



POLYPHOR

# 2018 Results - AGM

Business Progress and FY 2018 Financial Results

April 12, 2019

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# Agenda

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**1** 2018 at a glance

**2** Key programs' progress

- Murepavadin
- Balixafortide
- OMPTA Platform

**3** FY 2018 Financials

**4** A look ahead

**5** Q and A

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# 2018 at a glance – the year of transformation

*The making of Polyphor 2.0*



2018 was a transformational year for Polyphor – making it a public, Phase III biopharma company focused on antibiotics and immuno-oncology

## POLYPHOR TODAY

- Clear mission – Biopharma
- Two products entered\* Phase III
  - Both could be in the market by 2022
  - and 2021 in the best case
- A promising OMPTA pipeline
  - Significant endorsements – Novo and Carb-X
- Significant IPO funding its programs until the first key Value Inflection Points

## THE OPPORTUNITY

- Few companies with the same degree of innovativeness (e.g. new class of antibiotics)
- Few companies with two late stage assets – one step away from the market
- Great results in trials / experiments
  - Low murepavadin mortality in a small, but highly demanding population in MDR Centers
  - Strong balixafortide PoC results, acknowledged by FDA/EMA accelerated program, FDA fast track and Lancet Oncology publication
  - OMPTA lead, POL7306, showing great activity at very low MICs – and OMPTA program with external validation

### Notes:

\*Balixafortide in January 2019

OMPTA: Outer Membrane Protein Targeting Antibiotics

PoC: Proof of Concept

MICs: Minimum Inhibitory Concentration

MDR: Multi Drug Resistance

# Pipeline today

An attractive, progressing pipeline



■ Pipeline progress from Jan 18

		Partner / collaborator	Preclinical	Phase I	Phase II	Phase III	Strategy to 2022
<b>Antibiotics</b>							
Murepavadin	OMPTA		Pseudomonas aeruginosa infections			2018	• Commercialize
Murepavadin (aerosol formulation)	OMPTA	 innovative medicines in 2018	CF/ NCFB <sup>1</sup>				• Develop to proof of concept
POL7306 (medium spectrum ant.)	OMPTA	 repair medicines in 2018 CARB-X	Preclinical				• Develop to proof of concept
			2018/9				
<b>Oncology</b>							
Balixafortide + eribulin	CXCR4 antagonist		Metastatic breast cancer		2018		• Co-develop / co-commerc.
Balixafortide + other	CXCR4 antagonist		Other tumors				• Co-develop / co-commerc.
<b>Respiratory</b>							
POL6014	Inhaled elastase inhibitor	 	Cystic Fibrosis				• Out-licenced to Santhera

Source: Company information

Note:

1 Cystic Fibrosis / Non-Cystic Fibrosis Bronchiectasis

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# Key programs' progress: murepavadin (MPV)

*Murepavadin program significantly progressing*



## ▪ Two global Phase III studies

- “PRISM-MDR” (EMA Study) - MPV+SoC vs. 2 SoC in Centers with high MDR incidence
- “PRISM-UDR” (FDA Study) – MPV vs. SoC as *Pseudomonas aeruginosa* monotherapy in UDR Centers (Centers with low MDR incidence)

## ▪ PRISM MDR substantially progressing

- FPFV in March 2018
- 72 Centers selected in 15 countries, 4 regions
  - >90% of original sites activated – including France, Spain, US, Greece, Brazil, Mexico, Israel, S. Korea
  - India added and some countries filled: 72 → ~90 sites
- After the first review, the DSMB (Data and Safety Monitoring Board) recommended the study to continue without modifications
- Strong communication with Centers and minor protocol adjustments to secure steady recruitment
- Confirming timeline as per Prospectus
  - First Interpretable Results H2 2020

### Notes:

SoC: Standard of Care

MDR: Multi Drug Resistance

FPFV: First Patient First Visit

# Murepavadin (MPV)

*Murepavadin program significantly progressing*

- **PRISM UDR to start recruitment in the near future**
  - Protocol finalized, FDA approved in October
  - Approval received from central IRB (Independent Review Board/ Ethics Committee) for the US
  - Targeting ~100 sites, ~100% already selected
    - Including US, Canada, France, Israel, UK, Brazil, and other
  - Site activation and study started, FPFV anticipated by H1 2019
  - Investigators meeting 14-15/3 (EU) and 4-5/4 (US)
  - Confirming timelines as per Prospectus
    - First Interpretable Results by end 2021
  
- **Other studies (preclinical, other) as well as MPV inhaled progressing in parallel**
  - Reprotox completed, no unexpected results
  - MPV Inhaled: first promising results – efficacy at very low doses
    - On track for IND\* H1/2020

- **Overall positive progress**
- **Supportive reaction of physicians and investigators, strong interest in the community**
- **Timelines confirmed**

**Note:**

\* IND: Investigational New Drug

# Balixafortide (BLX)

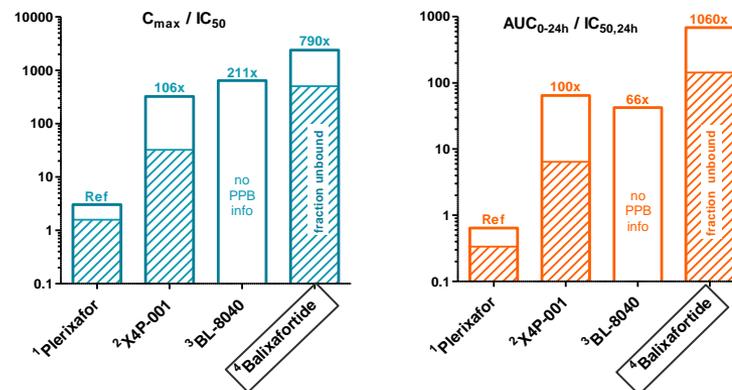
Potentially Best-in-class CXCR4 inhibitor



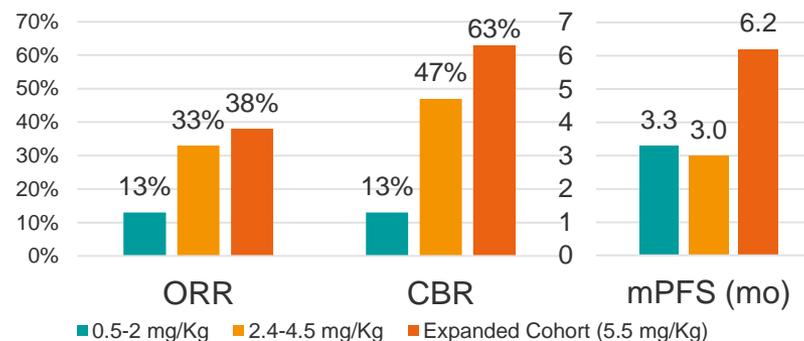
## Balixafortide features

- Most Advanced CXCR4 antagonist\*
- Disruption of CXCR4 and SDF-1 axis renders cancer cells more susceptible to chemo and increases immune cells infiltration into the tumour
- Potential to enhance activity of a range of chemo and immunotherapies
- Potent and selective - Optimized to enable higher potency vs other CXCR4 inhibitors
- Clear dose-response relationship

## Potency- IC50 coverage by clinical exposure vs plerixafor (=1x)\*\*



## Dose – Response in the Ph 1b PoC study



\* In clinical development for solid tumors

\*\* Compounds disclosed on company websites

1 FDA CDER Pharmacology Review: application number 22-311, FDA CDER Clinical Pharmacology Review: application number 22-311, mean of studies at 0.24 mg/kg dose

2 Wong, RS et al. Mol Pharmacol. 2008 Dec;74(6):1485-95. doi: 10.1124/mol.108.049775 Stone\_Hendrix\_2007, Antimicrob Agents Chemother 51(7):2351-2358

3 Tamamura H, et al. FEBS Lett. 2003 Aug 28;550(1-3):79-83, calculated from Abraham\_Peled\_2017, Clin Cancer Res 23(22): 6790–801 (supplemental table 2) From ClinicalTrials.gov, accessed 23 January 2018, ongoing trials, e.g. COMBATà (NCT02826486)

4 In-house unpublished study POL6326-07. Intra-experiment comparisons must always be interpreted with caution

# Balixafortide (BLX)

*Study set up started*



- **One pivotal trial for both FDA and EMA**

- BLX+ eribulin vs. eribulin for the treatment of Loco-Regionally Advanced and Metastatic Breast Cancer

- **FDA discussion finalized**

- Fast Track designation achieved
- Type B guidance meeting with FDA – protocol and Statistical Analysis Plan agreed
- Application for Breakthrough designation planned with planned interim readout (ORR and response duration)

- **EMA advice received**

- One study only sufficient

- **Study set up started**

- >80% of sites selected
  - US, Germany, Italy, Spain, France, UK, Russia, Ukraine, other

# Balixafortide (BLX)

*Study set up started*



- **Steering Committee identified (Co-chairs: Cortes, Kaufmann)**
  - Kick-off at ESMO, October 2018
  
- **Expecting**
  - FPFV around mid-2019
  - Full results by 2021
    - Earlier approval in the US if positive interim readout
  
- **Preclinical/other studies in other combination/indications progressing**  
**Establishing collaborations with key Universities/Centers**

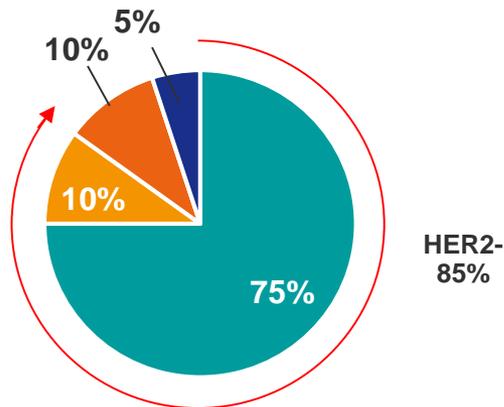
- **Overall, significant progress and strong physicians' support**
- **Start around mid-2019, full results 2021**

# Balixafortide (BLX) – market potential with eribulin

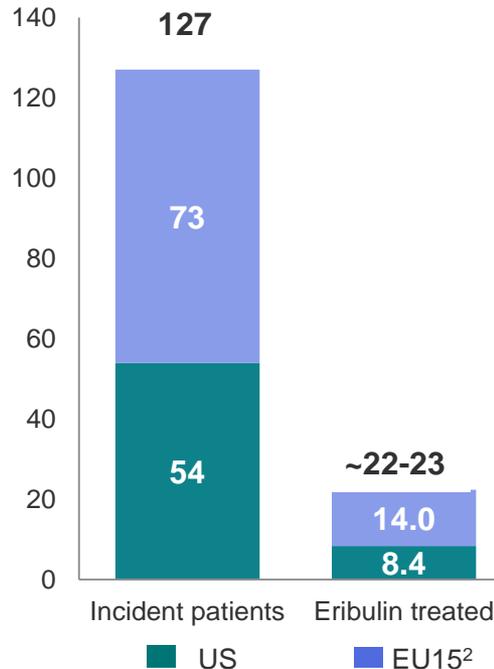
Targeted but attractive market potential in breast cancer, in combination with eribulin



## Subtypes of Breast Cancer (% of Patients)



## HER2- Metastatic<sup>1</sup> Breast Cancer Incidence ('000 Patients, 2018)



**Balixafortide Target population**

- HER2-/HR+
- HER2-HR- (TNBC)

- HER2+/HR+
- Her2+/HR-

Notes:

- Includes unresectable, locoregionally recurrent
- EU 15 consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK. Estimated on the basis of the population as per national statistics: EU 15= EU5+28%
- Calculation assumptions (2031): Price for USA as per comparators (EUR8.8k/Cycle), 1.5% increase; EU5=USx50%=EUR4.4k/cycle, declining 0.25% p.a.; incident patients growth: 1% for US, 0.5% for Europe; 8 cycles/patient; US access adjustment ~25%; EUR/US\$= 1.145

- Few Treatment Options
- Substantial unmet medical need
- **Market opportunity US + EU15<sup>3</sup>**  
*(in combination with eribulin treated patients only)*

**USD 1.3-1.4bn**

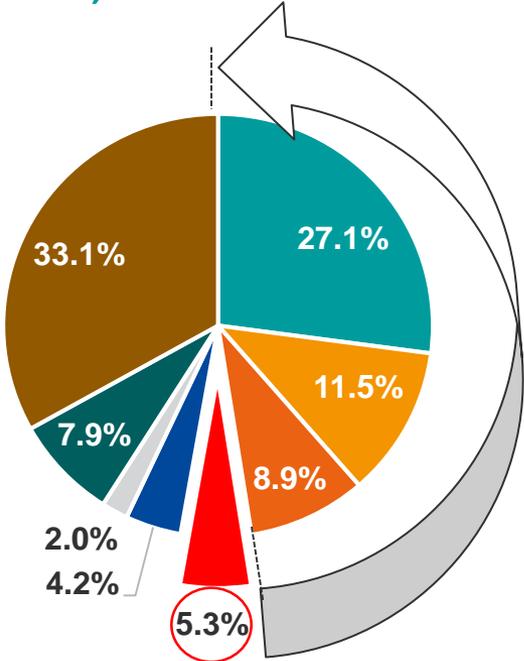
Sources: Estimates as per leading management consulting firm commissioned by the company (2018/9) and calculated using data from Global Data, SEER, German Centre for Cancer Registry, Institut National du Cancer, REDECAN, AIRTUM. Extrapolation from EU 5 to EU 15 based on population

# Besides eribulin, expansion in breast cancer could substantially enlarge the market opportunity

Preclinical program to validate possibility to expand use in breast cancer



## Split of total HER2-/HR+ chemotherapy treatments by regimen group (US, 2018, % of total treatments<sup>1</sup>)



**FOR EXAMPLE**

If balixafortide combination could be expanded from eribulin to taxanes/ Abraxane

**MARKET POTENTIAL**

**USD 1.3-1.4 →**  
**6-7bn<sup>2</sup>**

- Taxanes+ Abraxane
- Capcitabine
- Gemcitabine
- Eribulin
- Antracyclines
- Ixabepilone
- Other monotherapies<sup>3</sup>
- Combinations

Notes:  
 1 Eribulin share of treatments lower than patients' share because used in later lines (shorter duration) and use of combos  
 2 Assumes US split=Europe split and HER2-/HR+split equal to HER2-/HR+split  
 3 Includes new products mono/combination

# Besides breast cancer, further expansion to be investigated in other tumour types



Preclinical program to validate possibility to expand use in other indications/combinations

Focus indication	US Epidemiology (2025F)	Relative level of unmet need	Relative level of pipeline competition	Pricing potential <sup>1</sup>	Anti-CXCR4 clinical evidence
<b>Prostate cancer</b> <i>(metastatic CRPC, eligible for chemotherapy)</i>	Estimated to reach <b>c.6k</b> in the US	<b>Medium</b>	No direct anti-CXCR4 competition	Estimated to be <b>c.€120k</b> (c.€110-135k)	<b>One asset</b> in Phase I
<b>Non-Hodgkin lymphoma</b> <i>(DLBCL)</i>	Estimated to reach <b>c.27k</b> in the US	<b>Medium</b> (especially 2L+ given lack of options)	<b>CAR-Ts expected to have major impact on treatment paradigm;</b> two potential anti-CXCR4 competitors	Estimated to be <b>c.€139k</b> (c.€56-158k)	<b>Two anti-CXCR4 assets</b> (one each in Phase I and Phase II)
<b>Acute myeloid leukaemia</b> <i>(R/R patients)</i>	Estimated to reach <b>c.13k</b> in the US	<b>High</b> Lack of SOC apart from salvage therapy (mainly chemotherapy)	At least four potential anti-CXCR4 competitors in clinical development	Estimated to be <b>c.€274k</b> (c.€267-281k)	<b>Five anti-CXCR4 assets</b> (four Phase II, one Phase I)
<b>Renal cancer</b> <i>(Patients eligible for Sutent)</i>	Estimated to reach <b>c.18k</b> in the US	<b>Low</b> Targeted therapy available, but still some need for better & safer treatments	One potential anti-CXCR4 competitor identified	Estimated to be <b>c.€159k</b> (c.€143-184k)	<b>One anti-CXCR4 asset</b> in Phase II, <b>one asset</b> (LY-2510924) <b>previously failed</b> to show efficacy



Note:

1 Annual cost used as price comparators are indicated for use until progression

Source: Analysis and experience of leading management consulting firm commissioned by the company (2018/9)

# OMPTA Platform

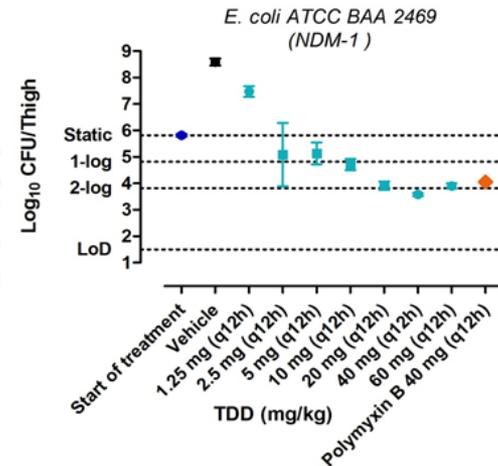
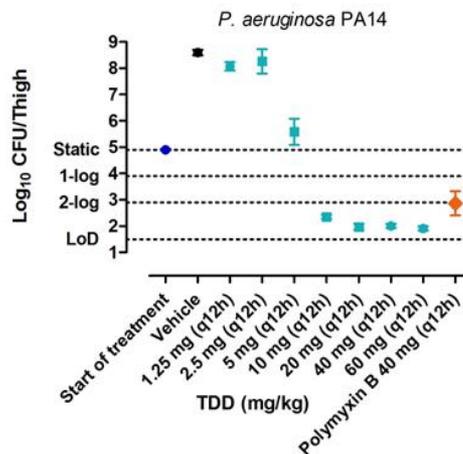
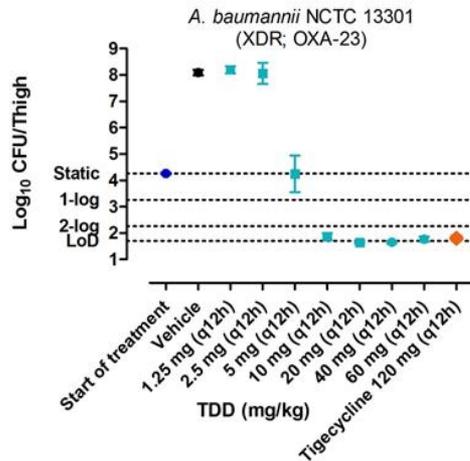
Significant progress in OMPTAs



## Lead preclinical candidate selected – POL7306

- Strong activity against all most resistant Gram-negative strains – including all WHO priority 1 and colistin resistant
- Potency confirmed in-vivo

Neutropenic murine thigh infection models



- Process optimization started – to achieve optimal cost
- IND planned H1/2020

## In addition, backup program launched, to maximize pipeline/ chances of success

# Novo & CARB-X: funding OMPTA

OMPTA program funded up to CHF17.1m; basis for the Swiss Technology Award



- NOVO A/S fund Repair Scope
  - Preclinical to Phase I; antibiotics resistance
  - SMEs in Europe and USA
- Budget - US\$ 165 m (2018-23); up to US\$ 40 m/year in ~20 projects
- **Sept 2018 - NOVO Holding invested CHF 6.8 m to accelerate the development of novel antibiotic against multi-drug resistant Gram-negative pathogens. An additional CHF 4.7 m is dependent on reaching predefined milestones**
- **First of four 2018 investments**



- Global antibiotics funding partnership
- Scope:
  - Preclinical to Phase I
  - Gram-negative and difficult-to-treat bacteria
- Budget - US\$ 500 m (2016-21)
- **Feb 2019 - Polyphor awarded grant of up to USD 5.6 m to support development of novel antibiotic against multi-drug resistant Gram-negative pathogens**



Programs, milestones and commitments fully aligned



- **Polyphor wins the Swiss Technology Award for Innovation and Technology Transfer**

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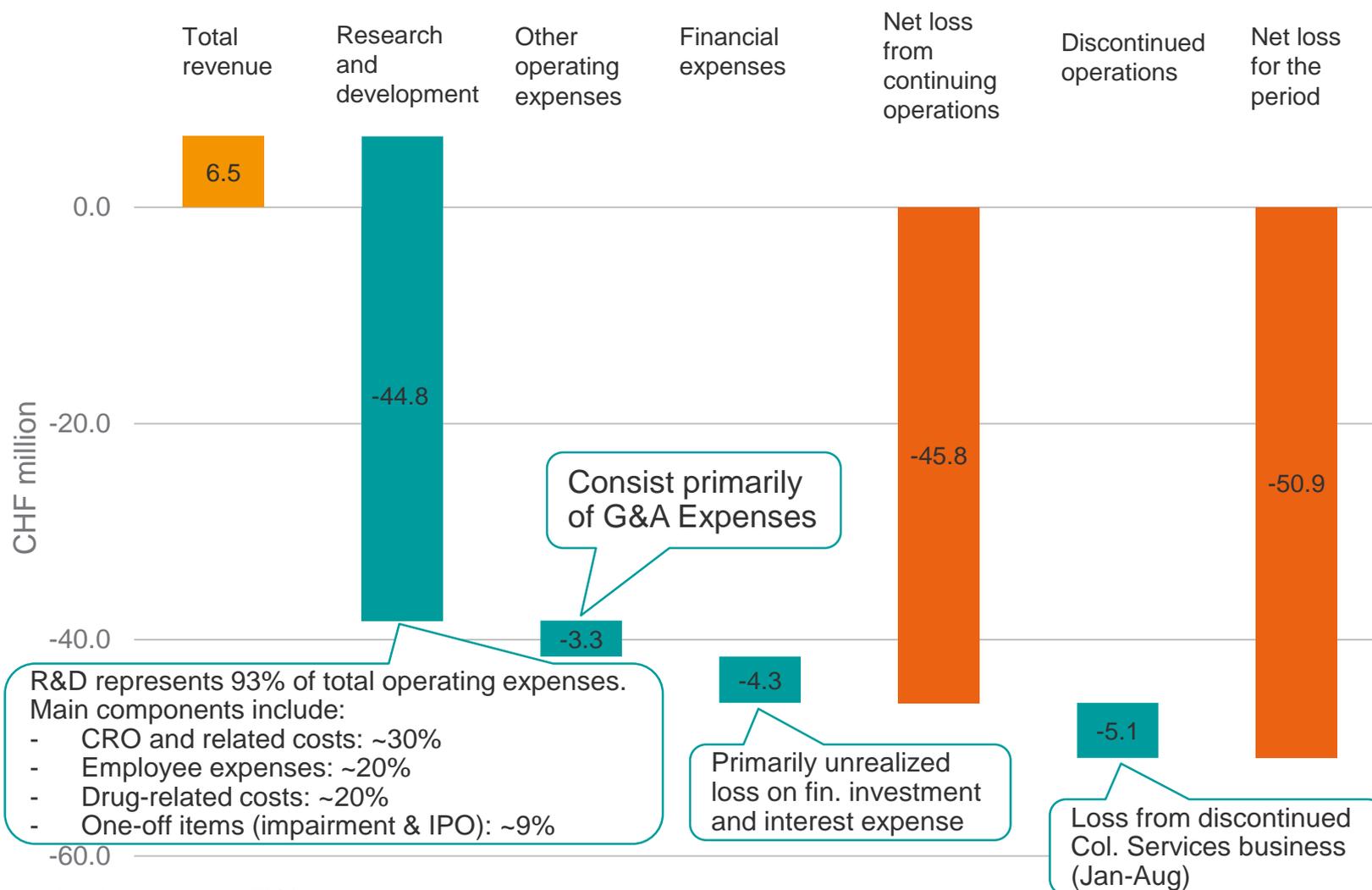
# Financial highlights



- Strong financial position with CHF 133.8 million in cash and cash equivalents as of December 31, 2018
- CHF 6.4 million upfront payment from outlicensing agreement with Santhera for POL6014 in February 2018
- Net cash used in operating activities of CHF 44.0 million in 2018, reflecting further build-out of R&D and clinical pipeline
- Cost base reduced in the restructuring, which was completed in August 2018; cost of CHF 5.1 million reflected as discontinued operations
- Operating loss of CHF 41.6 million and net loss of CHF 50.9 million in 2018
- Company funded until the first value inflection points

# Operating and financial results

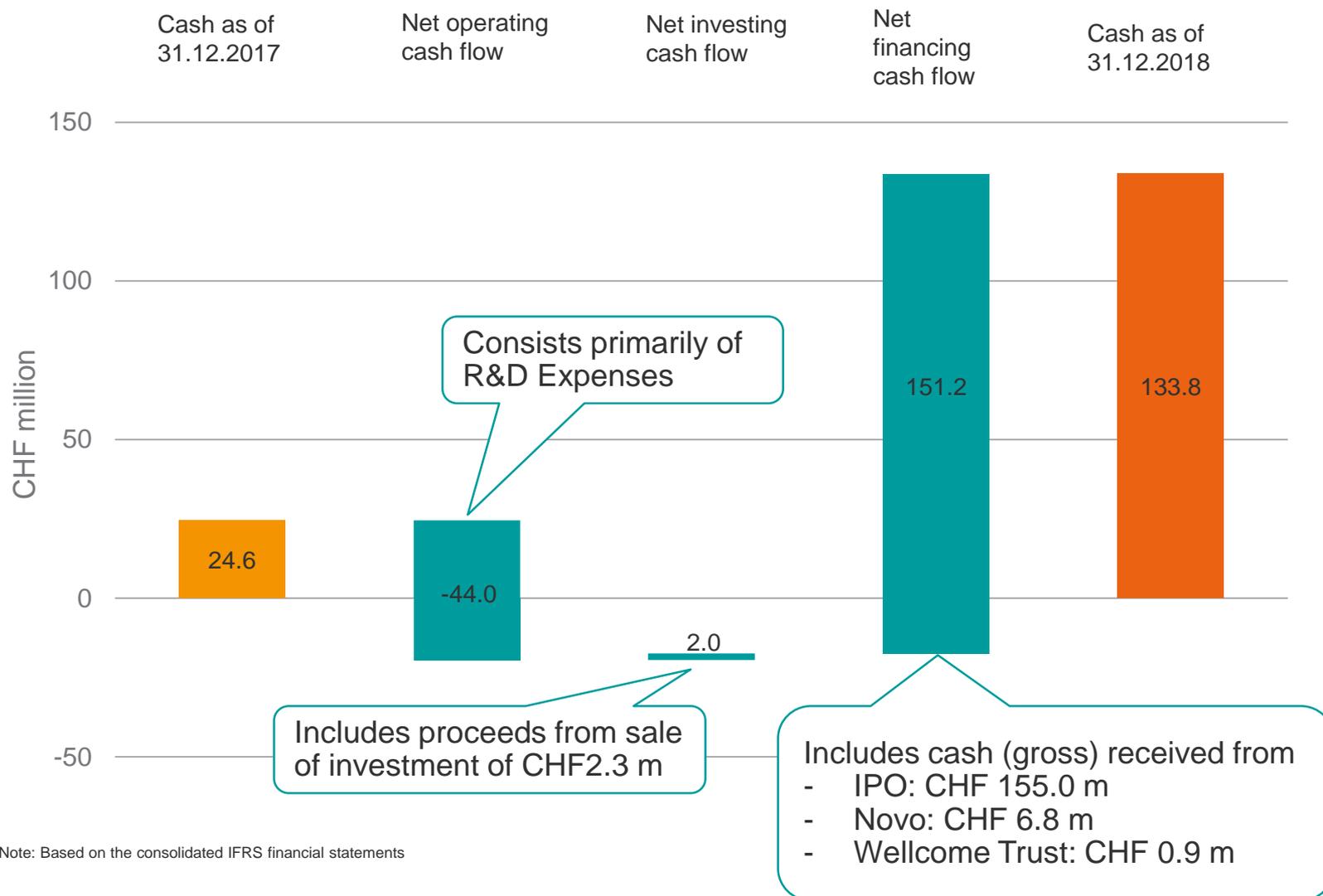
*Driven by R&D expenses*



Note: Based on the consolidated IFRS financial statements

# Cash flow

Cash at year-end in line with guidance and analyst consensus



Note: Based on the consolidated IFRS financial statements

- Unforeseen events excluded, we expect for 2019 operating expenses excluding share based payments and IAS 19 pension adjustment of around CHF 65-80 million.
- The increase versus the previous year is mainly driven by the progress of the company's pipeline, the start of the clinical trials for murepavadin (PRISM-UDR) and balixafortide, as well as the planned growth of the company's workforce.
- This guidance is subject to the progress of the pipeline, mainly driven by the speed of enrolment of patients in clinical trials and data from research and development projects. Timelines and potential milestone payments for existing and potential new partnerships are not disclosed.

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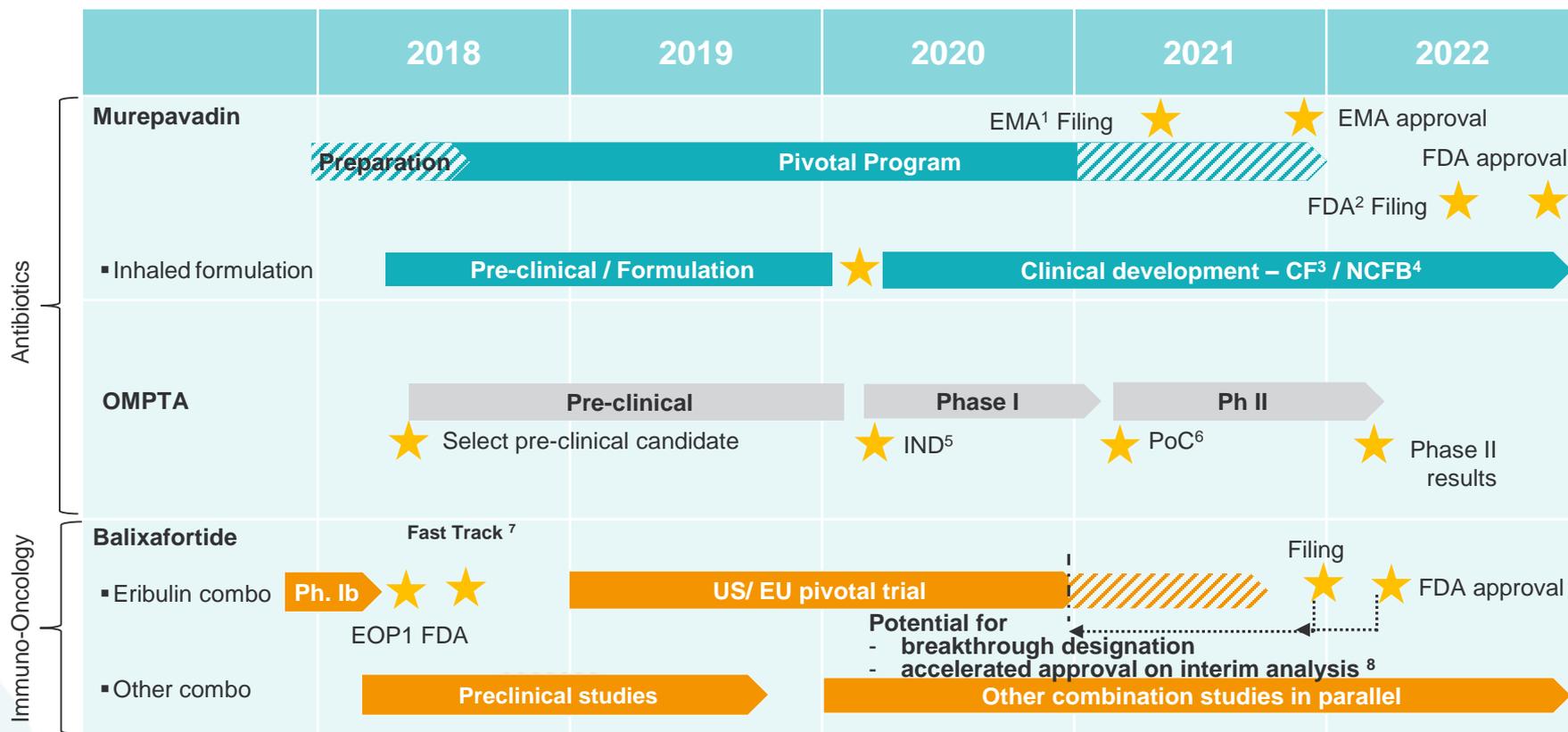
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★ Target timeline      ..... Potential accelerated timeline

Notes:

- 1 European Medicines Agency
- 2 Food and Drug Administration
- 3 Cystic Fibrosis

- 4 Non-Cystic Fibrosis bronchiectasis
- 5 IND= Investigational New Drug (also called CTA in Europe)
- 6 PoC= Proof of Concept

- 7 Fast track status granted
- 8 Conditional approval based on accelerated approval, timelines based on current estimates for recruitment

# Next Steps – short term actions

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## ■ **Murepavadin**

- Continue EMA trial
- FPFV FDA trial
- Progress inhaled

## ■ **Balixafortide**

- FPFV
- Execute preclinical/other studies on BLX and explore potential for extension

## ■ **OMPTA**

- Achieve Novo/Carb-X milestones

## ■ **Complete team and further strengthen the organization with experienced managers to realize the opportunities ahead**

- Medical and Development Head, Commercial Head, Development organization
  - Gokhan Batur, Global Head Antibiotics at MSD/ Merck recruited as CCO
- Transition Plan in the meantime
  - Frank Weber, Board member and former CMO Merck-Serono, has taken over ad-interim CMDO from January 1, 2019
  - Debra Barker continues to assist on a part time basis

## ■ **Achieve year-end guidance**

## Next Steps – long term potential

*2022: A company that has brought two products to the market and all its assets through important Value Inflection Points*

### Murepavadin

- Has read out, filed and is approved and launched in the US and EU
- Has a new inhaled formulation in the clinic – e.g. for Cystic Fibrosis patients

### Balixafortide

- Has read out, filed and is approved and launched in the US and Europe
- Is developing other indications/combinations

### OMPTA Program

- Has a new medium spectrum antibiotic targeted at most resistant Gram-negative strains in the clinic



- Has established itself as the leading innovator in Gram-negative
- Has introduced a new treatment paradigm in breast cancer
- Commercializes its assets through its organization/partnership
- Is globally recognized for its innovative macrocycle therapies

# Summary

*A 2018 of strong progress on many fronts*

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- 1 Substantial IPO, allowing the execution of the plan
- 2 Murepavadin trials positive progress and strong physicians' support
- 3 Balixafortide starting pivotal study, FPFV around mid-2019
- 4 OMPTA Platform progressing well  
- Strong validation and financing with the investment of Novo A/S and Carb-X ('19)
- 5 FY2018 results showing increase in R&D costs due to trials' launch
- 6 Developing an attractive pipeline potentially building substantial value for the patients and the company

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