SPARC/Sec/SE/2019-20/022 10th September 2020

To
The National Stock Exchange of India Ltd.
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Plot No. C/1, G Block,
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Bandra (East),
Mumbai – 400 051.

BSE Limited
P J Towers,
Dalal street,
Mumbai - 400001

Ref: *Scrip Code: NSE: SPARC; BSE: 532872*
Sub: *Investor Presentation—Update on R&D Pipeline*

Dear Sir/ Madam,

Further to out letter Nos. SPARC/Sec/SE/2020-21/017 and SPARC/Sec/SE/2020-21/018 dated 19th August 2020 on the subject, please find enclosed a copy of the presentation by the Company providing update on R&D Pipeline, which is self-explanatory.

You are requested to kindly take the same on your record & disseminate the information through your website.

Yours faithfully,
For **Sun Pharma Advanced Research Company Limited**

Debashis Dey
Company Secretary

Encls: A/a.

Update on R&D pipeline

10th September 2020

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Presentation agenda

sparc

01 Strategy overview

Anil Raghavan, CEO

02 Clinical NCE assets

SiuLong Yao, Head Clinical Development & Operations

03 Clinical NDDS assets

Nitin Dharmadhikari, Head Drug Delivery System

04 Licensing update & competitive landscape

Michael Choi, Head Business Development

05 Academic collaborations

Rajesh Ranganathan, Head Partnerships and Portfolio Strategy

06 Pre-clinical NCE assets

Vikram Ramanathan, Head Translational Development

07 Biologics

Nitin Damle, CIO

08 Financial update

Chetan Rajpara, CFO

09 Q&A

Strategy overview

Anil Raghavan

On the hard road, together

Let's take a moment to reflect

Broad Portfolio

- 2 USFDA approved drugs (Xelpros, Elepsia)
- 3 NCEs in clinical development across 7 different indications
- 10+ NCE/NBE programs in the R&D pipeline covering 4 TAs

Global Organization

- 3 offices in two continents
- 160 labs; 120,000 sq. ft.
- 350+ scientists
- Internal R&D infrastructure
- Highly experienced senior management team

Upcoming Catalysts

- Approvals from late stage pipeline
- Vodobatinib CML registration trial readout
- Phase 2 readout of PROSEEK and SCD-044 studies
- Upcoming IND filings

Xelpros™ (latanoprost ophthalmic emulsion) 0.005%

elepsia® XR (levetiracetam) EXTENDED RELEASE TABLETS 1000mg 1500mg

PROSEEK NCT03655236

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SPARC Spin Off – $70m					Right's Issue 1 – $34.3m				Right's Issue 2 – $37.2m			Pref. Issue – $74.2m	

SPARC has evolved into a promising innovative products company with several high value opportunities at high capital efficiency

Our operating model is fully built-up

Discovery

INTERNAL IDEATION

- Target selection
- Medicinal chemistry
- In-vitro biology
- Biologics

ACADEMIC PARTNERSHIPS

COMMERCIAL COLLABORATIONS

Development

PRE-CLINICAL

- Formulation development
- Pharmacology
- DMPK
- Toxicology
- CMC scale-up

CLINICAL

- Clinical study design
- Regulatory science & execution
- Biostatistics
- Clinical pharmacology
- Clinical operations

Commercialization

STRATEGIC PARTNERSHIPS

COMPANY INCUBATION

DIRECT COMMERCIALIZATION

SPARC in-house | Active Partnerships | Future consideration

SPARC's proposition – translational development engine with access to science, low cost of failure and flexible commercialization options

First wave of innovation is nearing completion

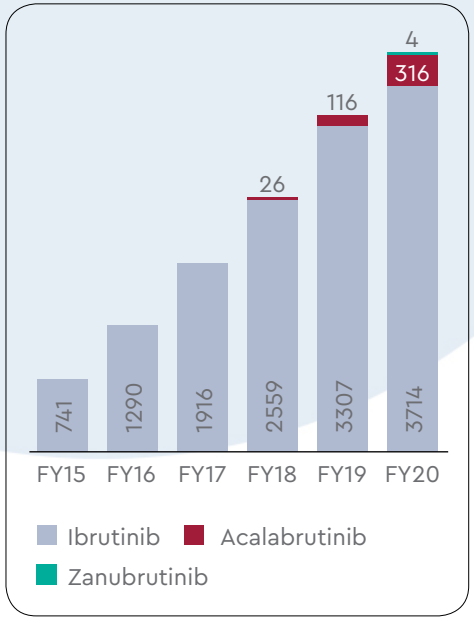
Novel delivery systems through the 505(b)(2) pathway

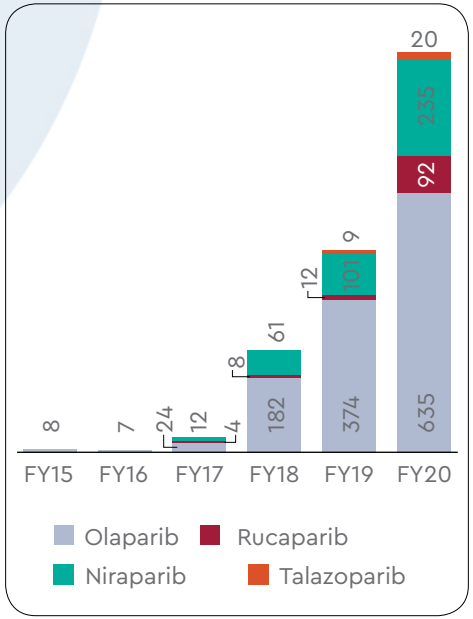
 **Technology Licensing**	Liposomal Drug Delivery Technology	Oral Delivery Technologies	Liposomal Drug Delivery Technology – Sun Pharma (USA) Oral Delivery Technologies – Sun Pharma (India)
 **Approved Products**	Xelpros BAK free	Elepsia XR	Xelpros – Sun Pharma (USA, India), CMS (China) Elepsia – CMS (China)
 **Under Review**	Taclantis		USA – Under USFDA review China – CMS India – Sun Pharma
 **Late Stage Clinical Trials**	PDP-716	SDN-037	Pivotal studies of both programs expected to be read out in FY21 USA – Under discussions, China – CMS

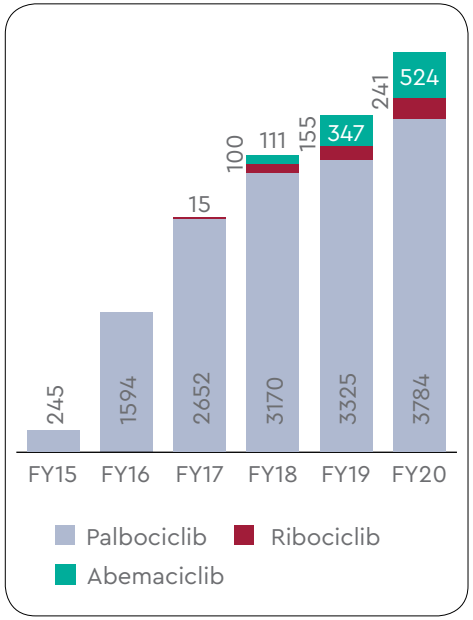
Although these programs offered important validation for the operating model, incremental innovation opportunity spectrum has moderated considerably

Market shifts towards real-value

Early movers garner a lion's share of value







- Significant market share advantages for early entrants across therapeutic areas and geographies
- Payors are reluctant to pay premiums when the demonstrated benefits are not attractive clinically, or limited in it's scope
- Difficult clinical development pathways for follow-on compounds – High burden of evidence for the best-in-class strategy and
- Elevated risk profile of early stage innovation

Source | IQVIA MAT July 2019

SPARC responded with a hard pivot

To a mix of new biology and complex modalities

NDDS

Deprioritized

- Leveraging formulation capabilities, NDDS products were developed to offer incremental patient value:

  Elepsia, Xelpros, PDP-716, SDN-037, Taclantis

Best-in-Class for Validated Targets

Partnering

- Building on chemistry expertise, SPARC focused on optimizing NCEs for validated targets as it's first pivot into the NCE space:

  c-Abl, S1PR1, ER Degrader

New Targets

Investing

- SPARC is now focused on new targets and modalities:

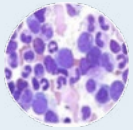
  Cancer metabolism, Precision oncology, Neurodegeneration, Bi-specific antibodies, Conjugated hybrids

Setting up several near term catalysts

Neuro-degenerative Diseases

Vodobatinib PD – Clinical proof-of-concept (PoC) by 2022 in Parkinson's Disease, first-in-class disease modifying opportunity.

Pilot study in Lewy Body Dementia in collaboration with Georgetown University is expected to be read out in 2022.



Cancer Resistance

Vodobatinib CML – Clinical PoC established, Pivotal study is recruiting. USFDA submission expected in FY23.

Orphan drug designation granted by USFDA.

SCO-120 HR+/ HER2- mBC – Oral Selective Estrogen Receptor Degrader, IND completed in January 2020.

In early stage dose escalation.

Auto-immune Disorders

SCD-044– SPARC bought Bioprojet's rights to SCD-044 in 2019. Phase 1 completed, leading to clinical validation of the hypothesis, Phase 2 studies in Psoriasis & Atopic Dermatitis are expected to start recruiting shortly.

SCD-044 global license granted to Sun Pharma.

Others

Phenobarbital for Neonatal Seizures – Medium term NDA submission, Orphan drug designation granted by USFDA.

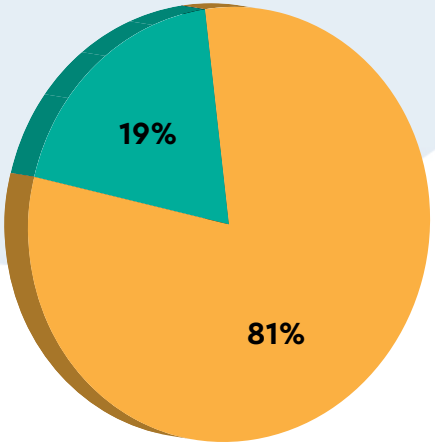
Multiple near term IND opportunities.

High value, multi-indication clinical portfolio nearing important milestones, setting up multiple cash events

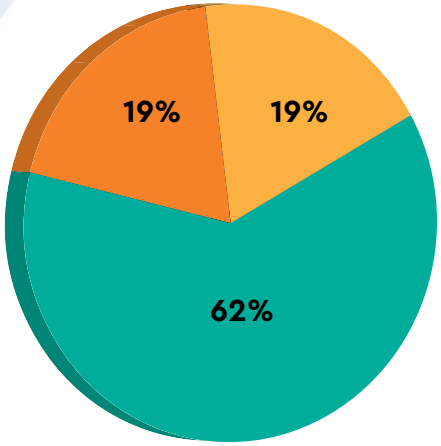
Building long term value

SPARC's early stage portfolio is being transformed

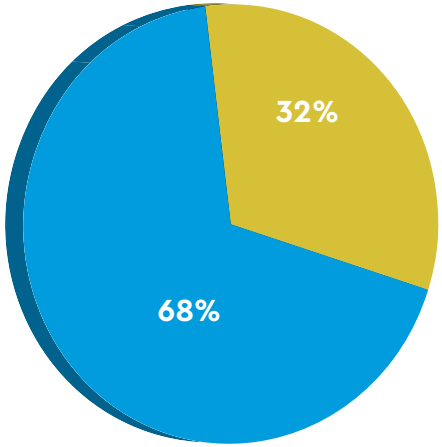
Development Pipeline 2014 (n=31)



Development Pipeline 2020 (n=19)



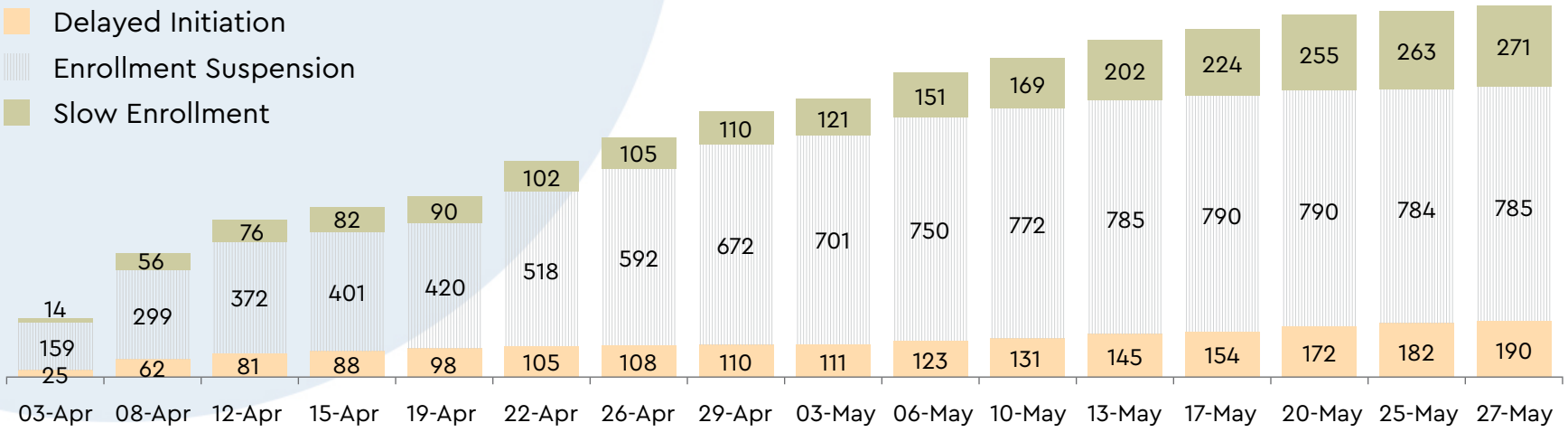
Asset Distribution 2020 (n=19)



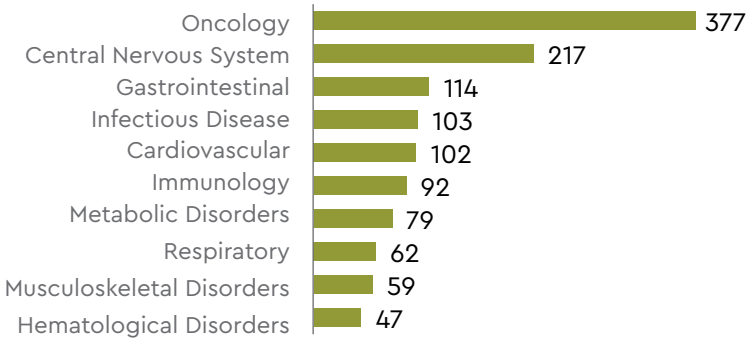
- Aggressive pruning to weed-out potentially unviable programs
- Increasing proportion of programs focusing on novel biology
- Investments in new modalities/complex platforms
- External innovation as a key tenet of strategy
- Discipline to stay within the identified therapeutic focus

Taking stock of COVID-19

Eco-system is impacted significantly



Disrupted Clinical Trials by Therapy Area



Source | Global Data, 27 May 2020

Key tenets of SPARC's risk mitigation plan

- Sustain normal operations through a mix of on-site lab operations and robust WFH (70% office/lab based)
- Protect patients interest and data already in trials
- Build-up trial infrastructure aggressively so that we can pivot on normalization
- Geographic/regional expansion to de-risk accrual timelines and
- Aggressive virtualization

Expectations for next year

What to look for in the next 12 months

- Conclude and partner for commercialization first wave programs (PDP-716, SDN-037 & Taclantis)
- Aggressive accrual for on-going clinical studies
- Continued pre-clinical prioritization and build-up for additional INDs in FY22
- Build on the early success of strategic academic partnerships to add new programs to the portfolio
- Raise additional resources through a preferential issue to realize near term catalysts and graduate key pre-clinical programs to clinic

Clinical NCE assets

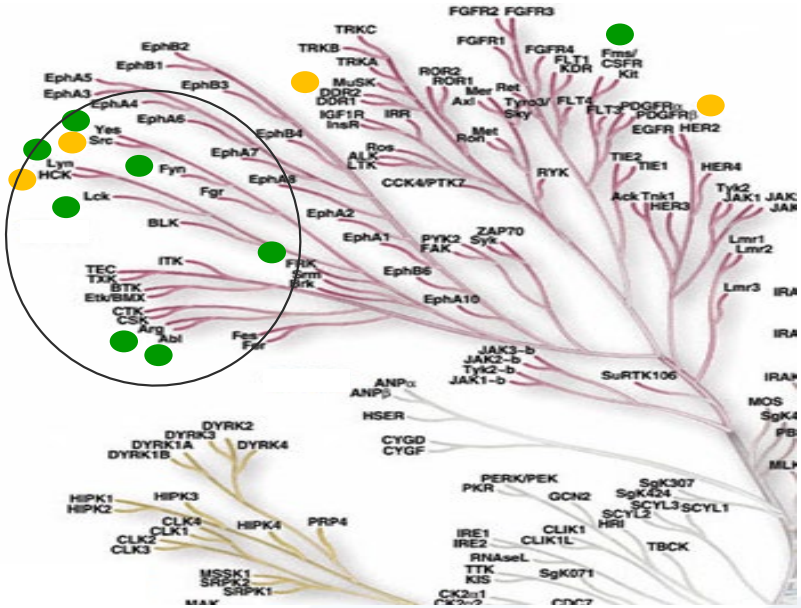
SiuLong Yao

Vodobatinib

Highly selective ABL inhibitor with multiple applications

- Potent and highly selective BCR ABL TKI
- Good oral bioavailability in humans, crosses blood brain barrier
- Human PK established, moderate food effect
- No QT prolongation or other CV liability observed in Phase 1 studies

Kinome analysis revealing very limited off-target activity



TKI = tyrosine kinase inhibitor, CV = cardiovascular, PK = Pharmacokinetics

Vodobatinib for CML (SCO-088)

Current clinical plan

PART A

Single ascending dose (SAD) study in healthy volunteers

- Completed

PART B

Multiple ascending dose (MAD) study in patients

- Enrollment near completion

PART C

Pivotal efficacy study in refractory patients

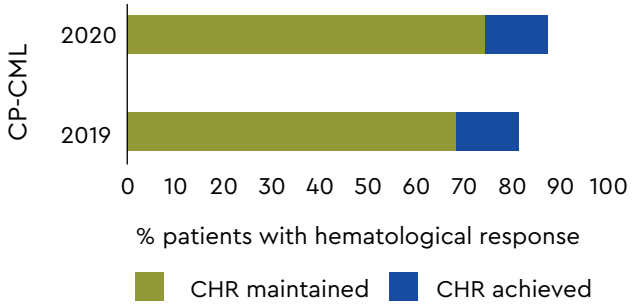
- Enrollment initiated

Vodobatinib for CML (SCO-088)

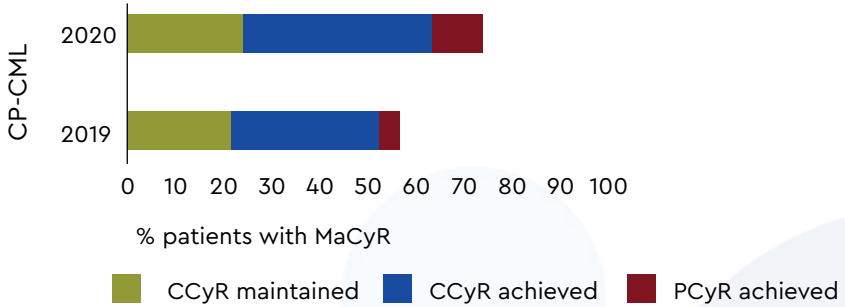
Promising initial data persisting

- Phase 1 dose escalation study completed
- Anti-leukemic activity in CP-CML patients
  - 87% hematological response rate
  - 68% major cytogenetic response rate
  - 58% major cytogenetic response in patients failing ≥3 TKI therapies including ponatinib

Hematological Response



Cytogenetic Response



CML = chronic myelogenous Leukemia; CCyR = complete cytogenetic response; PCyR= partial cytogenetic response; TKI = tyrosine kinase inhibitor; MaCyR = major cytogenetic response; CP = chronic phase; CHR – Complete Hematological Response: 2019 data cutoff 17 August, n =25. 2020 data cutoff 31 August. n = 31.

Vodobatinib for CML (SCO-088)

Generally safe and well tolerated

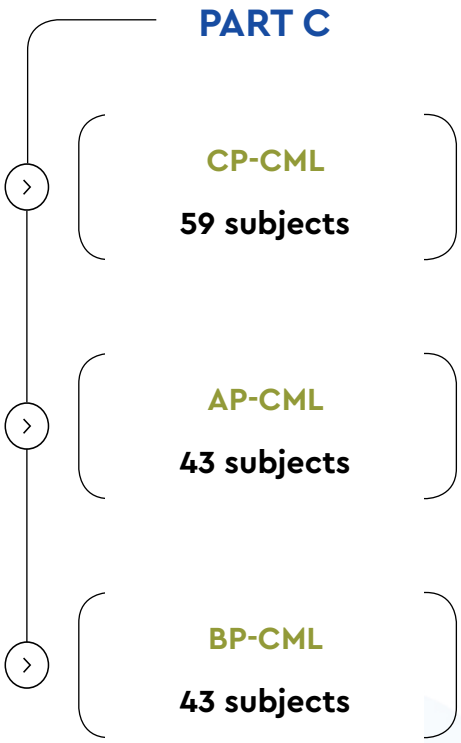
- 2 serious adverse events related to Vodobatinib
- Mild to moderate GI disturbances and complaints of the musculo-skeletal system were most commonly observed
- No drug associated cardiac events reported

GI = Gastrointestinal

Vodobatinib for CML (SCO-088)

Pivotal study plan

- Single arm study (Part C)
- Ph+ CML patients refractory and/or intolerant to ≥3 TKIs including ponatinib
- FPI Q4 FY20
- Participating countries
  - USA, Belgium, France, Italy, Spain, Romania, Hungary, Singapore, UK, Korea
- Topline results Q3 FY22



CML = chronic myelogenous leukemia, CP = chronic phase, AP = accelerated phase, BP = blast phase, Ph = Philadelphia chromosome, TKI = tyrosine kinase inhibitor, FPI = First patient in

Vodobatinib for PD (SCC-138)

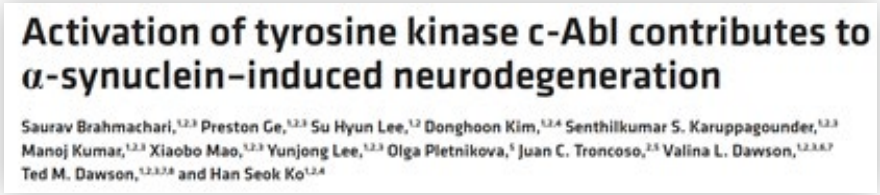
First-in-class neuroprotective agent

Pre-clinical

- Enhances autophagic flux
- Decreases α-synuclein inclusions
- Efficacy against neurodegeneration demonstrated in multiple animal models

Clinical

- Human PK established
- Food effect study completed
- Single and multiple ascending dose studies completed
- Generally safe and well-tolerated
- Phase 2b PoC study ongoing (PROSEEK)



Activation of tyrosine kinase c-Abl contributes to α-synuclein–induced neurodegeneration

Saurav Brahmachari,[1,2,3] Preston Ge,[1,2,3] Su Hyun Lee,[1,2] Donghoon Kim,[1,2,4] Senthilkumar S. Karuppagounder,[1,2,3] Manoj Kumar,[1,2,3] Xiaobo Mao,[1,2,3] Yunjong Lee,[1,2,3] Olga Pletnikova,[5] Juan C. Troncoso,[2,5] Valina L. Dawson,[1,2,3,6,7] Ted M. Dawson,[1,2,3,7,8] and Han Seok Ko[1,2,4]

c-Abl phosphorylates α-synuclein and regulates its degradation: implication for α-synuclein clearance and contribution to the pathogenesis of Parkinson's disease

Anne-Laure Mahul-Mellier[1], Bruno Fauvet[1], Amanda Gysbers[3], Igor Dikiy[4], Abid Oueslati[1], Sandrine Georgeon[2], Allan J. Lamontanara[2], Alejandro Bisquertt[5], David Eliezer[4], Eliezer Masliah[5], Glenda Halliday[3], Oliver Hantschel[2] and Hilal A. Lashuel[1,*]

PK = Pharmacokinetics, PoC = Proof of concept

Current status

PROSEEK

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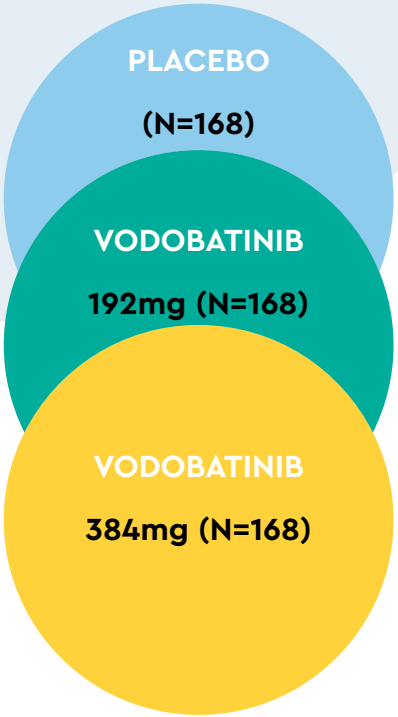
RANDOMIZATION



- Early stage subjects not on dopaminergic medication other than MAO-B inhibitors
- 88 sites in USA, Spain, Poland, Hungary, Slovakia, India
- Regulatory approval in all countries
- FPI
  - February, 2019 for USA
  - November, 2019 for EU
  - September, 2020 planned for India
- Expect to complete enrollment Q4 FY22

MAO-B = monamine oxidase B, FPI = first patient in, PROSEEK = Phase 2 study of Abl tyrosine kinase inhibition with K0706 (Vodobatinib)

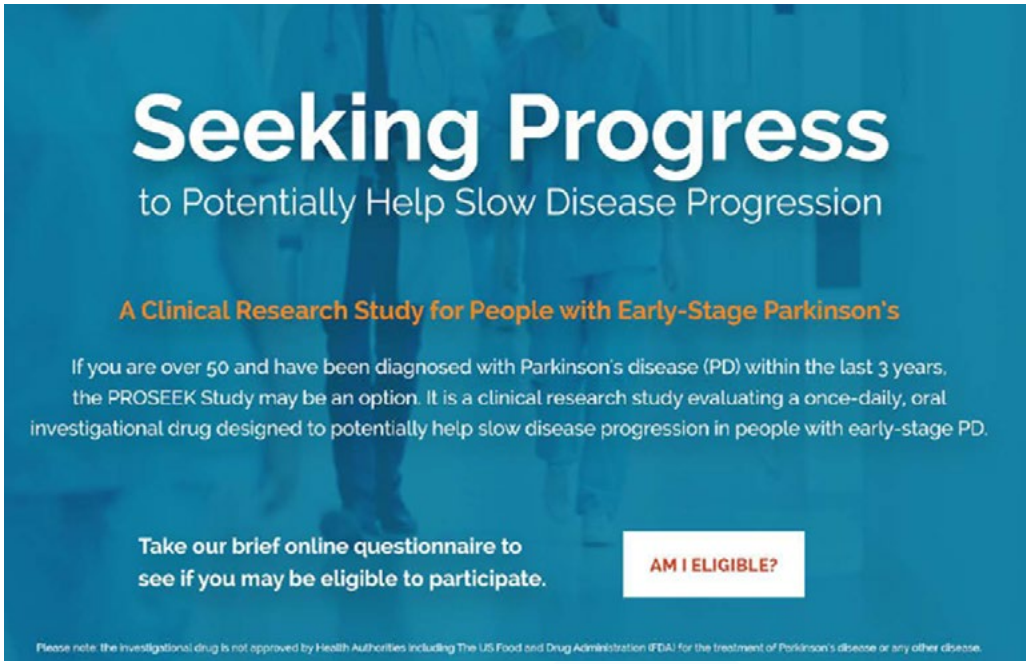
Enrollment campaign

Advertising campaign

- Patient website
- Plan to extend pilot campaign to all sites
  - Search Engine Optimization
  - Traditional media (News papers, Radio, etc.)

Complimentary approaches

- Additional regions
  - Australia
  - UK and other European sites
- Increase protocol user-friendliness



PROSEEK = Phase 2 study of Abl tyrosine kinase inhibition with K0706 (SCC-138)

Vodobatinib in Lewy Body Dementia

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RANDOMIZATION

PLACEBO

(N=15)

VODOBATINIB

96mg (N=15)

VODOBATINIB

192mg (N=15)

- Ongoing investigator-initiated trial in collaboration with Georgetown University
- 12 week study with primary outcome measure of safety
- Secondary outcome of CSF and blood-based biomarkers
- Expected study completion by Q4 FY22

CSF = Cerebrospinal fluid

SCD-044

Selective S1PR1 modulator for autoimmune diseases

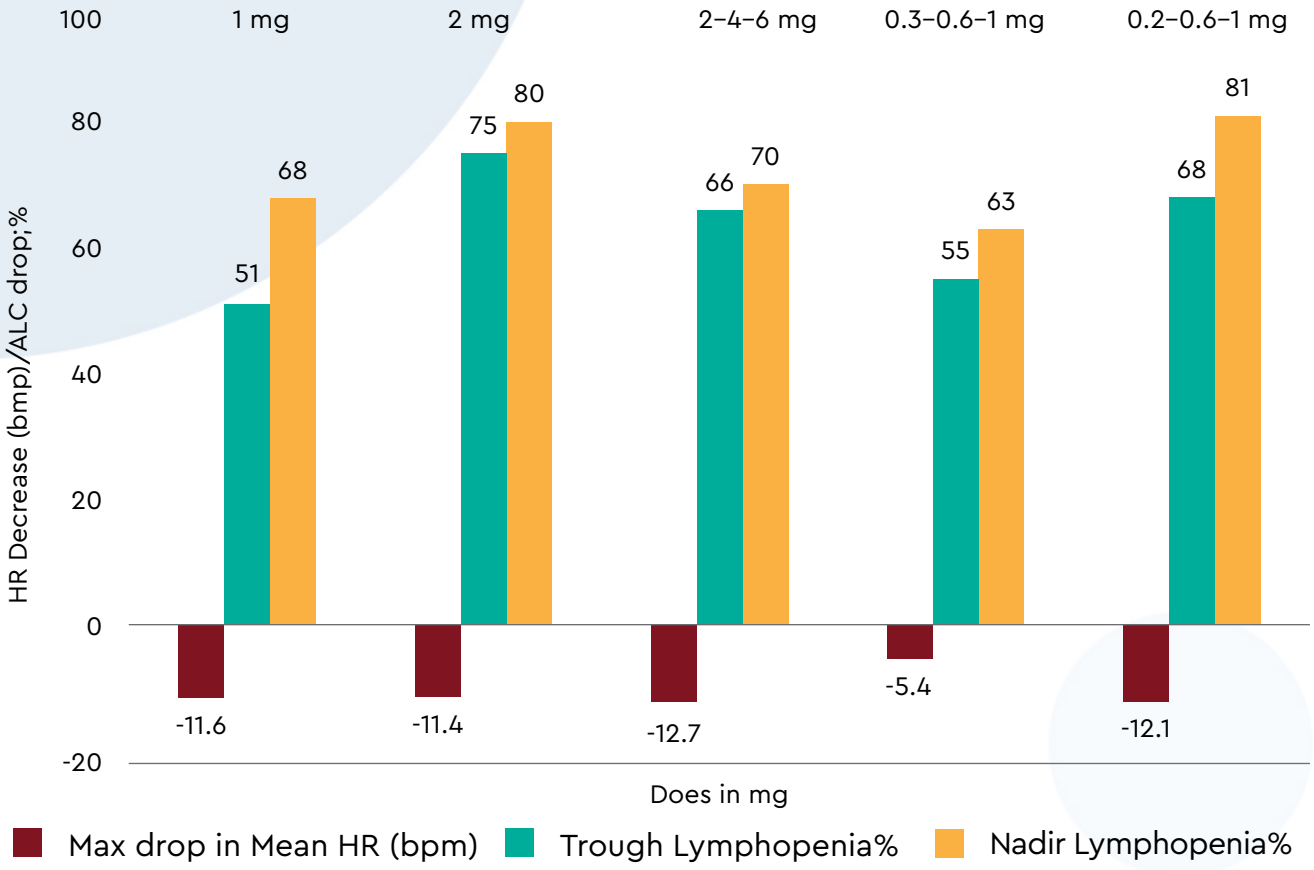
- Novel, orally bioavailable, potent and selective S1PR1 agonist
- Fingolimod (first-in-class S1P receptor agonist) approved for multiple sclerosis is associated with serious bradycardia
- SCD-044 appears to have good balance between potentially efficacious doses & side effects
- SCD-044 under evaluation for psoriasis and atopic dermatitis

S1PR1 = Sphingosine 1-phosphate receptor 1

SCD-044 therapeutic index

Efficacy and safety established in Phase 1 study

Heart Rate & Lymphocyte Counts following Multiple Doses



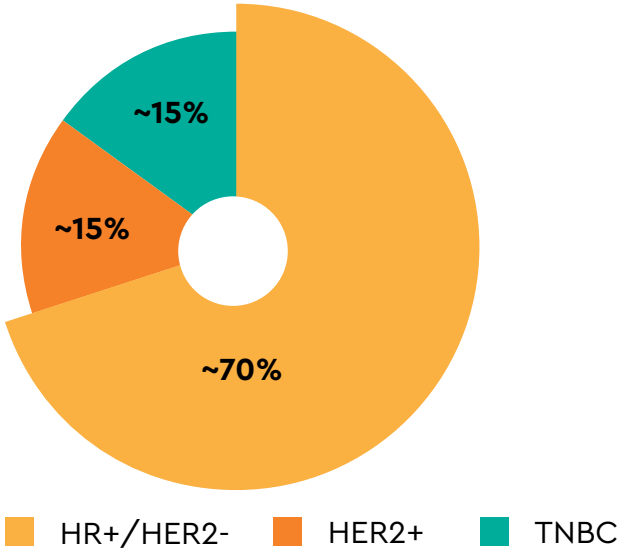
bmp = beats per minute, HR = Heart rate, ALC = Absolute lymphocyte count

SCO-120

Breast cancer SERD

- Hormonal therapy is SoC for ~70% of HR+/HER2- metastatic breast cancer patients[1]
- ERα mutations develop in 20–50% of patients with metastatic disease
- IM fulvestrant is the only approved SERD but it is poorly active against mutations
- SCO-120 is a novel orally-active selective ERα SERD for the treatment of HR+/HER2- breast cancer

Breast cancer subtypes[2]



ERα = estrogen receptor α, TNBC = triple negative breast cancer, SERD = selective estrogen receptor degrader, HER2 = human epidermal growth factor receptor 2, HR = hormone receptor, SOC = standard of care, IM = intramuscular

[1] CancerMPact® Treatment Architecture U.S., Breast Cancer.. [2] JAMA. 2019 Jan 22;321(3):316. doi: 10.1001/jama.2018.20751.PMID: 30667503

SCO-120

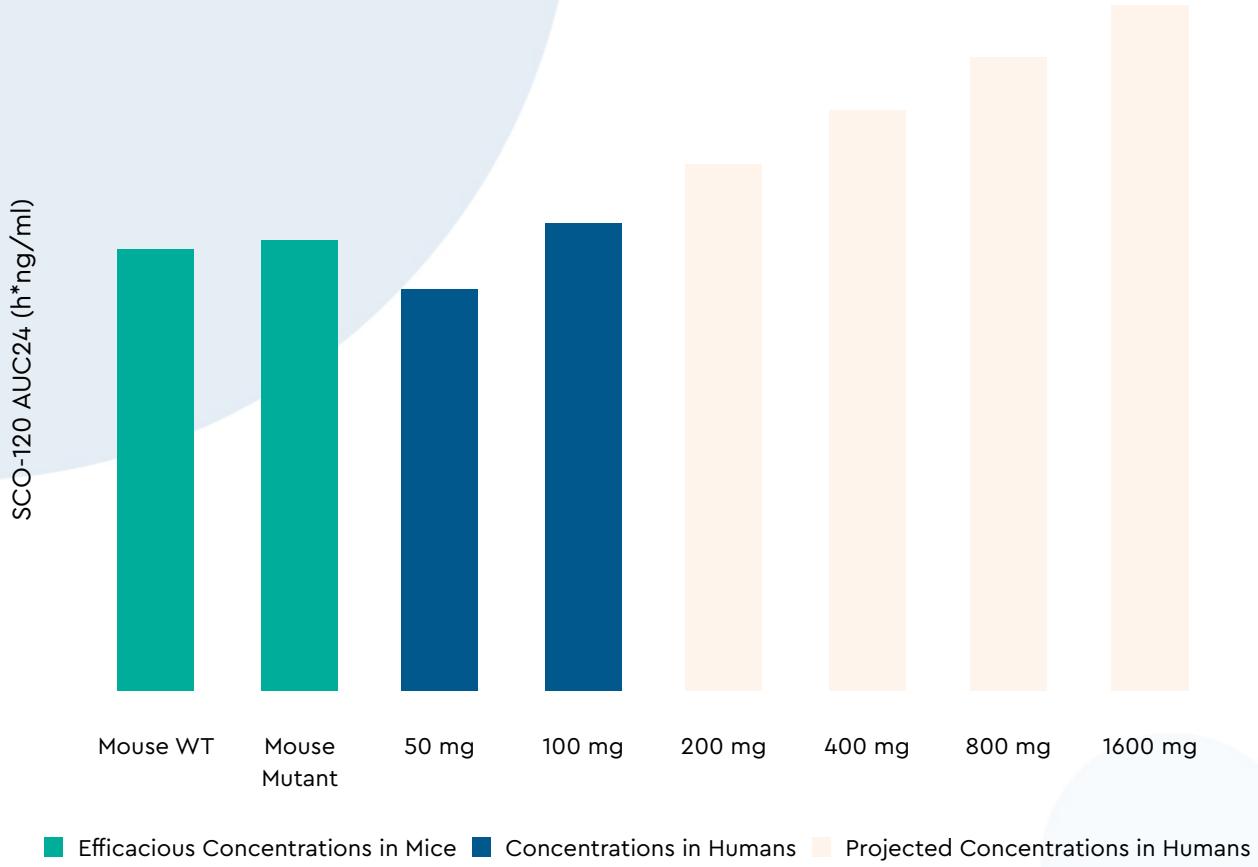
Oral SERD

- US IND filed January, 2020
- SAD in healthy volunteers ongoing
- 50 mg & 100 mg cohort dosing completed
- Generally safe and well tolerated, no significant AEs
- Future studies
  - MAD in healthy volunteers, FPI Q4 FY21
  - Phase 2 PoC in patients, FPI Q2 FY23

SERD = selective estrogen receptor degrader, SAD = single ascending dose, MAD = multiple ascending dose, AE = adverse event, FPI = First patient in, PoC = Proof of Concept

SCO-120

Preliminary pharmacokinetics



- Current exposures near those required for efficacy in preclinical studies

WT = wild type

Clinical NDDS assets

Nitin Dharmadhikari

Ophthalmology programs

Reaching the finish line

SDN-037

- Management of inflammation and pain post cataract surgery
- Phase 3 study completed
- Last patient out March, 2020
- Topline data expected September, 2020

PDP-716

- Treatment of glaucoma
- Futility analysis conducted October, 2019
  - 245 subjects
  - Exceeded statistical criteria to continue
- Current status
  - Enrolment complete (N=681)
  - Last patient out November, 2020
  - Topline data expected by Q4 FY21

Phenobarbital injection

Preservative-free injection for neonatal seizure

- Current standard of care for treatment of neonatal seizure
- Phenobarbital is an "unapproved drug" in USA; Approved before 1938 which did not require proof for safety and / or efficacy
- Existing marketed product is not approved by US FDA and contains benzyl alcohol as a preservative.
- Benzyl alcohol has been associated with "Gasping Syndrome" in neonates and low-birth weight infants
- IND approved in Q2 FY21; Human PK study ongoing

Orphan Drug Designation

PK = Pharmacokinetics

Licensing update & competitive landscape

Michael Choi

Commercial partnerships

NOVEMBER 2019

License deal with a subsidiary of China Medical System Holdings Limited (CMS) to develop and commercialize multiple products in Mainland China, Hong Kong, Macao and Taiwan

DECEMBER 2019

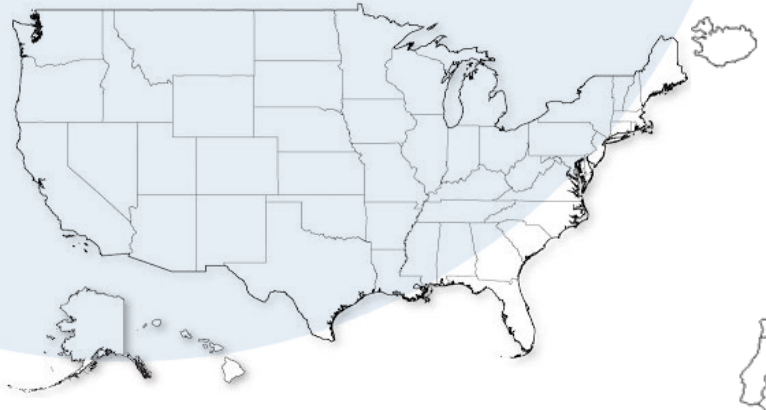
License Agreement with Bioprojet to acquire exclusive rights for Investigational Medicinal Product, SCD-044

MAY 2020

Worldwide license agreement with Sun Pharma for SCD-044, a potential treatment for atopic dermatitis, psoriasis and other auto-immune disorders

Epidemiology of Parkinson's Disease

PD affects ~7M people globally; expected to grow above 14M by 2040*



- ~1 million PD patients in the US
- ~60k new diagnoses each year

- ~1.4 million PD patients in Europe
- ~110k new diagnoses each year

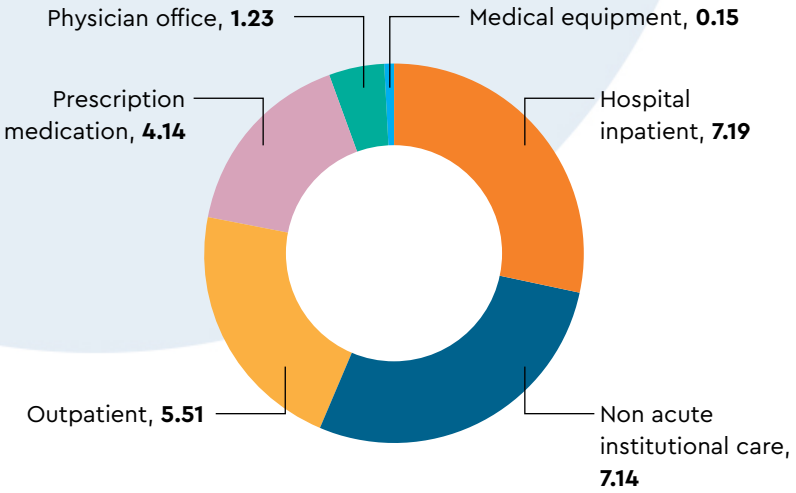
- ~256k PD patients in Japan

- Chronic and progressive nature of disease is a primary factor that is continuously adding to the current number of PD patients.
- Aging population and environmental factors further add to the global burden of the disease

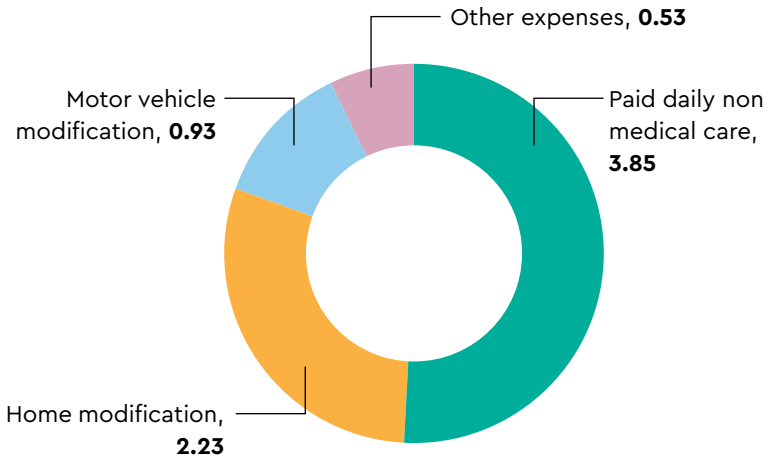
GBD 2016 Parkinson's Disease Collaborators. Lancet Neurol. 2018 Nov; 17(11):939–953. # Parkinson's Foundation – https://www.parkinson.org/Understanding-Parkinsons/Statistics ^R. Balestrino et.al. Parkinson Disease, European Journal of Neurology, Oct 2019

Economic burden of PD

MJFF study estimates total direct and indirect cost at $52 billion in the USA alone



Total direct medical cost:
$25.4 billion



Total non-medical cost:
$7.54 billion

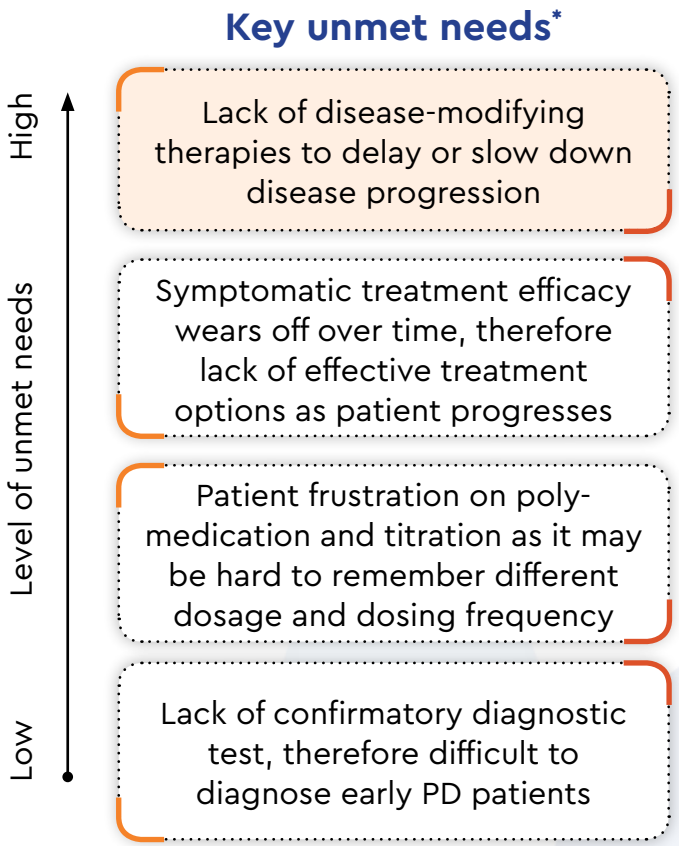
- Indirect cost consists of non-medical cost, missed work, lost wages, early forced retirement and family caregiver time
- Federal government spends nearly $25 billion/year on patient care. Of that, $2 billion is paid through social security, with the balance handled by Medicare

MJFF = Michael J. Fox Foundation

Vodobatinib is a game changer in PD

As the 1st disease modifying therapy (DMT), Vodobatinib has the potential to address the enormous unmet need in PD

- ~70% of the PD patients to eligible to receive a DMT at diagnosis to delay the need of symptomatic treatment
- Physicians expect Vodobatinib to be used across all PD patients, including familial PD
- Payers perceive new MoA of Vodobatinib very promising and expect to reimburse accordingly
- Chronic therapy for a large patient population will not require exorbitant pricing for success
- Vodobatinib is the in the lead position vs. other potential DMTs in the pipeline and also offers a patient friendly oral formulation (vs. inj)
- Strong IP fencing with estimated expiry by 2040

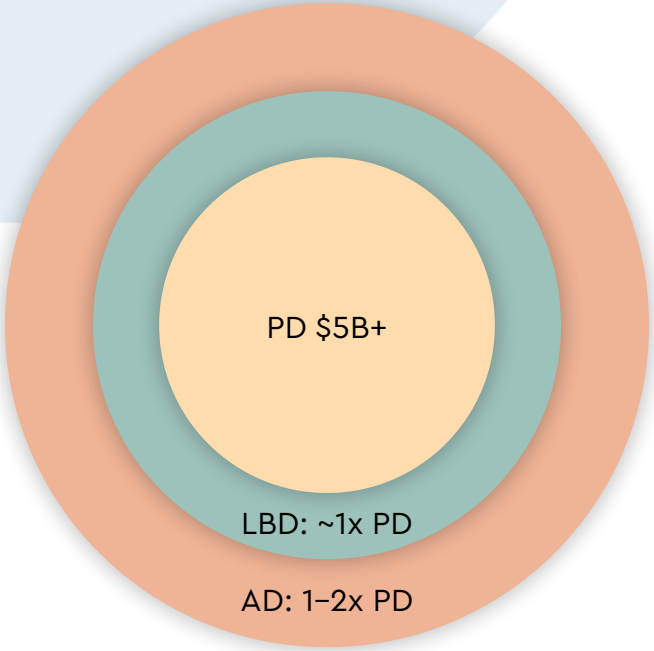


*Adapted from third party primary market research in the USA

Vodobatinib commercial potential

With successful development in PD, Vodobatinib has the potential to be SPARC's first blockbuster drug

All CNS indications



- PD is the lead indication and current forecast in high single digit ($B) validated by external third party research
- LBD indication has ~1.5x more patients than PD, but the overlap with PD is high
- AD indication has roughly 4x more patients than PD and the overlap with PD is low

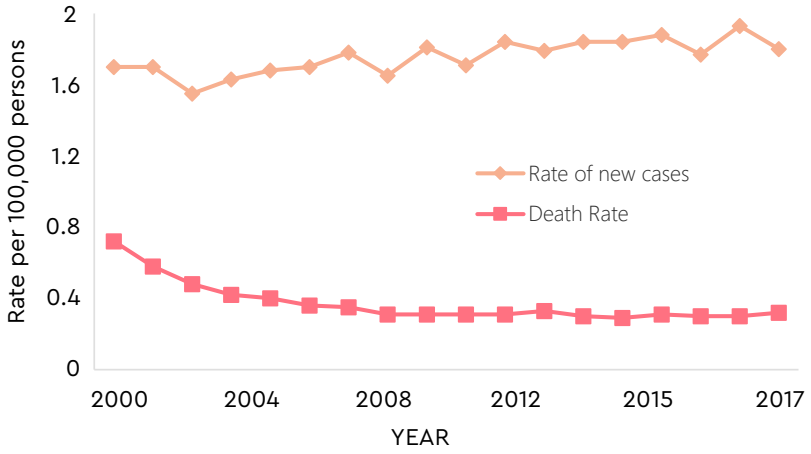
CNS = central nervous system, PD = Parkinson's Disease, LBD = Lewy Body Dementia, AD = Alzheimer's Disease

CML market opportunity

Long lifespan of patients have turned CML into a chronic relapsing disease

- With the advent of the Tyrosine Kinase Inhibitors (TKIs):
  - The annual mortality rate in CML has decreased by more than 50%
  - The 5 year relative survival has risen to ~70%
- The prevalence of CML is estimated to grow globally primarily attributed to prolonged survival and access to TKIs
- The increase in the CML prevalence has been consistent with the number of TKI sales ($) reported

New cases and deaths per 100,000 (USA)#



Estimated Global growth of prevalent cases 2018–2028*

Region	Growth
North America	28%
Europe	16%
High-income Asia pacific	18%
Africa	29%
Lower-Income Aisa Pacific	30%
Latin America, Caribbean	36%

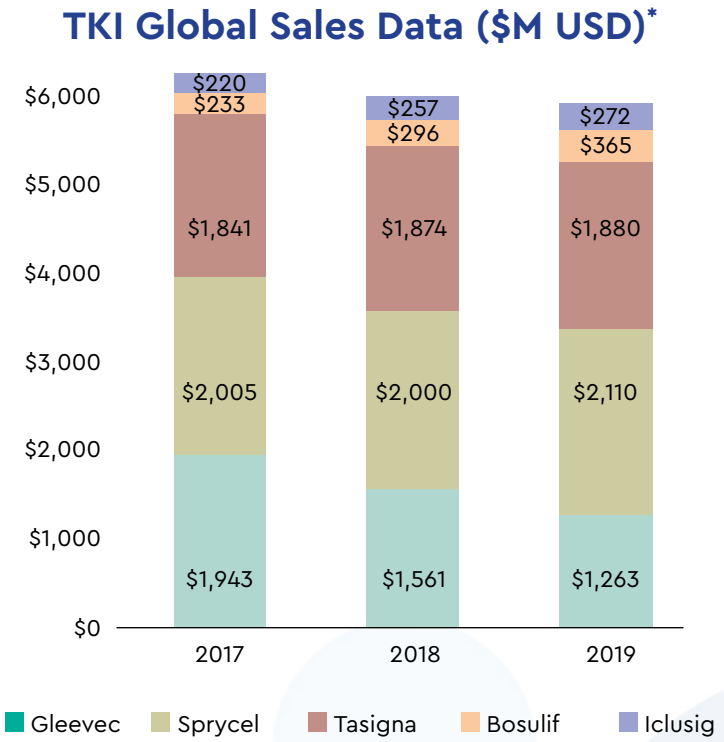
CML = Chronic Myeloid Leukemia, *Global Impact of Tyrosine Kinase Inhibitors on Chronic Myeloid Leukemia Epidemiology Over the Next Ten Years (Journal of Global Oncology 2018) - S. Tadwalkar and M. Hughes

#SEER database Cancer Stat Facts: Leukemia — Chronic Myeloid Leukemia (CML)

CML market opportunity

2nd and 3rd line agents have been successful even with generic Imatinib available

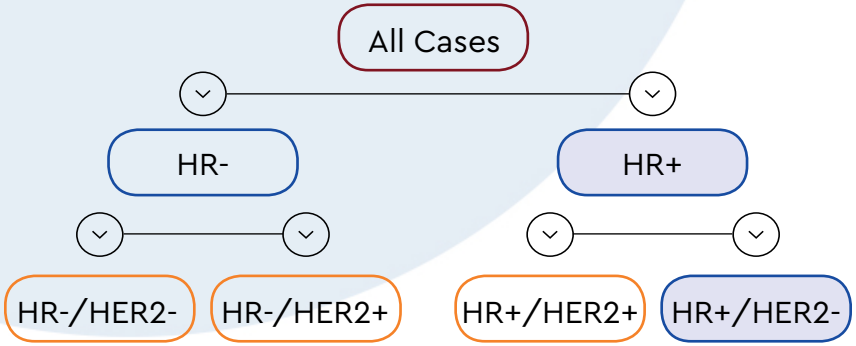
- The current TKI global market is approximately worth 6 billion USD
- Despite genericization of Gleevec, branded 2nd and 3rd gen TKIs retain commercial value due to the refractory nature of CML
- c-Abl TKIs have safety issues related to cardiovascular toxicity
- Vodobatinib was specifically designed to be a safer option for treatment of refractory patients
- We estimate global sales in line with the 3rd generation TKIs for the end of line indication with potential upside for 1st line indication



*Sales as reported by respective companies
TKI = Tyrosine Kinase Inhibitor, CML = Chronic Myeloid Leukemia

SCO-120 market opportunity

A superior oral SERD which can address ERα mutations is much needed



Standard of care (SoC) for HR+/ HER2- breast cancer	Endocrine backbone	Tamoxifen, Anastrozole, Letrozole, Fulvestrant	Anastrozole, Letrozole, Fulvestrant
	Addition	CDK4/6i	CDK4/6i or mTOR or Pi3Ki

- The HR+/ HER2- breast cancer affects over 230k patients per year[#]
- The current market value of the SoC is estimated to be $5B in 2020[*]
- CDK4/6 inhibitors has emerged as the new gold standard but require a endocrine backbone
- Fulvestrant is the only SERD available but is limited by poor bioavailability
- In addition, mutations in ERα cause resistance to current anti-estrogen therapies in 20–50% of patients
- A novel oral SERD like SCO-120 can address a significant unmet need in this large segment of breast cancer

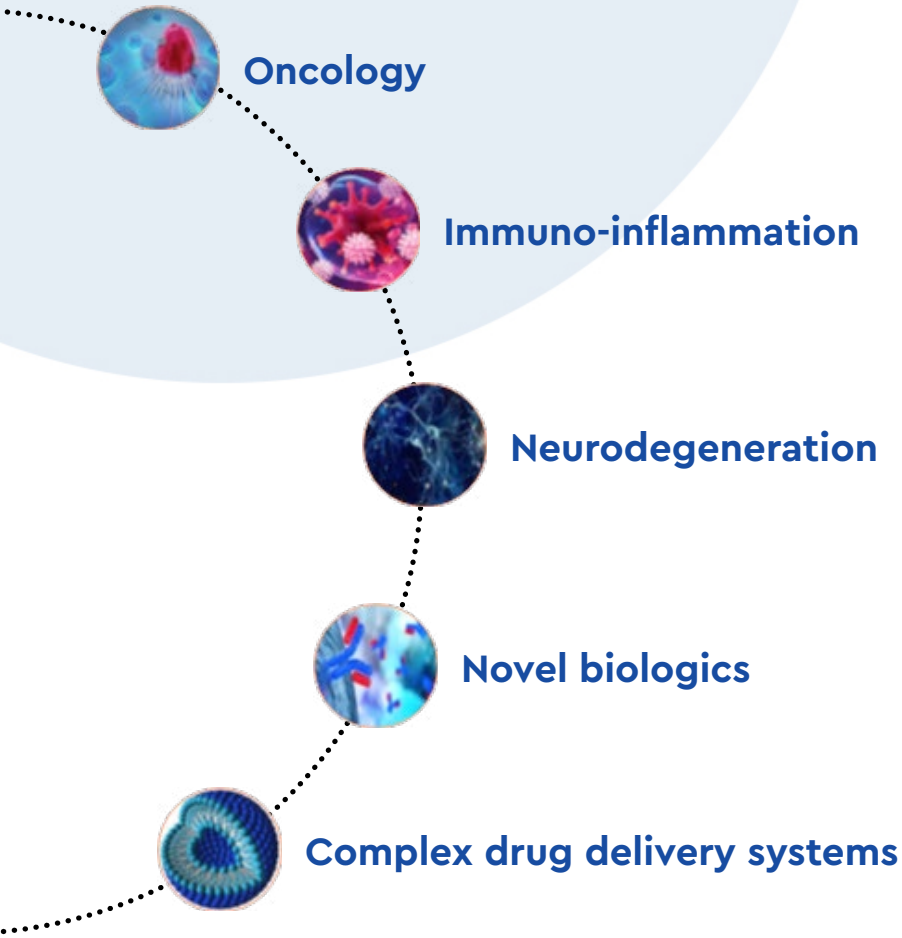
[*]IQVIA MAT June 2020, [#] Deduced from Kantar CancerMPact2019® US

Academic collaborations

Rajesh Ranganathan

Diversify drug portfolio

By augmenting in-house expertise with strategic external partnerships



- Internal Strengths
  - Ideation: Nominate first-in-class drug targets in select therapeutic areas and engage in
- Exploratory programs
  - Augment capabilities to pursue new treatment modalities like novel biologics that may offer significant value proposition versus existing therapies
- Collaborations with external innovators
  - Partnerships with leading global researchers to source promising early-stage innovative science/biology
  - Focus continues to be on novel first-in-class or best-in-class opportunities as well as complex drug deliveryplatforms to address high unmet clinical needs

Expanding academic partnerships

...to tap novel biology early on

UCSF
University of California
San Francisco

- Novel drug delivery platform technology for targeted delivery of drugs for cancer and autoimmune disorders
- SPARC is currently conducting in vitro and in vivo studies to establish proof-of-concept
- SPARC has the option to exclusively license the technology on worldwide basis for further development & commercialization of the asset.

UNIVERSITY OF MICHIGAN

- Multi-year partnership to accelerate the discovery & development of new drugs
- SPARC shall provide up to a total of US$ 10 Mn. in financial support and in-kind industry resources to advance development of promising drug discovery projects
- Focus on early-stage translational therapeutics in the areas of oncology, neurodegeneration and inflammation
- Separate joint research collaboration to leverage natural product compound libraries
- SPARC has the option to exclusively license the intellectual property on worldwide basis for further development & commercialization of the drug compounds

Pre-clinical NCE assets

Vikram Ramanathan

Pre-clinical NCE overview

The preclinical NCE programs represent SPARC's transition to a truly innovative biopharma company with novel drugs for novel targets

Oncology

- Cancer metabolism
- Cancer resistance

Neurodegeneration – protein aggregates

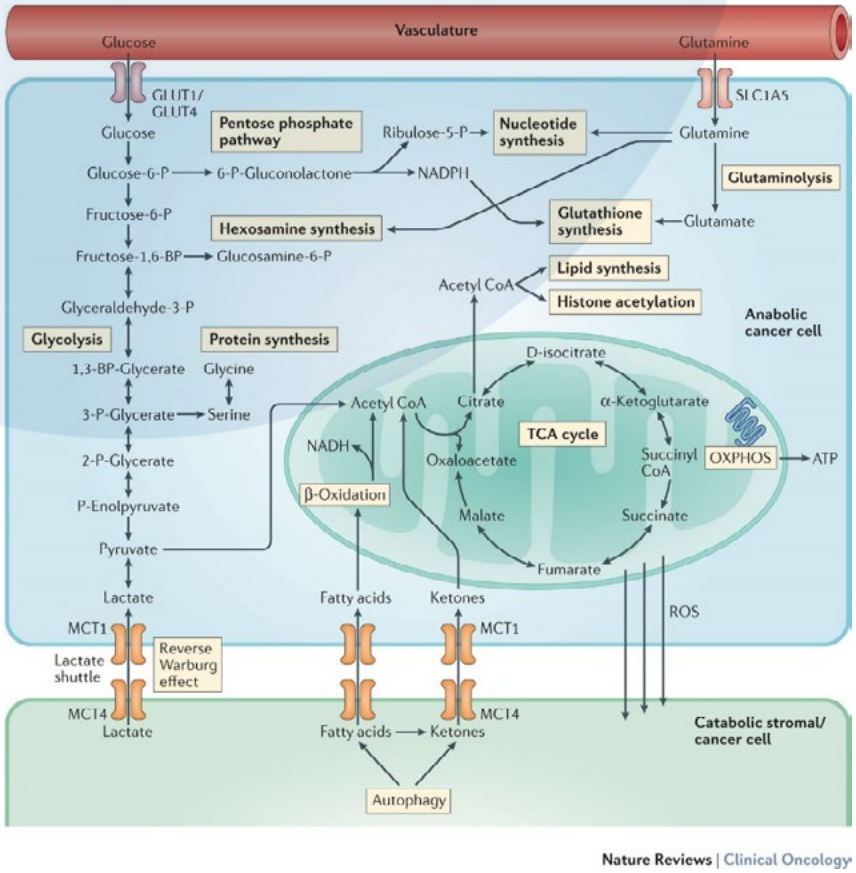
- Parkinson's Disease
- Lewy Body Dementia
- Alzheimer's Disease

Inflammatory diseases

- Nanotechnology approaches for site-directed therapies
- Chemical approaches for site-directed therapies

Targeting cancer metabolism

Identifying the right molecular targets



Nature Reviews | Clinical Oncology

- Normal cells have a complex network of pathways and cycles to produce the required raw material for their growth (glucose, amino acids and proteins, lipids, nucleotides)
- Cancer cells grow fast by upregulating several metabolic pathways/cycles to meet their energy needs. They convert minor bypass pathways in healthy cells into major pathways
- Individual enzymes in these upregulated pathways in specific cancer-settings can be potential molecular targets. This is an area of active research

Martinez-Outschoorn et al. Nat. Rev. Clin. Oncol. 2017

Targeting of driver mutations in cancer

Dominant mutations that drive cancer cell growth

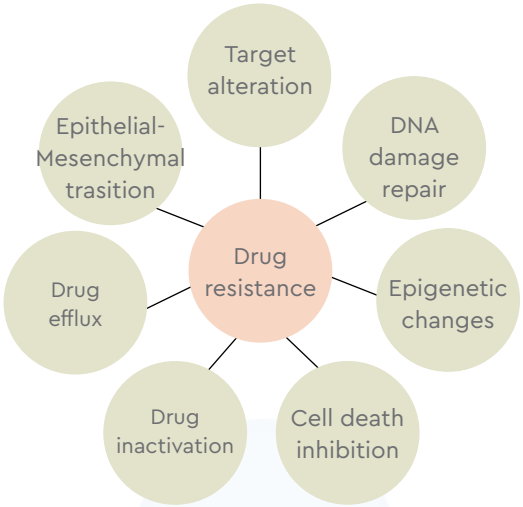
- Only few of the many mutations that randomly occur in a patient are the drivers of the cellular changes that actually cause cancer growth. Certain random genetic transpositions are another form of drivers of cancer growth, for example BCR-Abl which is in our portfolio for clinical development
- "Driver mutations" confer growth advantage to the cancer cells and cause their proliferation. They outgrow normal cells
- Driver mutations are often predictive of clinical outcome. Allows genetic profiling of patient tumors to enable precision medicine
- First-generation and early therapies lose efficacy over time. The cancers develop resistance by acquiring resistant mutations in these growth drivers. About 90% of cancer deaths are attributed to drug-resistance
- Our efforts are focused on targeting drug resistance in such driver mutations

Targeting of driver mutations in cancer

Example from our clinical portfolio and area of continued focus

- SCO-120 (ER-α Degrader)
  - Drug for resistant breast cancer where estrogen receptor target which drives cell proliferation (ER+) in tumors has undergone mutation to confer resistance to first-line therapies
  - SCO-120 is designed to be active against such resistant mutations
- **Our efforts focus on pursuing other oncology targets where similarly the target undergoes a genetic mutational change making them resistant to frontline line therapies**

Mechanisms that can enable drug resistance in human cancer cells



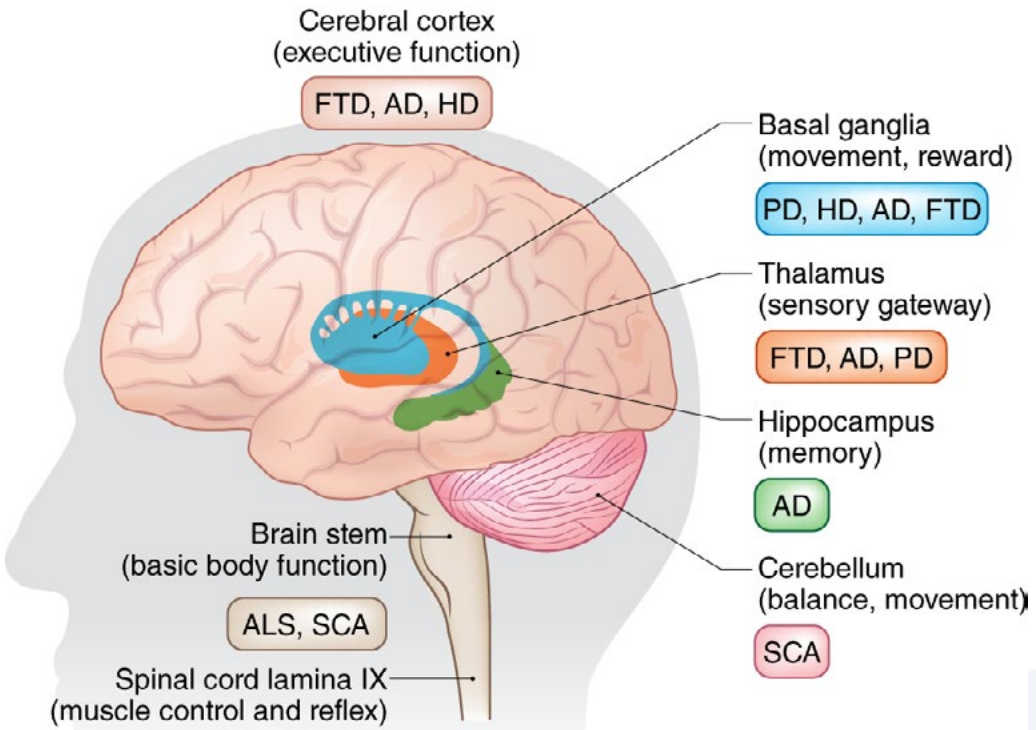
Lodish et al. Molecular Cell Biology, 8th Edition, WH Freeman, 2016

Neurodegenerative diseases

Different diseases manifest at different locations

- Different neurodegenerative diseases show abnormal brain pathology and atrophy of different regions of the brain, each disease with a specific regional pattern
- Accumulation of abnormal or misfolded protein aggregates in neurons is the common feature causing pathology across range of individual neurodegenerative diseases

Anatomical location of neurodegenerative diseases



AD Alzheimer's disease; FTD: frontotemporal dementia; HD Huntingtons' disease; SCA spinocerebellar ataxia

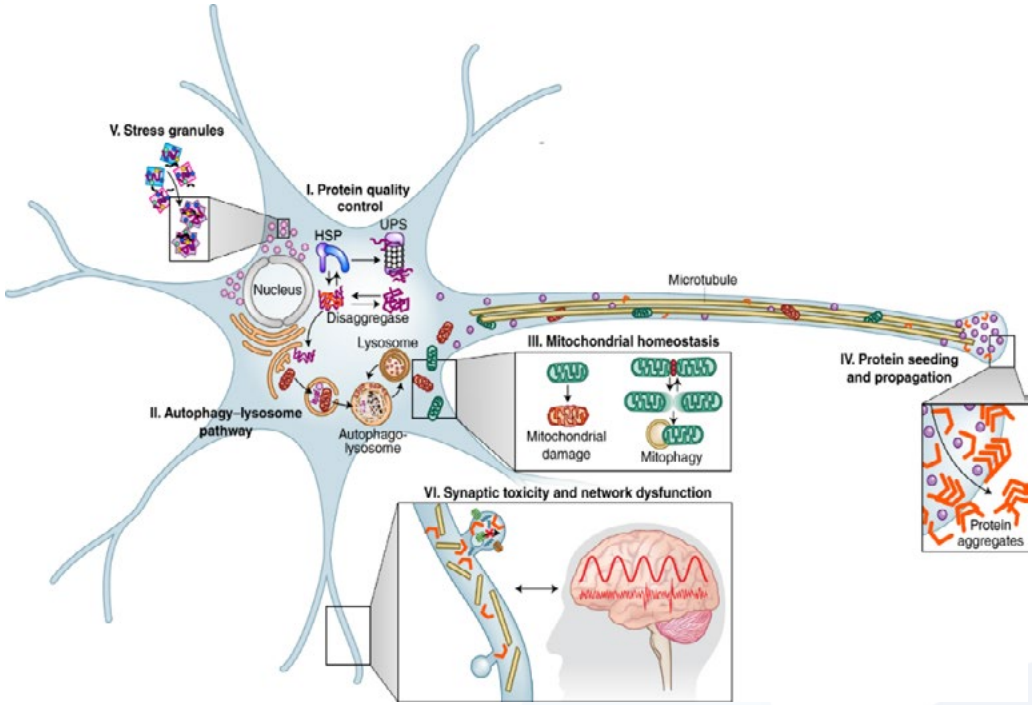
Gan et al. Nature Neurosci (2018)

Neurodegenerative diseases

Cellular processes related to misfolded proteins

- Choking of normal pathways to clear misfolded proteins results in neuronal death and progressive brain atrophy which can manifest at some stage as dementia. Examples of such misfolded proteins are α-synuclein in Parkinson's disease and dementia of lewy bodies; amyloid β42 and tau in Alzheimer's disease; and huntingtin in Huntington's disease.
- Our focus is on identifying small molecules to enhance the misfolded protein clearance pathways in neurons, include ubiquitination (protein quality control), autophagy and interactions with heatshock proteins

Pathways involved in neurodegenerative diseases



Gan et al. Nature Neurosci (2018)

Inflammatory diseases

Using platform technologies to address unmet medical needs

- Nanotechnology approach for site-directed mAb therapy
  - Collaboration with US academic who has world-class expertise in nanotechnology to deliver protein
  - Using "molecular velcro" to localise to specific target organs and deliver one or more proteins simultaneously
- Chemical approaches for site-directed therapies
  - Using novel-linker technologies and moieties to design innovative ways to target immune cells in the vicinity of the target organs, and to access the lymphatic system

Biologics

Nitin Damle

SPARC biologics

- Current emphasis on bi-specific or multi-specific biologics
- Ideally suited for various disease indications in oncology and inflammation therapeutic areas
- Ease of combination with the existing standards of care
- Initial exploration emphasizing clinically validated molecular targets in cancer research
- Cancer cells and associated microenvironment
- Tumor-associated angiogenesis
- Immune check point functions

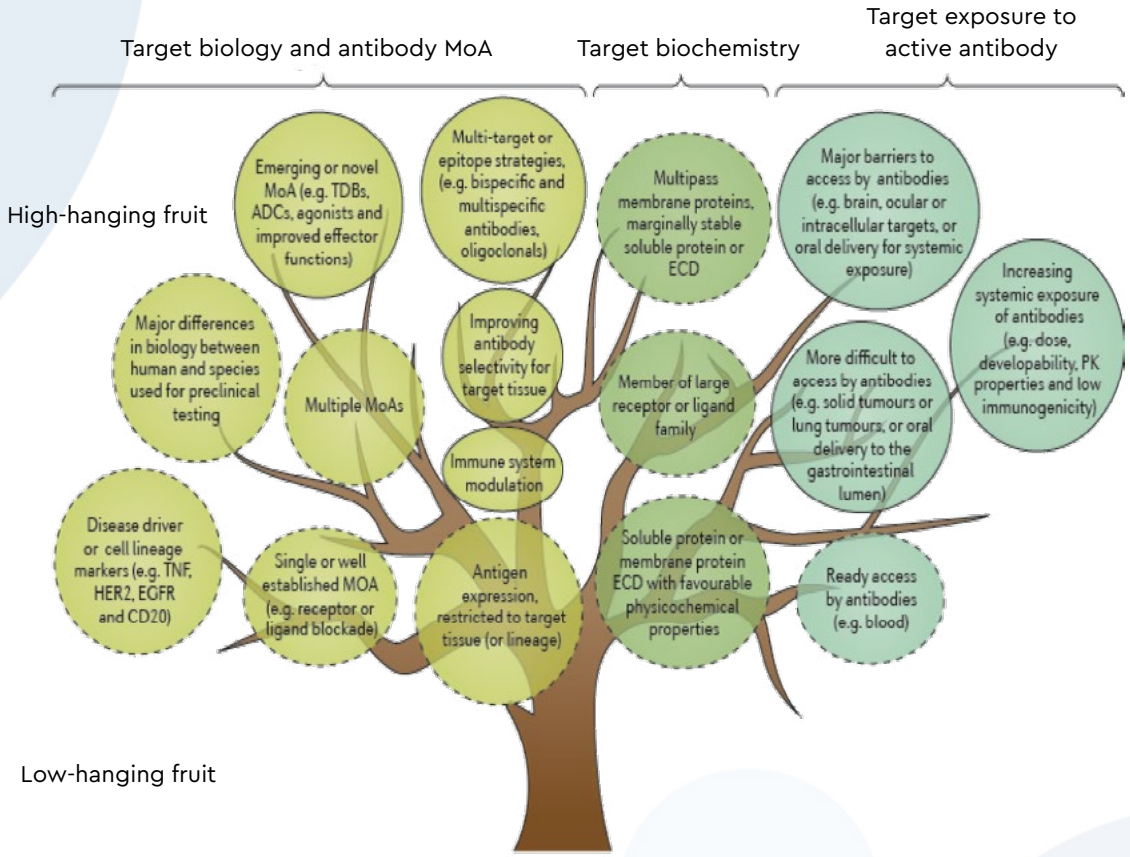
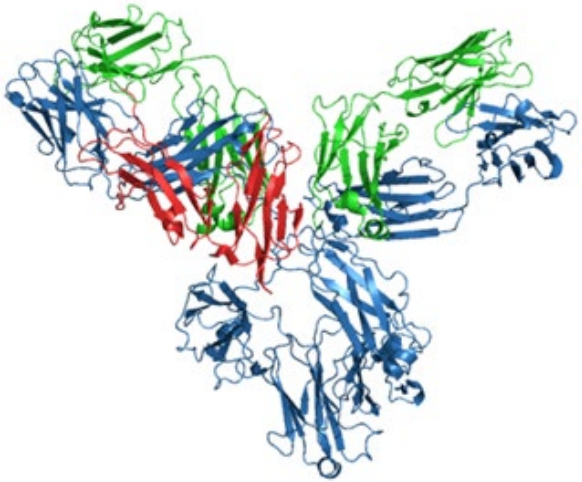


Image adapted from Next generation antibody drugs: pursuit of the 'high-hanging fruit'; Nature Reviews; Drug Discovery volume 17 March 2018; 197

SPARC biologics

Capabilities established in-house

- Molecular biology / Recombinant DNA technology
- Purification and structural & functional characterization of recombinant proteins
- Antibody development and engineering
- Multifunctional immunofusion therapeutic proteins
- Antibody modifications for site-specific conjugation to fluorophores or cytotoxic drugs
- Tumor-targeted cytotoxic antibody-drug conjugates (ADC)



Financial update

Chetan Rajpara

Financial summary

INR Mn	FY16	FY17	FY18	FY19	FY20	Q1 FY20	Q1 FY21
Total Income	1,642	1,947	832	1,964	866	210	1,861
Total Expenses	2,342	3,137	3,292	3,418	3,990	1,152	1,294
Exceptional Item	-	-	490	-	-	-	-
Profit (Loss) after Tax	-700	-1,190	-1,970	-1,454	-3,124	-942	567
USD Mn							
Total Income	25.1	29.0	12.9	28.1	12.2	3.0	24.5
Total Expenses	35.8	46.8	51.1	48.9	56.3	16.6	17.1
Exceptional Item	-	-	7.6	-	-	-	-
Profit (Loss) after Tax	-10.7	-17.7	-30.6	-20.8	-44.1	-13.5	7.5

Q1 FY21 includes receipt of upfront payment of $20 Mn from SCD-044 licensing deal, which is a non-recurring item.

Cash & liquidity

- Cash on hand INR 240 Mn ($3.3 Mn) as on 7-Sep-20
- FY21 Budget ~60% spend for clinical expenses
- Several measures to control costs & to preserve cash
- Evaluating proposals to license certain late stage clinical assets, in order to reduce incremental spend and to create liquidity
- Plans to raise ~$125–150 Mn by way of fresh equity issuance to meet expenses over next 3 years
- Line of Credit up to INR 2,000 Mn (~$27.2 Mn) from holding company, of which INR 400 Mn (~$5.4 Mn) is utilized

Clinical pipeline

sparc

NCE/NDDS	Asset	Indication	Discovery	Preclinical	Phase 1	Phase 2	Phase 3	Registration
NCE	Vodobatinib	Parkinson's Disease						
		Lewy Body Dementia						
	Vodobatinib	Refractory CML						
	SCO-120	Metastatic Breast Cancer						
	SCD-044	Atopic Dermatitis						
		Psoriasis						
NDDS	Taclantis	Cancer						
	PDP-716	Glaucoma						
	SDN-037	Cataract Surgery						
	Phenobarbital	Neonatal Seizure						
	SDN-118	Depression						

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Thank You