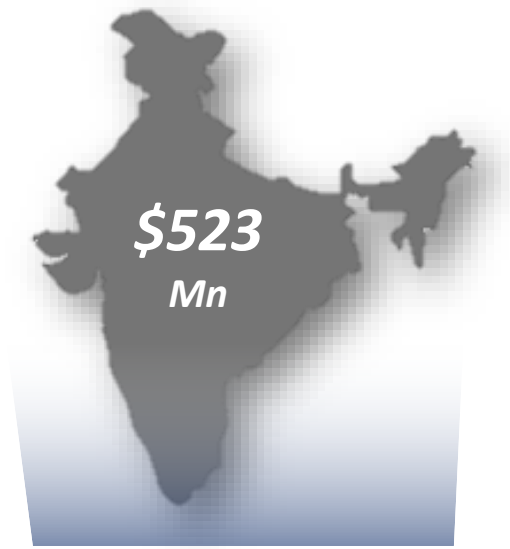
4.2% …value market share in India*

Top 3 … in Respiratory, Pain, Gynaecology, Nephrology, Oncology*

4th … fastest growing amongst top 10 pharma cos. in India*

1st NCE …launched in India (Lipaglyn®# and Bilypsa)

Revenues



FY'20 Revenues

Growth Drivers

Progressive Commercial Model

Nurturing Mandate Brands

Leveraging Digital

Key Imperatives

- *Futuristic commercial model / portfolio restructured recently^:*
  - ***Mass clusters** covering AI/Pain/GI therapy areas*
  - ***Specialty clusters** for Gynae, Derma, Respiratory, Cardiac, Oncology, Rheumatology, Nephrology*

- *Focusing on mandate brands contributing to ~53% of overall revenues (12 brands among top 300 brands of industry)*
- *Mandate brands expected to contribute 60%+ in next 3 years*

- *Taking cognizance of changing environment, Zydus is working to create commercial model, which will leverage digital for differentiated customer engagement*
- *Embedding "analytics" into **decisions** and **way-of-working***

*AWACS MAT Dec'20, ^Internal data, Team Analysis, # Lipaglyn is a prescription medicine and approved for use only in India

Strategic interventions and portfolio alignment in India formulation business, done recently; started yielding results in key TAs

Key Geographies | Innovation | Cost Opt. | Digitalization

Cardio-Metabolic

- *4 ranks gained in anti-diabetic business*
- *Specialist focus has resulted into higher growth and market share gain in Cardio metabolic therapy*
- *Key brands gained MS (Atorva 10.4% to 11.4%*)*

Lipaglyn™ #1 | Atorva #2

Respiratory

- *Maintained 3rd position in the market**
- *Launched 3 unique devices and 2 first-time in India formulations*
- *Next wave of growth from differentiated new products and nextgen delivery platforms*

Deriphyllin® #1 | Formonide #3

Gynecology

- *Zydus is 2nd largest player in the segment (improved rank from 3rd position)**
- *Market share improved from 6.6% to 7.2%**
- *Inspite of de-growth in the market, Zydus exhibited positive growth of 5.5%**

Primolut N #1 | Naturogest #2

Oncology

- *2nd largest player in the segment. Market share improved by 2%**
- *3rd largest player in Bevacizumab (Bryxta)**
- *Vivitra garnered market share of 21% and entered in coveted top 10 oncology brands*

Vivitra™ #1 | Bryxta #3

Combined growth of above key TAs of Zydus has been 1.3x better than the covered market

*AWACS MAT Nov'20, ^Internal data, Team Analysis

Launching a digital platform for doctors to comprehensively meet their need...which will help Zydus driving medium to long term growth

Key Geographies | Innovation | Cost Opt. | Digitalization

Doctors Engagement Platform

- Next generation telemedicine / practice management
- Integrated and neutral
- Personalized & Exclusive Content
- Data security

Integrated Sales & Marketing Platform

1 Stimulate ACTIVITY	2 Create OUTPUT	3 Drive business OUTCOMES
• *User facing analytics to improve platform & create critical mass of usage*	• *Better monitoring & real time data driven decision making through SFE & Doctor Platform*	• *FF Reach & doctor coverage improvement*
• *App analytics to drive traffic to platform*	• *~90% digital calls (In-clinic & virtual) to customers*	• *Marketing cost optimization*
• *Personalization engine to drive usage & engagement*	• *2-3 Virtual Calls / Day*	• *Better scientific connect*
		• *Field force productivity improvement*

Targeting 100 K doctors onboarding by the end of year 2021

Ongoing investments in brand building, differentiated portfolio and digital platforms are the key to future growth of India business

Near Term Priority

- **Portfolio rationalization:** Redeployment of resources through exiting non-core TAs / portfolio
- **Covid therapeutic & Post-COVID Care portfolio:** ~USD 25-30 Mn opportunity
- **Mandate brands & new launches:** Differentiated new launches addressing therapy gaps (~7% of total revenue expected to be added by new products in 3 years)

Mid Term Priority

- **Consolidation of core therapies :** Strengthen Cardio, Gynae, Respiratory, Oncology franchise by improving the MS
  - Aim to be a leading player in breast cancer and solid tumor franchise (addressable patient population of 2.7 Mn by 2024)
- **Digital customer engagement:** Driving digital outreach to bring customer focus/engagement

Long Term Priority

- **Innovation portfolio:** Continue focusing on IP driven innovation Portfolio and at least **one First-in-India** product in each TA which will help Zydus to establish its leadership in core therapies (12-15 key new launches)
- **Emerge as a leading player in NASH / NAFLD / PBC management**: ~25-30 Mn addressable patient population. (Saroglitazar expected to be in top-50 products of India: ~USD 40 Mn)
- **Digital at the core of our business:** Advanced digital initiatives for long term competitive advantage

Zydus Wellness has made big strides post acquisition of Heinz

Key Geographies | Innovation | Cost Opt. | Digitalization

25+
Years of operations

5
brands as category market leader

42 Mn+
End consumer base

2 Mn+
Outlets reach

38%
Shareholder return over 12 years (CAGR)

FY'20 Revenues

Synergies with HIPL integration : The acquisition has provided an opportunity to build a future ready, lean, consumer-centric and profitable organization with a market leading portfolio of brands

Human Resources Integration

- *Reduction in number of people by **15%**, in the combined organization structure*
- *Harmonization of job bands and policies across various levels*

SCM synergies for cost savings

- *Reduced logistics cost through warehouse and C&F optimization – C&F's reduced from 66 to **23***
- *Increase in PM procurement **savings** due to better negotiations with vendors for combined scale*

GTM strategy with speed and agility

- *Doubling direct distribution to reach **500 K** by Mar'21 and reducing cost to serve by optimizing channel margins*
- *Reduced from 1800+ ambient distributors to **800+** distributors while expanding footprint to additional **~900** towns*

Cumulative Savings 1.8 to 2.0 % of annual Sales achieved over a period of two years
Market share across brands has been expanded/ maintained post acquisition through the integration phase

Leading Brands

#1 Sugar Free | #1 Glucon-D | #1 nycil | #1 everyuth naturals | #1 Nutralite | Complan

Source: Company information # Rank within scrubs and peel offs sub-categories

Strong focus on strengthening building growth momentum

Near Term Priority

- Accelerate growth of Brands
  - **Brand Building** : Differentiated propositions with stronger connect using conventional and digital media
  - **Strong GTM** : Enhanced access for better consumer reach through availability across 2 Mn outlets and expanding reach through Ecommerce
- Efficient business operations by **digitalizing** process across the value chain and cost optimization programs

Mid Term Priority

- Expand business to new customers and geographies / channels
  - Build scale in international business by focusing on South Asia, MEA and SEA
  - Enter new markets with relevant offering
  - Expected to be 7-8% of revenue by 2025
- Drive growth by catering to unserved need states using innovation in both product offerings and customer outreach
- Aim to improve penetration levels across leading brands by 3% to 5% every year

Long Term Priority

- Leverage M&A to significantly grow scale
- Open to bolt-on acquisitions at the right time
- Continue to focus on product innovation to grow the categories Zydus operates in and strengthen existing portfolio of brands
- New offerings to add 5% to 7% of revenue on a continuous basis

Zydus has a leadership position in the US generics space and aspires to build a commercially attractive brand franchise in mid-term to long-term…

Key Geographies | Innovation | Cost Opt. | Digitalization

4th
… largest by Scripts in USA[1]

4.2%
… market share in terms of volume[1]

230
… highest no. of ANDA approvals in last 4 years

Amongst top 3
… in top 10 products of our portfolio

190+
… products launched So far

Revenues

FY'20 Revenues

Continued Growth Story…

 # 9 in 2018

 # 7 in 2019

 # 4 in 2020

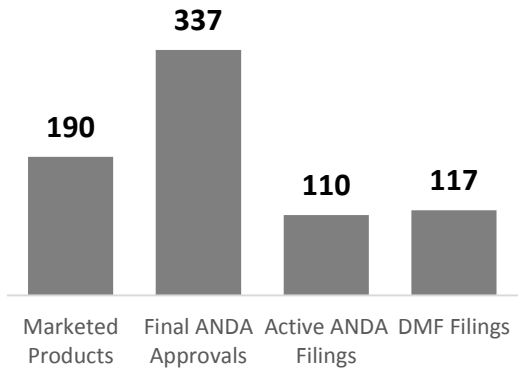
2020 Performance…

Generic

- **23** new product launches
- **38** ANDA approvals
- **27** ANDAs filed

Branded / 505(b)(2)

- **1** 505(b)(2) NDA filed
- **1** 505(b)(2) NDA ready for filing
- **3** Pre-IND meeting for 505(b)(2)



- ***Valuable portfolio of Filed Products:*** *Mid to long term growth through a set of first to files and limited competition products. 10 Products with potential exclusive FTF. Potential of $500-800Mn sales opportunity.*
- ***Best in Industry Performance (last 4years):*** *130 product filing /230 approvals. No 1 in co in US Generics filing and approvals.*
- ***Speed of Execution: Top-tier performance in*** *ANDA approval timelines.*
- ***Proven track record:*** *filing, approvals and commercializing complex products in US*

1: IQVIA National Prescriptions Audit, MAT Nov 2020

Building depth across Complex generics and Specialty portfolio to drive profitable growth in US

- Zydus is strengthening innovative platforms to generate sustainable long term growth with major launches and a robust pipeline

Near Term Priority

Generic Portfolio

- **Base Business:** Deliver industry leading performance
- **New Generics Portfolio:**
  - Focus on new product launches:
  - Filing a portfolio of complex generics (including injectables) and generics: ~40 ANDA filing/year over next 3 years
  - Develop a portfolio of complex generic product through BD&L

Branded Portfolio

- **Orphan & Specialty Business:** Development of portfolio focused around orphan/rare disease

Mid Term Priority

Generic Portfolio

- **Base Business:** Continue to deliver industry leading performance
- **New Generics Portfolio:** Continue to file and commercialize portfolio of value driven ANDAs including complex injectables
- Enhance partnership through robust BD&L - Value accretive deals

Branded Portfolio

- **Orphan & Specialty Business:** Target to file 1 NDA every year.
- Commercialize the portfolio of specialty Products in orphan/rare disease area.
- **Innovation :** Advance Saroglitazar towards commercialization in US for PBC/NASH

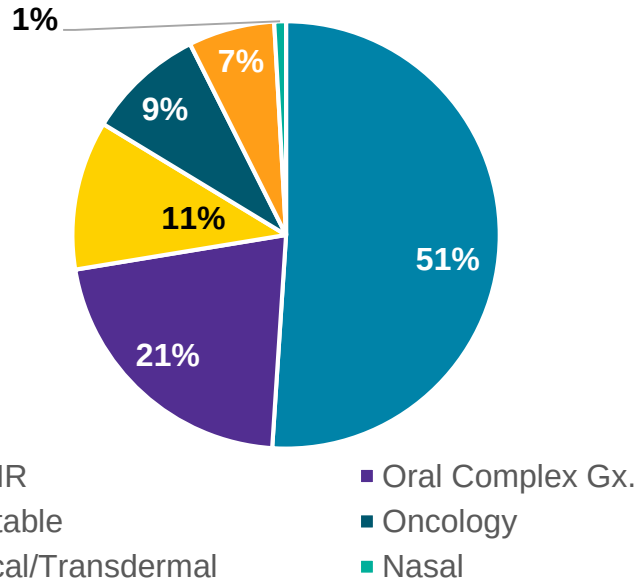
Long Term Priority

Generic Portfolio/Branded Portfolio

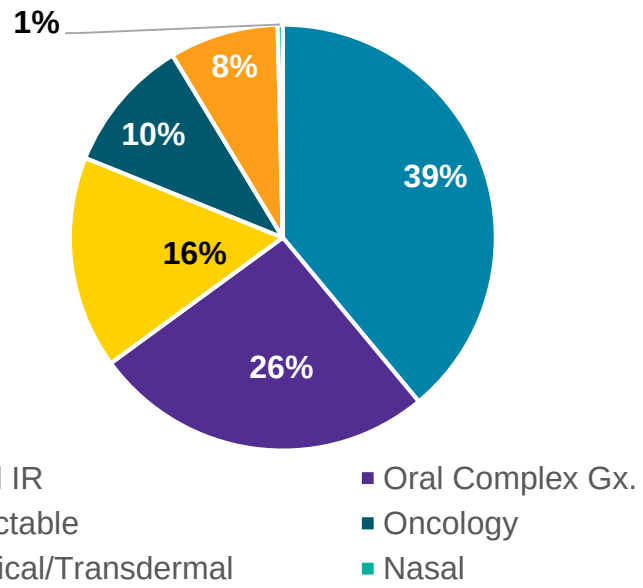
- **Diverse Portfolio:** Emerge as top-tier generics/specialty Pharma company in US market. Built an optimal balance of generics, branded and NCE based portfolio
- Emerge as relevant player in orphan/rare disease area
- Saroglitazar commercialization in select TAs.

Zydus is focusing on "Value-centric portfolio" of a diverse mix of product categories

Approved/Commercialized
(337 Products: $66 Bn Addressable Market size*)



Filed/Under development
(254 Products: $119Bn Addressable Market size)



- Zydus portfolio investment is driven towards creating a value-centric portfolio
- Focus on Limited competition/ Differentiated/FTF products where Zydus is likely to have competitive advantage

*Source: Companies Financial reports, FDA Database and * IQVIA Nov-2020*

Zydus is developing portfolio of complex generic injectable products, including drug device combination products for the US market

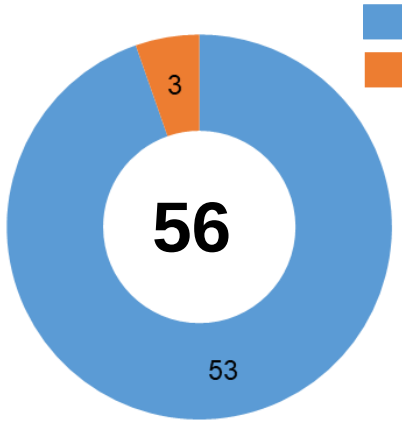
Zydus US
Injectable Portfolio

108 Products

$27B Participative Market

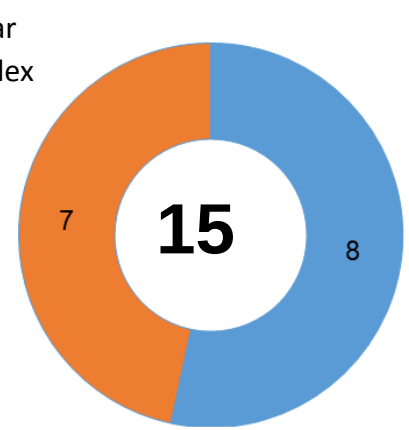
Robust portfolio with a mix of Day-1 / 181, Me too, complex generics and niche product opportunities

Well balanced portfolio with high value products across various stage of development, indicating the prospective business growth opportunity that lies ahead of us



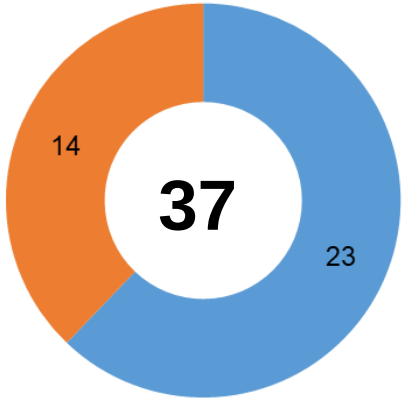
Approved Products

$2.3B



Filed products awaiting approval

$6B



Under Development Products

$19B

- ~10% Para-IV / FTF Products (Approved + Awaiting Approval) with addressable market size of $2 billion
- ~10% Para-III Products (Approved + Awaiting Approvals) with addressable market size of $4 billion
- ~80% Portfolio is of Launch upon approval, *Me too*, Technically challenging Para-II products with addressable market size of $3 billion
- 29 Oncology products in portfolio

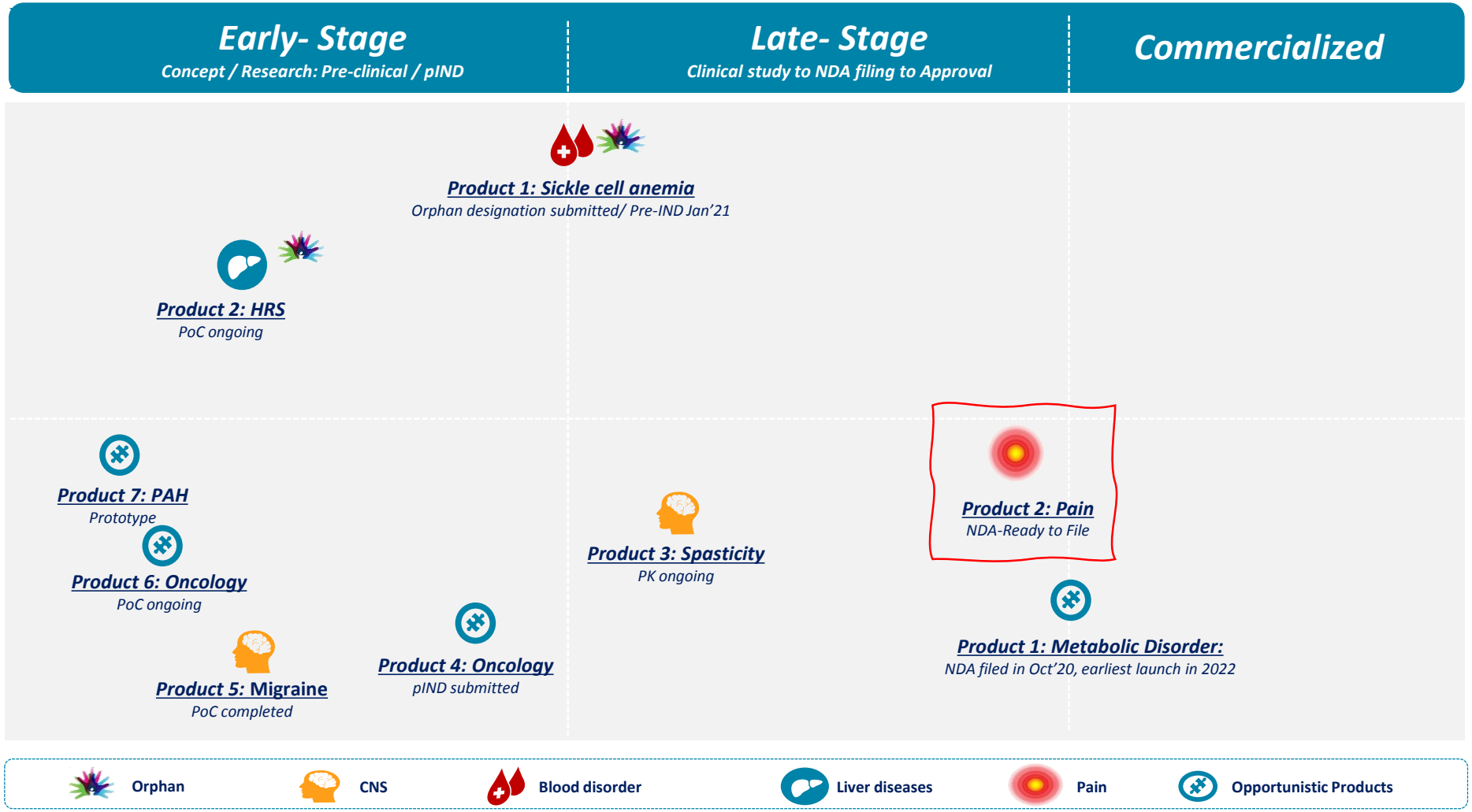
Team Analysis, Internal Data; IQVIA

Zydus Branded business strategy: Dual focus on Orphan disease and Specialty portfolio through 505(b)(2) strategy to drive future growth

Key Geographies | Innovation | Cost Opt. | Digitalization

Zydus Branded Business

A portfolio of 9 R&D programs at various stages of development

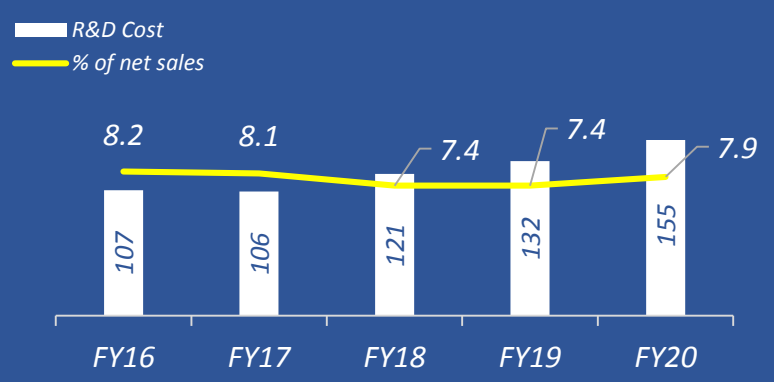


Team Analysis, Internal Data; IQVIA

Zydus Innovation engine fueled by centers of excellence...

Steady Investment in R&D

In Mio USD



1400+ Scientific Pool

NCE / NBE Research

Formulation Development

Biotech Research

Etna Biotech

API Research

Vaccines Research

NCEs & NBEs: Highlights and Focus Therapy Areas

Key Geographies | Innovation | Cost Opt. | Digitalization

4
NCEs in clinical development

10+
NCEs/NBEs in Pipeline

Focus Therapy Areas

- *Pain*
- *Cancer*
- *Inflammation*
- *Infection*
- *Cardio-metabolic*

Capabilities to do research from "**Concept to First-in-man trials**" under one roof

NCEs Pipeline

Project	*Target*	*Indication*	*Drug Discovery*	*Lead Optimization*	*Preclinical Dev.*	*IND*	*Phase I*	*Phase II*	*Phase III*	*NDA*	*Mkt*
Desidustat	*HIF-PH inhibitor*	*Anemia-CKD-ND/ D*									
		COVID-19									
		Chemo ind. anemia									
ZRC-3278 / MMV 253	*V-type H+ ATPase*	*Malaria (MMV)*									
ZYBK2	*HLA-DRB1 shared epitope*	*RA*					***Ongoing***				

NBEs Pipeline

Product	*Indication*	*Cloning*	*Process Dev.*	*Pre-Clinical*	*Regulatory Permission*	*Clinical Dev.*	*Market Auth.*
TwinRab	*Anti-Rabies Mab's*						
ZRC-NB-3224	*PNH/aHUS/Dengue/Severe COVID-19*						
ZRC-3308	*COVID-19*						
ZRC-3297	*Autoimmune*						
ZRC-3298	*Oncology*						
ZRC-3304	*Oncology*						
ADC 2	*Oncology*						
ADC 3	*Oncology*						

PBC along with NASH is expected to become a multi-billion dollar market globally

PBC / NASH Global Market Opportunity

Year 2029

PBC: $10 Bn+

NASH: $27.2 Bn[1]

US would contribute 94% of WW sales

Zydus dedicated to life

*Zydus has become the **1st pharma company in the world** to win approval for a Non-Alcoholic Steatohepatitis (**NASH**) drug Saroglitazar Mg, after getting a green light from the Drug Controller General of India (DCGI)*

USFDA grants Zydus fast track designation for Saroglitazar to treat primary biliary cholangitis

Due to increasing rates of obesity and diabetes, Non-Alcoholic Steatohepatitis (NASH), a chronic inflammatory liver disease, is **becoming increasingly prevalent**. GlobalData forecasts that the **NASH market will grow** at a **CAGR of 63% across the US and the five major European markets** (5EU: France, Germany, Italy, Spain and the UK), **reaching $18.3 bn by 2026.**

Source: Optum.com; Adapted from GlobalData forecasts

NASH, or non-alcoholic steatohepatitis, has **no approved treatments**. **Estimates** hold that about **30 million people in the U.S. have the fatty liver disease, representing a $35 billion market opportunity.**

Source: Biopharmadive.com

Source: Press search, 1) Research And Markets

Saroglitazar Mg. is a novel dual PPAR α/γ agonist Zydus is evaluating in late phase studies for PBC & NASH

Saroglitazar Mg. US development status

- ***NASH*** *– Ph2b application submitted to USFDA*
- ***PBC*** *– Ph2 completed, Ph3 trials to initiate soon*

2013
Approved for 2 indication in India,
1) Hypertriglyceridemia, 2) Diabetic Dyslipidemia

2017-18
Approved for 2 indication in Mexico and Kenya
- Hypertriglyceridemia
- Diabetic Dyslipidemia

2019-20
Approved for 2 mode indication in **India**,
1) T2DM, 2) Pre-cirrhotic NASH and 2 indications in **Myanmar**,
1) Hypertriglyceridemia, 2) Diabetic Dyslipidemia

2023
Expected NDA filling for PBC in US

2025
Expected NDA filling for Pre-cirrhotic NASH in US

Saroglitazar Mg's efficacy and safety is supported by multiple clinical trials and a wealth of real world data

25	8	2	10
Controlled clinical trials across India, US and Mexico involving **~3,900 patients**	**EVIDENCES** series of trials for NASH / NAFLD across US, India and Mexico	**EPICS series of trials** for **PBC** across US and Mexico	**PRESS** series of trials for diabetic dyslipidemia, triglyceridemia
5	27	3600+	15+
Additional trials including for **NASH and HIV**	**IITs** across **3000+ patients**	Patients registered across **3 patient registries**	Review articles and case studies

EVIDENCES – Evaluation In NAFLD/ NASH of Saroglitazar magnesium, EPIC – Evaluation in Primary Biliary Cholangitis of Saroglitazar, PRESS - Prospective randomized efficacy and safety of Saroglitazar
Source: Internal data, Mukul R Jain et al., Pharmacology Research & Perspectives 2015 | Vol. 3 | Iss. 3 | e00136

Desidustat will bring paradigm shift in the management of CKD patients with anemia

Desidustat

- **Desidustat** is a novel, oral, hypoxia inducible factor prolyl hydroxylase inhibitor (HIF-PH inh.), currently undergoing Phase 3 trials for treating anemia in chronic kidney disease patients

CKD patient pool for Desidustat

- **CKD is a serious medical condition** involving gradual loss of functioning of kidneys eventually leading to kidney failure
- Anemia is one of the frequent complications of CKD

Market Opportunity

~$ 6 Bn
Global Renal anemia market by **2027**

~ $ 500 - 600 Mn
Potential of Emerging market for Renal anemia by 2027

~1 Mn
cancer patients in US receiving chemotherapy develop anemia

>120 Mn
people are estimated to be living with CKD in China

~17%
India Prevalence of CKD patients

Key milestones in 2019-20

- US drug regulator's approval to initiate clinical trials of Desidustat in cancer patients receiving chemotherapy induced anemia
- Initiated Phase II (b) trial of Desidustat in Mexico for the management of patients with COVID-19
- Started Phase III clinical trials of Desidustat targeted at treating anemia in dialysis (n=392) and non-dialysis (n=588) dependent CKD patients

Licensing agreement with China Medical System Holdings Ltd.(CMS) for development and commercialization of Desidustat in anemia induced CKD

Source : Rai PK, Rai P, Bedi S. Prevalence and risk factors of chronic kidney disease in overweight and obese population in a tertiary care hospital in North India. Saudi J Kidney Dis Transpl 2019;30:1431-8, Zydus Press Releases, DRG

A Global Player in the evolving Biosimilars Space...

Global Biosimilars Market

~$ 35.7Bn[1]

by 2025

Near to Mid Term Strategy

- Creating 2 distinct set of portfolio

1. To cater to India & EM – Objective will be to maintain leadership position in India
2. To have select play in regulated markets with an objective to create strong franchise in Oncology segment

India

- *No. 1 Player in Biosimilars space*
- *1st to enter and remain a strong player based on continuous cost improvements*

Exemptia Bryxta Vivitra Pegstim BONMAX PTH

Emerging Markets

- *Partnering with regional leaders in various markets*
- *Create a strong franchise in regulated markets with targeted play*

EU & US

- *Plan to develop and enter with first wave select potential biosimilars*
- *Selected play with a limited portfolio based on the competition scenario*
- *Seek partnerships on product to product basis*

Source: Markets and Markets

Zydus has 21 biosimilars in portfolio / pipeline

India & EM

Biosimilars launched since 2014

1. IFNα-2b
2. PEG-IFN
3. PTH
4. G-CSF
5. PEGG-CSF
6. EPO
7. Adalimumab
8. Trastuzumab
9. Bevacizumab
10. Rituximab
11. Peg-Asparagase
12. r-FSH

Zydus Biosimilar Pipeline

Biosimilars	Competitive Intensity
Onco 1	Low
Onco 2	Low
Onco 3	Low
Bone Health 1	Low
Opthal 1	Medium
Respiratory 1	Low
Autoimmune 1	Low

Global Market

Therapy segments under development

Onco 4	Low	Peak sales ~$10 Bn
Onco 5	Medium	

Note: Table consists Exhaustive list, Competitive Intensity High: >5 players Medium: 2-5 Players; Low: <2 players
Source: Company Website, Cortellis

Zydus is an emerging player in the Vaccine space

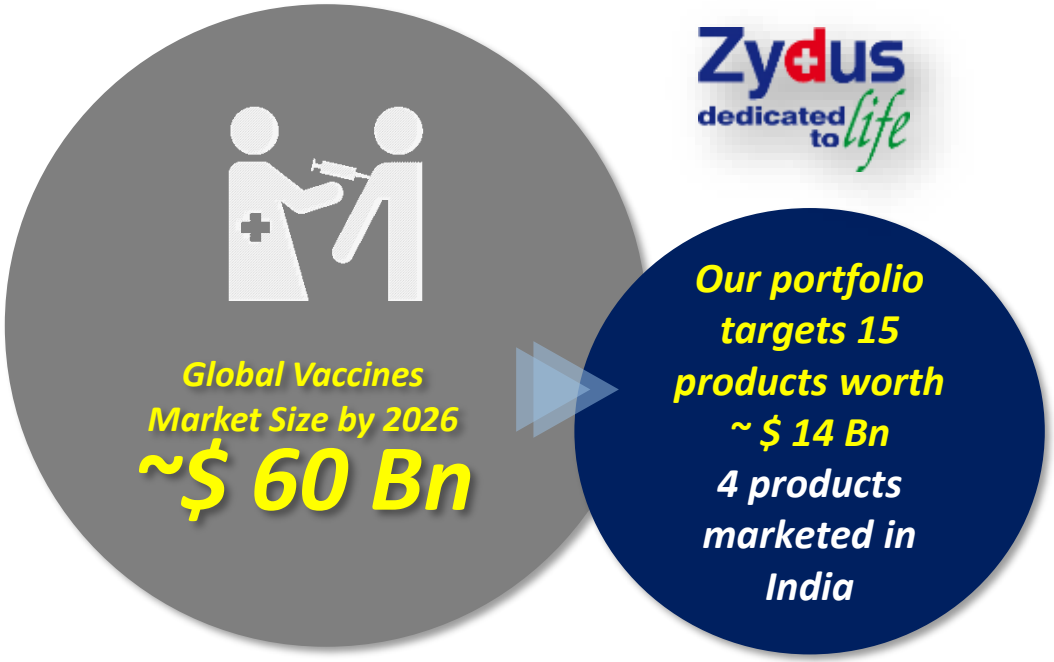
20+ years
…of experience. started journey in 1998*

12+
Vaccine products in portfolio

5
Manufacturing (3) and R&D (2) Facilities*

300+
…dedicated scientists and workforce*

Market Opportunity



Zydus Vaccine Portfolio

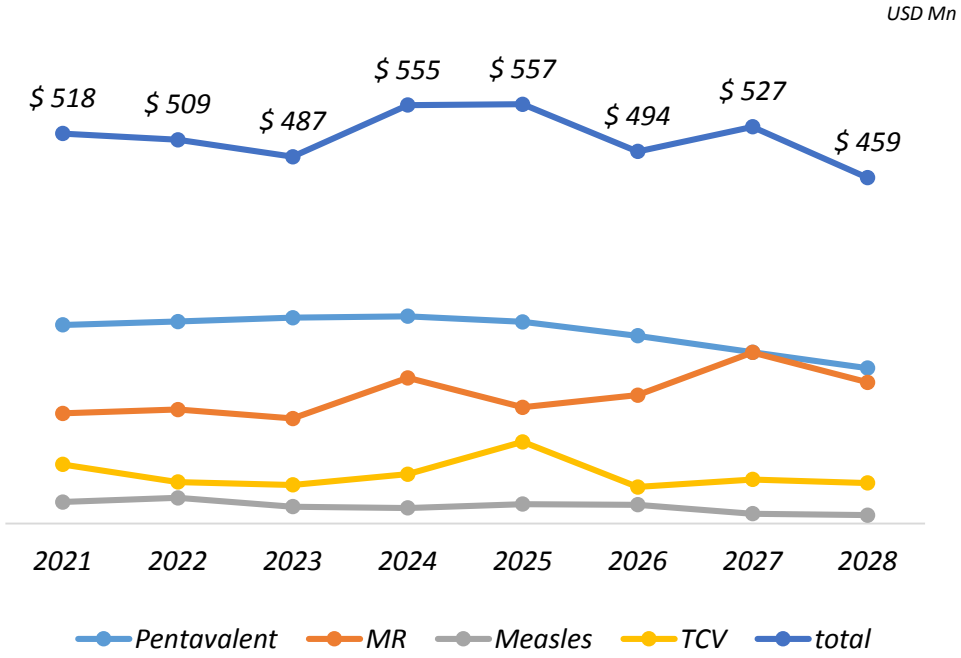
Vaccine	Platform	Vaccine population
Pentavalent	Combination vaccine	Pediatric
MR	Live viral vaccine (Combination)	
MMR	Live viral vaccine (Combination)	
Varicella	Live viral vaccine	
TCV	Polysaccharide conjugate vaccine	Pediatric and Adult
Flu	Inactivated viral vaccine	Pediatric and Adult
Rabies	Inactivated viral vaccine	All Population
HPV	Virus like particles (VLPs)	Adolescents & adults
Hep B	Virus like particles (VLPs)	All Population
Hep E	Recombinant protein subunit vaccine	Adults
TT	Inactivated toxin	All Population
Td	Inactivated toxin	All Population

Zydus has portfolio of 15 vaccines with MA available and multiple vaccines in development

**Team Analysis, Internal Data*

Zydus is dedicated to supply affordable vaccines to global markets, aims to get 2-3 vaccines WHO pre-qualified by 2023

WHO-PQ Market Value (2021 – 28)



Zydus dedicated to life Advantage

- *Among few WHO prequalified player in rabies vaccine*
- *Globally 2nd player to launch typhoid conjugate vaccine*
- *Approved Measles Rubella vaccine which has highest demand in GAVI 73 nations*
- *From year 2023 onwards anticipates major progress in prequalified vaccine portfolio*
- *Between 2024 – 2028, vaccines portfolio presents with a cumulative opportunity of nearly $2.6 Bn*
- *With aim to get two to three more vaccines prequalified by 2024, these prequalified vaccines present total opportunity of around $1.3 Bn from 2024 - 2028*

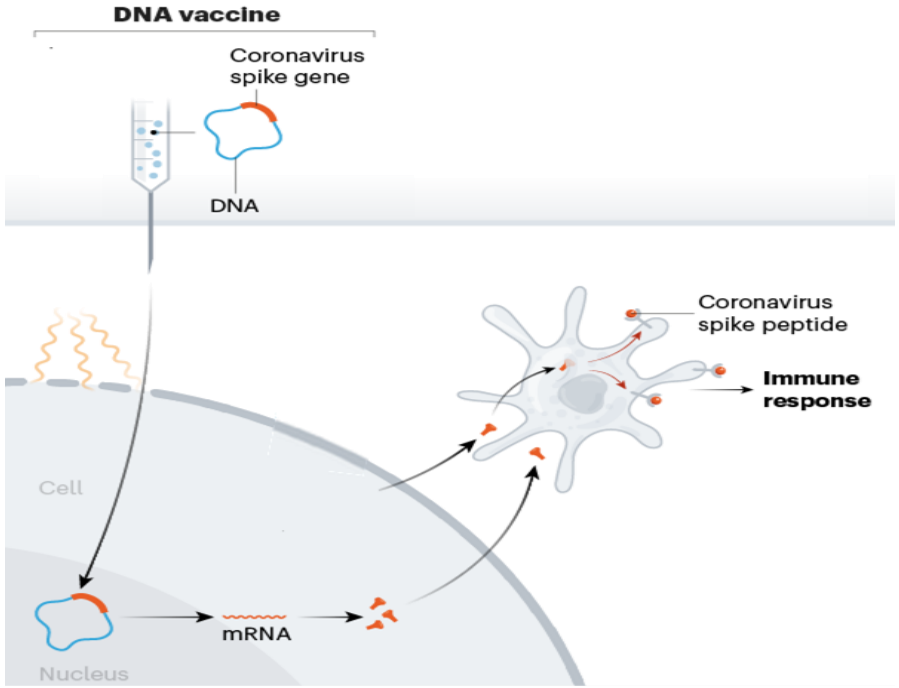
Zydus' prequalified vaccine will not only cater demand from GAVI/UNICEF but will also cater demand of various emerging markets, these vaccines will be one of the key drivers for vaccines' business growth in this decade

Source: GAVI Vaccine Base Demand forecast, 2019, Version 17; UNICEF Vaccine Pricing; Internal Analysis

COVID Portfolio : ZyCoV-D Vaccine; A Novel Approach for COVID-19 Vaccine Development with favourable vaccine characteristics

How DNA vaccine works?

DNA is inserted into human cells, which then churn out copies of the coronavirus protein which generate immune response



Why DNA Vaccines?

- ✓ Strong antibody and cellular response
- ✓ Can be quickly adapted to new mutant viral strains
- ✓ Simple formulation, no need of adjuvant
- ✓ Highly stable vaccines; stable at 25^0C for > 3 months
- ✓ Minimum biosafety requirement for manufacturing – BSL -1

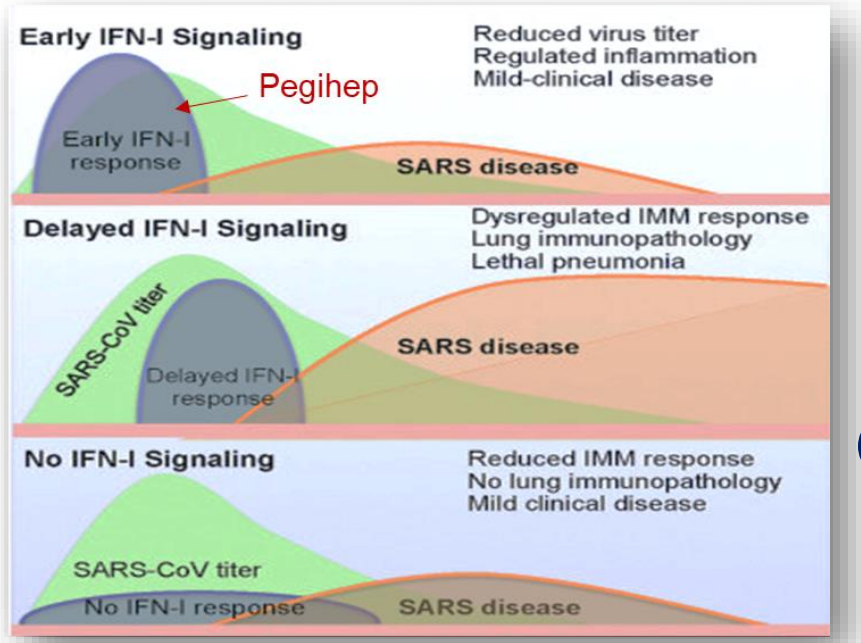
ZyCoV-D demonstrated a good safety profile in Phase I/II studies and undergoing a robust Phase III clinical evaluation

- ✓ ZyCoV-D has undergone, **largest Phase I/II Study** in India in **1048 subjects**
- ✓ Very safe & well tolerated with **no Grade 3/4 AE/SAE (Follow-up ≥ 3M)**
- ✓ Demonstrated high **neutralizing antibody and cellular response**
- ✓ Will be undergoing **Phase III** study in around **30,000 volunteers**
- ✓ Expect to deliver **100-150 Mn** doses by end of **2021**

Zydus is also developing a measles vectored base vaccine for COVID-19 which is currently in preclinical development

Source: Daniel Wrapp et al. Science 2020;367:1260-1263; https://www.nature.com/articles/d41586-020-01221-y ; Internal analysis

COVID Portfolio : Single dose therapy of PEGIHEP showed greater viral load reduction, in mild to moderate COVID-19 patients



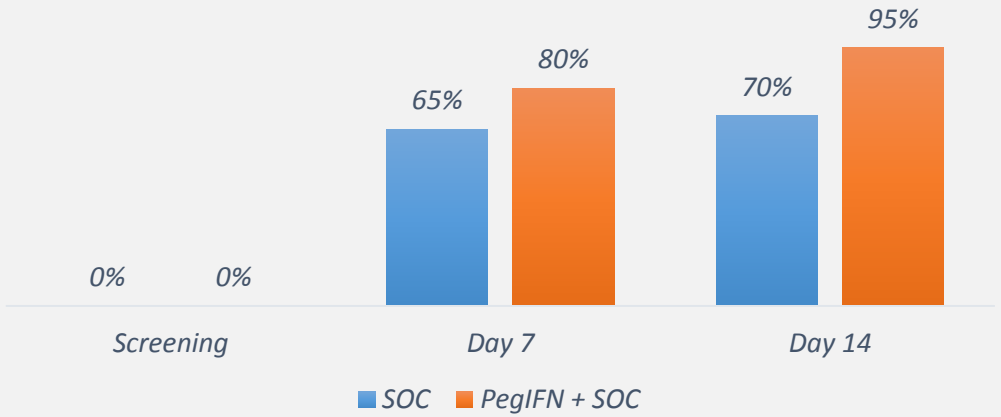
"SARS-CoV-2-infected patients at risk of developing severe disease, the earliest possible administration of Type I IFN-based regimens should be considered"

Romain Lévy et. al 2020

Phase II Study

- **PEGIFN treated patients showed statistically significant viral reduction by RT-PCR on day 14.**

Participants recovered for COVID-19 confirmed by RTPCR

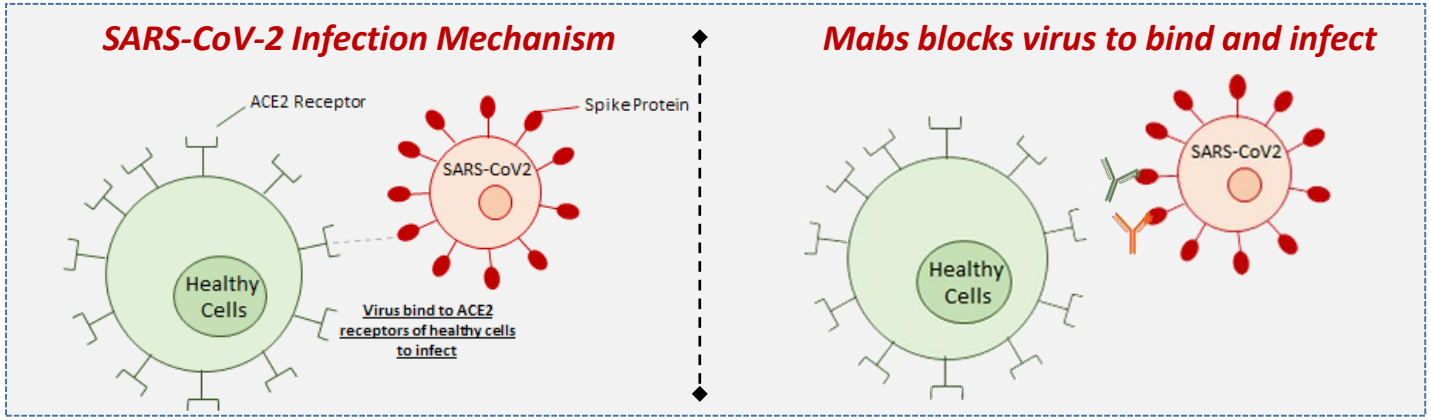


Current Stand

- ✓ **One injection (Single Dose)** prevents disease severity and promotes recovery in mild to moderate patients (**affordable)**
- ✓ **Initiated Phase III trials in India and would complete by Feb**
- ✓ **IND application will be filed in the US as well**

Source: https://www.cell.com/cell-host-microbe/pdf/S1931-3128(16)30006-3.pdf

COVID Portfolio : Zydus has opted "cocktail" Mab approach which has market potential of over $6 Bn is set to hit market by Sep'2021



Our quick development timelines and manufacturing capabilities ensure drug will be available to all without compromising any safety and efficacy parameters

Tentative development timeline

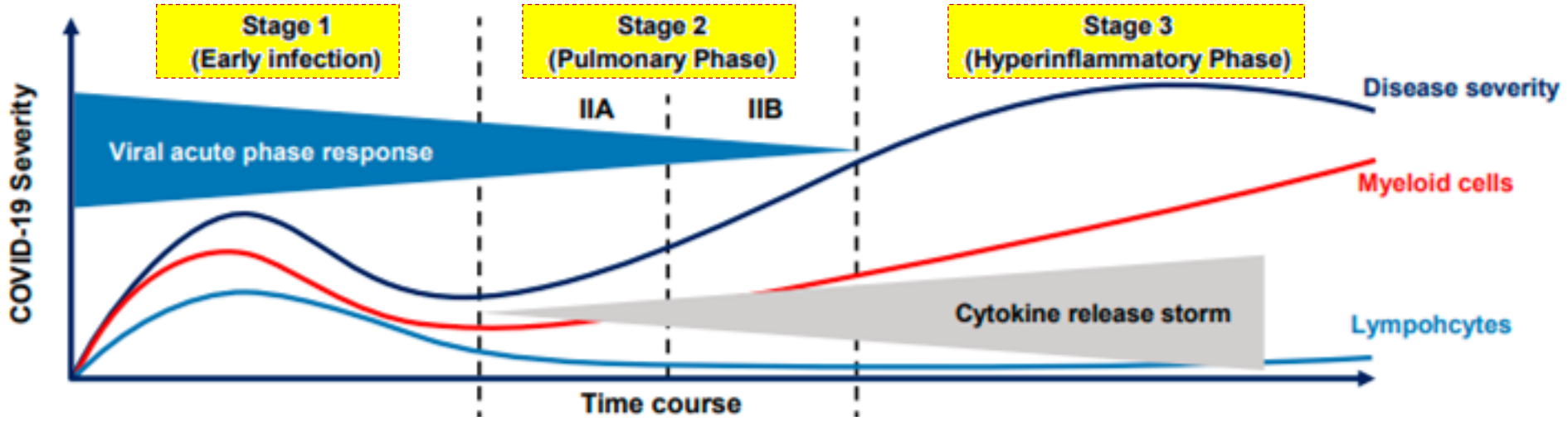
Jul-2020
POC studies, cell line development

Nov-2020
Preclinical Efficacy & Toxicity Studies

Mar-2021
Clinical Trial COVID patients

Sep-2021
Filing with Regulators

COVID Portfolio : NCEs and NBEs – Zydus has identified 5 novel programs that target 3 different stages of COVID-19



Clinical symptoms	*Acute viral symptoms, fever, muscle pain, cough*	*Shortness of breath & hypoxia*	*Cytokine Storm that leads to multi-organ failure*
Interventions	***Novel antivirals:*** *Lead molecules identified which inhibits PL-Pro and CL-Pro enzymes which are essential for virus life cycle*	***Desidustat:*** *Clinical studies ongoing globally, for managing hypoxia.*	***ZYIL-1:*** *Clinics ready Inflammasome inhibitor which prevents 'Cytokine Storm' in ARDS.* ***Anti-Complement NBE****: Lead molecule identified which targets complement pathway in turn prevents lung damage during 'Cytokine Storm'*

Cost Optimization through Operational Excellence
(achieved 70-80 bps improvement in operating profit on a continuous basis)

Journey So far

Objective: To achieve excellence in manufacturing and quality operations with focus on improvement in efficiency, flow and capability vis use of digital and data analytics tools for effective decision making

Outcome :

- Cumulative savings of over **US$ 80 Mn. over a decade** through Productivity & Cost improvement
- Agility through simplification of quality systems and Compliance improvement
- Paperless QMS activities
- AR & VR based Remote/Self assistance and training on guided maintenance, operations and changeover.

Journey ahead

Objective: To unlock next wave of efficiency and embed new ways of working for compliant operations through a focused initiative on "**Process Simplification**" at the key OSD sites.

Expected Outcome :

To achieve a sustainable **improvement of 1% in EBIDTA margins** with governance on 5 Work streams…

- Optimization of manpower through the Spans and Layers to release
- Throughput improvement through OEE improvement
- Facilitating the enhanced throughput with reduced shift of operation
- Drive cost optimization in utilities and consumables
- **Digitally enabled** manufacturing and quality operations

SLIM (Strategic Lean Integrated Manufacturing) & ME (Manufacturing Excellence) HER – Humar Error Reduction
AR/VR- Augmented Reality/ Virtual Reality OSD- Oral Solid Dosage QMS- Quality management System LMS- Learning Management System

Operational Excellence (contd.)

Journey So far

Prism Every ₹ counts

Objective: To drive improvement in COGS and achieve cost excellence across various business verticals

Outcome : Cumulative **savings of $ 70 Mn over last 8 years** through various levers

Supply Chain

Key milestones:

- Over 99% supply chain efficiency (product availability) in last 3 years.
- Addressing supply chain vulnerability by
  - Extending safety coverage of key components with higher risk of supply.
  - Working with key vendors on strategic partnership and giving long term visibility
  - Continuous focus business continuity program by creating alternate vendors for key API and alternate plant for manufacturing ,.
- 38 % of Global Business is secured with multiple vendors (Having one or more vendors).

Journey ahead

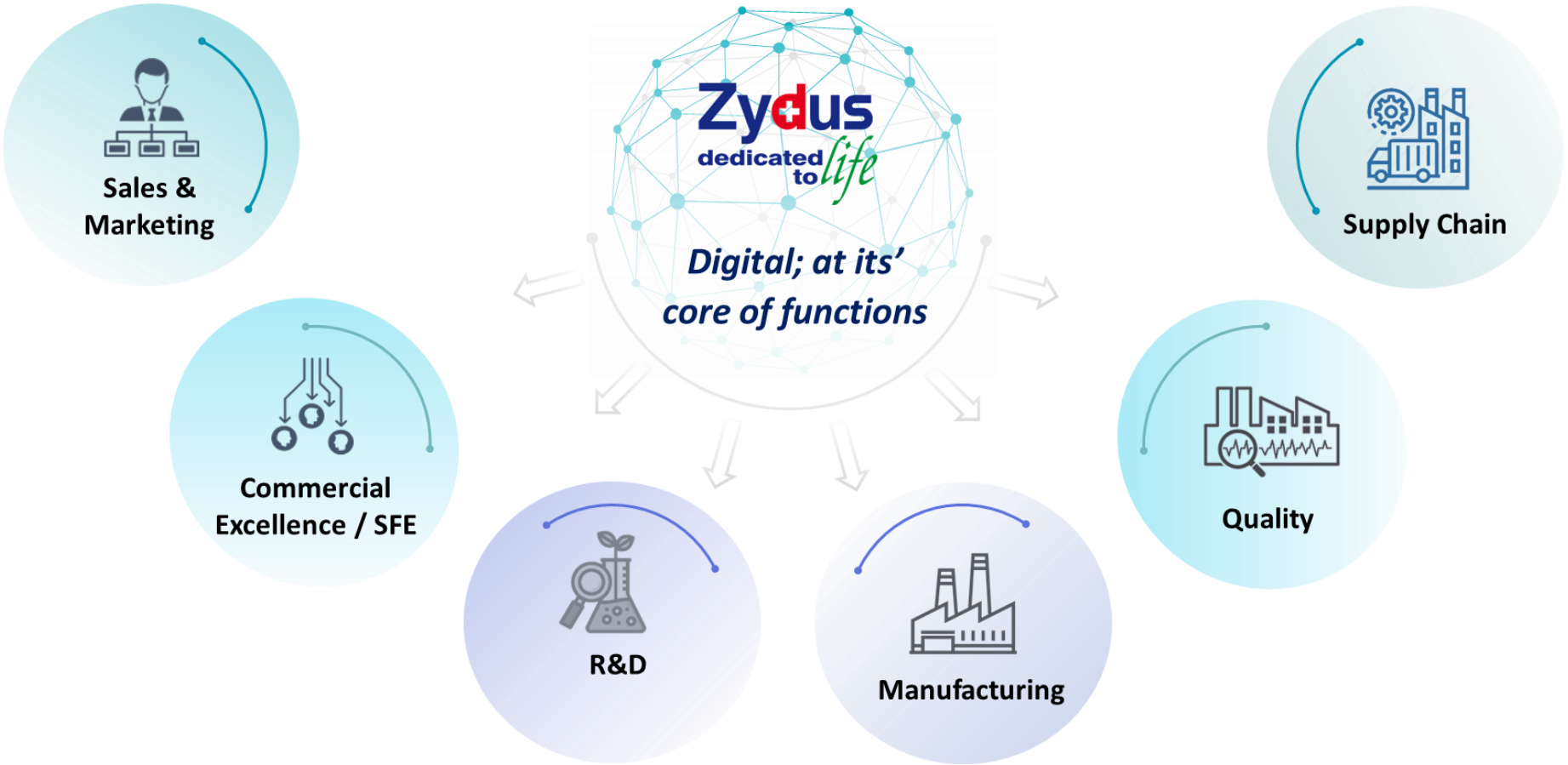
Reduction in-sourcing from china :

- Captive (API Manufacturing)- To reduce China sourcing dependency from 46 % to 35 % in next 2 years
- Formulation business – To reduce China sourcing dependency from 22 % to 17 % in next 1 year.

De-risking and dual source of API

- Continue to extend the coverage of ~ 63 % of Global Business with multiple vendors
- Continue to work closely with vendors for long term visibility and strategic partnership

Leveraging digital platforms in all the functions and processes to drive quality, productivity and operational efficiency…



"Digital transformation is not an option, it's a necessity" and we firmly believe this at Zydus

Shift in doctor's behavior due to recent events.... driving digital innovation in our commercial & customer engagement model

Key Geographies | Innovation | Cost Opt. | Digitalization

Key shifts in Doctors's Behaviour

- 84% doctors adopted virtual consultations
- 63% will continue teleconsultations post lockdown

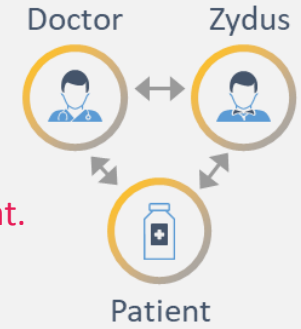
- ~68% doctors to curtail physical visits
- >50% find phone/ video detailing ineffective – scope to innovate

- ~70% doctors are willing & continue to engage with digital mediums

New Digital Operating model

Doctor – Zydus Interaction

- Engagement platform to cater to knowledge needs – webinars, events, e-library…
- E-detailing & remote interactions with doctors



Doctor – Patient Interaction

- Telemedicine & Practice Mgmt.
- Comprehensive disease management

Zydus – Patient Interaction

- Drive outcomes – higher adherence, improved care etc. through physicians

Our Digital Initiatives

DigineXt

*Digital engagement with doctors through engaging platforms to drive **pull***

Zydus Frontline 3.0

*New 'Phygital' sales call to equip the field force and **drive productivity***

ENGAGE nexT

*Patient connect through disease management to **generate better outcomes***

Future of work, BCG-IPA Perspective, April 2020, Team Analysis

Driving operational excellence through Digitalization

Journey So far

PACE

Objective: Digitalization of end to end supply chain process for better visibility and improve decision making.

Outcome:

- Projection of demand forecast basis past trend using algorithm.
- Automated manufacturing plan generation based on the market coverage, priority and improved realization.
- Developed digital dashboards for insight of actual trends v/s expected
- Over 99% supply chain efficiency (product availability) in last 3 years.

SAP Ariba

Objective: To make scalable supplier platform for " Source to Settle".

Outcome: Cumulative savings of > $ 5 Mn in last 4 years through auctions & RFQ.

- 40 Lac catalogues items uploaded resulting to fast & error free transaction, 4300 + vendor onboard so far

Journey ahead

PACE

Expected Outcome:

- Improvement in forecast accuracy and optimize inventory.
- Digitalization of long range planning to enable better decision making on capex basis future forecast.

SAP Ariba

- **Expected Outcome:** Build on synergy and on board 1000 + vendors

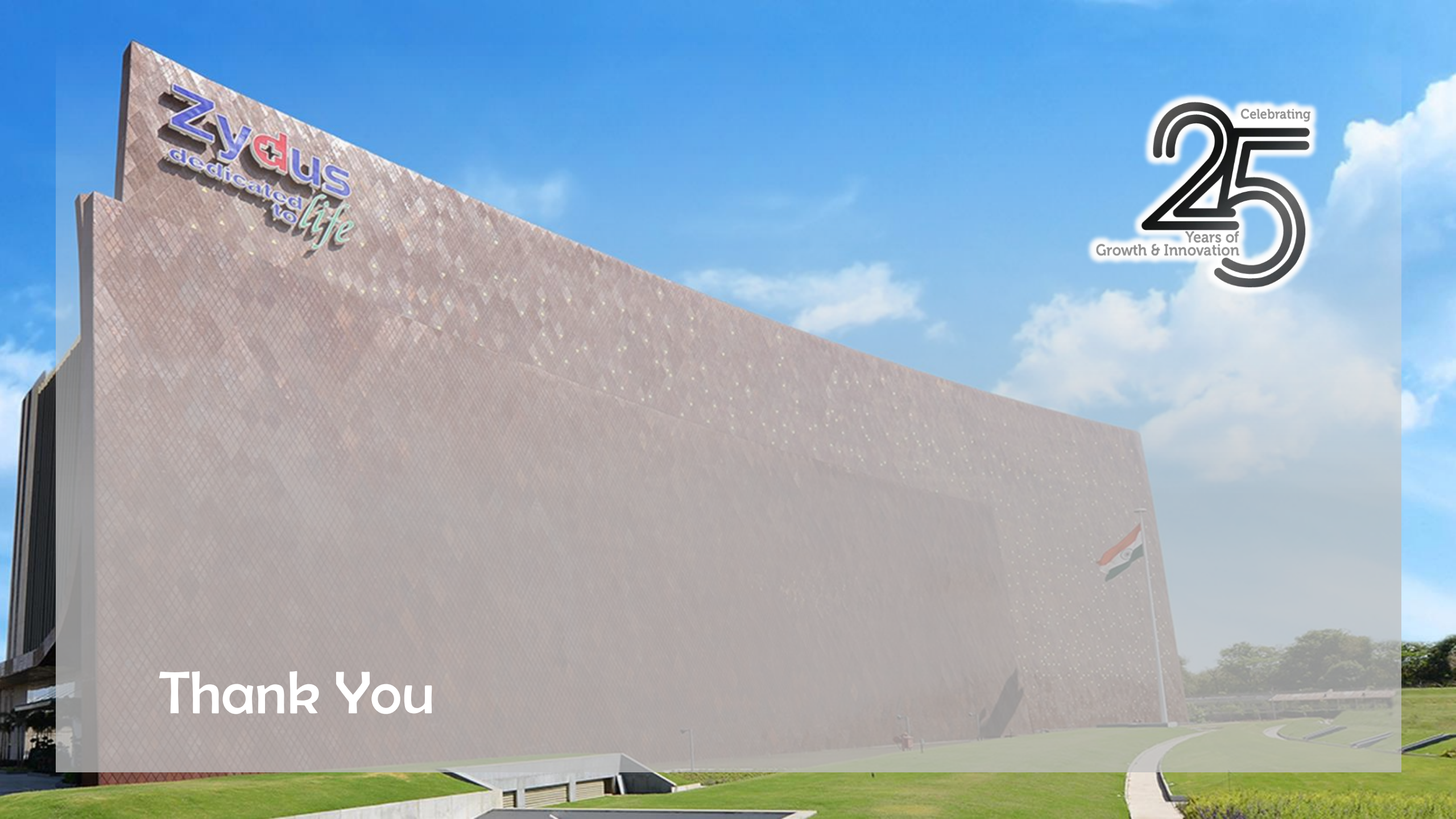
Integrated Real-time Information System for new products development and launch

Objective and expected outcomes

Objective: Create, update and track New Product Development (NPD) and New Product Launch (NPL) activities of Projects across various geographies.

Expected Outcomes :

- Real time performance monitoring to enable data driven decision making
- Provides structure across all activities and assures individual ownership and accountability with defined SLAs in place
- Identify potential sources of bottlenecks and opportunities to streamline activities
- Allocate operational resources and provide trail of all project-related attributes
- Ability to check budget adherence and identify causes for deviation


Zydus
dedicated to life
Celebrating
25
Years of
Growth & Innovation

Thank You

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