Investor Day

May 14, 2019
Paris

IPSEN
Innovation for patient care

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The implementation of the strategy has to be submitted to the relevant staff representation authorities in each country concerned, in compliance with the specific procedures, terms and conditions set forth by each national legislation.

The Group operates in certain geographical regions whose governmental finances, local currencies or inflation rates could be affected by the current crisis, which could in turn erode the local competitiveness of the Group's products relative to competitors operating in local currency, and/or could be detrimental to the Group's margins in those regions where the Group's drugs are billed in local currencies.

In a number of countries, the Group markets its drugs via distributors or agents: some of these partners' financial strength could be impacted by the crisis, potentially subjecting the Group to difficulties in recovering its receivables. Furthermore, in certain countries whose financial equilibrium is threatened by the crisis and where the Group sells its drugs directly to hospitals, the Group could be forced to lengthen its payment terms or could experience difficulties in recovering its receivables in full.

Finally, in those countries in which public or private health cover is provided, the impact of the financial crisis could cause medical insurance agencies to place added pressure on drug prices, increase financial contributions by patients or adopt a more selective approach to reimbursement criteria.

All of the above risks could affect the Group's future ability to achieve its financial targets, which were set assuming reasonable macroeconomic conditions based on the information available today.

Agenda

1:00pm	**01 Vision & Strategy**	David Meek
1:10pm	**02 Financials**	Aymeric Le Chatelier
1:20pm	**03 R&D strategy/ External innovation strategy**	Alexandre LeBeaut/ Ivana Magovčević-Liebisch
1:35pm	**Q&A**	
1:55pm	**04 Rare Diseases**	Harout Semerjian/ Clarissa Desjardins
2:20pm	**05 Neuroscience**	Harout Semerjian/ John Chaddock
2:40pm	**Q&A**	
2:55pm	*Break*	
3:10pm	**06 Oncology**	Richard Paulson, Sandy McEwan, Yan Moore
4:10pm	**Q&A/ Conclusion**	
4:30pm	*Cocktail reception*	

Vision and Strategy

David Meek

Chief Executive Officer

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VISION

Being a leading global biopharmaceutical company focused on Innovation and Specialty Care

Ipsen at a glance

Industry leading top and bottom-line growth

Specialty Care

89% of sales
#1 or #2 in key markets

Advancing R&D pipeline

5 NCEs and multiple LCM programs

Top 14 Oncology company globally

2018 sales >€1.5bn

Well-diversified geographically

Presence in >115 countries

High-performing executive management team

Focus on culture

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NCEs: New Chemical Entities; **LCM**: Lifecycle Management

Delivering on our strategy

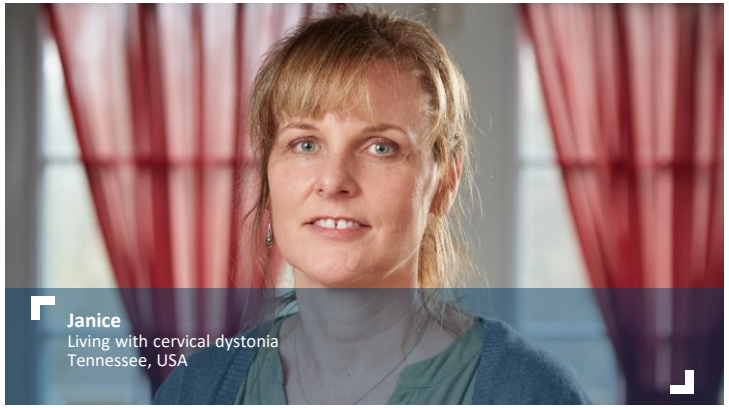
Objectives from 2017 Investor Day	Execution
Deliver double-digit growth and improving profitability	✓ **Industry-leading 20%+ sales growth** in 2017 and 2018 driven by Specialty Care ✓ **COI margin improvement of 6.7pt** 2016-2018
Implement R&D transformation with focus on innovative and differentiated assets	✓ **Prioritization** and **acceleration** of key internal programs ✓ **5 innovative NCEs** advancing in the clinic
Bolster external sourcing model/ business development to expand innovative Specialty Care pipeline	✓ **Clementia acquisition** in Rare Diseases ✓ Earlier-stage **in-licensing and partnerships** (MD Anderson for IPN60090)

COI: Core Operating Income; **NCEs**: New Chemical Entities

Strengthening leadership position in three therapeutic areas

Oncology

- Differentiated, best-in-class products in niche markets
- LCM programs in additional indications to expand benefits and market potential



Neuroscience

- Expertise in research, development, manufacturing, commercialization
- R&D programs for additional indications and to provide innovative solutions along treatment paradigm

Rare Diseases

- Proven capabilities and patient-centric model to serve unmet medical needs
- First-in-class anchor asset palovarotene

Roadmap and priorities

Growth

- Maximize growth and market share worldwide for differentiated best-in-class Specialty Care products
- Leverage commercial capabilities and optimize cost base

Pipeline

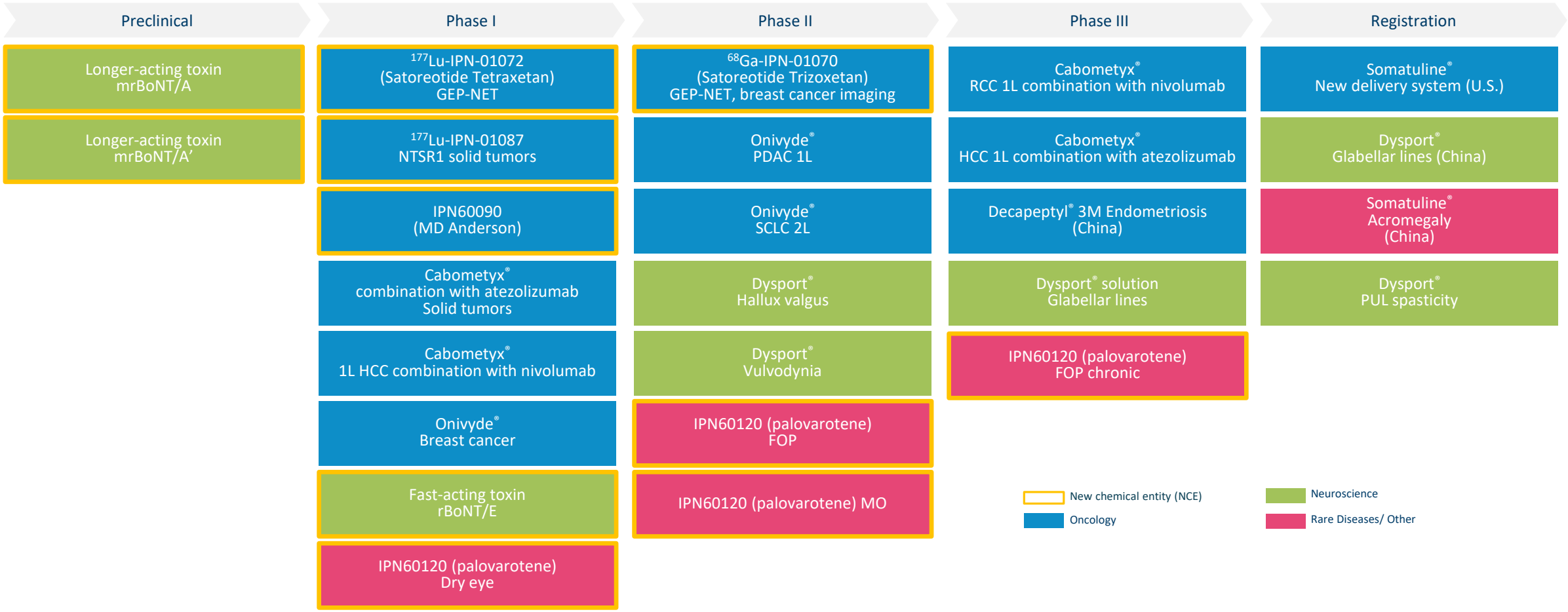
- Increase value of the pipeline by accelerating key R&D programs
- Identify, execute and integrate successful business development transactions

Culture

- Drive further transformation and ambition through leadership and people
- Purpose to expeditiously bring innovative therapies to patients with unmet medical needs

Multiple value-driving and differentiated pipeline opportunities

Five new chemical entities in the clinic; Nine regulatory submissions from 2019 to 2022



FOP: Fibrodysplasia Ossificans Progressiva; **GEP-NET**: Gastroenteropancreatic Neuroendocrine Tumors; **HCC**: Hepatocellular Carcinoma; **MO**: Multiple Osteochondromas; **PDAC**: Pancreatic ductal adenocarcinoma; **PUL**: Pediatric Upper Limb; **rBoNT/A**: recombinant Botulinum Toxin Type A; **rBoNT/E**: recombinant Botulinum Toxin Type E; **RCC**: Renal Cell Carcinoma; **SCLC**: Small Cell Lung Cancer; **1L**: First line; **2L**: Second line; **3M**: 3-month formulation

Execution on growth strategy through external innovation

Continued investment in R&D pipeline for long-term growth

Active business development efforts

- Strengthened and agile global team focused on three key therapeutics areas

Driven by strong balance sheet

- Quickly replenishing firepower through significant cash flow generation

To build an innovative and sustainable pipeline

- Execute on top-line, bottom-line and pipeline growth strategy

Transformative company culture with focus on social responsibility

Employees

Caring for and developing employees, encouraging diversity and inclusion, and supporting an open and respectful culture

Patients & Society

Providing innovative solutions for the benefit of patients & society based on trusted relationships and shared commitments

Environment

Protecting the environment, minimizing the impact on it, by making activities safe and sustainable

Objectives of the day

Provide financial outlook and capital allocation strategy

Update on R&D and External Innovation strategy

Provide commercial highlights and deep dive in R&D pipeline by therapeutic area

Create and deliver long-term value by executing on growth strategy

Financial update

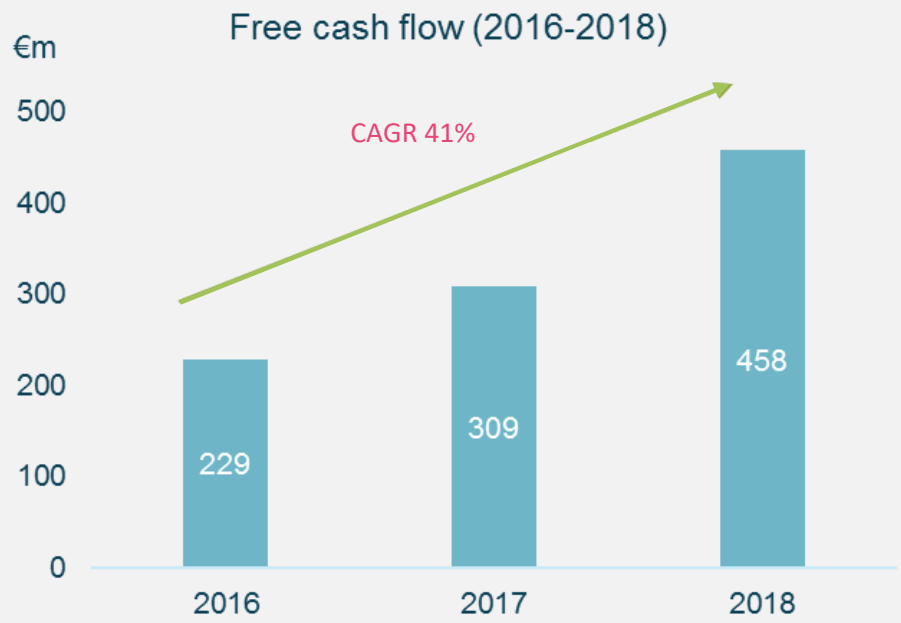
Aymeric Le Chatelier
Chief Financial Officer

Top-tier consistent financial performance

Significant top-line growth and margin enhancement
On track to deliver 2020 guidance[1] one year early

	2016	2019	CAGR
Sales	€1.58bn	>€2.5bn[2]	+17%
Core Operating Income	€364mn	>€750mn[2]	+28%
Core Operating Margin	23%	~30%[2]	+7pts[3]

Strong cash flow generation while investing in business development



Business Development transactions for ~€2bn since 2016 (Cabometyx, Onivyde, Clementia)
Total Shareholder Return >23%[4] per year since 2016

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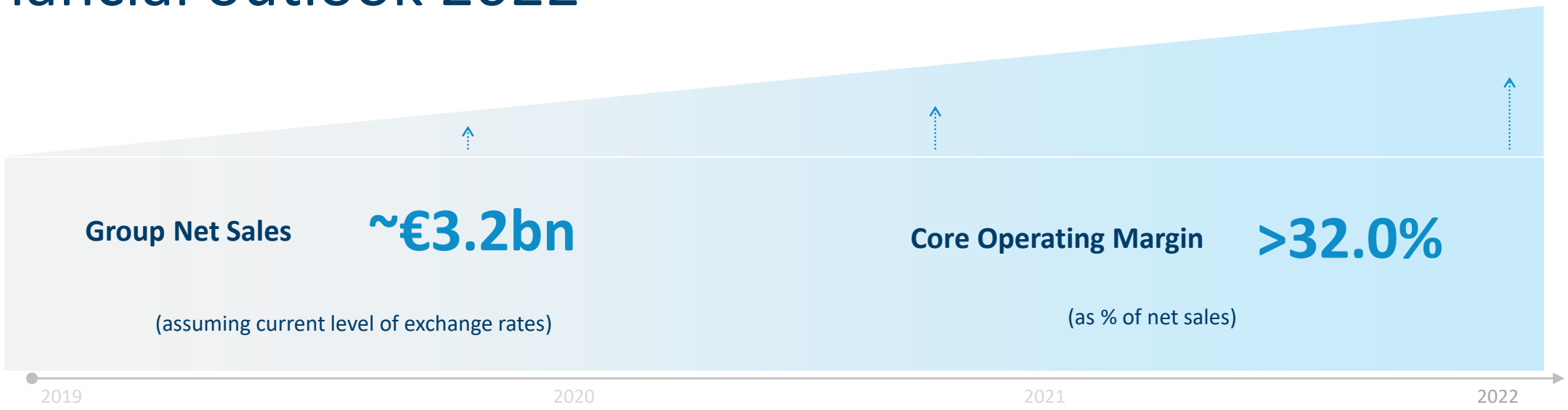
1. 2020 guidance excluding impact of Clementia acquisition: Sales > €2.5bn and Core Operating Margin > 30%
2. Calculation based on company guidance confirmed 24 April 2019
3. Variance 2016-2019 **4.** From Jan 1, 2016 to Dec 31, 2018

Financial outlook 2022



- Existing portfolio, including palovarotene for FOP indications[1], assumes no approvals of additional meaningful products or indications
- Assuming earliest possible entry of SSA generics based on current market intelligence
  - Any delays would result in significant upside to sales and Core Operating margin
- Impact of further business development not included

Strong top-line and bottom-line growth while investing to grow pipeline

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FOP: Fibrodysplasia Ossificans Progressiva; **SSA**: Somatostatin Analog **1.** flare-up and chronic indications

Strong growth from key Specialty Care products

Brand/ asset	Geographies	Major indications	Growth / Peak sales
Somatuline autogel	Global	Neuroendocrine Tumors (NET) Acromegaly	Double-digit growth until potential impact of generic
Decapeptyl® SR triptorelin	Ex-US and Japan	Prostate Cancer	High to mid single-digit growth in all territories
CABOMETYX® (cabozantinib) tablets	Ex-US and Japan	Renal Cell Carcinoma (RCC) Hepatocellular Carcinoma (HCC)	Expected peak sales of €400mn on current approved indications
onivyde™ (irinotecan liposome injection)	U.S. only	Pancreatic cancer	Expected peak sales of $300mn for current indication
Dysport® (abobotulinumtoxinA)	Global	Spasticity (Tx) Glabellar lines (Ax)	Double-digit growth in line with market growth in both markets
palovarotene clementia	Global	Fibrodysplasia Ossificans Progressiva (FOP)	Expected peak sales of $400mn for FOP indications only (flare-up and chronic)

Somatuline® – Potential SSA competitive environment

Market Intelligence

- Short-acting generic formulations of octreotide and lanreotide available for many years with no impact
- Number of companies identified with an interest in developing long-acting formulations of octreotide or lanreotide
- FDA rejected or delayed several long-acting octreotide generics in past 2 years due to CMC/manufacturing challenges
- Recent filing of long-acting lanreotide generic not expected to result in launch in EU5[1] countries until 2021 at earliest
- No FDA filing for long-acting lanreotide (orphan drug exclusivity in U.S. through December 2021)

Somatuline® outlook

- Long-acting formulations remain standard of care in growing market
- Strong clinical, device and value differentiation of Somatuline vs. octreotide
- Limited patient switch and no interchangeability limiting impact of octreotide generic
- Maximization of Somatuline value in case of lanreotide generic (improved delivery system, loyal patient base, long duration of treatment and patient services)
- Complex and fragmented U.S. injectable oncology market which makes it challenging for generic substitution – strategic partnering and contracting to limit the impact on pricing and patient erosion

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SSA: Somatostatin Analog; **CMC:** Chemistry, Manufacturing and Controls; **NET:** Neuroendocrine Tumors
1. EU5: European Union Five (France, Germany, Italy, Spain, United Kingdom)

2022 Core Operating Income growth drivers

Core Operating Margin >32.0%

COGS
Slight increase

- Higher Cabometyx royalties and lower Somatuline contribution if SSA generics enter
- Slightly offset by Specialty Care growth and manufacturing efficiencies

Sales & Marketing
Significant reduction as % of sales

- Increasing synergies and leveraging current commercial infrastructure, including mitigation if SSA generics enter

R&D
Increase as a % of sales to reach 14%-15% of sales

- Support and accelerate programs for innovative NCEs (including palovarotene) and LCM
- Incremental investments in business development opportunities to accelerate growth of pipeline not included

G&A
Slight decrease as % of sales

- Streamlining of operations and limited growth in support functions

Other Revenues
Decrease from impact of Adenuric loss of exclusivity (from 2019) and Galderma milestone amortization (from 2021)

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SSA: Somatostatin Analog; **COI**: Core Operating Income; **NCE**: New Chemical Entities, LCM: Lifecycle Management

Capital allocation principles

Business development	• **Significant financing capacity** to leverage balance sheet up to 2.0x Net Debt to EBITDA • **>€1bn business development fire power** by end of 2020 • **Strict financial discipline** based on IRR, value creation > cost of capital and risk adjusted analysis and structuring • **Long-term value and growth creation** outweighs potential short-term, low single-digit Core Operating margin dilution
Capex	• Investments to support **capacity expansion** for key products and pipeline • Investments to support **Group growth and transformation initiatives**
Dividends	• **Limited increases** in order to prioritize external growth strategy
Share buyback	• **Limited share buybacks** only to prevent dilution from employee incentive plans

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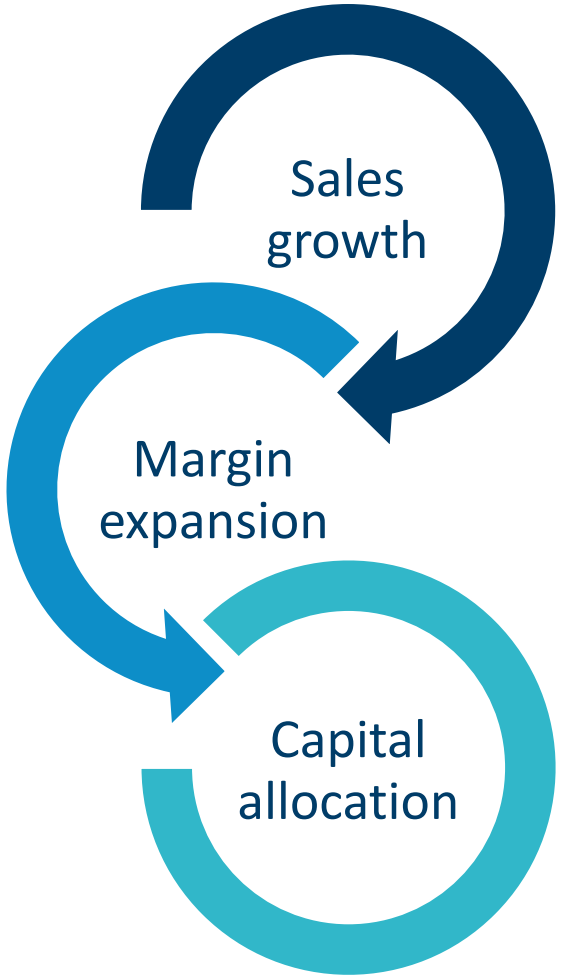
EBITDA: Earnings Before Interest, Tax, Depreciation and Amortization; **IRR**: Internal Rate of Return

Priorities to deliver strong shareholder return



- Maintain ambition of double-digit top-line growth
- Maximize key product growth
- Build leadership position in attractive Specialty Care markets

- Utilize multiple levers to optimize resource allocation
- Increase synergies through leveraging current commercial infrastructure
- Prioritize R&D investment to grow pipeline

- Increase strong free cash flow generation
- Accelerate Business Development with strong balance sheet
- Invest in sustainable growth through disciplined capital allocation policy

Strong top-line and bottom-line growth while investing to grow pipeline

03

R&D / External Innovation Strategy

R&D Strategy and Portfolio

Alexandre LeBeaut, MD
Chief Scientific Officer

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Growing our Pipeline: R&D Strategy

Focus on Oncology, Neuroscience and Rare Diseases

- Addressing unmet medical needs

Aiming for first/ best-in-class assets drives differentiation of the pipeline

- Innovative programs: Systemic Radiation Therapy (SRT), recombinant neurotoxins, palovarotene

Be a leading external innovation-sourcing organization

- Open innovation
- Leverage presence and collaborations in strategically located ecosystems

Be a development powerhouse

- Accelerate programs with highest value
- Optimize digital and cutting-edge innovation and technologies

Accomplishments since Investor Day 2017

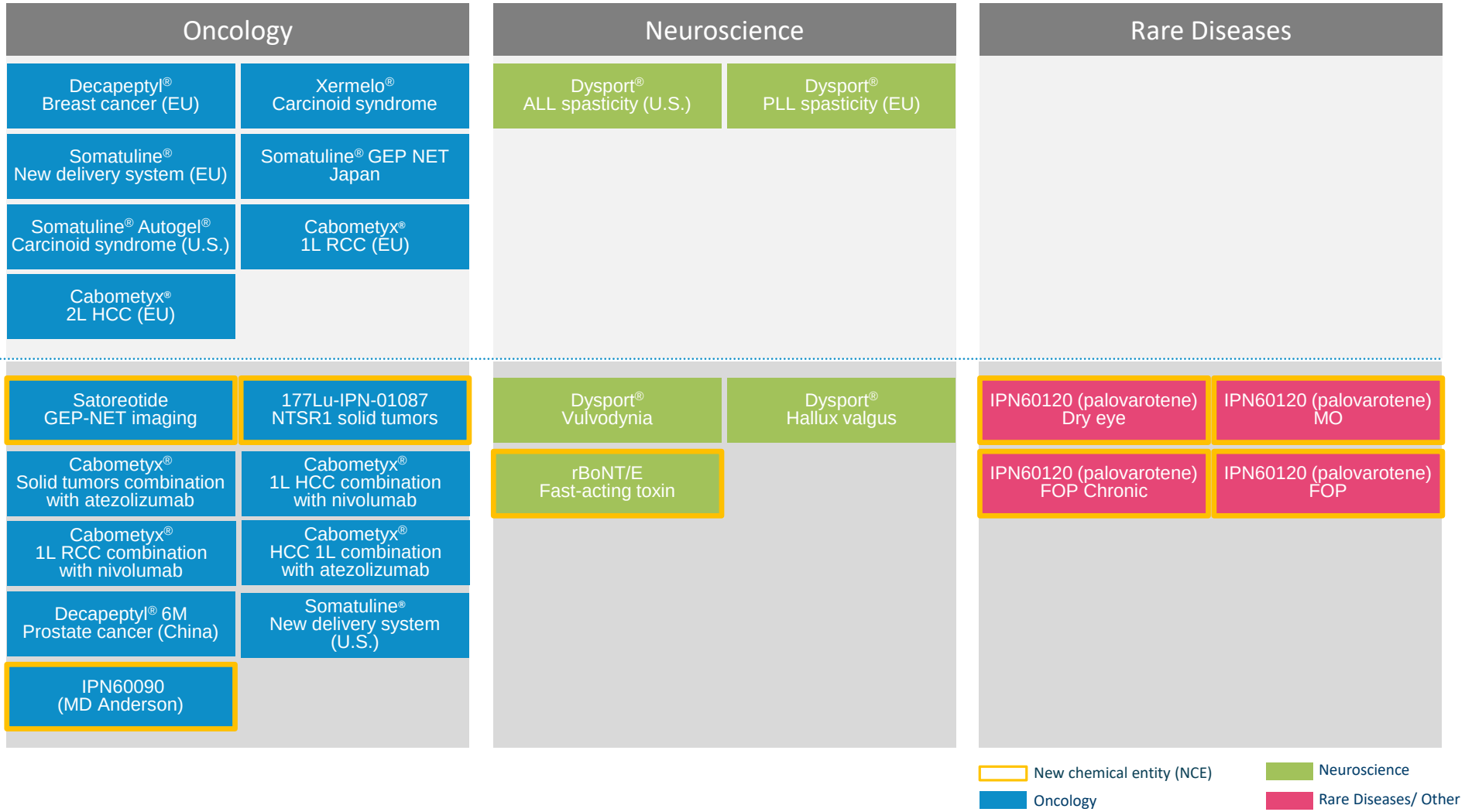
9

Major indications approved

16

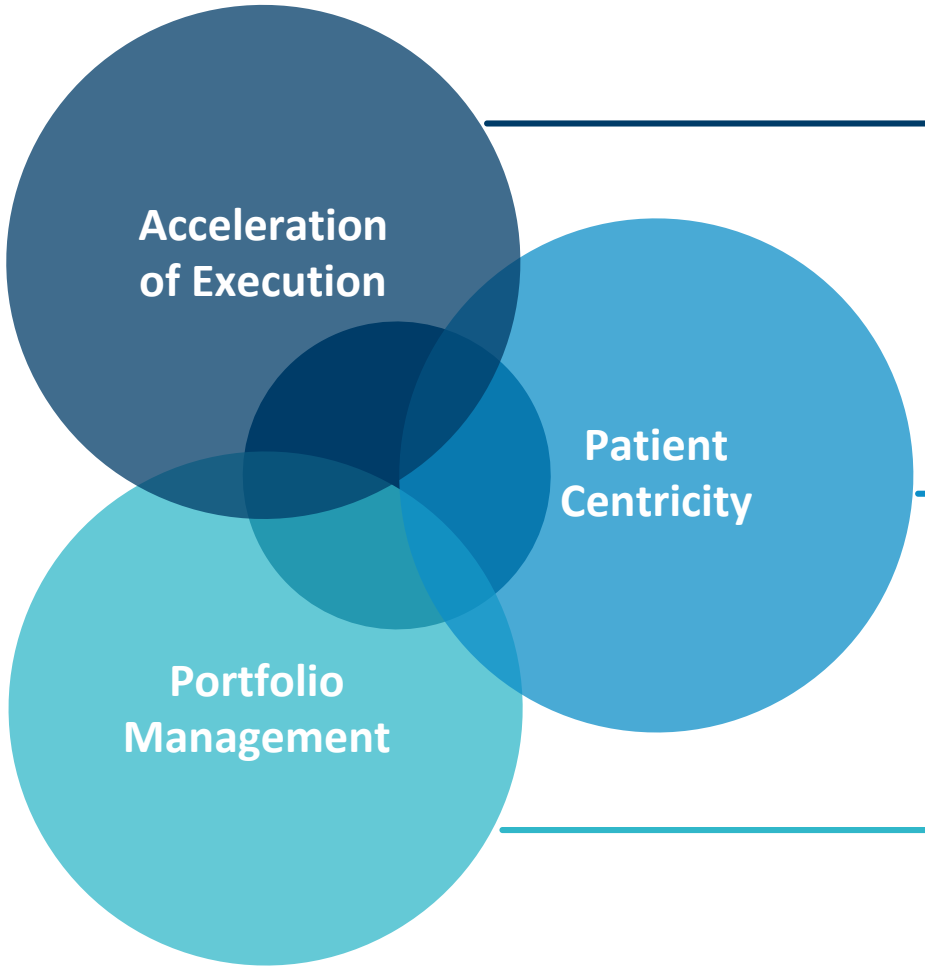
New projects added into development including

5 NCEs entering clinical development



NET: Neuroendocrine Tumors; **RCC**: Renal Cell Carcinoma; **HCC**: Hepatocellular Carcinoma; **ALL**: Adult Lower Limb; **PLL**: Pediatric Lower Limb; **GEP-NET**: Gastroenteropancreatic Neuroendocrine Tumor; **FOP**: Fibrodysplasia Ossificans Progressiva; **MO**: Multiple Osteochondromas

Being a Development Powerhouse

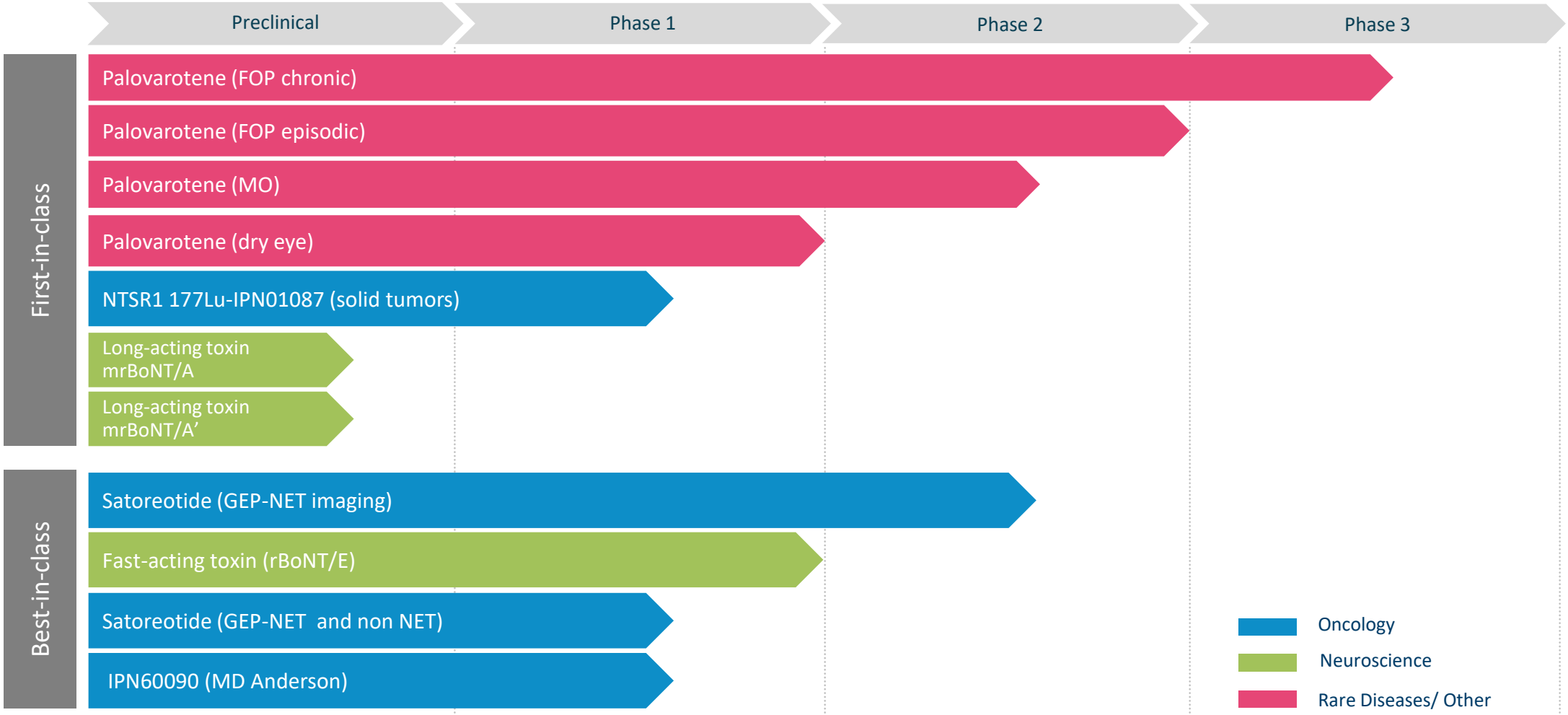


- Seasoned experts leading innovation platforms
- Integrated digital solutions (site selection, in silico clinical trials)
- Regulatory science to support innovative study design (e.g. basket trials)
- Integrated pharmaceutical development

- Focus on high unmet needs and well-defined patient populations
- Integration of Patient Reported Outcomes (PROs)
- Patient engagement across drug development

- Lean Governance to streamline decision making process
- To enable rapid reallocation of resources to high priority projects
- To create a risk-balanced and innovative pipeline of differentiated assets in Oncology, Neuroscience and Rare Diseases

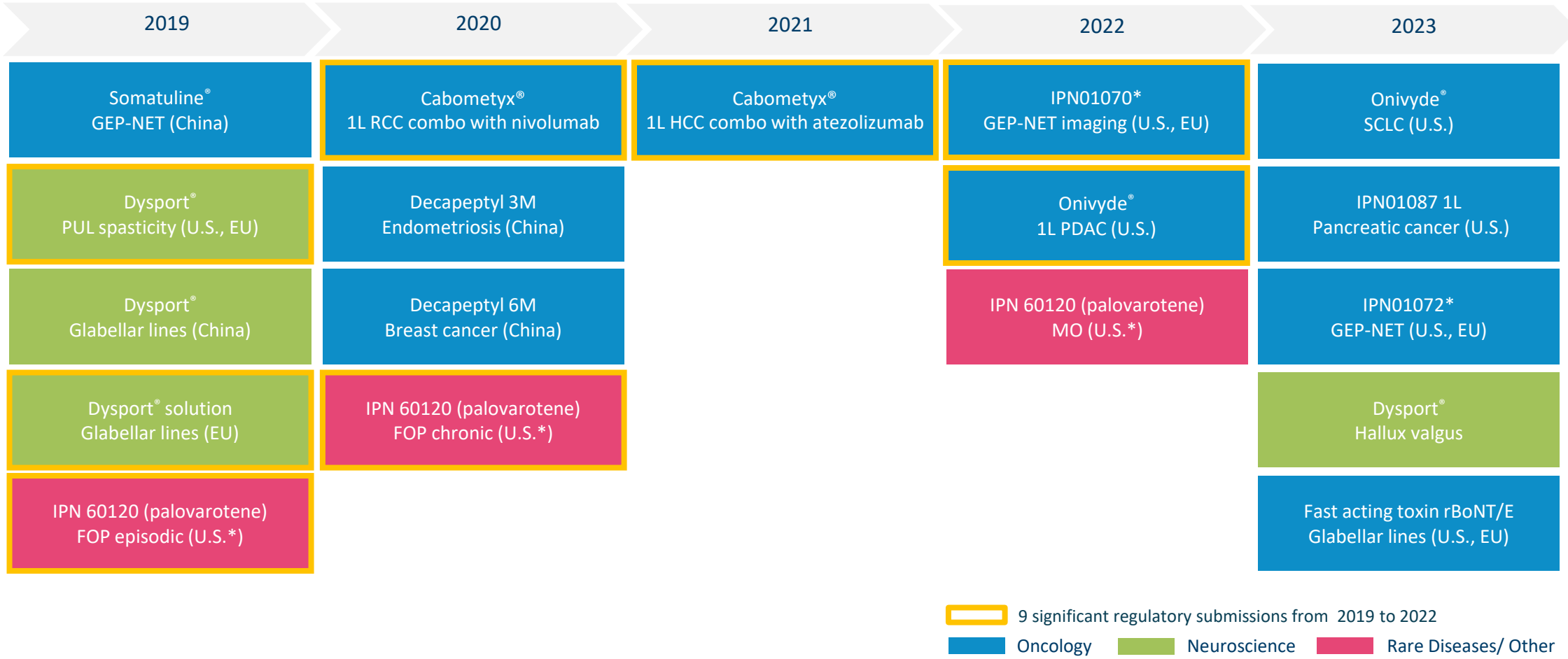
Leading a risk-balanced early and late stage innovative proprietary pipeline



FOP: Fibrodysplasia Ossificans Progressiva; **GEP-NET**: Gastroenteropancreatic Neuroendocrine Tumors; **MO**: Multiple Osteochondromas; **rBoNT/A**: recombinant Botulinum Toxin Type A; **rBoNT/E**: recombinant Botulinum Toxin Type E

Targeted regulatory submissions

Delivering >1 NCE / significant new indication per year



GEP-NET: Gastroenteropancreatic Neuroendocrine Tumor; **PUL**: Pediatric Upper Limb; **FOP**: Fibrodysplasia Ossificans Progressiva; **RCC**: Renal Cell Carcinoma; **HCC**: Hepatocellular Carcinoma; **MO**: Multiple Osteochondromas; **SCLC**: Small Cell Lung Cancer
* To be followed by EU and RoW filing

R&D strategy: Creating value with advancing pipeline

- Strongest pipeline in Ipsen's history risk-balanced across three therapeutics areas and phases development
- 5 New Chemical Entities progressing in clinical development
- Innovative programs with potential to expand into additional indications – Systemic Radiation Therapy, recombinant neurotoxins, palovarotene
- Development powerhouse with disciplined resource allocation
- Focused execution of external innovation strategy to build innovative and sustainable pipeline

External Innovation Strategy

Ivana Magovčević-Liebisch, Ph.D., J.D.
Chief Business Officer

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External innovation-focused organization actively searching for new assets

- **Dedicated team** – ~30 scientific and business professionals based across global hubs
- **Integrative & collaborative organization** – Ability to move quickly and effectively from opportunity identification through decision making
- **Differentiating philosophy** – Treat all partners as equals, sharing their passion to develop and commercialize innovation globally
- **Compelling value proposition** – Global development and commercial powerhouse with a strong track record of delivering results
- **Creativity & flexibility** – Commitment, financial strength and size allow for transactional flexibility and creativity

External innovation fuels R&D pipeline to deliver at least one new product or meaningful indication annually

Areas of Focus

Oncology	• Focus on rare or niche solid tumors • All stages of development candidates and marketed products • All modalities excluding vaccines, oncolytic viruses, cell therapies, gene therapies
Rare Diseases	• Rare bone and musculoskeletal diseases and their adjacencies • All stages of development candidates and marketed products • All modalities
Neuroscience	• Novel neurotoxins • Technologies/ solutions to enhance Ipsen's neurotoxin therapies and R&D capabilities • Movement disorders, spasticity and adjacencies
Early Innovation	• Strategic alliances with biotech-focused venture capital firms, start-up incubators and major academic centers

Track Record of Success Through Diverse Partnerships & Transactions

Early Innovation Partnerships

ARIX BIOSCIENCE plc

IPSEN INNOVATION CENTER | biolabs

bpifrance | InnoBio

New venture capital fund
Cambridge, MA (U.S.)

Academic Alliances

HARVARD CATALYST

HARVARD UNIVERSITY

Institute of Molecular and Cell Biology A*STAR

GUSTAVE ROUSSY

Partnerships/ Licensing

THE UNIVERSITY OF TEXAS MD Anderson Cancer Center

GALDERMA

EXELIXIS

Debiopharm Group

3B Pharmaceuticals

Lexicon pharmaceuticals

Asset & Company Acquisitions

clementia

onivyde™ (irinotecan liposome injection)

OctreoPharm SCIENCES

Syntaxin Targeted Secretion Inhibitors

Clementia: Successful Execution of External Innovation Strategy

Proactively identified Clementia as transformative opportunity in Rare Diseases

Agility in moving quickly to initiate and drive the process forward

Collaborative and integrated teamwork internally and with Clementia along the process

Focused on seamless integration to bring palovarotene to patients worldwide as quickly as possible

clementia
AN IPSEN COMPANY

Q&A

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04 Rare Diseases

Rare Diseases

Harout Semerjian
Chief Commercial Officer

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Rare Diseases background

Affecting fewer than 1 **in** 2,000 **people**

~7000

Rare Diseases
Most are genetic or have a genetic component

~5%

have therapeutic treatment available

>560

medicines in development for Rare Diseases
Relatively quicker regulatory pathway and limited competition

Significant unmet medical needs remain

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Source: Pharmaceutical Research and Manufacturers of America

Ipsen’s Rare Diseases capabilities

Mission: To develop and bring innovative solutions to people living with debilitating or life-threatening conditions as quickly as possible

- Established legacy of Rare Disease assets in Endocrinology (Nutropin®, Increlex®, Somatuline® in acromegaly); Oncology (Somatuline® in Neuroendocrine Tumors, carcinoid syndrome) and Neuroscience (Dysport® in pediatric spasticity)
- Specialized, non-traditional skill-set in clinical and regulatory
- Global infrastructure including medical advocacy and commercial across key geographies
- Highly patient-centric business model (patient finding and retention, advocacy groups, reimbursement assistance)

Acquisition of Clementia Pharmaceuticals: A Rare Disease company

clementia
AN IPSEN COMPANY

Rare Disease company
based in Montreal, Canada
developing innovative treatments
for ultra-rare bone disorders

Acquisition
Announced 25 February and closed 17 April

Key asset
Palovarotene, an investigational retinoic acid receptor gamma (RARγ) selective agonist, for the treatment of fibrodysplasia ossificans progressiva (FOP), multiple osteochondromas (MO), dry eye and other diseases; IP protection into the early 2030s

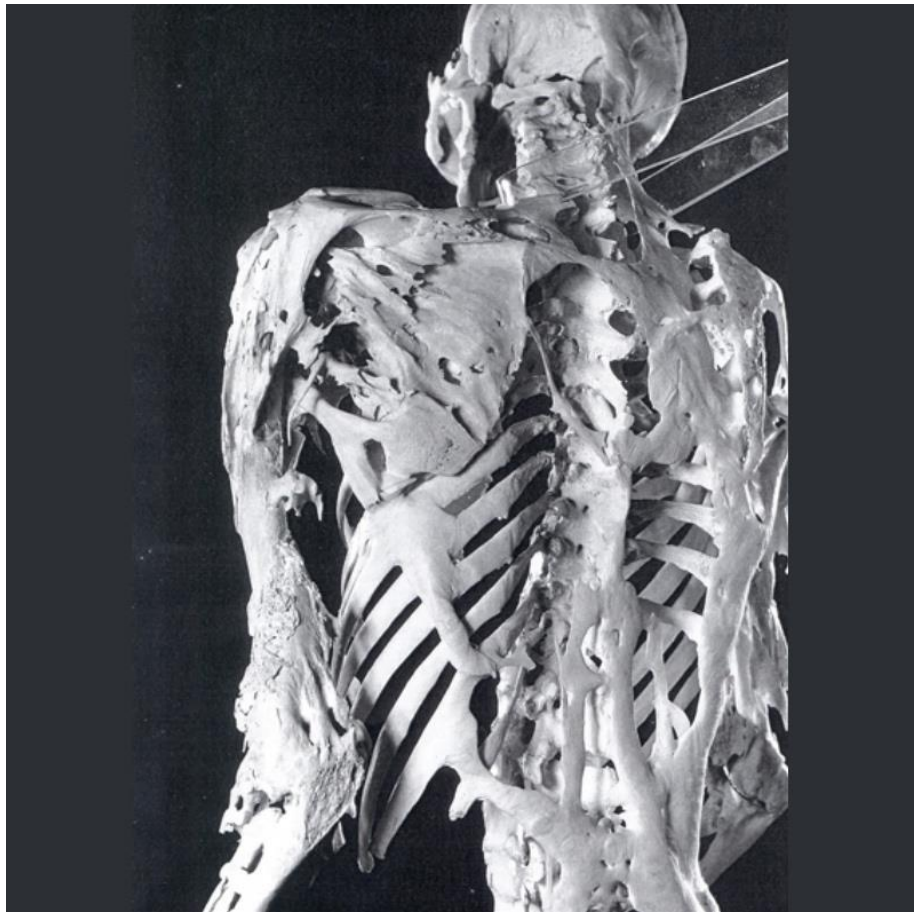
Integration
Ipsen and Clementia working closely together to ensure smooth transition of operations while maintaining patient-centric culture

Accelerate strong global Rare Disease organization to expeditiously deliver palovarotene to patients worldwide

FOP is a severely disabling bone disorder

Skeleton of Harry Eastlack

- Harry passed away 6 days before his 40th birthday
- Fused skeleton exemplifies harsh reality of FOP
- Reminder of how much work remains to help FOP patients
- On display at the Mutter Museum of The College of Physicians in Philadelphia



Source: IFOPA website; **FOP**: Fibrodysplasia Ossificans Progressiva

High unmet medical need for FOP

Currently no approved therapies to prevent or treat the formation of heterotopic ossifications (HO, new bone) in FOP

High-dose corticosteroids started within the first 24 hours of a flare-up may help reduce the inflammation[1,2]

Surgical intervention not recommended – risks new, trauma-induced HO[1]

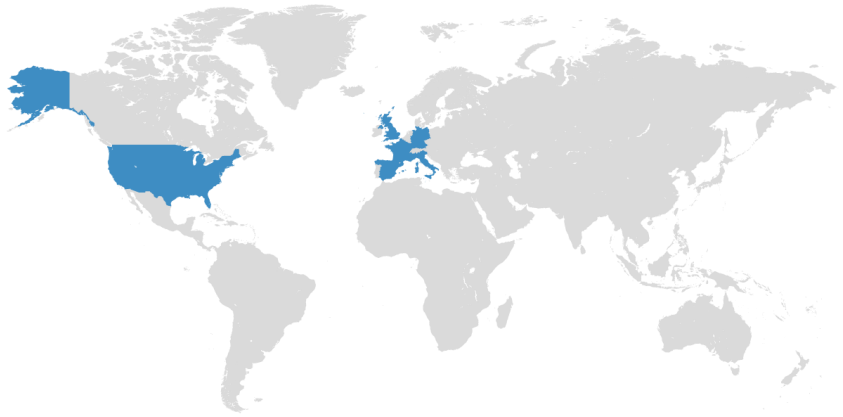
Activities that trigger flare-ups should be avoided[2]

FOP: Fibrodysplasia Ossificans Progressiva; **HO**: Heterotopic Ossification

1. Kaplan FS, et al. Clin Proc Intl Clin Consort FOP 2011;4:1–100. **2**. Di Rocco M, et al. Orphanet J Rare Dis. 2017;12(1):110.

FOP patients treated by specialists in centers of excellence

Centers of excellence identified in major markets



U.S.	Germany	Spain	UK	Italy	France
10	**3**	**2**	**4**	**4**	**2**

Patients managed by variety of specialists

- Pediatricians
- Endocrinologists specializing in bone/ mineral disorders
- Orthopedic surgeons
- Medical geneticists

Very active and engaged global and national patient groups

Significant commercial opportunity for FOP

Well-defined patient population

- Prevalence: 1.3/ 1 million lives[1]: ~9,000 patients
- >800 identified addressable patients in U.S. and EU5
- Characteristic big toe malformation at birth
- Symptoms start ~2-4 years of age
- Progressive disease leading to immobility by mid-twenties
- Median age at death: 40 years
- No available therapies: steroids and NSAIDs are used for symptomatic relief

Limited commercial investments

- Focused commercial investments required for U.S. and ex-US launch based on existing capabilities
- Early access program underway to support patients worldwide
- Worldwide patient-finding efforts underway
- Plan to launch in the U.S., EU and other territories

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FOP: Fibrodysplasia Ossificans Progressiva; **1.** Baujat G, et al. Orphanet J Rare Dis. 2017;12(1):123.

Favorable FOP launch dynamics expected

Well-characterized disease

- Genetic mutation
- Characteristic big toe malformation at birth

Favorable product profile

- Strong clinical efficacy
- Daily oral therapy
- Good safety profile
- Functional endpoints forthcoming

Ultra-rare disease pricing expected based on

- Serious unmet need
- Compelling clinical profile
- Potentially disease modifying

Patient identification

- >800 pts identified many months before expected launch
- Ongoing and active patient identification efforts worldwide
- Historically, many more patients emerge when first therapy for a rare disease becomes available

Relatively quick ramp expected

- First-in-class treatment option
- Patients expected to initiate therapy upon first flare

Peak sales of approximately $400mn for FOP (assuming flare-up and chronic approvals)
Additional significant upside with more FOP patients, MO and other potential indications

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FOP: Fibrodysplasia Ossificans Progressiva; **MO**: Multiple Osteochondromas

Multiple Osteochondromas (MO) – Significant upside opportunity

Another disabling bone disorder with no therapeutic treatment options

- Ultra-rare, debilitating, bone disorder in which multiple benign bone tumors, also known as osteochondromas (OCs), develop on bones
- Diagnosed prevalence[1,2,3]: **1 in 40,000**: **nearly 200,000 patients**
  → **20%** pre-puberty and **65%** moderate to severe disease
  → **~24,000** patients initially eligible for treatment
- Most common inherited musculoskeletal condition
- **Symptoms** include functional limitations and skeletal abnormalities
- Supportive care, **~70%** of affected individuals undergo **multiple surgeries** over their lifetime

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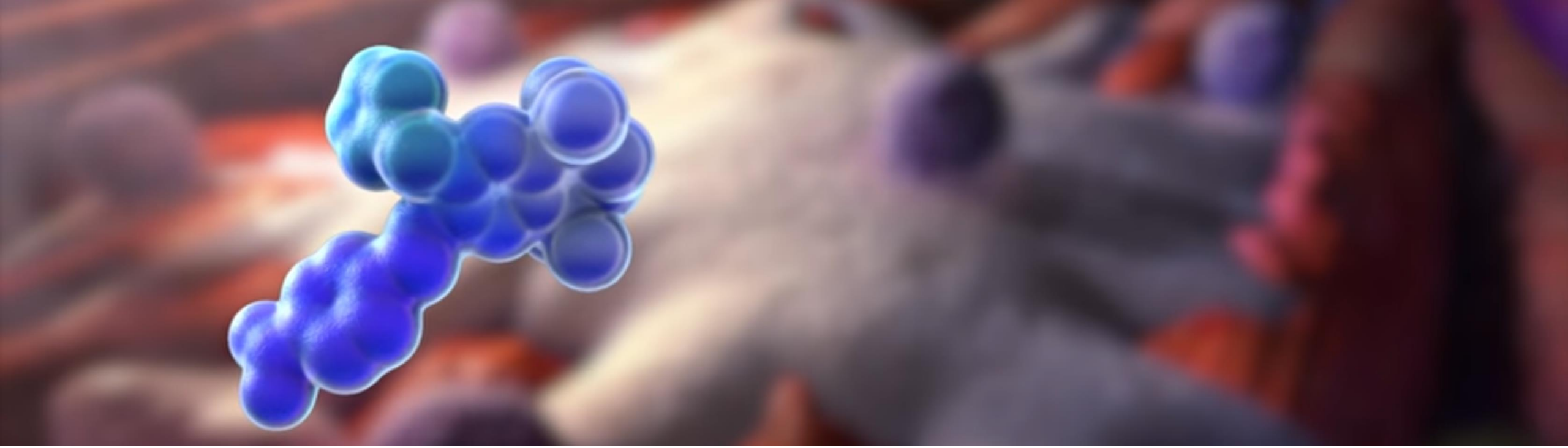
MO: Multiple Osteochondromas; **1**. Schamle, et al., The Journal of Bone and Joint Surgery, 1994. **2**. Pedrini, et al., The Journal of Bone and Joint Surgery, 2011. **3**. Mordenti, et al. American Journal of Medical Genetics, 2012.



Palovarotene R&D

Clarissa Desjardins, PhD

Chief Executive Officer, Clementia

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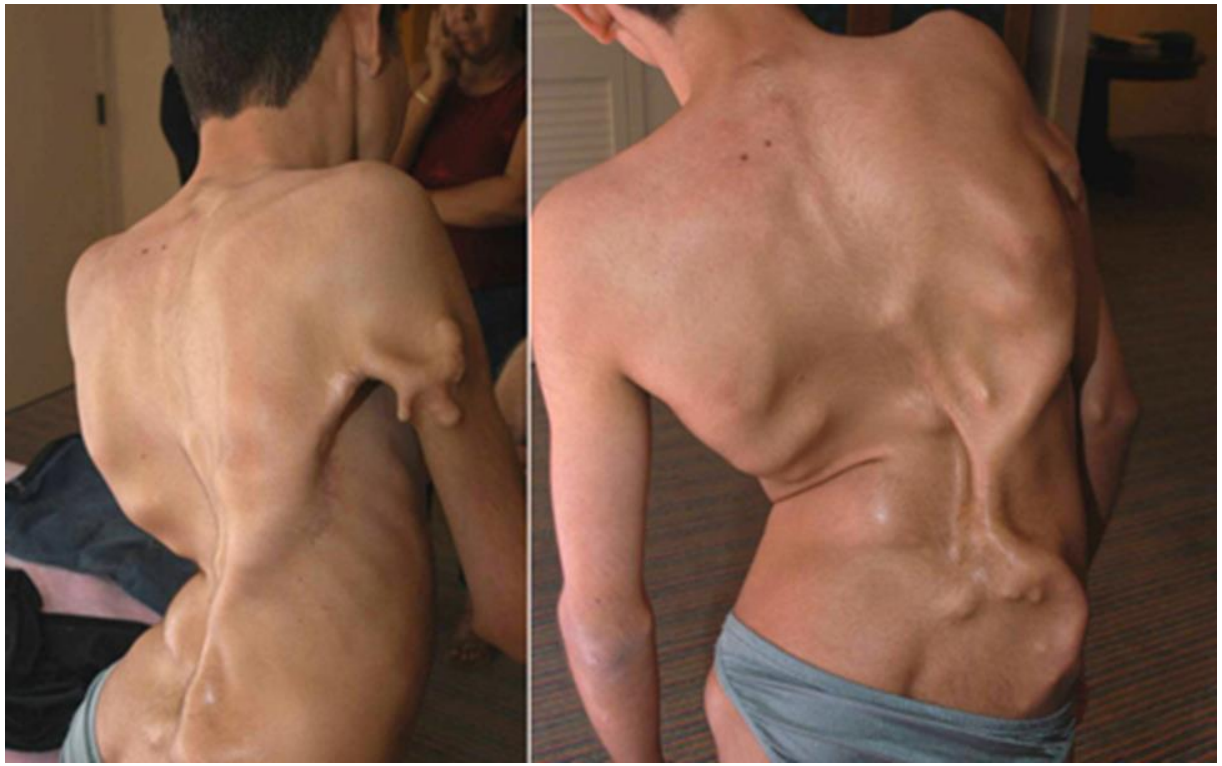
Palovarotene for Fibrodysplasia Ossificans Progressiva (FOP)

- Disease of uncontrolled new bone formation
- Symptoms start ~2-4 years of age
- Progressive, irreversible, cumulative
- Immobility by mid-twenties
- Median age at death 40 years
- No available therapies: steroids and NSAIDs are used for symptomatic relief



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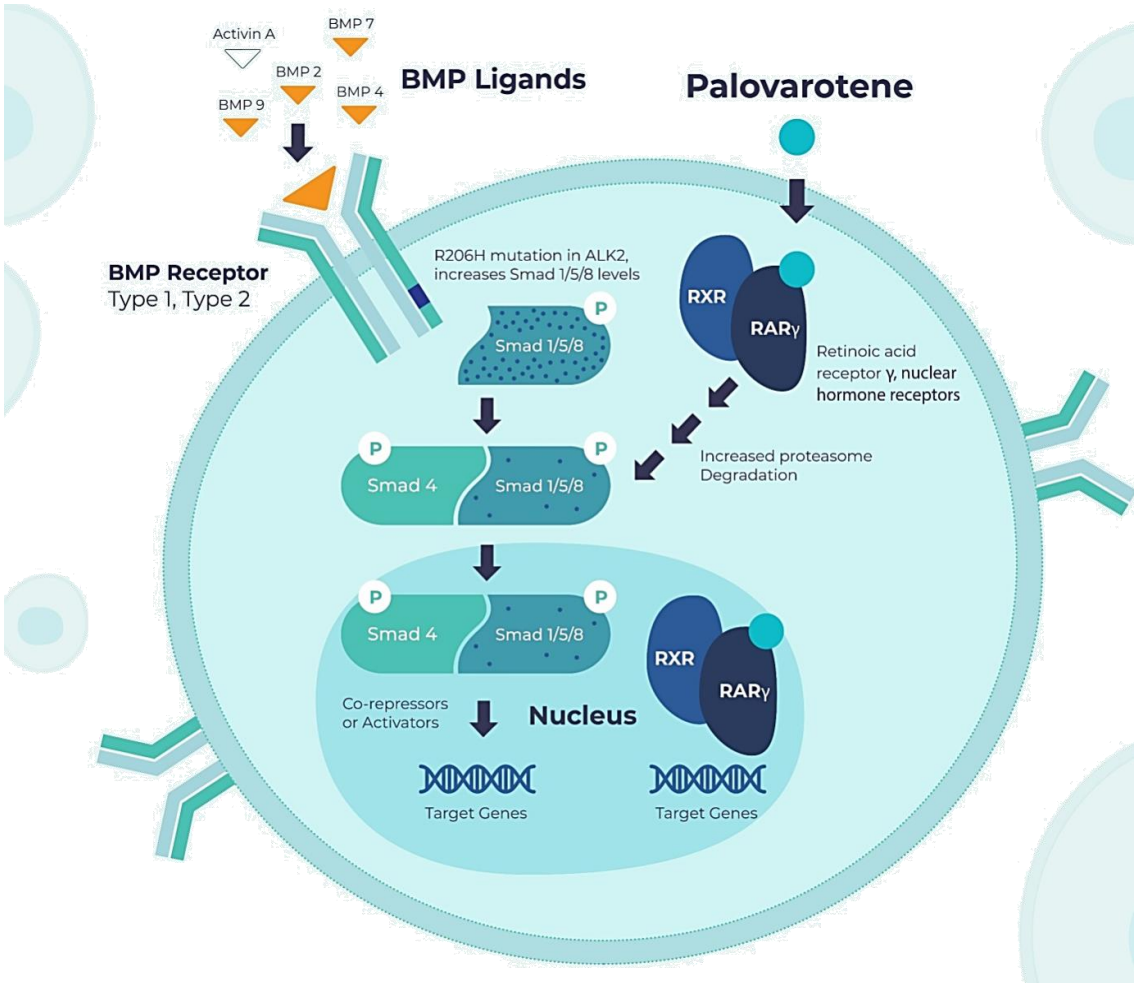
Connor JM et al., 1982; Cohen RB et al., 1993

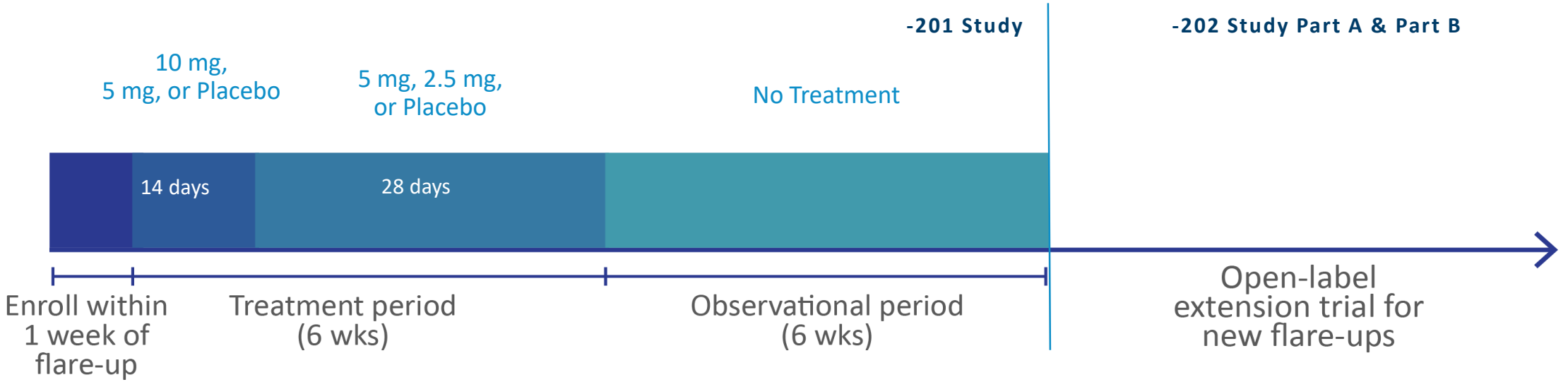
Palovarotene acts on the BMP Signalling Pathway



- FOP is caused by mutations in the ACVR1 gene. Mutant ACVR1 is believed to be overactive on its own, and in the presence of BMP ligands, which induces the BMP signalling pathway.
- This leads to muscles, ligaments and tendons progressively turning to bone ('heterotopic ossification') throughout an individual's lifetime.
- Palovarotene is an agonist (activator) of a specific subtype of the retinoic acid receptor (RAR-γ). RAR-γ is highly expressed in cartilage-forming cells.
- Palovarotene reduces levels of phosphorylated Smads, as well as overall Smad abundance, repressing excess BMP signalling and abnormal bone formation.

BMP: Bone Morphogenetic Protein; Shimono K, et al. Nat Med. 2011;17(4):454–460. Shimono et al. Nat Med; 2011, 17 (4) 454-60; Sheng et al. PNAS;2010, 107, 18886-91

Palovarotene Phase 2 and extension study



Imaging endpoints

- X-ray
- CT scan
- MRI or ultrasound (US)

Functional endpoints

- FOP Patient Reported Outcome (PRO)
- Range of motion
- Global Health scales

Symptom and other measures

- NRS pain and swelling
- Cartilage, bone and inflammatory biomarkers
- Device questionnaire

- Randomized, double-blind, multicenter, placebo-controlled (3:1 randomization)
- Adaptive (for dose, duration and timing of assessments)
- All subjects who successfully completed 12 week DB trial participated in OLE

Natural history study of 114 patients

3-year non-interventional study to gain insight into FOP disease progression[1]

- Annual in-clinic visits, telephone interviews between visits, in-clinic visits to study new flare ups
- Primary endpoint is change from baseline in total body HO at 3 years
- Other endpoints include physical functioning, patient-reported physical and mental health, and biomarkers

Baseline data from first 101 patients

- All but one subject (99%) had great toe malformations[2]; thumb malformations (51%) and tibial osteochondromas (37%) also common
- Initial flare-ups (median onset 4.5 years) in the cervical spine (20%), upper back/thoracic spine (20%), and head (19%)[2]
- Older subjects had more flare-ups in the hip
- Baseline results with respect to mobility, as measured by CAJIS[3], are similar to a previous retrospective, international survey in 500 patients[4]

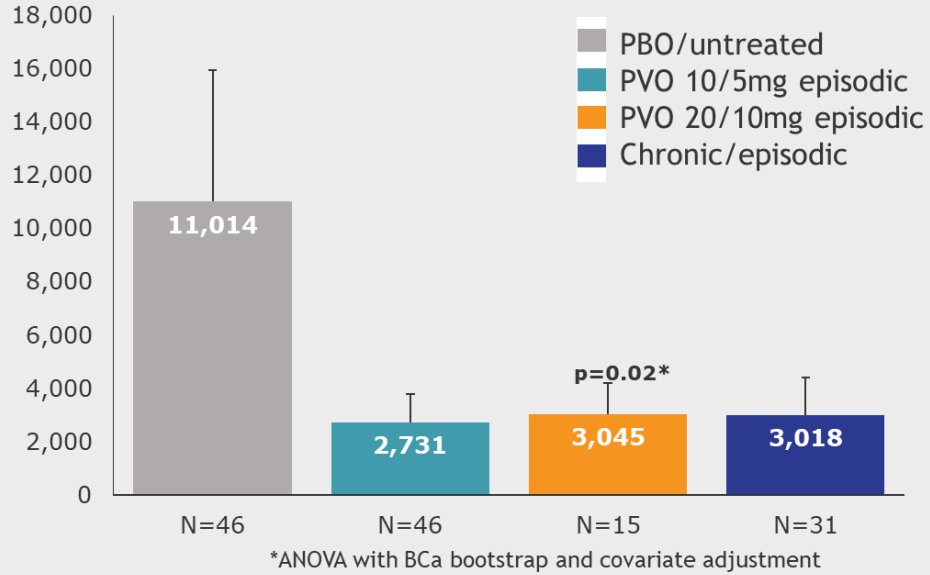
IPSEN Innovation for patient care

FOP: Fibrodysplasia Ossificans Progressiva; **HO**: Heterotopic Ossification; **1**. Available at www.clinicaltrials.gov [NCT02322255]; **2**. Kaplan FS, et al. Presented at the International Conference on Children's Bone Health, 10–13 June 2017, Würzburg, Germany. **3**. CAJIS: Cumulative Analogue Joint Involvement Scale **4**. Pignolo RJ, et al. J Bone Miner Res. 2016;31(3):650–656.

Phase 2 study: 12-week flare-up data

72–75% reduction in new bone growth (HO volumes) at 12 weeks for patients receiving palovarotene at the time of flare-up relative to placebo/untreated flare-ups[1,2]

- The reduction with the episodic 20/10 mg regimen was statistically significant (p=0.02)[1,2]



Treatment group	N=	Volume of new HO (mm^2) at 12 weeks	% reduction	p=value[1]
Placebo/Untreated	46	11,014	-	-
Palovarotene 10/5 mg	46	2,731	-75%	p=0.05
Palovarotene 20/10 mg	15	3,045	-72%	p=0.02
Palovarotene chronic/ flare-up	31	3,018	-73%	p=0.16

[1]ANOVA with BCa bootstrap and covariate adjustment

HO: heterotopic ossification; **PBO**: placebo; **PVO**: palovarotene **1**. Kaplan FS, et al. Presented at the Annual Meeting of the American Society for Bone and Mineral Research, 28 September–01 October 2018, Montreal, QC, Canada. **2**. Clementia Pharmaceuticals Inc. Press release September 26, 2018.

Palovarotene has established safety profile with manageable tolerability

Phase 2 studies

- Dose-related increases in adverse events (AEs); most mild or moderate in severity
- 10/35 subjects had at least one dose-reduction, mainly due to retinoid-associated AEs; most (68%) during 20 mg dosing
- Retinoid-associated AEs include dry skin, dry lips, rash and dry mouth, and can be treated prophylactically
- No apparent effects on growth in skeletally immature subjects

Established safety profile in earlier studies

- Palovarotene was previously investigated in 800 individuals as a possible therapy for COPD
- More than 450 patients received 5 mg palovarotene daily for up to 2 years[1,2]
- Palovarotene was generally well tolerated, with the exception of mild mucocutaneous events[1,2]
- Safety profile consistent with other retinoids[1]

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FOP: fibrodysplasia ossificans progressiva; **COPD**: chronic obstructive pulmonary disease. Kaplan FS, et al. Presented at the Annual Meeting of the American Society for Bone and Mineral Research, 28 September – 01 October 2018, Montreal, QC, Canada **1**. Stolk J, et al. Eur Respir J. 2012;40(2):306–312. **2**. Jones PW, Rames AD. Am J Resp Crit Care Med. 2011;183:A6418.

FOP Phase 2 data supports NDA submission

Extensive Phase 2 clinical development program

- FDA has agreed that Phase 2 flare-up data supports NDA submission for the episodic dosing regimen of palovarotene in FOP in children and adults
- NDA submission targeted for H2 2019
- Fast-track, breakthrough therapy, orphan drug and rare pediatric disease designations from the FDA
- Phase 3 trial evaluating chronic treatment to support potential supplemental NDA submission

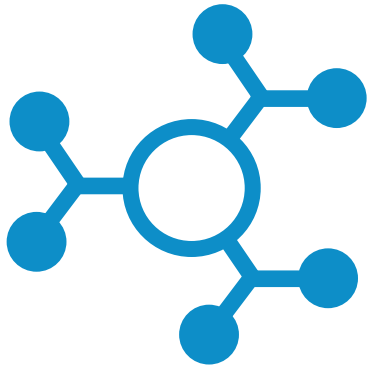
Potential FDA approval in H1 2020 and EMA approval in H2 2020

NDA: New Drug Application; **FDA**: Food and Drug Administration; **EMA**: European Medicines Agency

Evaluating a new dosing regimen for FOP: Phase 3 MOVE Trial

Efficacy and safety study of chronic oral palovarotene for the treatment of FOP

HO Primary Endpoint
annualized volume of new HO measured by whole body CT scan

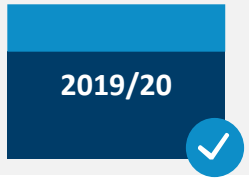


Global Study
15 sites, 11 countries, using natural history study as external control

>80 Patients Enrolled
>4 years of age with no current flare-up symptoms

Oral palovarotene at 5 mg once-daily (or weight based equivalent for children)

Flare-up based dosing of 20 mg for 4 weeks followed by 10 mg for 8 weeks



24-month treatment with two interim analyses in 2019 and one in 2020

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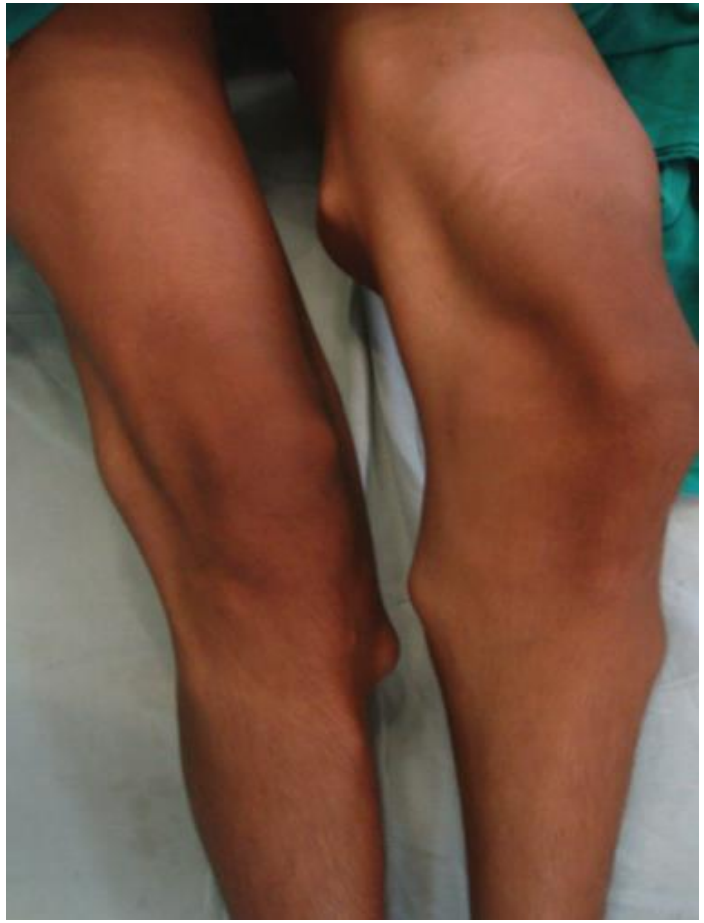
* Dosing will be weight-adjusted for skeletally immature subjects **These analyses will assess safety and check tracking of the primary endpoint **FOP**: Fibrodysplasia Ossificans Progressiva; **HO**: Heterotopic Ossification **1**. Available at clinicaltrials.gov.uk [NCT03312634]

Palovarotene for Multiple Osteochondromas (MO)

- MO, also known as HME, is the most common inherited musculoskeletal condition
- MO is characterized by the development of multiple, benign, cartilage-capped bone tumors (osteochondromas)
- Development of osteochondromas (OCs) results in functional limitations and skeletal abnormalities, including;
  - Decreased range of motion, short stature, joint deformities, limb length discrepancies, entrapment of vessels, spinal cord compression, plus a small risk of cancerous growths



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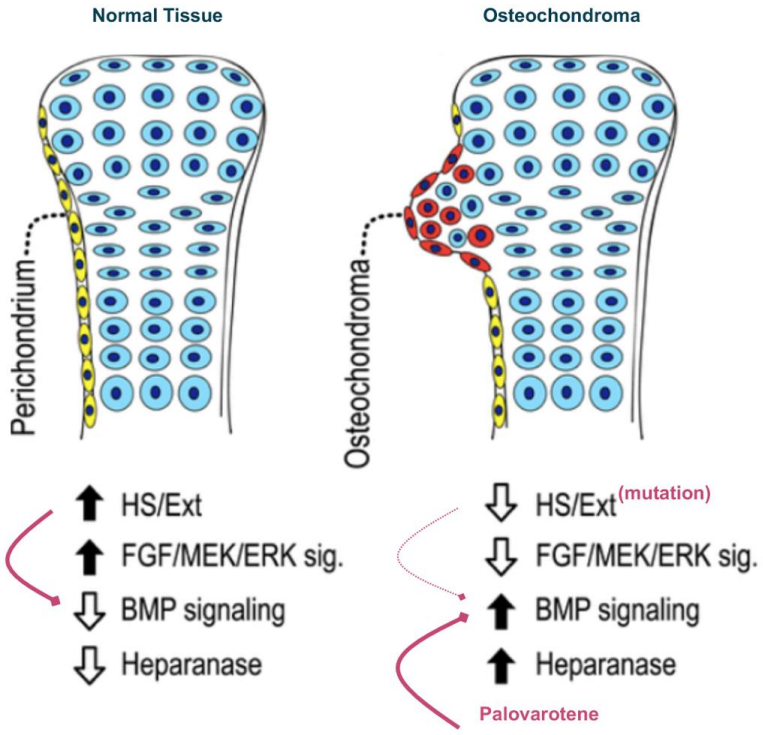
HME: Hereditary Multiple Exostoses; Image: Gaurav, et al. Journal of Clinical and Diagnostic Research, 2015.

Multiple osteochondromas (MO): Excess BMP signaling plays a role

- The majority of patients with MO carry loss-of-function mutations in the **EXT1** or **EXT2** gene, which encode proteins essential for biosynthesis of heparan sulfate (HS) chains on specific proteoglycans (HSPGs)
- Decreases in or absence of HSPGs cause local increases in BMP and Smads 1/5/8 leading to abnormal budding of OCs
- Palovarotene shown to inhibit BMP signaling and OC development and could potentially inhibit OC growth

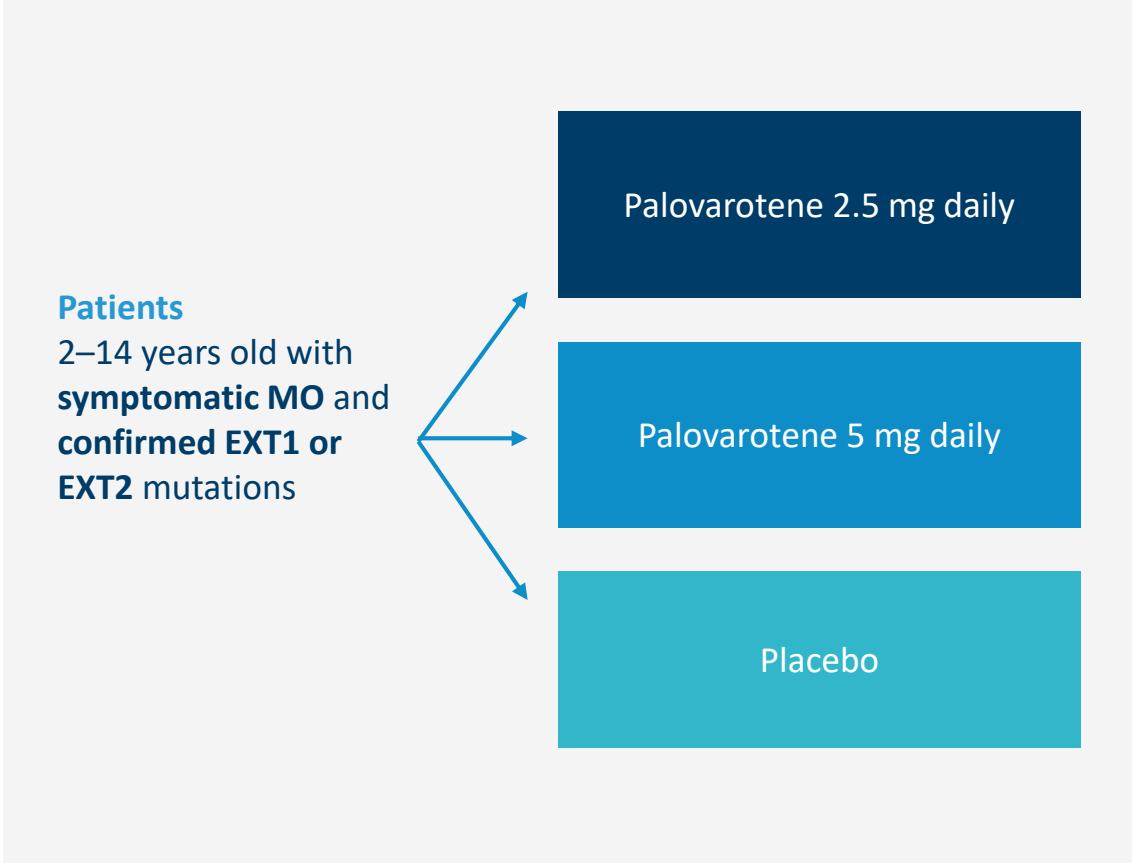


OC: Osteochondromas; **BMP**: bone morphogenetic signalling **1**. Modified from Inubushi T, et al. J Bone Miner Res. 2018;33(4):658–666.

Phase 2 trial of palovarotene in MO

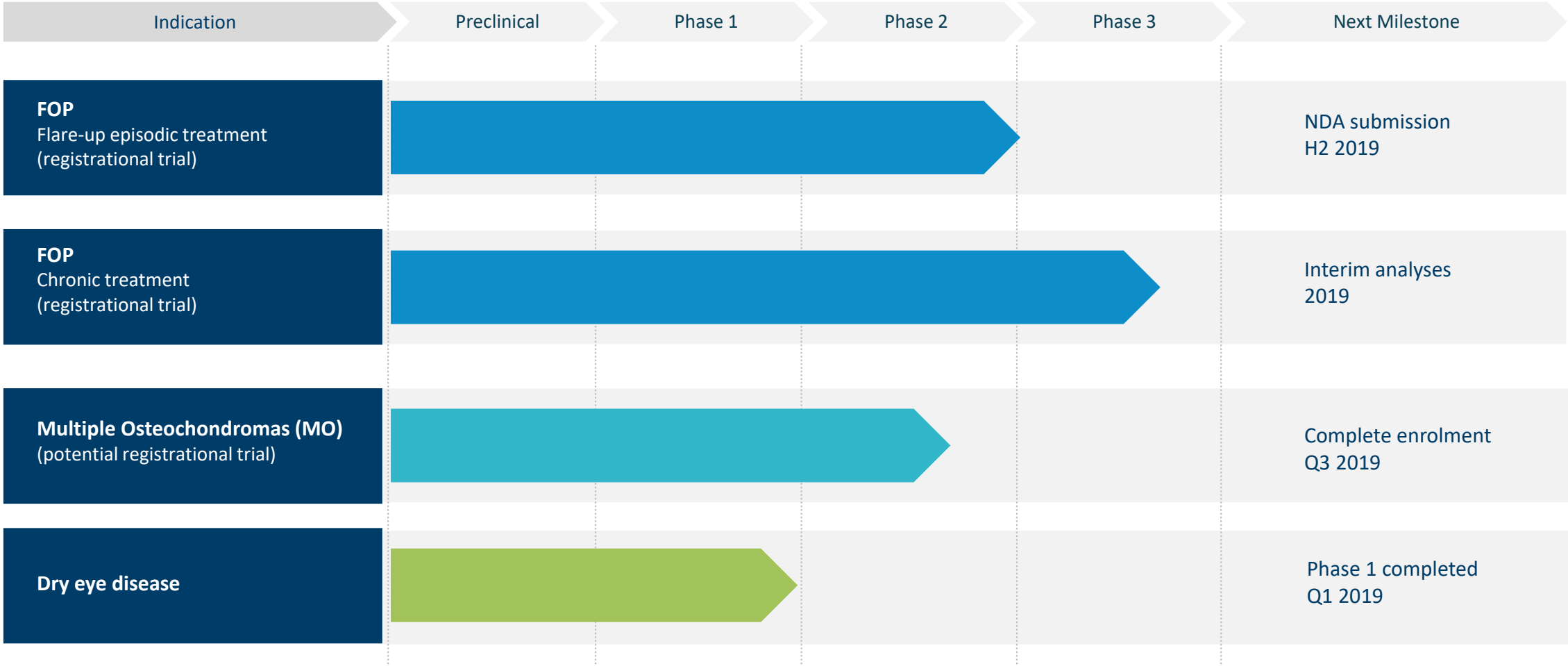
Excess BMP signaling plays a role

- Double-blind, randomized, placebo-controlled trial
  - Palovarotene 2.5 mg daily vs 5 mg daily vs placebo for 2 years
- 240 patients age 2–14 years with symptomatic MO
- Primary endpoint: Annualized rate of new osteochondromas (OCs)
- Secondary endpoints include the total volume of OCs, the rate of new/worsening deformities, and the rate of MO-related surgeries
- Completion of enrolment: Q3 2019
  Interim analysis: Q3 2020
  Final readout: 2021
- Potential registrational trial



MO: Multiple Osteochondromas; Clinicaltrials.gov.uk [NCT03442985]

Advancing palovarotene clinical trial pipeline



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FOP: Fibrodysplasia Ossificans Progressiva

05 Neuroscience

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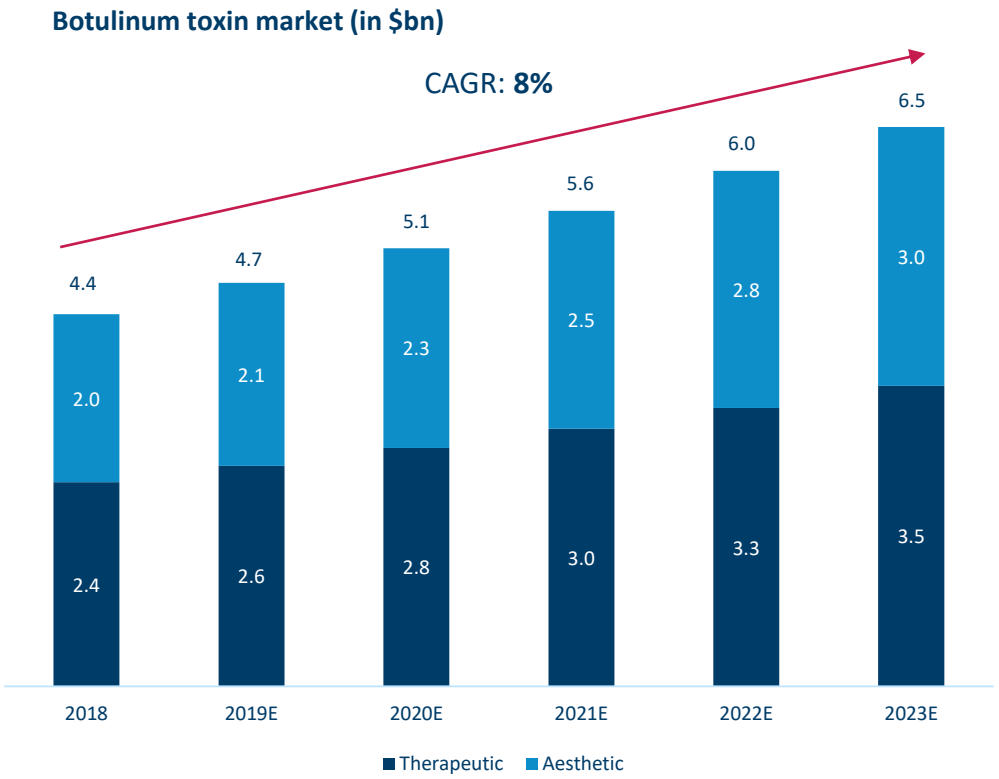
Dysport®

Harout Semerjian
Chief Commercial Officer

IPSEN
Innovation for patient care

Dynamic and attractive neurotoxin market

Attractive botulinum toxin market



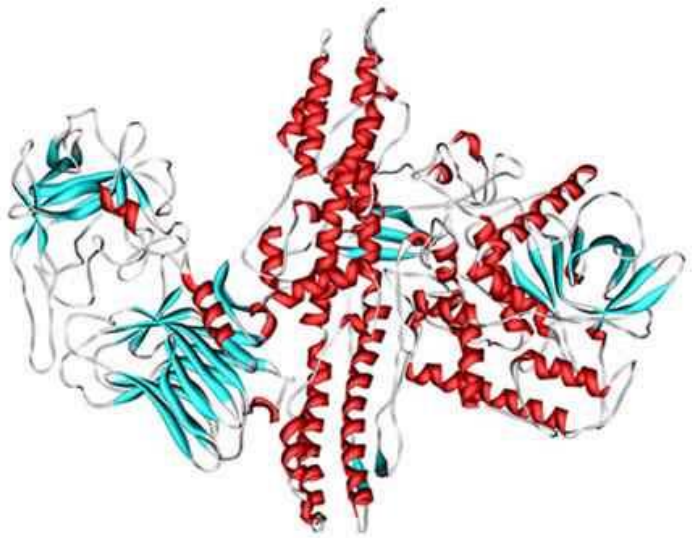
- Market split between Therapeutics (~55%) and Aesthetics (~45%)
- Market split between U.S. (~58%) and ex-U.S. (~42%)
- Market growth rate expected to continue for the foreseeable future
- High barriers to entry with specialized and highly regulated biologic and highly-regulated manufacturing process
- Dysport® has leading market position:
  #2 globally, #1 in some significant emerging markets

Source: Daedal Research, Global Botulinum Toxin Market: Size, Trends and Forecasts 2018

Dysport®: A unique neurotoxin to manufacture

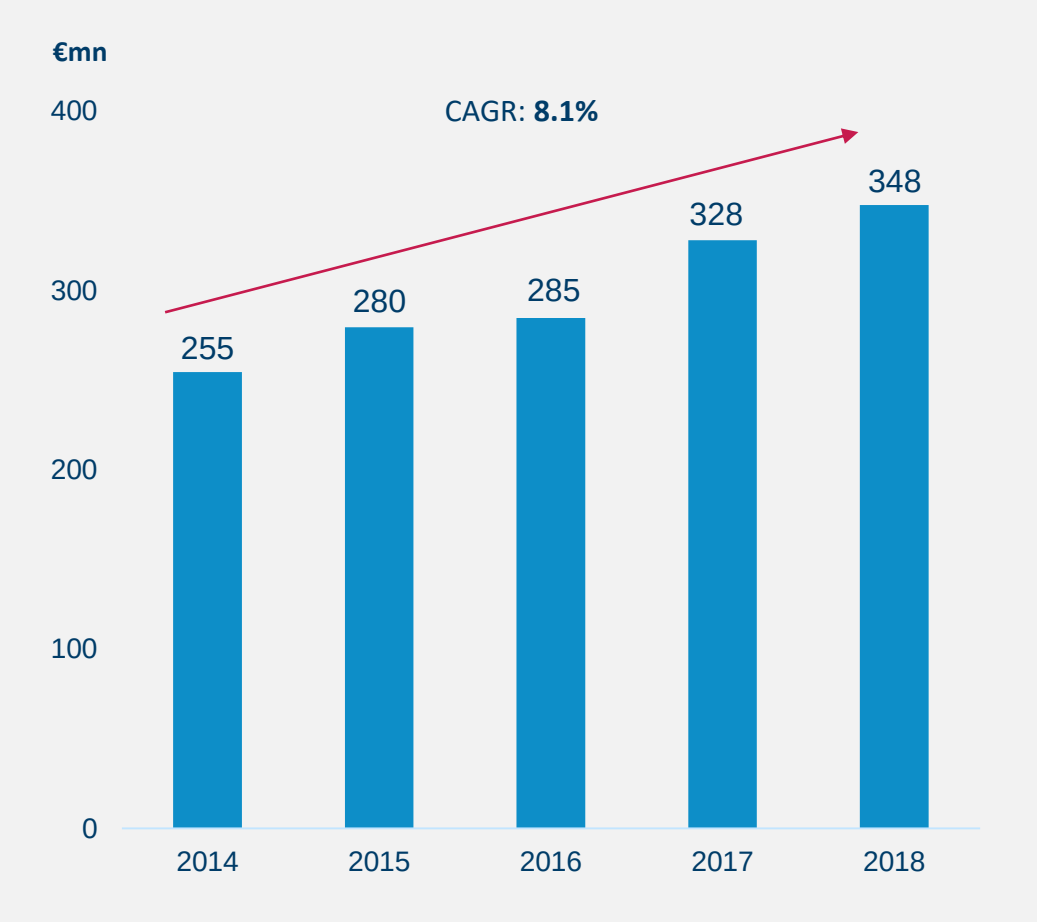
Cornerstone product to Ipsen's Neurotoxin franchise, ~30 years of manufacturing expertise

- **Highly complex production processes** difficult to replicate and executed by staff with substantial and unique expertise in toxin manufacturing
- **State-of-the-art drug product manufacturing facility** which utilizes a technology that isolates the product, not only from the environment, but the people working in the area
- Biohazard subject to **strict governmental oversight and compliance** with stringent Good Manufacturing Practice regulations



Strong commercial execution

Ipsen Dysport® sales 2014-2018



- Ipsen's Dysport® 2018 sales up 12.6% at CER
- Solid volume growth in therapeutics
- Strong performance of Galderma in aesthetics

Global in-market sales under Dysport brand:
>€500 million

Dysport® (abobotulinumtoxinA)

Source: Daedal Research, Global Botulinum Toxin Market: Size, Trends and Forecasts 2018

Aesthetics: Well-positioned in attractive growing market

Drivers of continued growth

- Growth driven by the U.S. and emerging markets (China)
- Favorable market dynamics[1]:
  - Growing awareness among consumers
  - Shift in preference from surgical to non-surgical procedures
  - Increasing consumer spending in emerging markets
  - Strong brand loyalty for leading products

Successful Galderma partnership

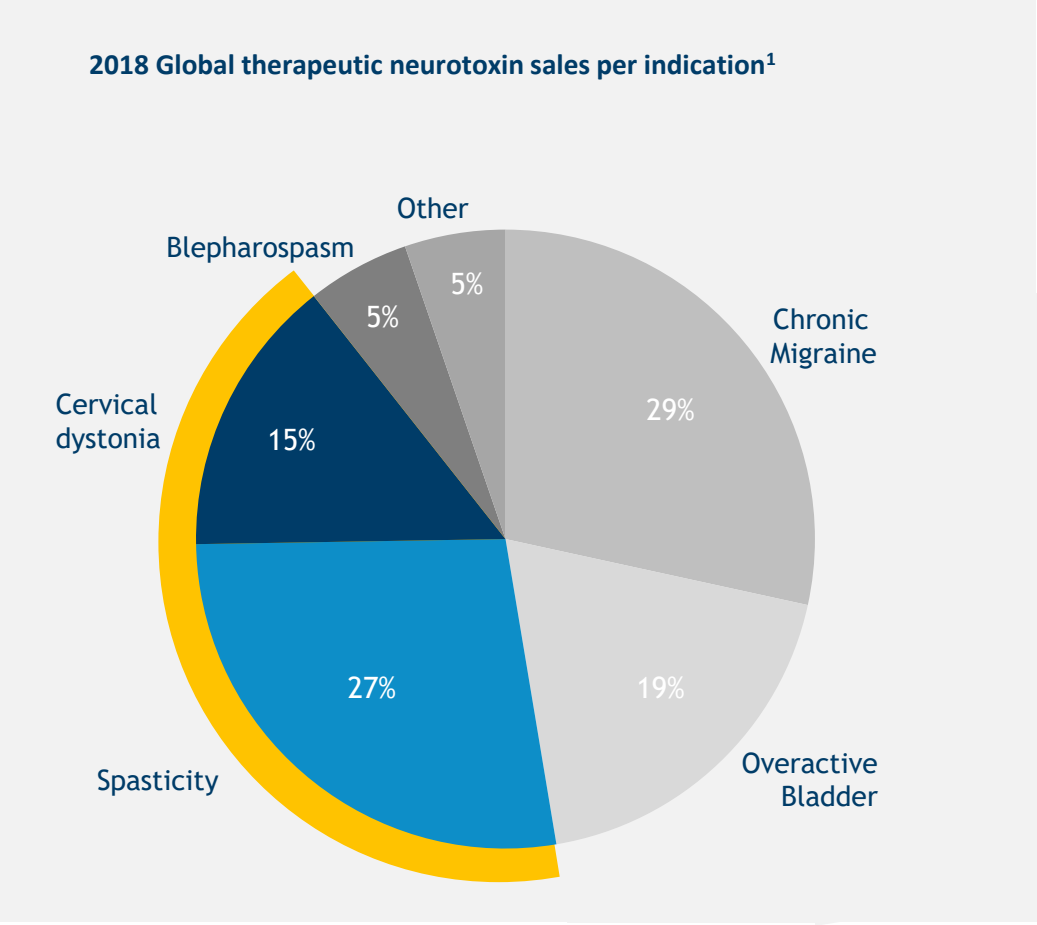
- Commercial partner in all geographies except Russia and Middle East
- Global leader in aesthetics
- Territories >75% world aesthetics market, ongoing geographic expansion
- Strong growth in Ipsen-led aesthetics sales

GALDERMA

1. Market Research Engine, Global Medical Aesthetics Market, 2019

Significant opportunity remains in Therapeutics

Dysport addressing >40% of therapeutics market



Performance by geography

- #2 in EU markets (UK, Germany, Italy)
- Market leader in Brazil and Russia
- Limited but growing market share in U.S.

Strategic objectives

- Grow share in adult and pediatric spasticity
- Increase treatment in eligible patients:
  - Only ~4.5% eligible adult spasticity patients receive neurotoxin treatment[2]
- Differentiate as toxin delivering longer-lasting symptom relief between injections
- Expand into select indications beyond spasticity

IPSEN Innovation for patient care

1. Daedal Research, Global Botulinum Toxin Market: Size, Trends and Forecasts (2016-2020); **2**. Adelphi: Understanding and Sizing the Spasticity Patient Journey 22312b; Dysport AS Tracking Global Report PR30624

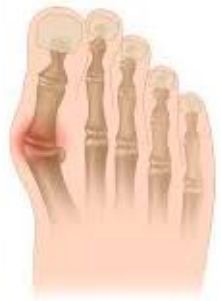
Lifecycle management: Hallux valgus (bunions)

Disease characterization

- High prevalence worldwide: 23%[1]
  →15% consult specialist
  →10%[2] moderate to severe patients
- Chronic foot deformity characterized by lateral deviation of the big toe (hallux) leading to debilitating foot pain, functional impairments
- No effective treatment with exception of surgery - long and painful recovery time
- Treatment with neurotoxin expected to relieve an underlying cause through muscle relaxing action resulting in clinically meaningful changes in hallux valgus angle, foot pain and functional mobility[3,4]

Phase 2 clinical development

- Multiple-dose, double-blind, randomized, placebo-controlled study of ~165 patients
- Primary endpoint: Change from baseline in daily Numeric Pain Rating Scale (NPRS) score
- Top-line results: Q1 2020
- Patent protection for treatment protocol until 2038



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1. Spahn et al, 2004 and Nguyen et al, 2013; **2**. KantarHealth Market and Payer Research 2017; **3**. Radovic, PA, Shah E. Nonsurgical treatment for hallux abducto valgus with botulinum toxin A. J Am Pod Med Assoc. 2008;98:61-5. **4**. Wu KPH, Chen CK, Lin SC et al. Botulinum toxin type A injections for patients with painful hallux valgus: a double-blind, randomized controlled study. Clin Neurol and Neurosurg. 2015;129 S1:S58-S62.

Lifecycle management: Vulvodynia

Disease characterization

- Underestimated prevalence worldwide: 6.5%[1] of female population → 69%[2] consult specialist → 40% vulvodynia diagnosis → 60%[3] provoked vulvodynia
- Vulvar pain for at least 3 months, without a clear identifiable cause often associated with sexual dysfunction and affective distress
- No therapeutic treatments available – remains underdiagnosed and inadequately treated
- Strong evidence of Dysport causing muscle relaxation of the affected pelvic floor muscles and inhibiting the release of neuropeptides and neurotransmitters involved in chronic pain and inflammation [4,5,6]

Phase 2 clinical development

- Double-blind, randomized, placebo controlled, dose escalation and dose finding study in ~93 patients
- Primary endpoint: safety and mean change from baseline to week 6 in vaginal pain as reported on a 11-point pain Numeric Rating Scale (NRS)
- Top-line results: Q4 2020

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1. Vieira-Baptista et al (2014), **2**. US National Health Interview Survey (NHIS), **3**. KantarHealth Market and Payer Research 2017 **4**. Pelletier F, Girardin M, Humbert P et al. Long-term assessment of effectiveness and quality of life of OnabotulinumtoxinA injections in provoked vestibulodynia. J Eur Acad Dermatol Venereol. 2016;30(1):106-111. **5**. Pelletier F, Parratte B, Penz S et al.Efficacy of high doses of botulinum toxin A for treating provoked vestibulodynia. Br J Dermatol. 2011 Mar;164(3):617-622. **6**. Dykstra DD, Presthus J. Botulinum toxin type A for the treatment of provoked vestibulodynia: an open-label, pilot study. J Reprod Med. 2006;51(6):467-470

Next-generation neurotoxins

John Chaddock, PhD

VP, Head of Neuroscience Area Operations

IPSEN
Innovation for patient care

Pioneering research in next-generation toxins

From experts in natural neurotoxins

~30 years of expertise in:

- Pharmacology
- Preclinical/ clinical development
- Manufacturing/ scale up

To leaders in recombinant toxins

- Enhanced, well-characterized, high quality molecules
- High level of understanding of mechanism of action leading to effectively-targeted therapies

Recombinant Technology: Why it is important?

Creating recombinant toxins

Ability to modify aspects of neurotoxin function to enhance therapeutic applications

- Synthesize the gene encoding the desired neurotoxin
- Incorporate the gene into the bacteria E. coli, which expresses the protein, which is harvested and purified[1]

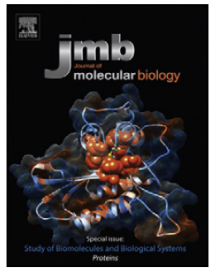
Expected benefits of recombinant toxins

- Enhanced characteristics – potency, stability, duration, spread, onset of action, immunogenicity
- Extended indications – application, delivery method, alternative payloads, formulation
- Improved manufacturing – solubility, activation, expression, post-translational modification

Combining recombinant toxin expertise and a proprietary targeted secretion inhibitor (TSI) platform to build cutting edge capabilities

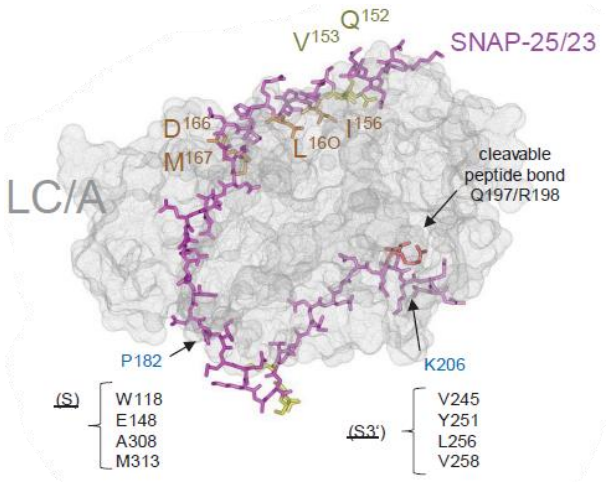
1. Pickett. Botulinum Toxin as a Clinical Product: Manufacture and Pharmacology. 2014.

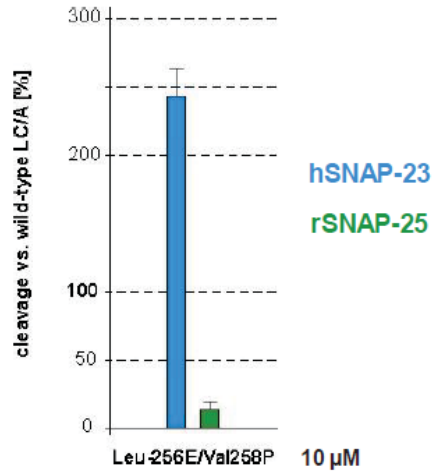
Modified recombinant neurotoxins: Modify catalytic site for new intracellular targets



Identification and Characterization of Botulium Neurotoxin A Substrate Binding Pockets and Their Re-Engineering for Human SNAP-23

Stefan Sikorra1, Christa Litschko1, Carina Müller1, Nadine Thiel1, Thierry Galli2, Timo Elchner3 and Thomas Binz1

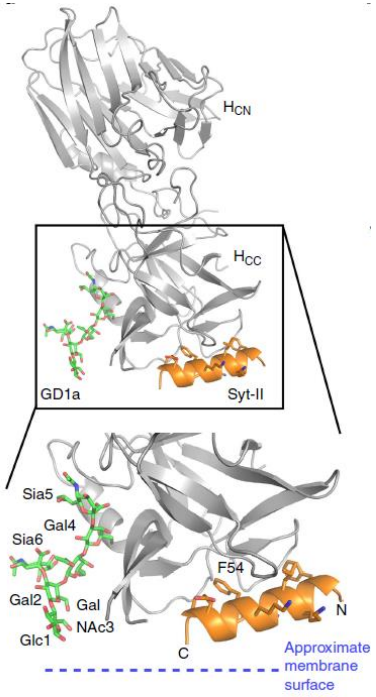


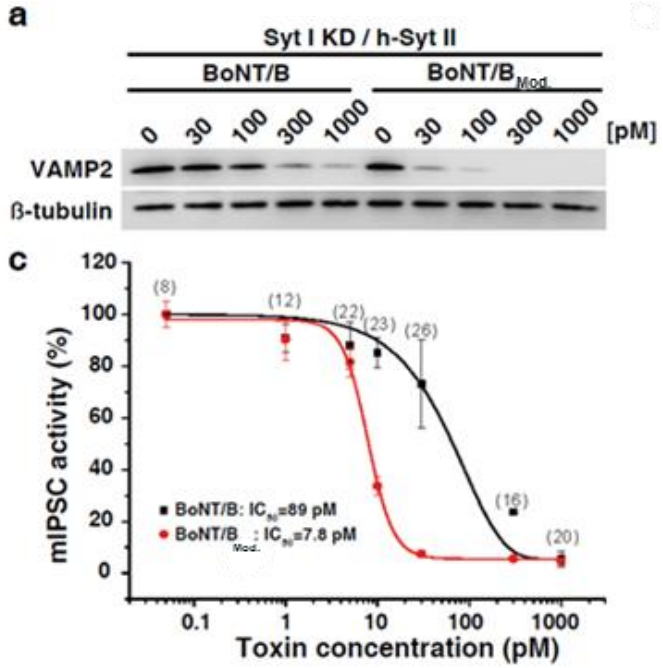


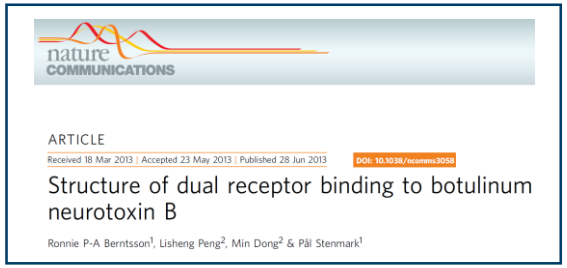
Detailed knowledge of the structure of BoNT + collaboration with experts in the field + recombinant BoNT platform =

- Engineered BoNT LC/A that cleaves human SNAP-23 (non-neuronal homologue of SNAP-25)
- Establishes the potential for BoNT LCs to be used to inhibit secretory processes beyond the neuron
- Expands the potential utility of engineered BoNT-based biologics to a suite of non-neuronal indications

Modified recombinant neurotoxins: Optimize receptor binding to increase potency






nature COMMUNICATIONS

ARTICLE

Received 18 Mar 2013 | Accepted 23 May 2013 | Published 28 Jun 2013 DOI: 10.1038/ncomms3058

Structure of dual receptor binding to botulinum neurotoxin B

Ronnie P-A Berntsson[1], Lisheng Peng[2], Min Dong[2] & Pål Stenmark[1]


ARTICLE

DOI: 10.1038/s41467-017-00064-y OPEN

Engineered botulinum neurotoxin B with improved efficacy for targeting human receptors

Liang Tao[1], Lisheng Peng[1,2], Ronnie P.-A. Berntsson[3,4], Sai Man Liu[5], SunHyun Park[1,6], Feifan Yu[1], Christopher Boone[1], Shilpa Palan[5], Matthew Beard[5], Pierre-Etienne Chabrier[7], Pål Stenmark[3], Johannes Krupp[5,7] & Min Dong[1]

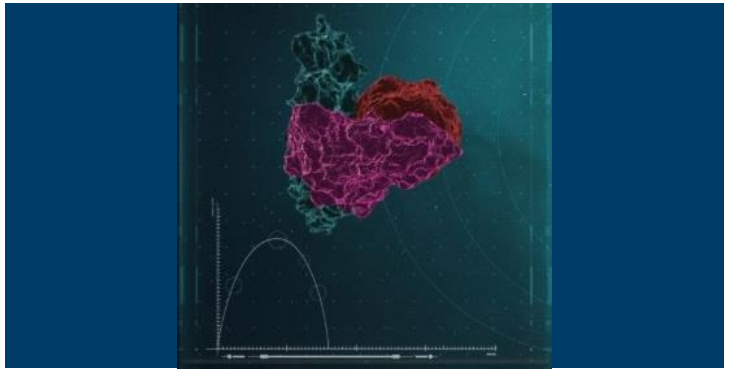
Detailed knowledge of the structure of BoNT + collaboration with experts in the field + recombinant BoNT platform =

- Engineered BoNT/B binding domain with improved affinity for the human motor neuron
- Establishes the potential for improved BoNT/B binding domains in the design of innovative NMEs
- Increases the range of options for design of new patient solutions

Clinical translation: Paving the way for a new treatment paradigm

Developing a unique portfolio of existing and new neurotoxins with different pharmacodynamics profiles, allowing physicians to choose the neurotoxin that will fit patients' unique medical needs

Fast-acting recombinant
Type E toxin

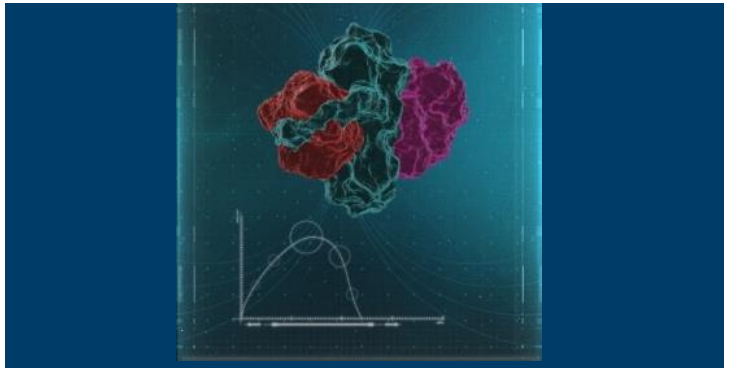


Fast onset (1 to 2 days) and 2 to 6 week duration of action[1]

This novel toxin could give clinicians the opportunity to treat conditions that require a significant and early effect.

Phase 1 study completed
Phase 2 to begin in H2 2019

Natural Abobotulinum
Type A toxin

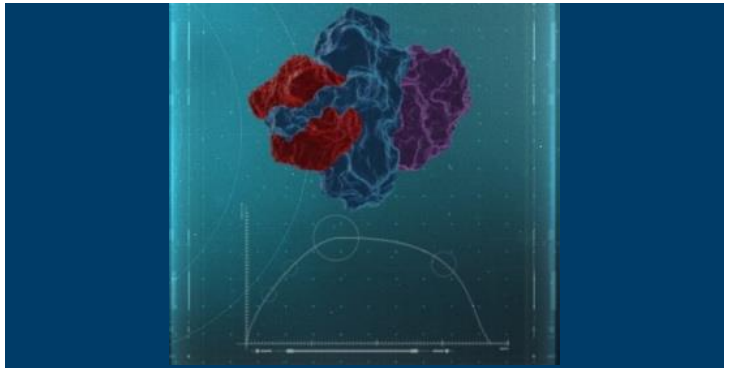


Long effect (3-4 months, up to 5 months)[2]

This toxin is the standard solution benefiting most patients today.

Commercialized

Long-acting recombinant
Type A toxin



Longer effect than current natural Type A toxin (at least 6 months)[3]

This toxin could improve patients' quality of life and open new therapeutic windows.

Preclinical research ongoing
Two programs undergoing assessment

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1. Foster and Chaddock. The Promise of Recombinant Neurotoxins. 2018. **2**. Gracies et al. 2015; Gracies et al. 2017; Delgado et al. 2016. **3**. Lebeaut. Ipsen: An Innovation Pledge. Nature. 2018.

Discovering a New Class of Biopharmaceuticals: Targeted Secretion Inhibitors (TSIs)

Developing a new class of proteins by incorporating toxin/ non-toxin domains:
Targeted secretion inhibitors (TSI)[1] with the ability to not only target neurons
but also other types of cells in the body leading to a wide array of clinical applications[2]

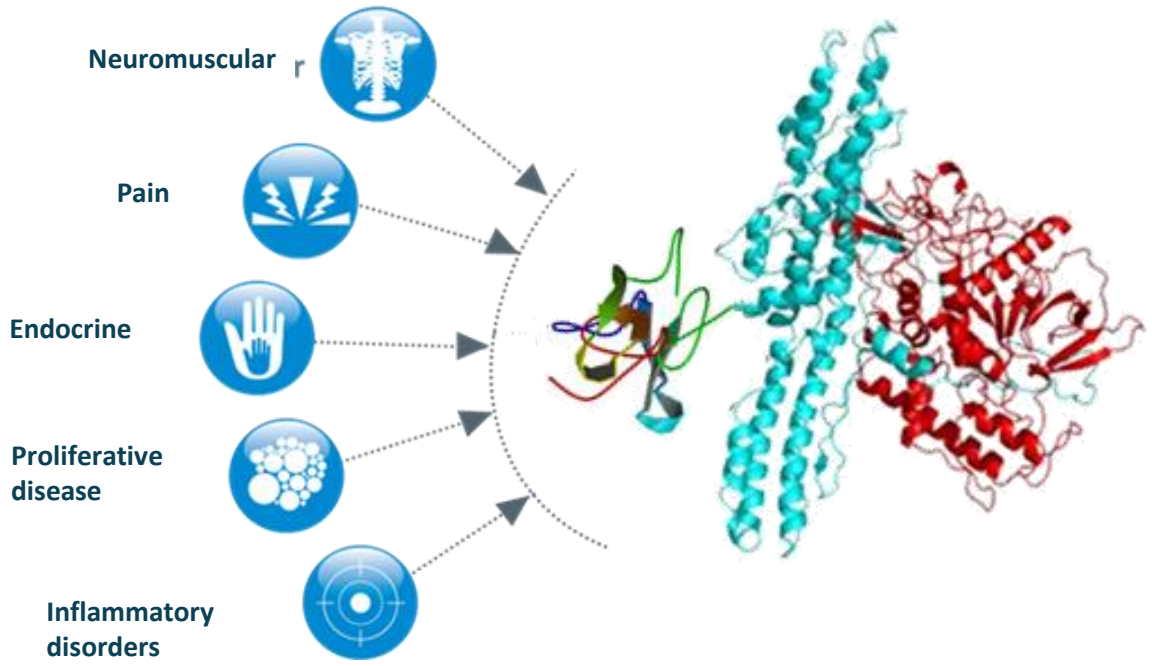
TSI platform technology

Re-targeting
Replace neurotoxin binding domain with cell receptor ligands

Substrate Specificity
Multiple serotypes provide a range of potential SNARE protein targets

Molecular Toolbox
Targeted to disease-related cell type and relevant SNARE population

Wide array of clinical applications



1. Lebeaut. Ipsen: An Innovation Pledge. Nature. 2018. 2. Foster and Chaddock. The Promise of Recombinant Neurotoxins. 2018.
SNARE: Soluble NSF attachment protein receptor

Extending neurotoxin leadership with next-generation toxins

- Pioneers in cutting-edge innovation leveraging long legacy and expertise in neurotoxin field
- Uniquely broad portfolio to serve patient needs across the treatment spectrum
- Fast and long-acting neurotoxin programs advancing in the clinic
- Expanding into new modalities - Targeted Secretion Inhibitors

Q&A

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Innovation for patient care

06 Oncology

Oncology Commercial Highlights

Richard Paulson

Executive Vice-President and Chief Executive Officer
of North America

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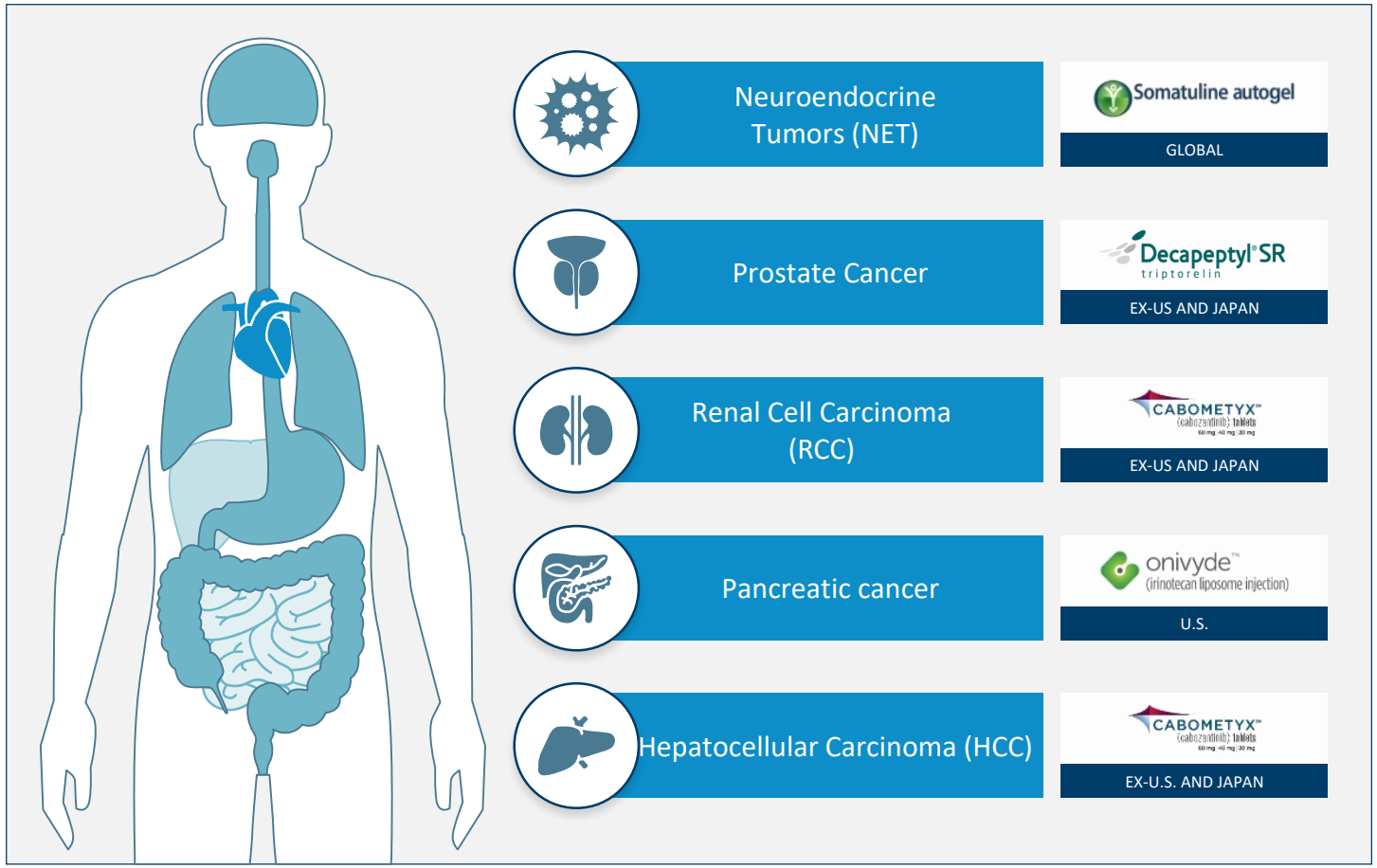
Global Oncology Strategy

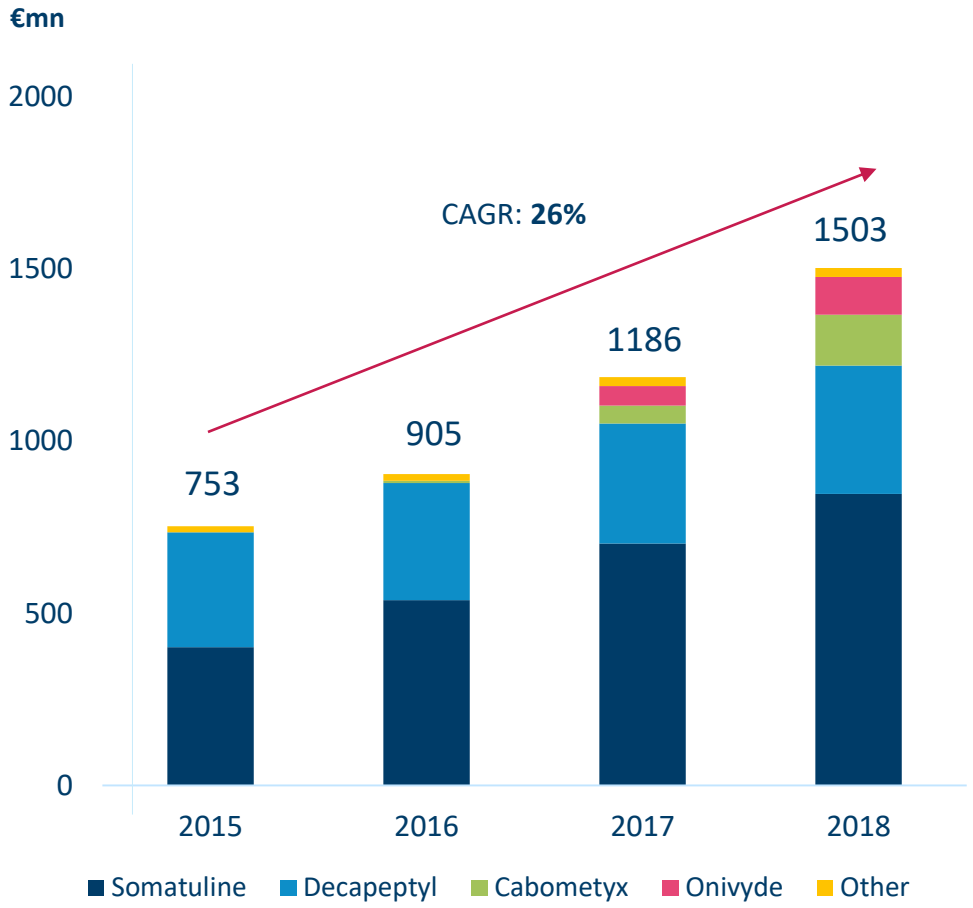
To be a leader in solid tumors with high unmet needs in well-defined patient populations



Maximize leadership position in Specialty Oncology markets

- Leading #1 or #2 market share against formidable oncology players
- Differentiated first/ best-in-class assets
- Market share gains worldwide
- Strengthening portfolio through partnerships (IO) and business development
- Leveraging current Oncology infrastructure

Ipsen Oncology sales double 2015-2018



- Oncology sales reach €1.5bn in 2018, +30% at CER
- Franchise accounts for 68% of Ipsen sales vs. 52% in 2015
- Ipsen #14 in global Oncology rankings
- Decapyptyl® mid to high-single digit growth
- Encouraging launches of Cabometyx® and Onivyde®
- Strong momentum and double-digit growth of Somatuline® continues
- 11 programs in clinical development

IPSEN Innovation for patient care

CER: Constant Exchange Rates

Decapeptyl

Mid to high single-digit growth expected to continue

Attractive market dynamics

- Androgen deprivation therapy (ADT) is the standard of care in metastatic prostate cancer[1]
- China ~18% CAGR over last 4 years driven by prostate and breast cancer

Strengthened commercial organization

- 30+ years of experience
- Launched in >70 markets
- Continued commitment to uro-oncology field

6-month formulation

- Cost and time efficient with no loss of prostate-specific antigen (PSA) control[2]
- Higher compliance
- Patient-preferred choice[3]

Decapeptyl® SR
triptorelin

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Innovation for patient care

1. EAU Treatment guidelines **2.** The DESERVE study (Cornford et al. 2018) **3.** Crawford & Philips (2011) review, Schulman (2007) and Lebret et al. (2014)

Cabometyx®

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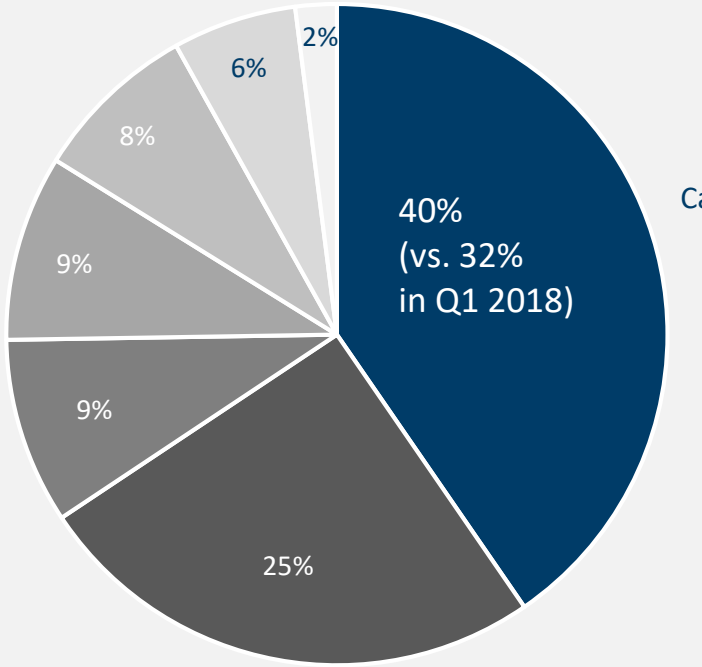
Innovation for patient care

TKI of choice in 2L RCC

Unique mechanism of action, strong clinical profile

- Oral, small molecule that targets MET and AXL beyond VEGF receptors[1], with the potential to overcome the resistance induced by prior antiangiogenic therapies
- Consistent results across patient subgroups regardless of risk group, duration of prior treatment, presence of bone or visceral metastases
- Median time to response: 1.9 months
- Known and manageable class effect adverse event profile

TKI market share in 2L aRCC[2] – Q1 2019



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1. CABOMETYX® SmPC, 2016. **2**. Rx Tracker – Kantar HealthBase March 2019: aRCC 2L patients currently TKI treated, excluding clinical trials EU4 data (France, Germany, Italy and UK); TKI: Tyrosine Kinase Inhibitor

Cabometyx® securing solid position along RCC treatment paradigm

Evolving RCC market dynamics

- Evolving RCC market dynamics
- First IO combination approved in Europe January 2019
- Currently IO monotherapy has ~50% 2L RCC market share
- IO combinations expected to rapidly move into 1L and gain majority share
- Significant 2L market share gains expected for Cabometyx as IO combinations move into 1L
  - Precedent in U.S. where Cabometyx has ~90% 2L market share post-IO therapy in 1L

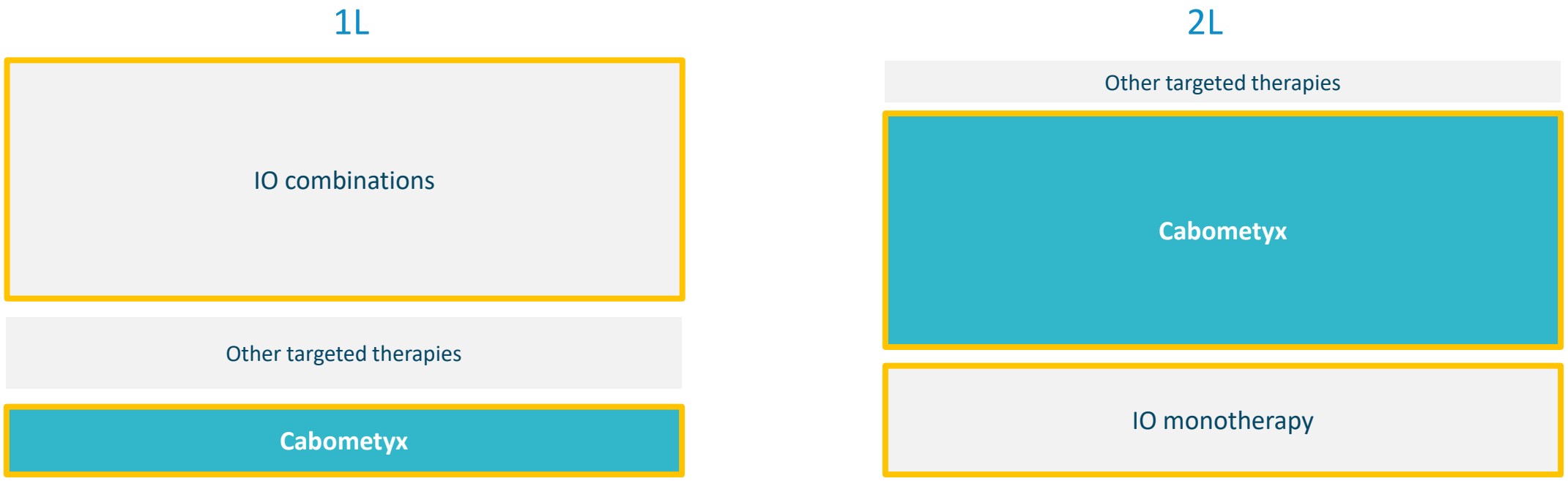
Support for Cabometyx® use post-IO therapy[1]

- Retrospective multicenter analysis
- Cabometyx: clinical efficacy post-IO independent of mono/combo or concomitant therapies:
  - Objective Response Rate: 36%
  - Median time to treatment failure: 6.5 months
  - 79% of patients derived clinical benefit
  - Retrospective analysis of Cabometyx post IO: Encouraging anti-tumor activity observed, safety profile consistent with that described previously

IPSEN Innovation for patient care

IO: Immuno-Oncology; **RCC**: Renal Cell Carcinoma; **TKI**: Tyrosine-Kinase Inhibitor; **1**. Bradley McGregor Dana Farber Cancer Institute, ESMO 2018

Expected sequencing of evolving RCC market



Significant 2L market share gains expected for Cabometyx® as IO combinations move into 1L
Supported by European Association of Urology and NCCN treatment guidelines

IO: Immuno-Oncology; **RCC**: Renal Cell Carcinoma; **NCCN**: National Comprehensive Cancer Network

Cabometyx® in Hepatocellular Carcinoma (HCC) market

Strong clinical profile

- Approval in EU in November 2018 based on Phase 3 CELESTIAL trial:
  - Efficacy benefit vs. placebo (OS: 10.2 mo vs 8.0) demonstrated in a broad patient population
  - Benefit even greater in pure 2L subgroup (OS: 11.3 mo vs 7.2 mo)
  - Broad and clinically relevant 2L+ patient population

Cabometyx® included in ESMO HCC treatment guidelines

HCC market opportunity

- High unmet medical need with numerous negative Phase 3 trials in recent years
- ~26K 1L patients and ~15K 2L patients in Ipsen territories ex-China
- Currently, sorafenib dominates in 1L, while regorafenib dominates in 2L
- Competitive landscape expected to change substantially due to recent and impending launches
- Increasing numbers of available treatments may increase patient pool

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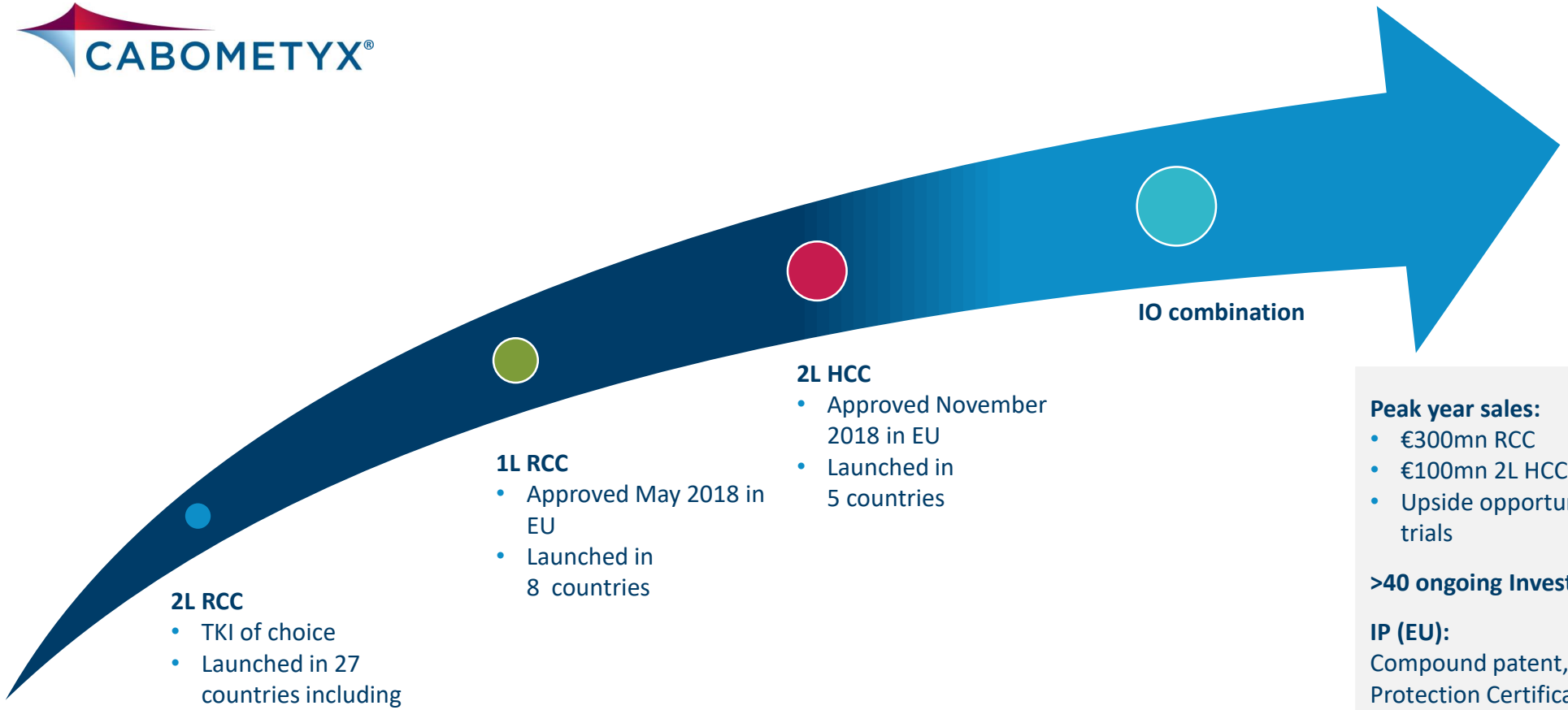
OS: Overall Survival; **ESMO**: European Society for Medical Oncology

Expansion of Cabometyx opportunity

CABOMETYX®



2L RCC
- TKI of choice
- Launched in 27 countries including EU, Can, AU, BZ

1L RCC
- Approved May 2018 in EU
- Launched in 8 countries

2L HCC
- Approved November 2018 in EU
- Launched in 5 countries

IO combination

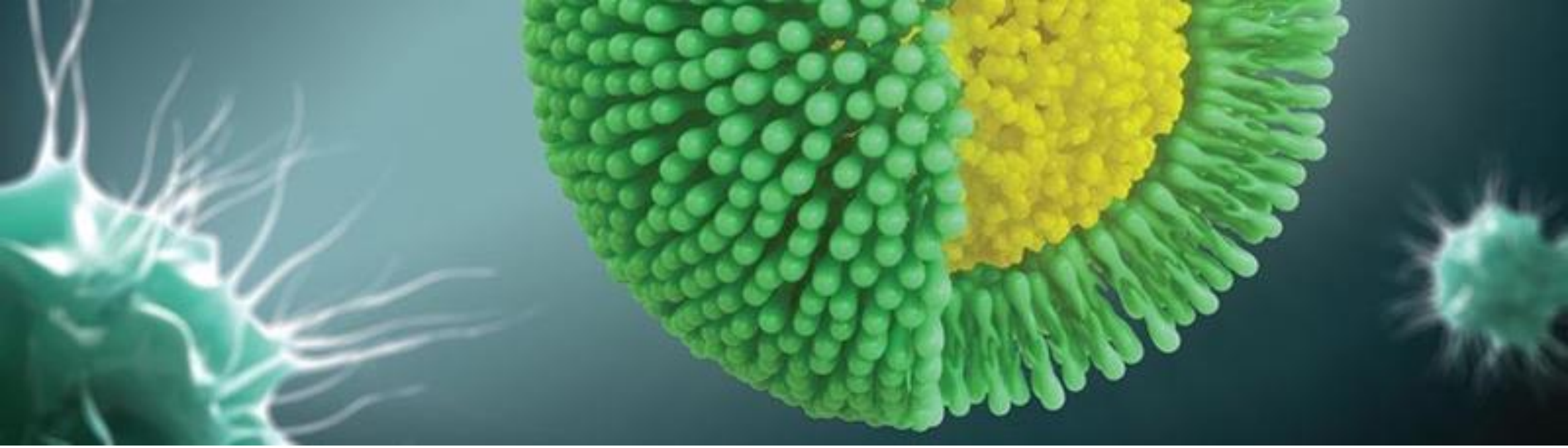
Peak year sales:
- €300mn RCC
- €100mn 2L HCC
- Upside opportunity from ongoing IO combo trials

>40 ongoing Investigator Sponsored Trials

IP (EU):
Compound patent, including Supplementary Protection Certificate (SPC), expires March 2029

IPSEN Innovation for patient care

RCC: Renal Cell Carcinoma; **HCC**: Hepatocellular Carcinoma; **IO**: Immuno-Oncology; **IP**: Intellectual property



Onivyde®

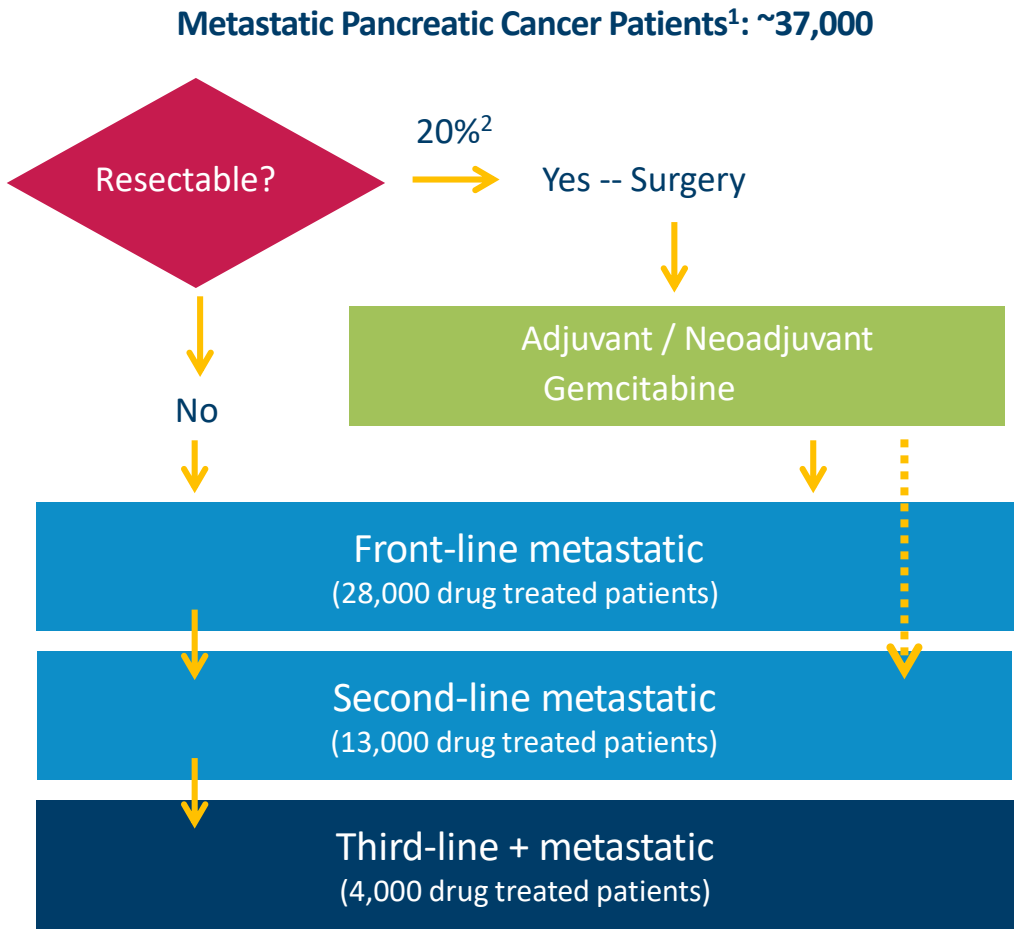
IPSEN
Innovation for patient care

Significant U.S. opportunity in metastatic pancreatic cancer

Half of patients diagnosed in metastatic setting

- Accounting for <5% of all new cancer cases but is the #3 cancer in number of deaths
- 5-year survival rates for metastatic pancreatic cancer: 2.6%
- High failure rate of pancreatic cancer trials
- High unmet need remains

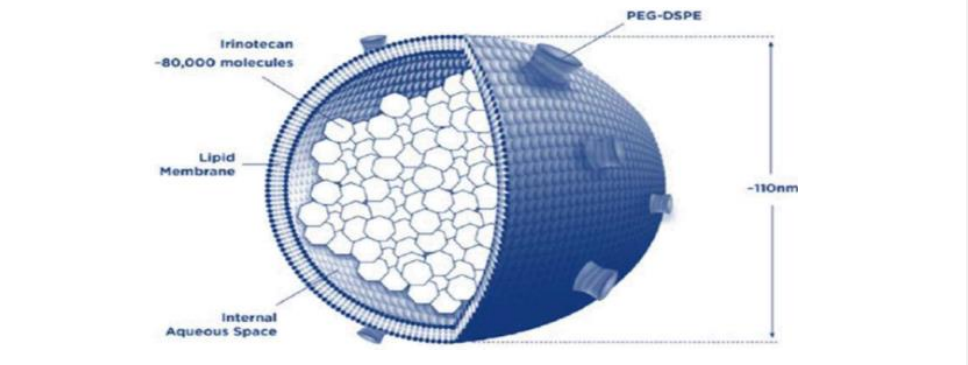
Onivyde® is enabling the evolution of the pancreatic cancer treatment paradigm to maximize outcomes in multiple lines of therapy



1. Source: Kantar's CancerMPact, Pancreatic Cancer, Patient Metrics and Treatment Architecture, December 2018; **2**. Source: ASCO www.cancer.net

Onivyde® strong clinical profile and differentiation

Differentiated product for metastatic pancreatic cancer



- First and only FDA-approved therapy for post-gemcitabine pancreatic cancer
- Novel encapsulation of irinotecan
  - Superior PK profile
  - Selective accumulation at tumor site
- Patents covering the liposome composition expire 2025-2028; additional granted patents covering the approved use expire 2033

Category 1 evidence in NCCN guidelines

NCCN

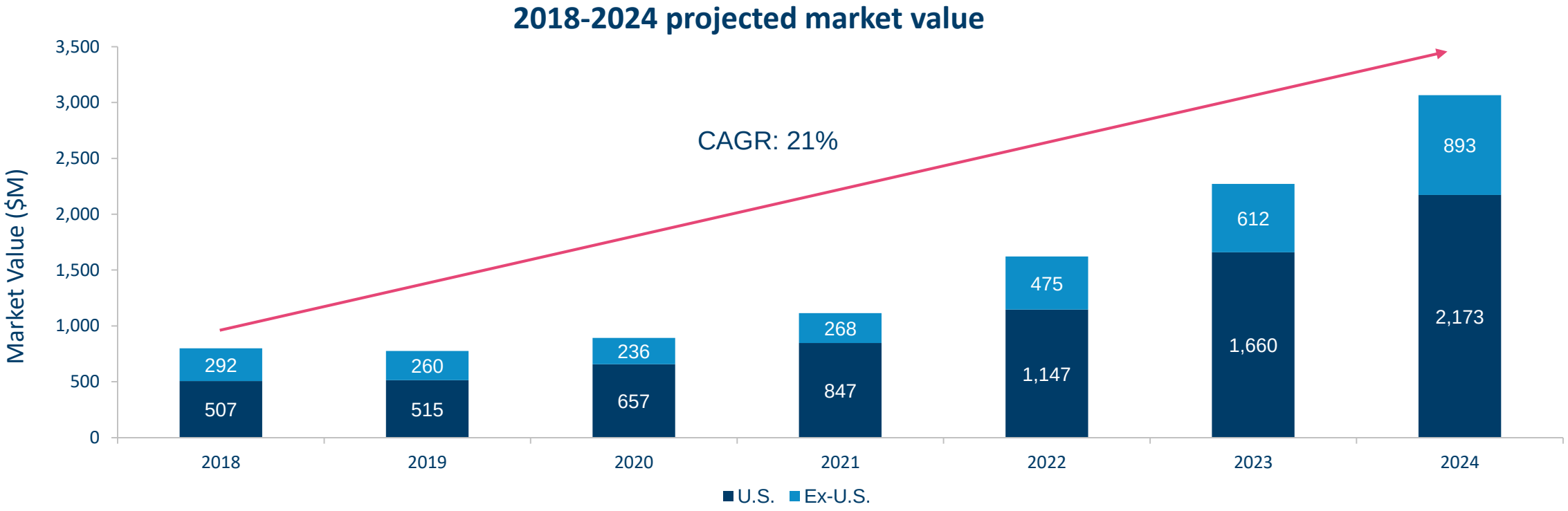
THE LANCET

- Onivyde + 5-FU/LV significantly improved OS among patients previously treated with gemcitabine-based therapy
- Superior PFS, ORR and TTF in patients receiving ONIVYDE + 5-FU/LV
- NAPOLI-1 study published in Lancet, final survival data published in European Journal of Cancer

IPSEN Innovation for patient care

FU/LV: Fluorouracil/ Leucovorin; **NCCN**: National Comprehensive Cancer Network; **ORR**: Objective Response Rate; **OS**: Overall Survival; **PFS**: Progression-Free Survival; **PK**: Pharmacokinetics; **TTF**: Time to Treatment Failure

Global pancreatic cancer market could triple by 2024 as treatment paradigm evolves to sequencing of therapies



Since Onivyde® launched, the number of patients receiving 2L and 3L has increased 18% and 10%, respectively, but ~38% of 2L patients remain untreated

IPSEN Innovation for patient care

Source: Evaluate Pharma

Onivyde®: Significant synergies from U.S. Oncology commercial team

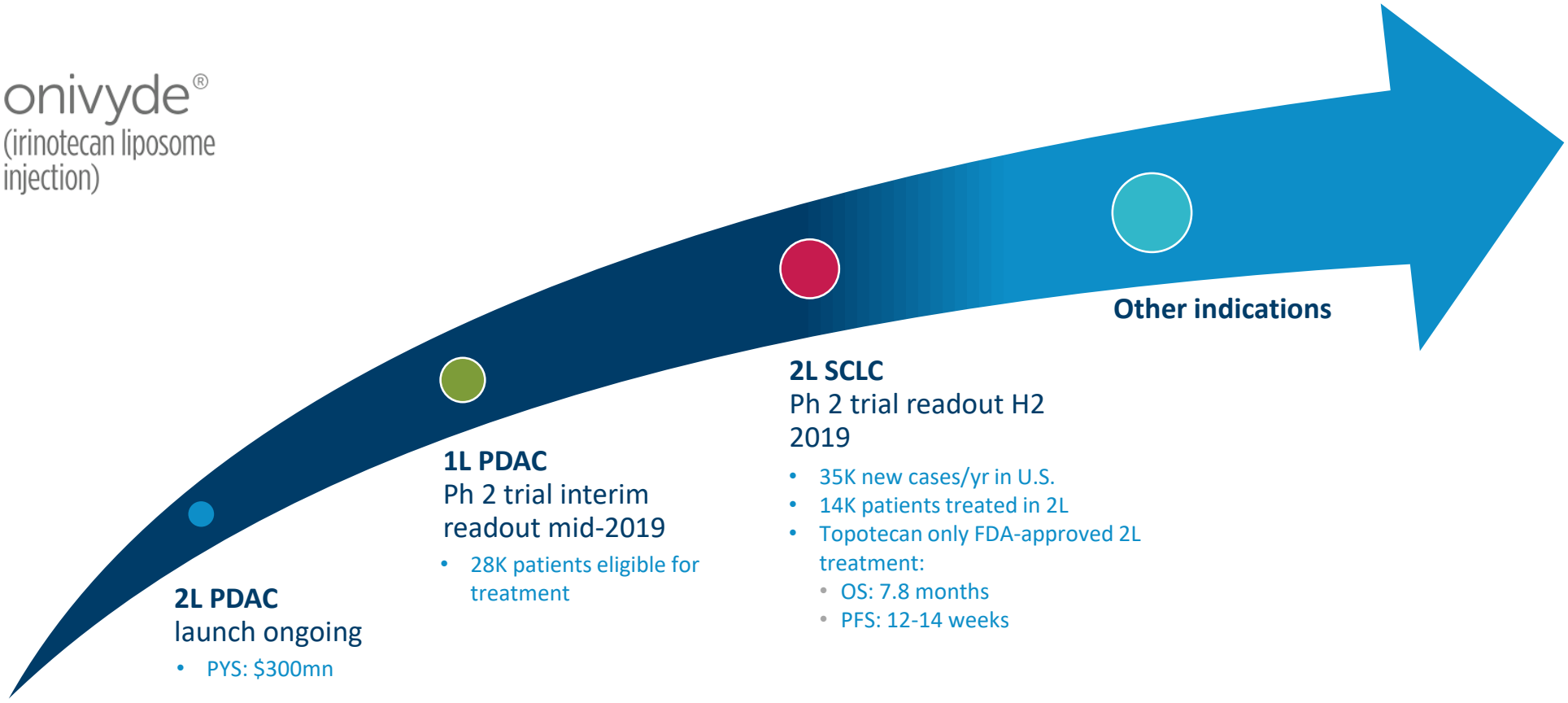
- Dedicated and experienced team of ~180 professionals including sales, marketing, reimbursement, medical affairs, patient/ payor services
- Extensive Oncology experience in pancreatic cancer
- ~65% overlap with Somatuline® call points - Somatuline® performance also benefitting
- Demand growth 19% year-over-year in Q1 2019
- Acceptances on key pathways
- 2019 publications[1] to further support use in current approved and possible other indications

IPSEN Innovation for patient care

1. NAPOLI-1 phase 3 study of liposomal irinotecan in metastatic pancreatic cancer: Final overall survival analysis and characteristics of long term survivors, A. Wang-Gillam et al., Eur J of Ca, 108 (2019) 78-87 Phase 1 expansion study of irinotecan liposome injection (nal-IRI) in patients with metastatic breast cancer (mBC), J. Sachdev, AACR, Abstract CT048, April 1, 2019

Expansion potential of Onivyde® franchise

onivyde® (irinotecan liposome injection)



2L PDAC
launch ongoing
- PYS: $300mn

1L PDAC
Ph 2 trial interim readout mid-2019
- 28K patients eligible for treatment

2L SCLC
Ph 2 trial readout H2 2019
- 35K new cases/yr in U.S.
- 14K patients treated in 2L
- Topotecan only FDA-approved 2L treatment:
  - OS: 7.8 months
  - PFS: 12-14 weeks

Other indications

Somatuline®

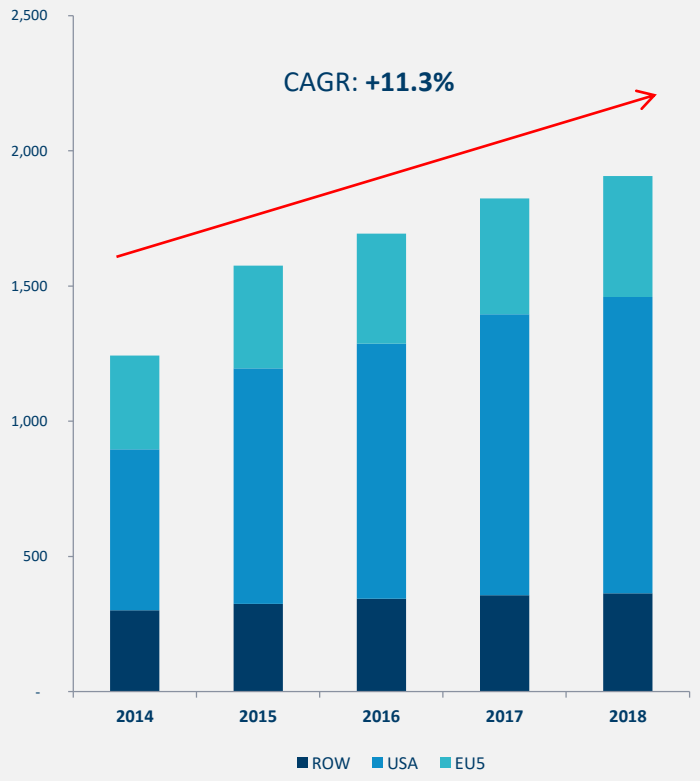
IPSEN
Innovation for patient care

Somatuline®: Best-in-class product in attractive Neuroendocrine Tumor (NET) market

Attractive NET market dynamics

- Somatostatin analog (SSA) market
  - Two main competitors - Somatuline (Ipsen) and Sandostatin LAR (Novartis)
  - High barriers to entry
- Long-acting SSAs - to remain:
  - Standard of care for 1L therapy
  - Backbone of SSA treatment
  - Radiotherapy used in 2L and complementary to SSA treatment

SSA market growing double digits



Differentiated product profile

- Best-in-class SSA with real-world evidence and more extensive label in the U.S.
  - Tumor control
  - Symptom control
  - Significantly extended PFS
- Favorable administration
  - Prefilled, ready-to-use syringe administered as deep subcutaneous injection
  - Predictable and sustained PK/PD dynamics
  - Preferred by HCPs, patients
  - Delivering enhanced value to the system

IPSEN Innovation for patient care

PFS: Progression-Free Survival; PK: Pharmacokinetics; **PD**: Pharmacodynamics; **HCPs**: Health Care Professionals

SSA competitive environment

IP position

- Somatuline® Depot (U.S.) – March 2020 acromegaly, December 2021 orphan drug designation in NET
- Sandostatin® LAR (U.S.) – January 2017
- EU patents expired years ago for both products

Constraints to entry

- Specialized peptide manufacturing process
- Chronic therapy - patients on therapy for 3-7+ years
- Very limited switch patients (two SSAs are not interchangeable)
- Risk of share loss first primarily in new patients

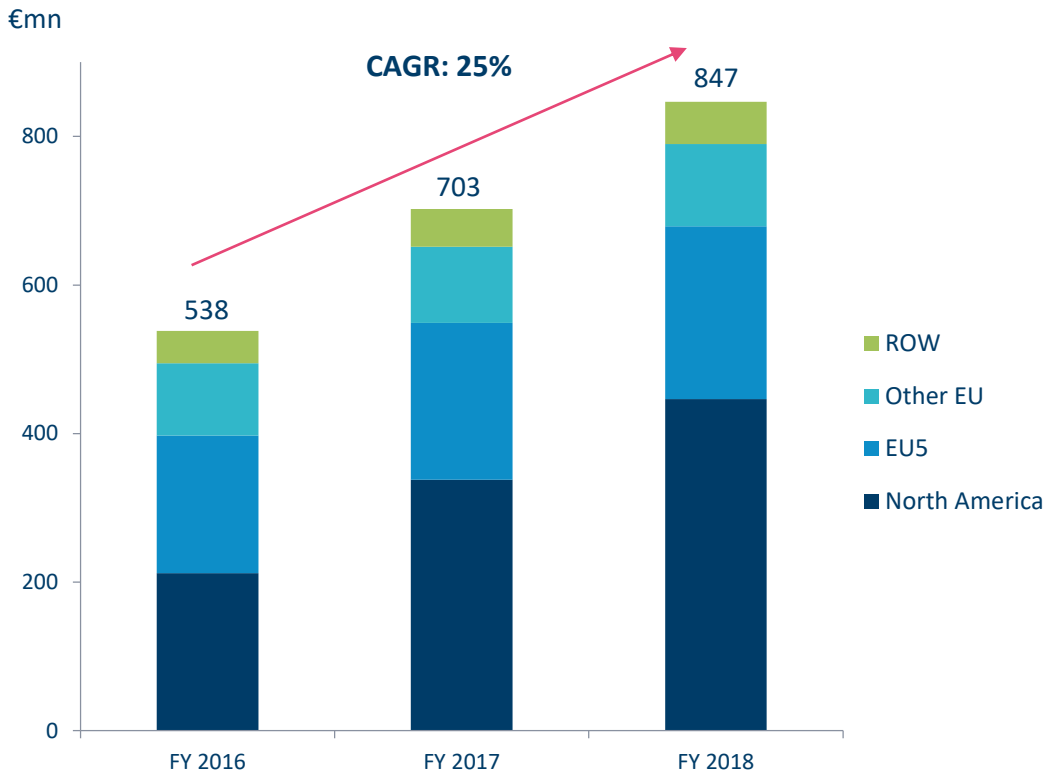
Manufacturing unique depot formulation

- Unique formulation manufactured using advanced liquid crystal technology
- Engineered to provide sustained release for once-monthly dosing
- Significant know-how required to scale up, increase yields and maintain high quality standards

PFS: Progression-Free Survival; PK: Pharmacokinetics; **PD**: Pharmacodynamics; **HCPs**: Health Care Professionals

Exceptional Somatuline® performance driving Specialty Care business

3-year sales growth



Attractive financial profile

- Wholly-owned global asset
- Largest, fast-growing and most profitable product
- Achieved blockbuster status in 2018
- Market share increasing steadily worldwide
  - U.S.: ~30% TRx and ~40% NRx
  - EU: ~50% TRx
- Volume growth in expanding markets is key driver

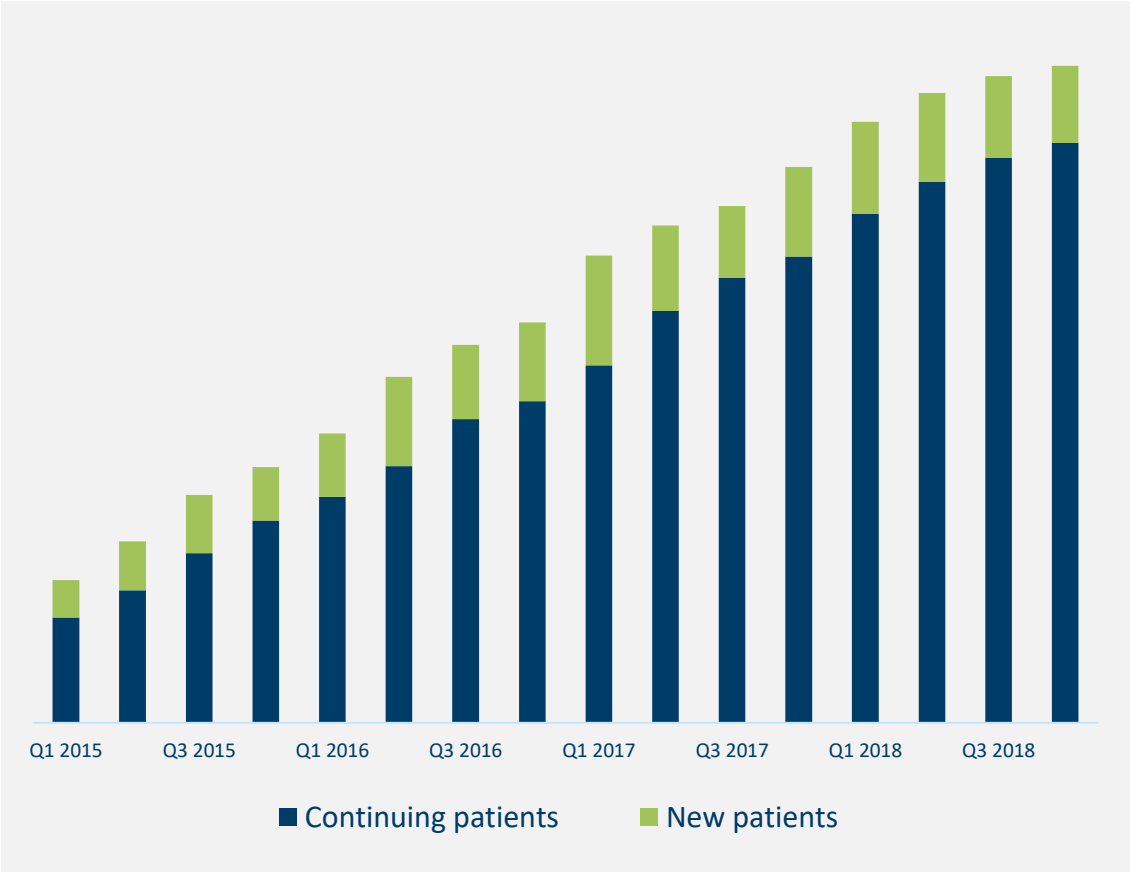
EU5: France, Germany, Italy, United Kingdom, Spain; **ROW**: Rest of World; **TRx**: Total Prescriptions; **NRx**: New Prescriptions

Expanding leadership in NET market

Growth strategy in resilient NET market

- Strong growth market (11%) to continue
  - Expansion of SSA market to over $2bn since Somatuline NET launch in U.S. in early 2015
  - Over 5x increase in NET incidence over last 40 years[1]
- Market share increasing steadily WW
- Chronic treatment market with loyal patients
  - Patients continue on therapy for years
  - 10-15% new patients per year
- PRRT approved for 2L or in combination with SSA expands and extends patient treatment duration
- Dedicated, motivated Oncology commercial team with proven track record

Momentum driven by continuing patients and growing new patient share[2]



IPSEN Innovation for patient care

1. Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence – SEER 18 Regs Research Data, Nov 2011; **NET**: Neuroendocrine Tumors PRRT: Peptide Receptor Radiation Therapy **2.** U.S. data

Somatuline® momentum driven by real-world evidence, new delivery system and continued investment

Delivery systems matter

- Delivery system important to HCPs
- Patient experience matters
- Real-world evidence demonstrates value of delivery system
    - 99% full dose delivery
    - Shorter injection prep time
    - Safety and efficacy
    - Low risk of clogging, easy to teach and inject
- New delivery system building on established benefits of existing Somatuline delivery system with even sturdier device
- EU initial launch in progress, U.S. approval pending

Systemic Radiation Therapy

Sandy McEwan, MB, FRCPC, FSNMMI

Vice President, Radiopharmaceuticals

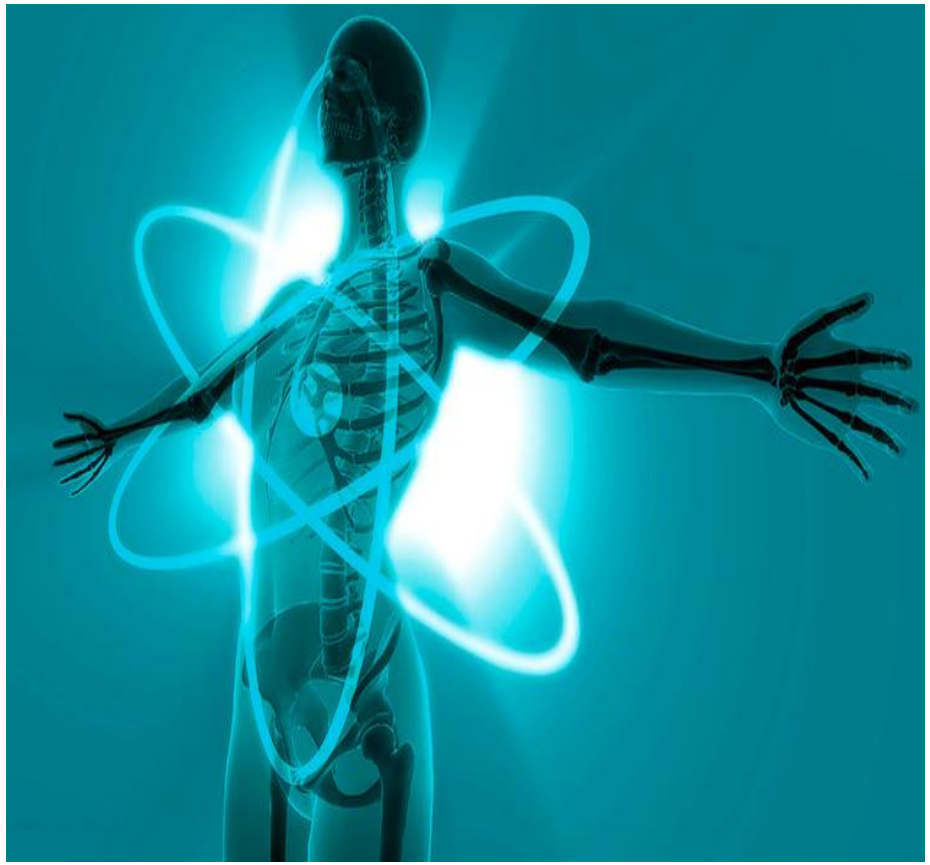
IPSEN
Innovation for patient care

Building Systemic Radiation Therapy (SRT) platform

Ipsen's commitment to SRT:

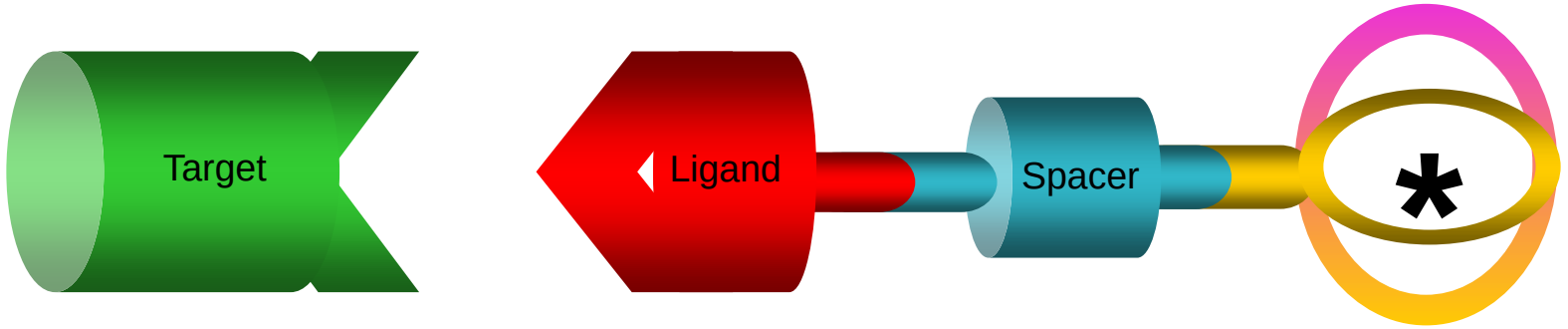
Developing innovative radiolabeled diagnostics and therapeutics for enhanced care through precision medicine

- Entered the field via OctreoPharm acquisition in 2015
  - Strategic alignment with Ipsen's NET/oncology franchise
- Strengthening a dedicated and growing team with new talent and expertise
- Understanding the science
- Optimizing manufacturing supply chain
- Two SRT programs currently under development:
  - Satoreotide (SSTR2 antagonist) – potential best in class
  - IPN-01087 – first in class



Rationale of Systemic Radiation Therapy (SRT)

SRT: Precision targeted treatment strategy using radiolabelled peptides or other molecules to deliver therapeutic doses of radiation to cancer cells which overexpress specific receptors



Precision targeting of overexpressed receptor

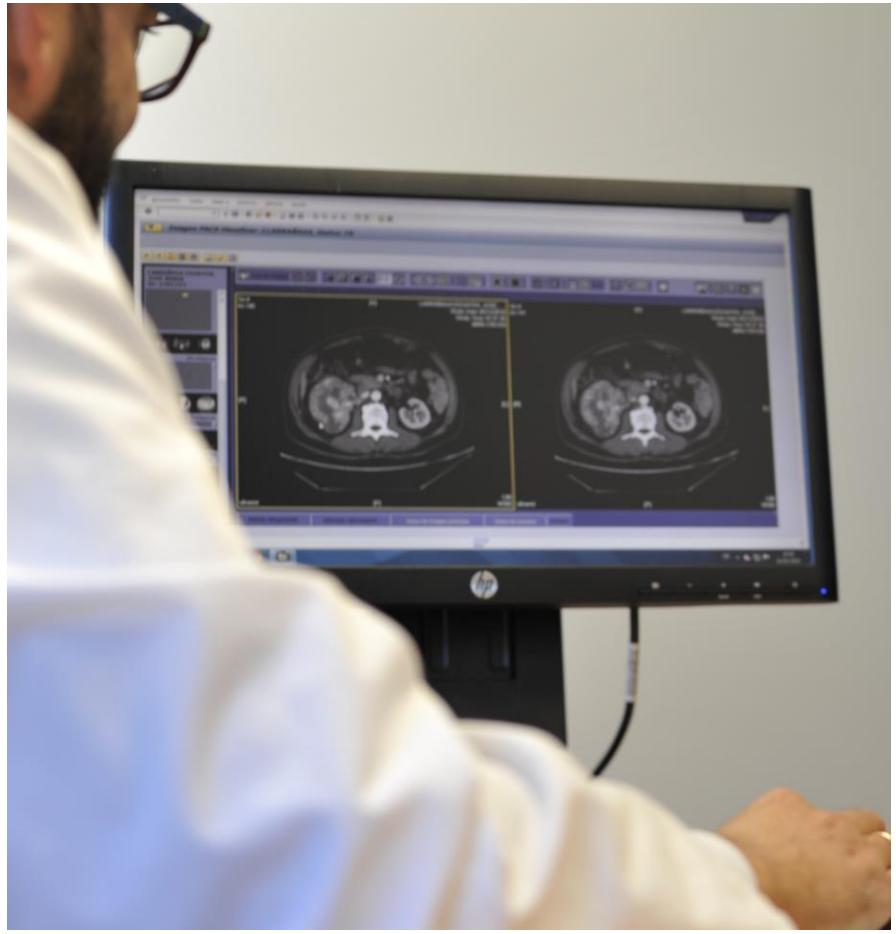
Imaging diagnostic used as a predictive biomarker for treatment selection and treatment outcome

Therapeutic MoA – targeted radiation causes cell death through direct DNA damage and biological bystander effects

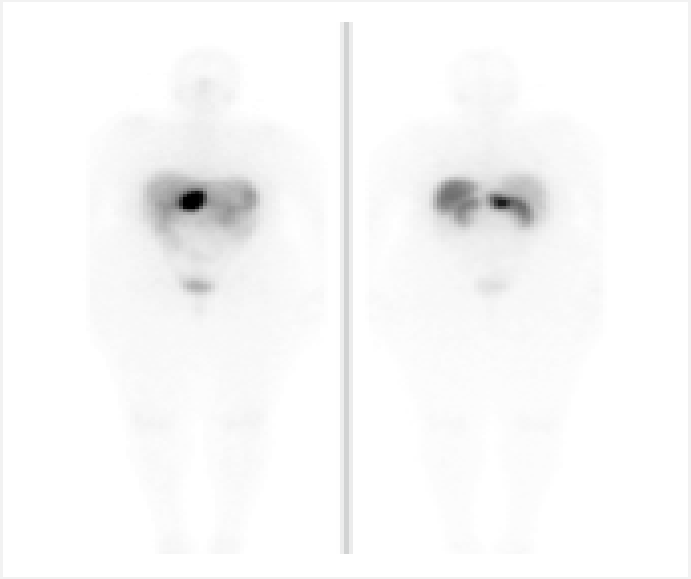
Platform technology that can be applied to multiple tumor types and also as combination therapy

Systemic Radiation Therapy Characteristics

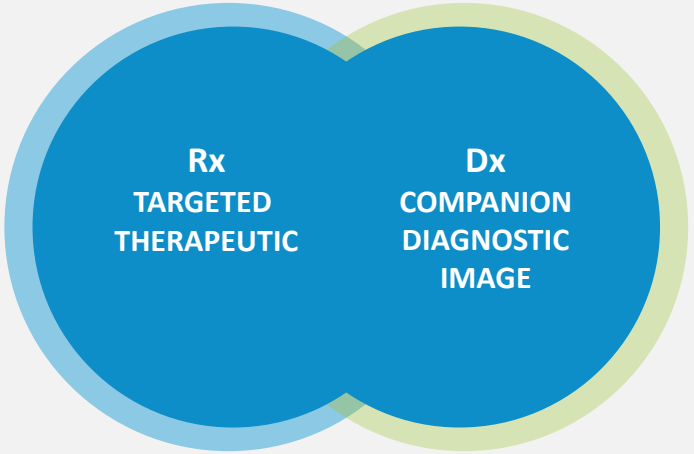
- Companion imaging diagnostic/imaging biomarker
  - Patient selection defined by image
  - Identification of tumor heterogeneity
- Fractionated schedules are most effective
- High clinical response rate
- Stable disease is common
- Low toxicity, high patient acceptance
- Can be used in combination



Theranostics: Companion diagnostic imaging agent defines treatment potential for SRT

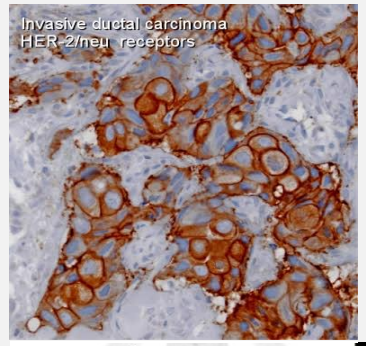


Therapeutic strategy uses same targeting strategy as Dx but delivers therapeutic amounts of radiation to treat the cancer

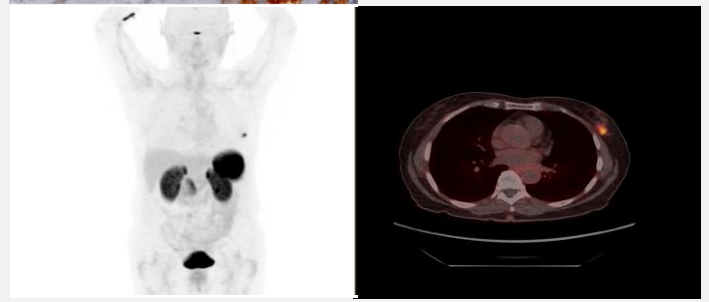


Theranostics

Merging drug therapy and diagnostics to advance personalized medicine



https://breast-cancer.ca/histlgy/



Companion Diagnostic may be IHC or an image - targeting strategy delivers small amount of radiation to make an image

Complex manufacturing/ supply chain management capabilities

Lutetium-177 Production	CMO Central Manufacturing	Clinical Site	Diagnostic Availability
Precursor Irradiation in Reactor	Receive Lutetium-^{177}	Required licenses	Gallium-^{68}
Lutetium-^{177} Separation	Manufacturing in Hot Cell	Radiopharmacy	Diagnostic Synthesis Unit
Purification	Dispensing	Treatment facility	Radiopharmacy
Shipment (Regulations)	Shipment (Regulations)	Trained Staff	PET Scanners

Ipsen has developed significant internal and external capabilities in radiopharmaceutical manufacturing

Comparison of Satoreotide binding with DOTA-TATE

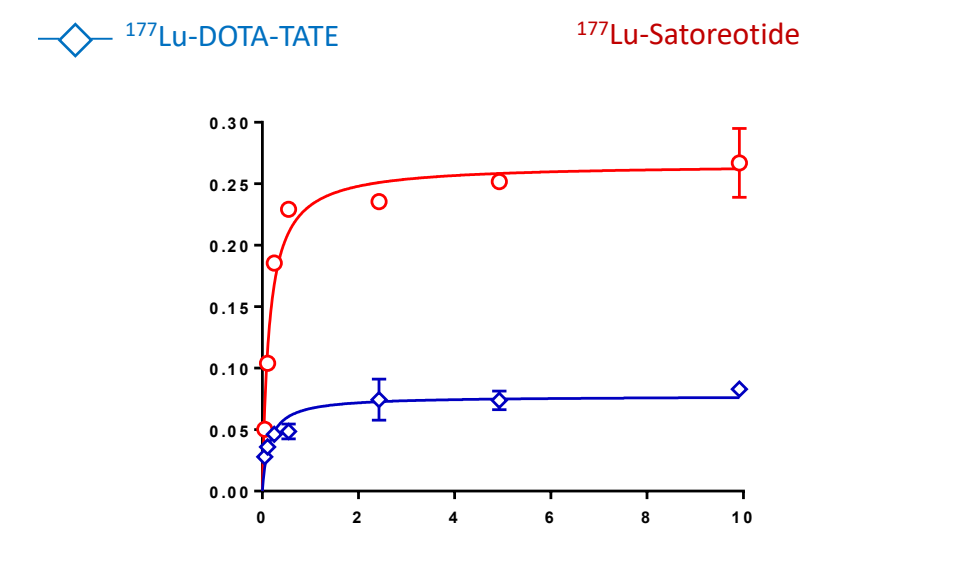
SSTR2 (Somatostatin Receptor type 2) antagonist

Satoreotide has 3-4 more binding sites than the agonist

Diagnostic: ^{68}Ga-IPN-01070

Therapeutic: ^{177}Lu-IPN-01072

Relative Binding



Significantly increased therapeutic index

Quantitatively 3-4x binding seen with Satoreotide = increased therapeutic index

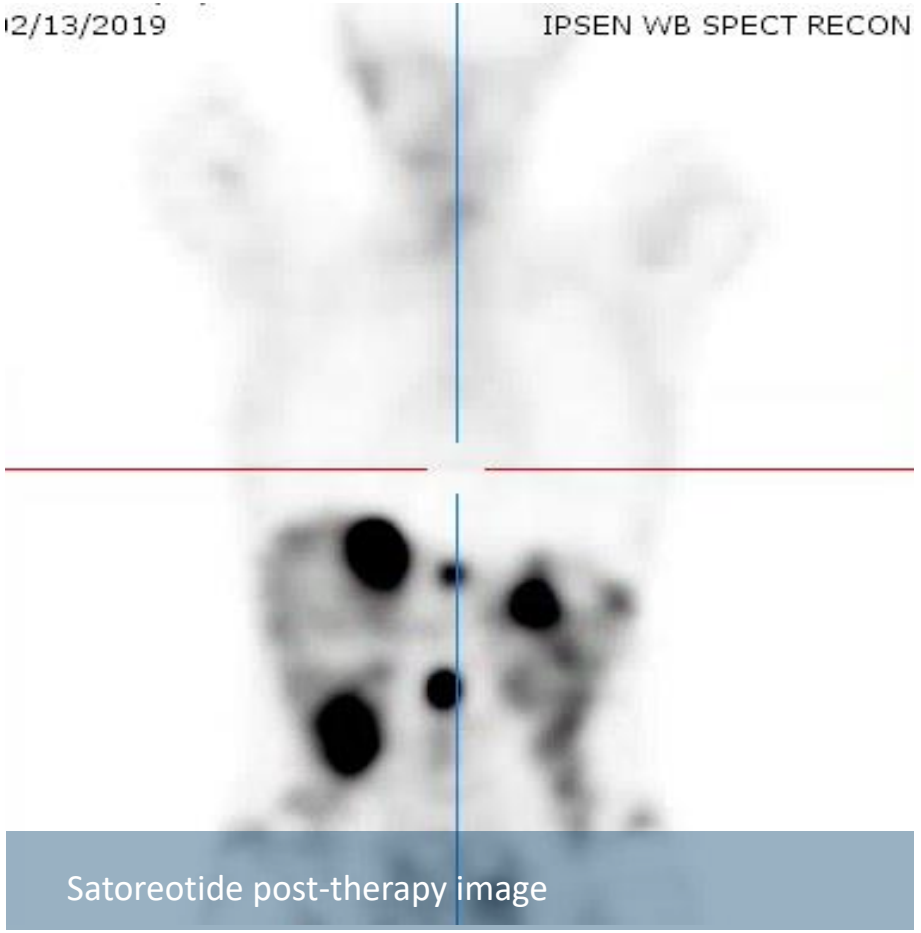
Satoreotide background and strategy

- Ipsen's commitment to NET patient population
  - Provide solutions along the treatment journey and extend leadership position in the market
  - Commitment to improving lives of patients
- Antagonist, potential first- and best-in-class systemic radiation therapeutic
- Primary focus - NET indications
  - >80% of GEP-NET patients have overexpression of SSTR2
  - Consider new indications with high unmet needs which permit registration, differentiation and data generation (e.g. 1L Grade 3 NET; 3L GEP-NET; lung NET)

Satoreotide development program

Therapeutic: ^{177}Lu-IPN-01072

- Mass dose, administered dose selected
- Treatment regimen selected
- Trial design underway
- Phase 2/3 trial to start Q1 2020



Satoreotide post-therapy image

Satoreotide development program

Diagnostic: ^{68}Ga-IPN-01070

- Potential best-in-class asset: non-inferiority study vs. approved competitor
  - Showed superior detection capability
  - Positive indicator of treatment success
- Next steps: Phase 2/3 trial to start Q4 2019/ Q1 2020
  - Europe and North America
  - Testing diagnostic accuracy and role
  - Confirming theranostic role

IPN01087 - First-in-class asset targeting tumours expressing NTSR1

- Diagnostic: ^{111}In-IPN01087
- Therapeutic: ^{177}Lu-IPN01087
- Platform applicable to multiple possible indications:
  - Lead indication: PDAC in which 40-75% of patients overexpress NTSR-1

    → Possibility of combining with Ipsen and other assets
  - Other possible indications: colorectal cancer, Ewing sarcoma, glioblastoma multiforme

NTSR-1 overexpressed in multiple cancers

NTSR-1 Background

- NTSR-1 Background
- NTSR-1mediates multiple functions of neurotensin
- Overexpressed in many cancers
- Overexpression associated with
  - Tumor growth
  - Poorer prognosis
  - Increased aggressiveness
  - Poorer outcomes

Literature Evidence for NTSR-1 Expression[1]

Literature Evidence for NTSR-1 Expression

PDAC:	61 – 80% (IHC)
CRC:	93 – 100% (IHC, mRNA)
Gastric:	71% (IHC)
SCCHN:	50% (mRNA)
Ewings:	65% (autoradiography)
GBM:	80%

IPSEN Innovation for patient care

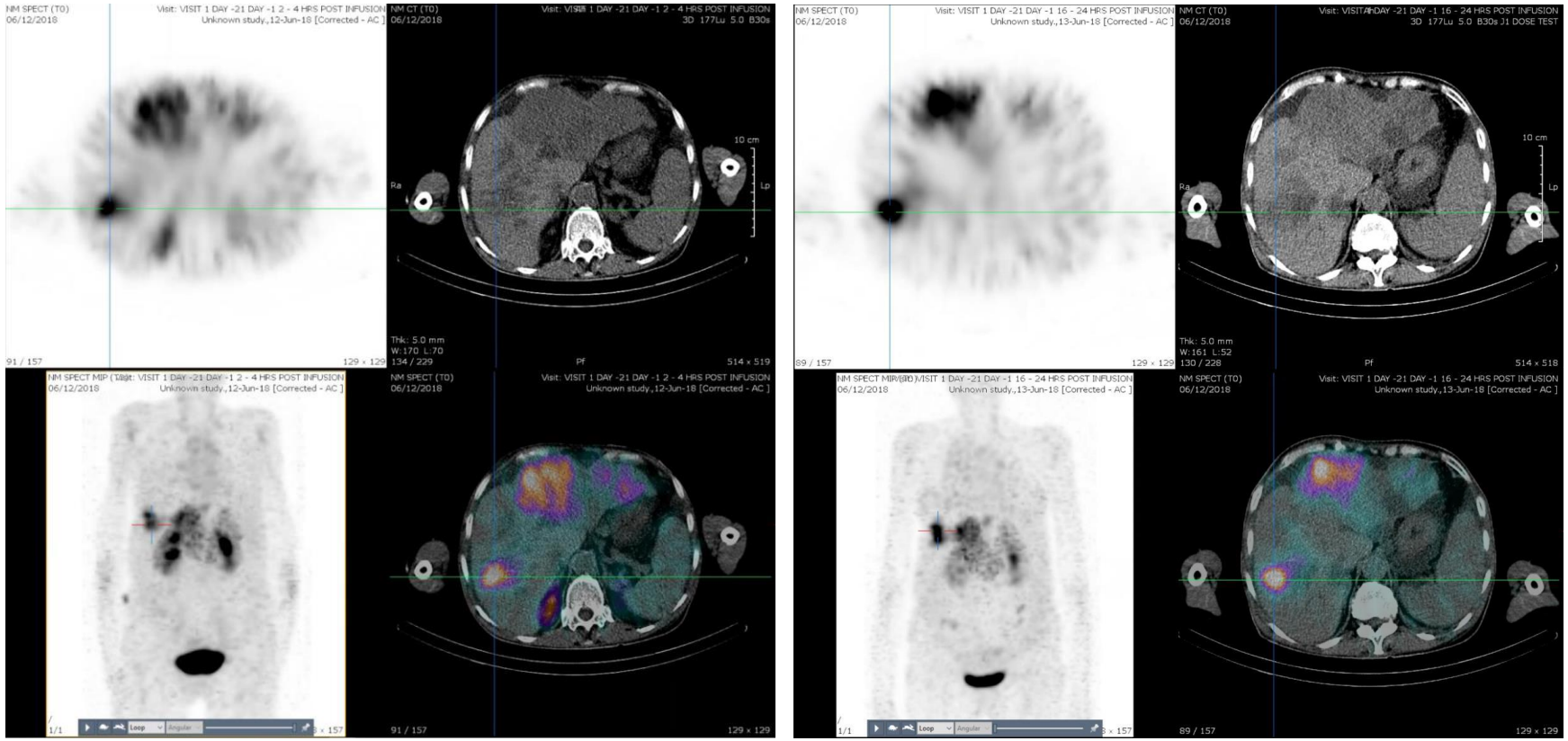
PDAC: Pancreatic Ductal Adenocarcinoma; **IHC:** Immunohistochemistry; **CRC**: Colorectal Cancer; **SCCHN**: Squamous Cell Carcinoma of the Head and Neck; **GBM**: Glioblastoma Multifome **1.** e.g. Korner, 2015; Bossard, 2007; Zhou, 2015; Shimizu, 2015; Reubi, 1999

Screening images in mCRC support high therapeutic index

Screening Images - Patient with CRC metastatic to liver
High tumour : Background ratio = High therapeutic index

2-4h pi

16/24h pi



IPN01087 clinical development strategy

Phase 1 study:

- Open-label Phase 1/2 study to evaluate the safety, tolerability, biodistribution and antitumor activity of 177Lu-IPN-01087 for the treatment of subjects with solid tumors expressing NTSR-1
- Companion imaging biomarker in clinic Q4 2019

Partnership with the Pancreatic Cancer Action Network (PanCAN) to leverage its scientific/ medical expertise and strong network with the pancreatic cancer community

- Opportunity to participate in the Phase 2/3 Precision Promise registration trial in combination with Gem/Abx or Folfirinox that has been pre-approved by the FDA
- Next steps: Generate safety data of IPN-01087 plus Gem/Abx or Folfirinox and validate diagnostic - to be integrated in ongoing study

PANCREATIC CANCER ACTION NETWORK

IPSEN Innovation for patient care

NTSR1: Neurotensin Receptor 1; **PDAC**: Pancreatic Ductal Adenocarcinoma

Conclusion

Building world-class Systemic Radiation Therapy platform with potential first/best-in-class assets

Providing solutions across the treatment paradigm and expanding Ipsen's presence in markets with unmet needs (NET, PDAC)

Rationale to expand into other tumor types and to combine with other therapies, including Ipsen assets

IPSEN Innovation for patient care

NET: Neuroendocrine Tumors**; PDAC**: Pancreatic Ductal Adenocarcinoma

Oncology R&D

Yan Moore, MD

SVP, Global Head of Oncology R&D

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Innovation for patient care

Strategic Vision for Oncology R&D

Strategy

- Build streamlined and innovative oncology "development powerhouse"
- Maximize data-driven lifecycle management
- Synergize with internal/external assets
- Bring in first/best-in-class targeted assets to balance, diversify and expand portfolio

Vision

- Become global leader in well-characterized rare/selected cancers with defined patient populations
- Become partner of choice for other organizations
- Be an early adopter of digital solutions and AI platforms in order to enhance development and improve chances of success

Ipsen in Oncology: Current landscape

Neuroendocrine Tumors (NET)	Prostate Cancer	Renal Cell Carcinoma (RCC)	Pancreatic Cancer	Hepatocellular Carcinoma (HCC)
Somatostatin analog with market leadership position	Established and growing product in EU and RoW (China)	Ongoing EU launch in 1L & 2L RCC supported by best-in-class clinical profile	Differentiated product with OS benefit for high unmet medical need	Ongoing EU launch in 2L HCC supported by best-in-class clinical profile
Somatuline autogel Somatuline® Depot (lanreotide) Injection	Decapeptyl® SR triptorelin	CABOMETYX™ (cabozantinib) tablets 60 mg | 40 mg | 20 mg	onivyde™ (irinotecan liposome injection)	CABOMETYX™ (cabozantinib) tablets 60 mg | 40 mg | 20 mg
(Global)	*(Ex-U.S. and Japan)*	*(Ex-U.S. and Japan)*	*(U.S. only)*	*(Ex-U.S. and Japan)*

Cabometyx®

(cabozantinib)

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Expanding Clinical Benefit of Cabometyx®

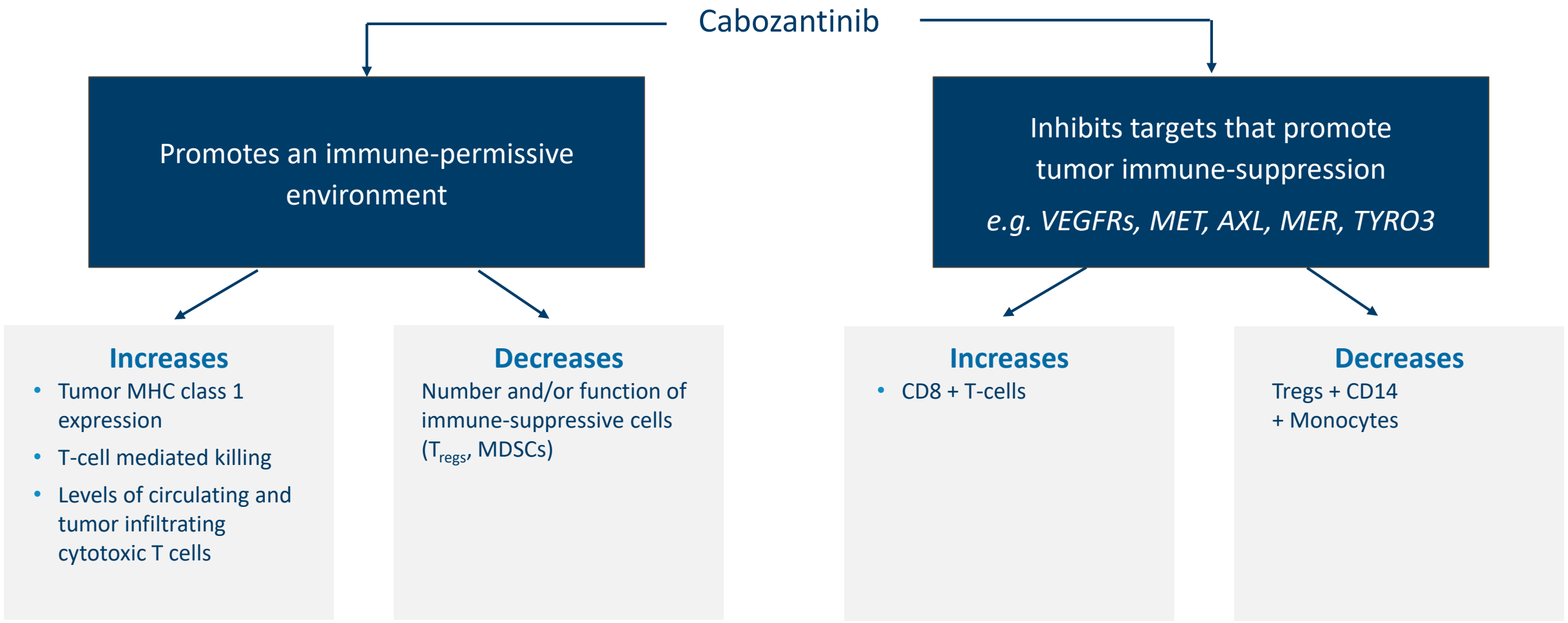
- Establish Cabometyx® as standard of care in advanced renal cell carcinoma (RCC) and advanced hepatocellular carcinoma (HCC)
- Expand monotherapy into additional indications beyond RCC and HCC
- Become TKI of choice for IO combinations
- Focus on China as a primary expansion opportunity

CABOMETYX®

IPSEN
Innovation for patient care

TKI: Tyrosine-kinase Inhibitor; **IO**: Immuno-Oncology

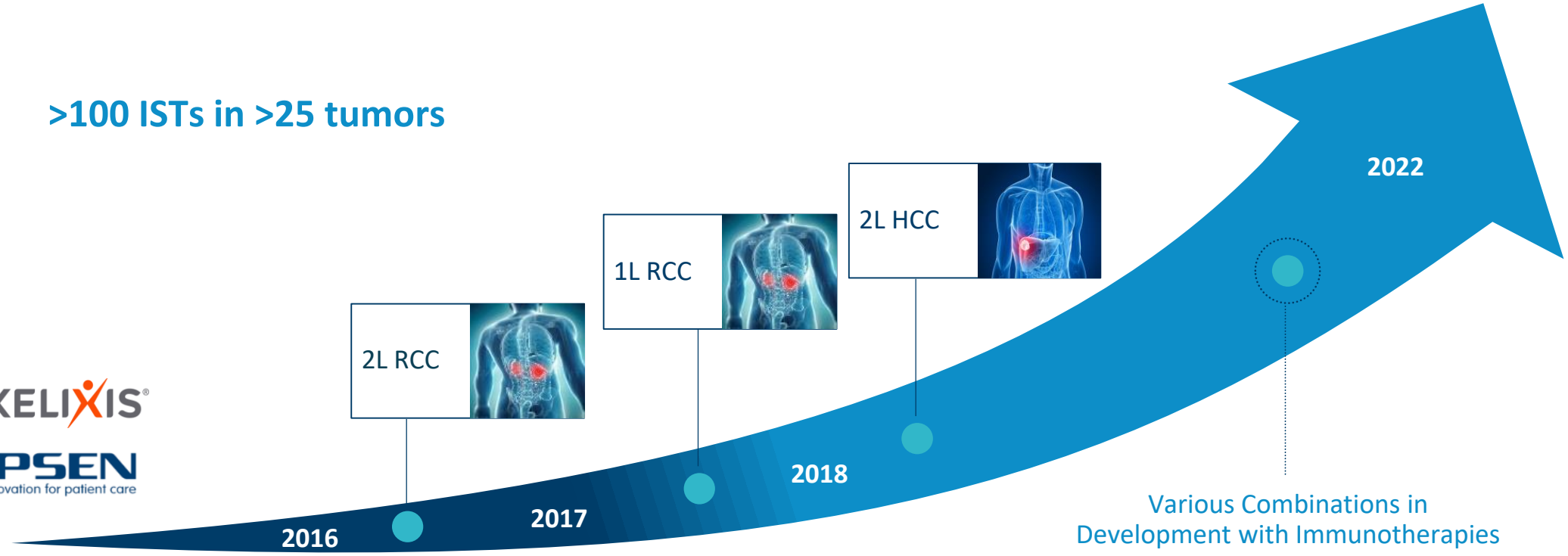
Rationale For Cabozantinib/ IO Combinations



Based on preclinical and clinical data

Become TKI of choice across indications, monotherapy or combination

>100 ISTs in >25 tumors



March 2016

Various Combinations in Development with Immunotherapies

• **RCC 1L**	Phase 3 CheckMate 9ER (cabozantinib + nivolumab)
• **HCC 1L**	Phase 3 Cosmic-312 (cabozantinib+atezolizumab)
• **HCC 1L/2L**	Phase 1/2 Checkmate 040 (cabozantinib + nivolumab)
• **Other indications**	Phase 1b COSMIC-021 (cabozantinib + atezolizumab)

RCC: Renal Cell Carcinoma, **HCC**: HepatoCellular Carcinoma, **NSCLC**: Non Small Cell Lung Cancer, **IST**: Investigator Sponsored Trial

COSMIC-312: Phase 3 Trial in 1L HCC in combination with IO

Sponsored by Exelixis/Roche

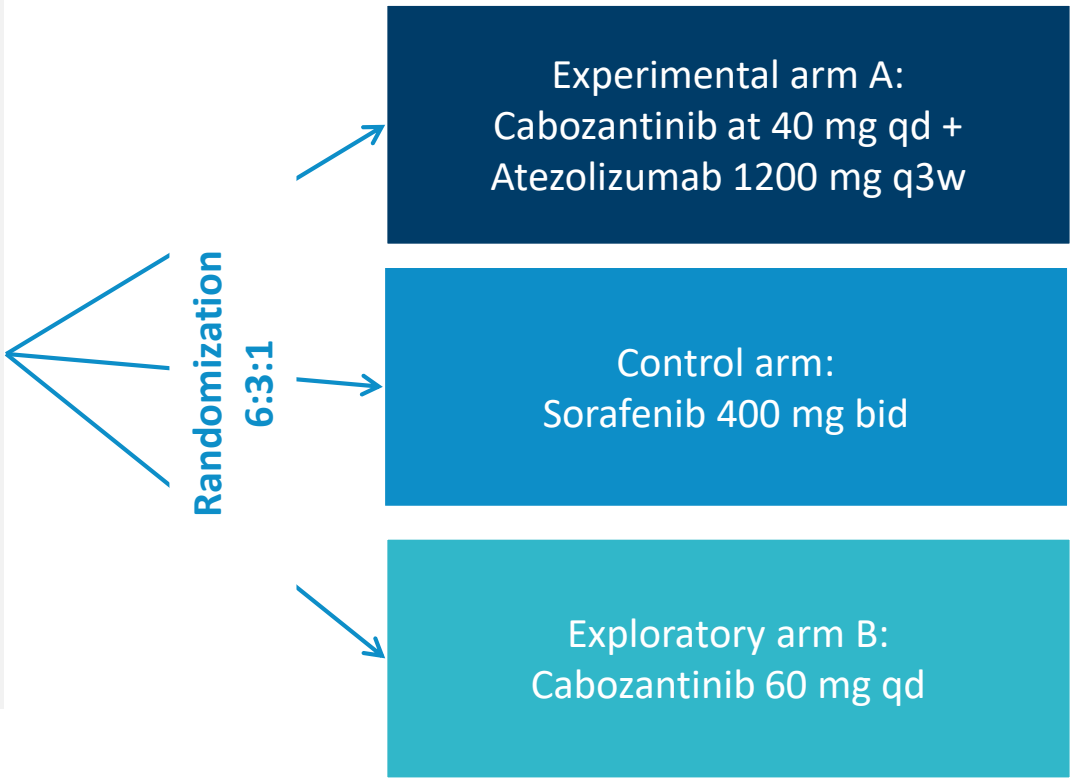
COSMIC-312

Randomized, Open-Label
in advanced 1L HCC (N = 640)

- No prior systemic anticancer therapy
- Child-Pugh Class A
- ECOG PS 0 or 1

Stratification factors:

- Etiology (HBV, HCV, other)
- Region (Asia, other)
- Extra Hepatic Spread or Macro Vascular Invasion



Primary endpoint: PFS, OS

Secondary endpoint: ORR, safety

COSMIC-312 serves as regulatory pathway to China with >50% of new liver cancer cases and deaths[1]

IO: Immuno-Oncology; HCC: Hepatocellular Carcinoma; PFS: Progression-Free Survival; OS: Overall Survival; ORR: Objective Response Rate

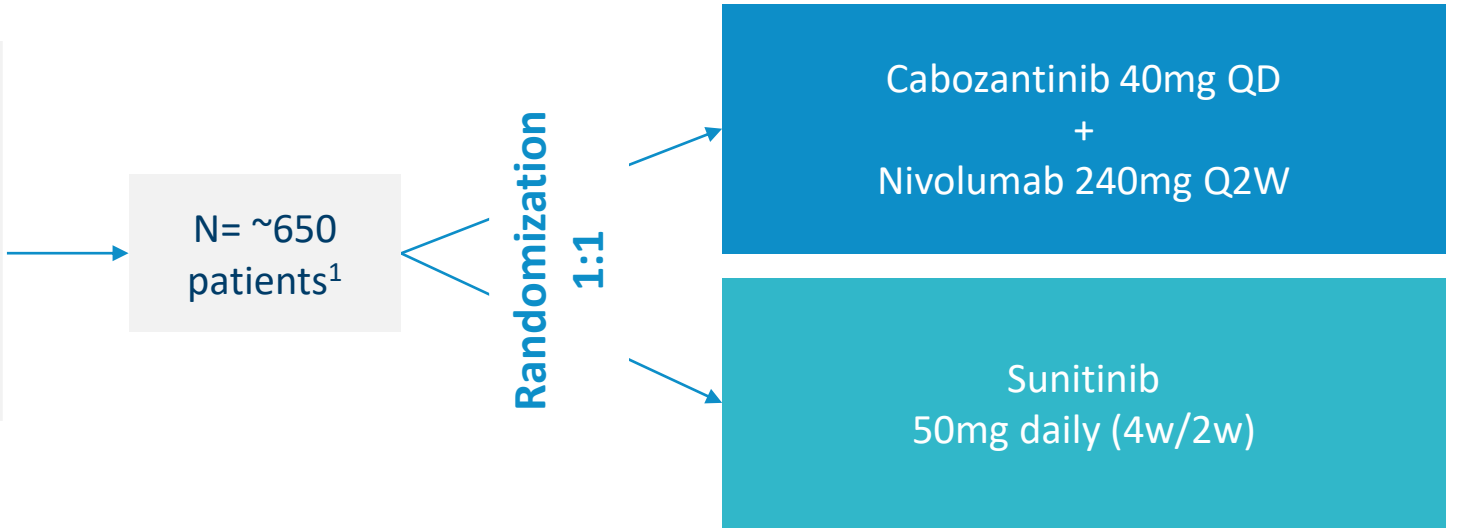
1. Chin J Cancer Res. 2018 Dec; 30(6): 571–579.

CheckMate 9ER: Phase 3 Cabometyx®/IO combination in 1L RCC

Sponsored by BMS/Exelixis

CheckMate 9ER

- Randomized, Open-Label, Ph3
- Cabozantinib + Nivolumab vs. sunitinib
- All risk groups with previously-untreated advanced RCC



Primary endpoint: PFS

Secondary endpoint: OS, ORR, Safety

Top-line results expected: early 2020

IO: Immuno-Oncology; **RCC**: Renal Cell Carcinoma; **PFS**: Progression-Free Survival; **OS**: Overall Survival; **ORR**: Objective Response Rate

1. Expanded from 580 to approximately 650 patients globally, Exelixis 25 April 2019

Additional potential indications for Cabometyx®

COSMIC-021: Cabometyx® / atezolizumab in multiple tumors (sponsored by Exelixis/Roche)

- 20 cohorts ongoing
- Top-line results (from multiple cohorts) expected when cohort are fully enrolled and data has matured

Cabometyx® monotherapy

- Ewing sarcoma
- Osteosarcomas

Cabometyx® + Immune-therapy

Onivyde®

(irinotecan liposomal injection)

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1L mPDAC Development: Phase 1/2 → Pivotal

Part 1: Single-arm study of previously untreated, metastatic pancreatic cancer patients

Phase 1 (dose finding): Completed; Phase 2 dose selection

NAPOX = Onivyde 50mg/m2, Oxaliplatin 60mg/m2, 5-FU 2400mg/m2, and LV 400mg/m2

Phase 2 (Dose expansion)

- Enrollment completed, interim analysis completed (with mFU=7mo)

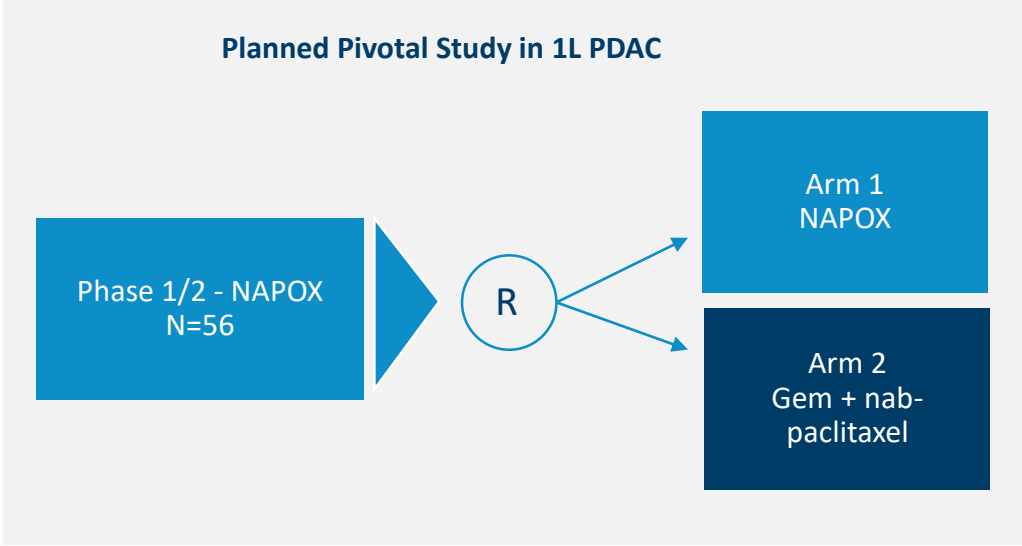
  → Disease Control Rate (DCR): encouraging results, supports further development

  → mOS, mPFS: are still maturing

Accepted for oral presentation at the 2019 ESMO World Congress on GI Cancers, July 3-6 2019

Part 2: Planned Pivotal Study

- Superiority design vs. Gem/Abx
- Futility and Interim analyses included



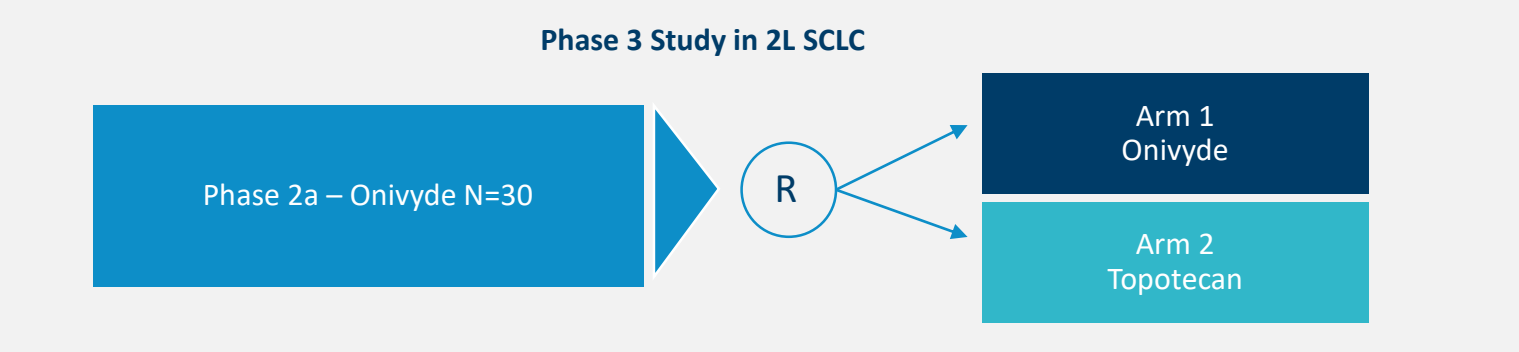
2L SCLC Development: Phase 2/3 Seamless Design

Part 1: Phase 2a single arm study in 2L SCLC patients who progressed from 1L platinum treatment

- Enrollment completed (n=30)
- Part 1 results expected: H2 2019
  - Primary endpoint: safety and tolerability
  - Secondary endpoint: ORR, PFS, OS
  - Results from Dose finding phase will be presented at 2019 ASCO Annual Meeting

Part 2: Phase 3 randomized controlled trial

- Superiority design vs. Topotecan (SOC)
  - Primary endpoint: OS
  - Secondary endpoint: ORR, PFS, QOL
- Futility and interim analyses included
- Recent data: supports use of IO + Chemotherapy in 1L [1], lack of efficacy in 2L [2]



SCLC: Small Cell Lung Cancer; **1**. N Engl J Med 2018; 379:2220-2229; **2**. Reck et al Annals of Oncology (2018) 29 (suppl_10): x39-x43

Phase 1 trial in Metastatic Breast Cancer (mBC)

Phase 1 study

- Phase 1 study completed (n=30)
- Results suggest Onivyde monotherapy has clinically meaningful anti-tumor activity, presented at 2019 AACR Meeting[1]
  - HER2-, HR+ mBC patients: ORR 40%
  - TNBC patients: ORR 33%
  - Patients with active metastases [systemic and CNS] ORR 30%
- Historical ORR for physician's choice of chemo (a.k.a, Beacon Study) estimated to be approximately < 20% [2]

Next steps/Potential development pathways

- Development and regulatory consideration ongoing
  - SAB recommended further development
  - Potential indication: HER2-, HR+ / TNBC with active brain metastases
  - Opportunity for accelerated development d/t high unmet need and efficacy signals

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1. https://www.abstractsonline.com/pp8/#!/6812/presentation/9863 **2**. Perez et al Lancet Oncol. 2015 Nov;16(15):1556-1568

Additional potential indications for Onivyde®

Recurrent glioblastoma multiforme (rGBM)

- Significant unmet medical need
- Ongoing IST (UCSF): Promising signal of Onivyde intrathecal injection in recurrent GBM[1]
  - 7 of 10 patients on study

Pediatric Solid Tumors

- Ongoing IST (South Plains Oncology Consortium): Promising signal of Onivyde in Ewing's sarcoma[2]

Onivyde in combination

- Synergistic effects of combining Onivyde with DDRs in preclinical models[3]
- Potential indications include TNBC, pancreatic cancer, SCLC, ovarian cancer, and prostate cancer

Other potential indications: 2L HGSOC (platinum resistant)

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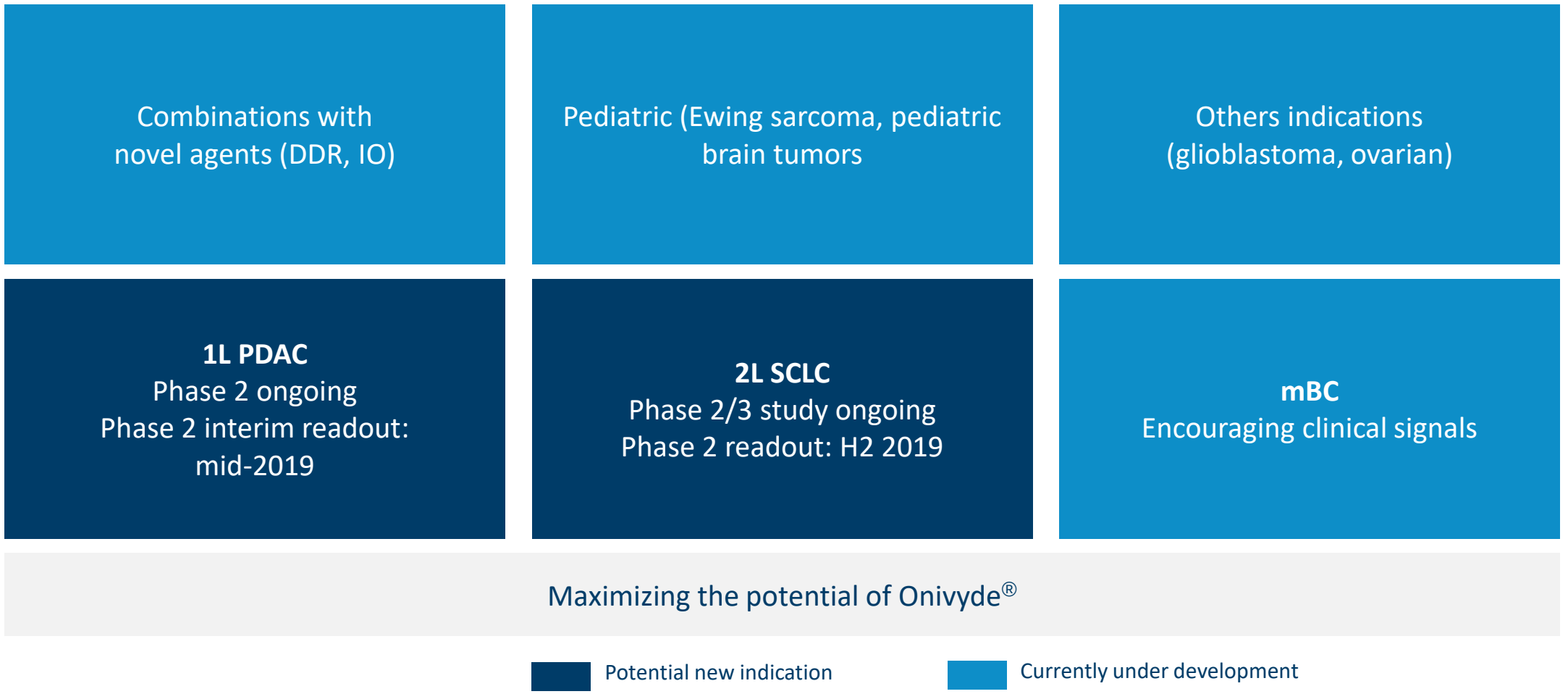
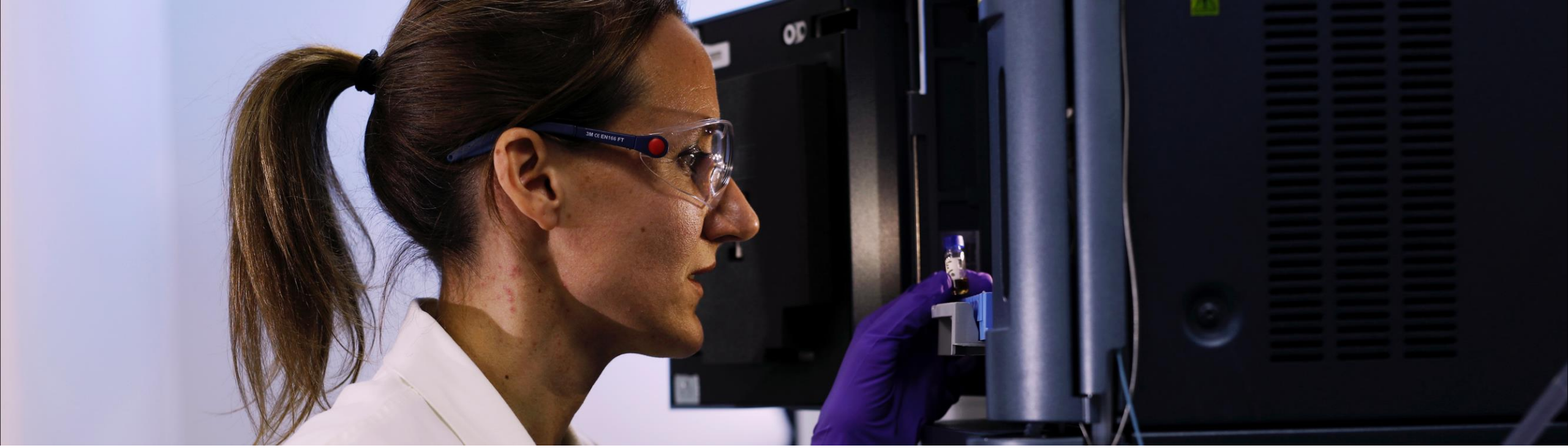
IST: Investigator-Sponsored Trial; **DDR**: DNA Damage Repair; **TNBC**: Triple-Negative Breast Cancer; **SCLC**: Small-Cell Lung Cancer; **HGSOC**: High-Grade Serous Ovarian Carcinoma **1**. Kumar et al Neuro-Oncology, Volume 20, Issue suppl_6, November 2018, Pages vi26–vi27 **2**. Harker-Murray et al, Proceedings: AACR Annual Meeting 2017 **3**. Koshkaryev A et al, Cancer Res 2016;76(14 Suppl): Abstract nr 2075

Evidence-based strategy working towards Onivyde® as backbone therapy for multiple tumor types



DDR: DNA Damage Repair; **IO**: Immuno-Oncology; **PDAC**: Pancreatic Ductal Adenocarcinoma; **SCLC**: Small-Cell Lung Cancer; **mBC**: metastatic breast cancer



IPN60090

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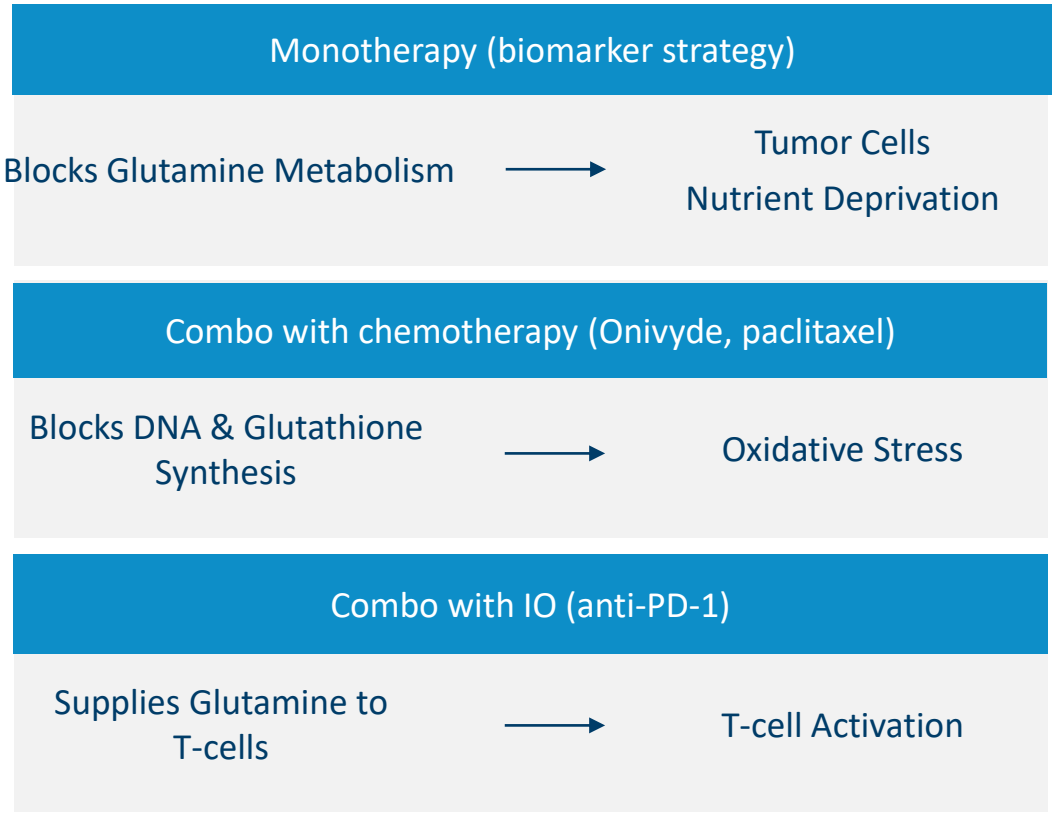
IPN60090: Novel potent oral selective GLS1 inhibitor

Innovative approach

- Targeted therapy for unmet medical need in multiple solid tumors
- Targeting tumor metabolism in biomarker-selected population
- Potential for best-in-class agent
- Multiple development opportunities in combinations
- In-licensed from MD Anderson Cancer Center (May 2018)

Development strategy



Phase 1 Trial Ongoing

Open-label, dose escalation/expansion study to investigate safety, PK, PD and anti-tumor activity

- Potential to expand to other Glutaminase-dependent solid tumors in biomarker selected population

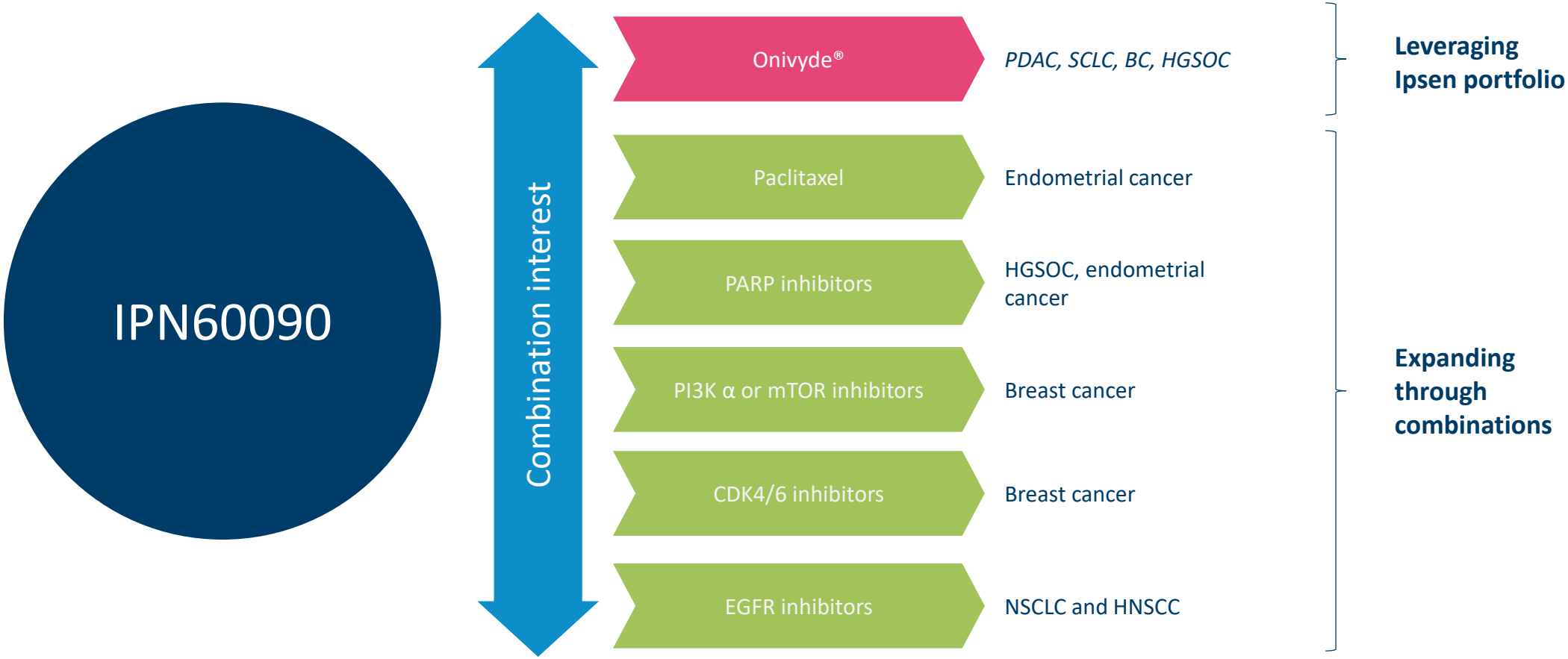
  → HNSCC, endometrial, HCC, SCLC, melanoma, RCC, bladder

- Combinations: leveraging Ipsen portfolio (Onivyde®, Cabometyx®) and other molecules (DDRs, PI3K α or mTOR inhibitors; CDK4/6 inhibitor; EGFR inhibitor; chemotherapies)

IPSEN Innovation for patient care

NSCLC: Non-Small Cell Lung Cancer; **HGSOC**: High-Grade Serous Ovarian Cancer; **PK**: Pharmacokinetics; **PD**: Pharmacodynamics; **ASNS**: Asparagine Synthetase; **HNSCC**: Head and Neck Squamous Cell Carcinoma: **HCC**: Hepatocellular Carcinoma; **SCLC**: Small Cell Lung Cancer; **RCC**: Renal Cell Carcinoma

Multiple development opportunities



Indications in italics are not yet approved/no Phase III results

PDAC: Pancreatic Ductal Adenocarcinoma; **SCLC**: Small Cell Lung Cancer; **BC:** Breast Cancer; **HGSOC**: High-Grade Serous Ovarian Cancer; **NSCLC**: Non-Small Cell Lung Cancer; **HNSCC:** Head and Neck Squamous Cell Carcinoma

Oncology R&D

Creating value with Oncology pipeline

Focus on rare/ niche cancers with unmet needs

Maximize benefits of existing portfolio

Develop innovative assets with potential to synergize with existing pipeline

Continue to search for externally sourced assets

Q&A

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Conclusion

- Excellent business momentum across all major Specialty Care products and geographies
- Maintain strong top-line growth and continued margin expansion
- Strongest ever company R&D pipeline advancing first/best-in-class innovative assets
- Mission to bring innovative, life-altering treatments to patients

Please join us for a cocktail reception in Le Salon de Famille.