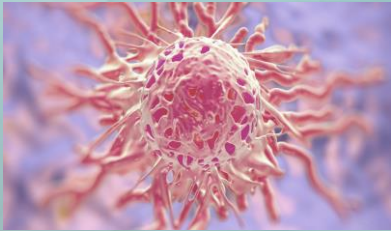
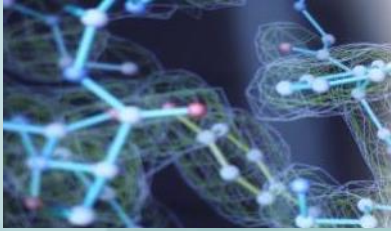


September, 2018  
Investora Zürich



*Pioneering development in novel antibiotics and  
immuno-oncology*

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# Investment Highlights



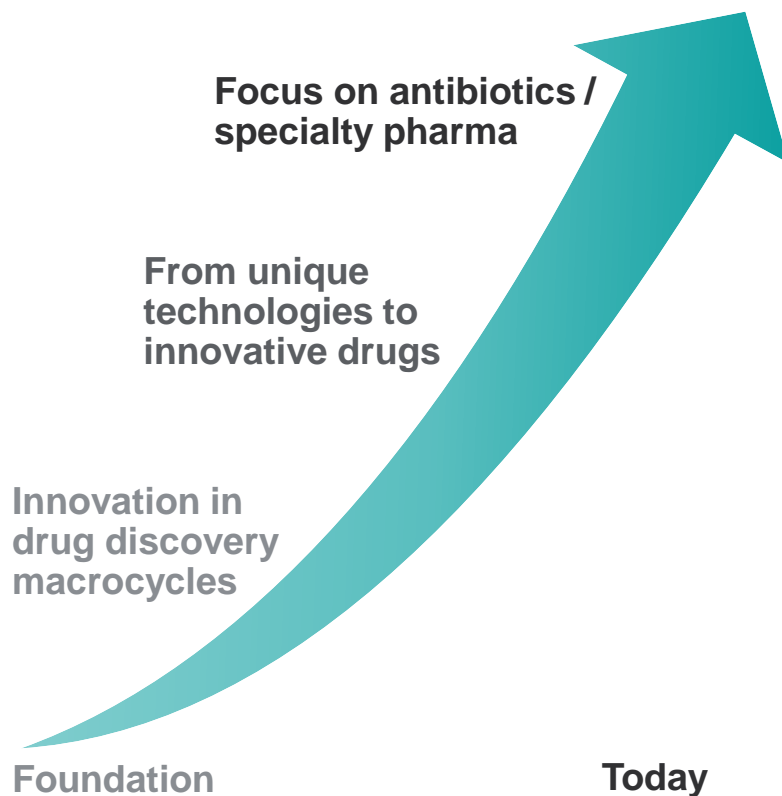
- 1** Polyphor: Innovative biopharmaceutical company with two late-stage clinical products entering final stage of development and with clear path to market
- 2** Pioneering the development of “OMPTA<sup>1</sup>”, potentially the first new class of antibiotics against gram negative bacteria in ~50 years<sup>2</sup>
- 3** Murepavadin: First OMPTA, in Phase III development for nosocomial pneumonia from *Pseudomonas aeruginosa* infections, potentially addressing an overall market opportunity estimated in a US\$2-3 billion range
- 4** Balixafortide: Upside in immuno-oncology, proof of concept demonstrated and potential rapid route to market agreed with the FDA in HER2-negative metastatic breast cancer<sup>3</sup>
- 5** Further upside potential from innovative pipeline—inhaled formulation of Murepavadin (pre-clinical for CF<sup>4</sup>, NCFB<sup>5</sup>), POL6014 (Phase Ib in CF<sup>4</sup>) and new OMPTAs
- 6** Experienced management team with strong support from leading investor base

Notes:

- 1 Outer Membrane Protein Targeting Antibiotic
- 2 University of Minnesota; Centre for Infectious Disease Research and Policy (August 2017)
- 3 In combination with eribulin
- 4 Cystic Fibrosis
- 5 Non Cystic Fibrosis Bronchiectasis

## Become a leading biopharma company focused on antibiotics and specialty diseases


### Evolution



### Rationale

**Focus on antibiotics**

- Supportive regulatory, financing and pricing environment
- ✓ Potentially the only company with a new class / mechanism of action
- ✓ Potentially the only company with pathogen specific precision medicine
- ✓ Focused on high unmet medical need, value and price indications

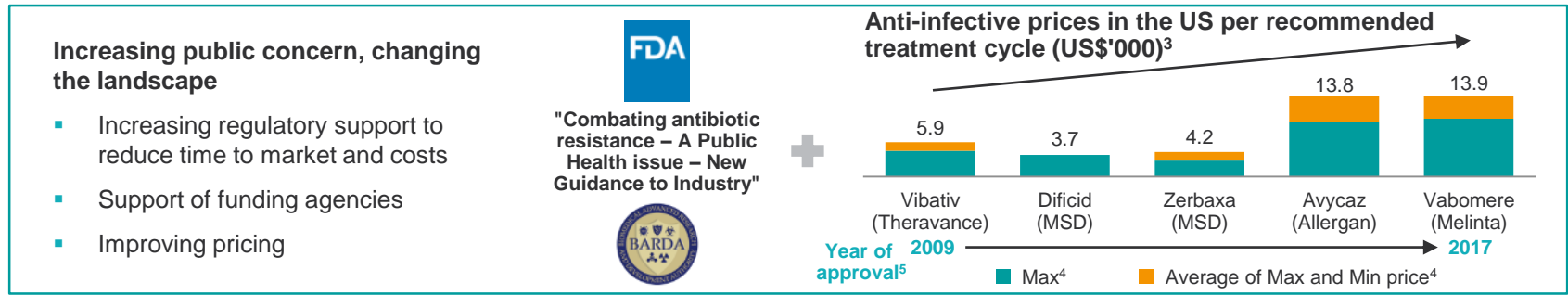
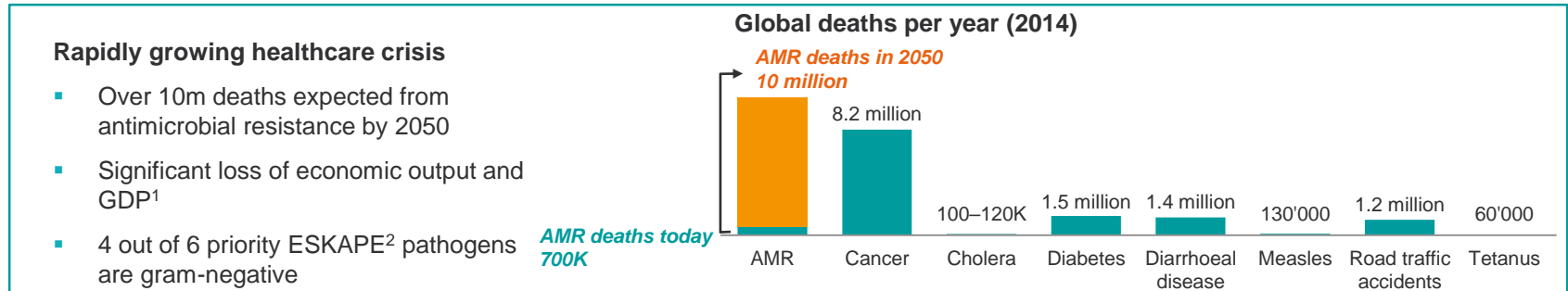


**Upside in immuno-oncology**

- Novel CXCR4 antagonist for combination treatment
- Clinical proof of concept demonstrated and rapid regulatory path agreed with the FDA

# MUREPAVADIN

## Antimicrobial resistance: Driving a major healthcare crisis requiring the development of new antibiotics with novel mechanism of action, especially against gram-negative pathogens



**Antibiotic stewardship changing the treatment paradigm**

- Challenges inappropriate use of antibiotics and encourages precision medicine
  - ✓ Encourages appropriateness of antibiotic regimens
  - ✓ Implements interventions that target patients with specific infectious diseases
  - ✓ Implements interventions reducing the use of antibiotics associated with inducing resistance and or are associated with a high risk of *Clostridium difficile* complications

**Broad Spectrum**

➔

**Precision Antibiotics**

Source: Study by leading pharmaceutical pricing and strategy consultancy firm commissioned by the Company (2018), The Review on Antimicrobial Resistance: Tackling a crisis for the health and wealth of nations (2014), WHO and NCBI

1 Studies by RAND Europe and KPMG estimate that 300 million people are expected to die prematurely because of drug resistance over the next 35 years and the world's GDP will be 2 to 3.5% lower than it otherwise would be in 2050.

2 ESKAPE pathogens: *Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa* and *Enterobacter spp.* *Enterococcus faecium*, *Staphylococcus aureus* are gram positive

3 Shows Wholesale Acquisition Cost (WAC) - the manufacturer's catalog or list price for a drug product to wholesalers; Price does not include any rebates / discounts

4 Max price indicates product of WAC and longest indicated treatment regimen as per the product label; Min and max prices indicate the cost of the drug for the minimum and maximum treatment course duration as mentioned on the labels of each drug

5 Year of approval: Vibativ (2009), Dificid (2011), Zerbaxa (2014), AvyCaz (2015) and Vabomere (2017)

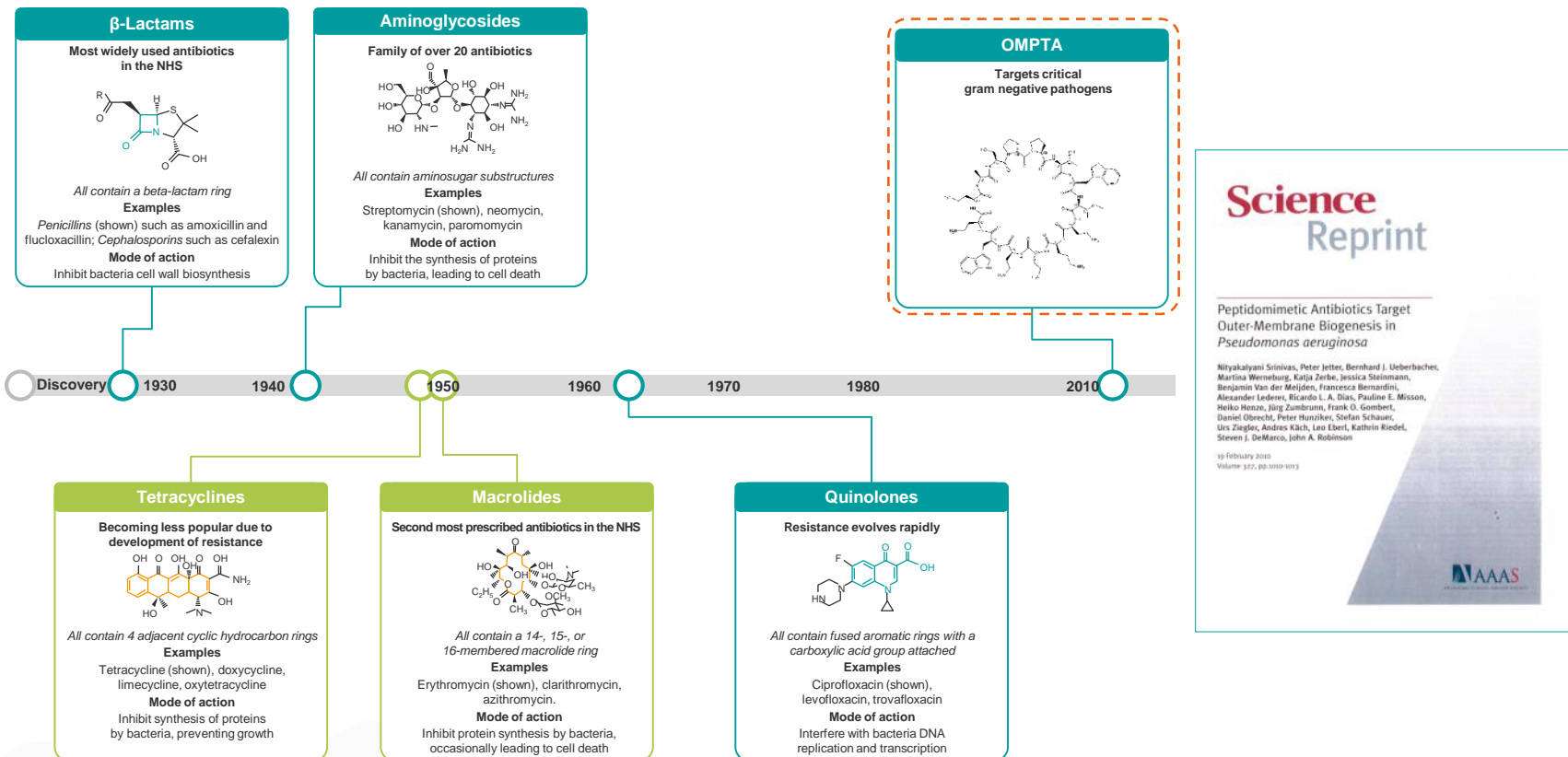
# Polyphor: Pioneering the development of "OMPTA", potentially the first new class of antibiotics to be introduced against gram negative bacteria in ~50 years



New Mechanism of Action—  
targets specifically outer-membrane proteins of gram-negative pathogens.

## Antibiotics class active against gram-negative pathogens by year of discovery

Key: ● Commonly act as bacteriostatic agents, restricting growth and reproduction ● Commonly act as bactericidal agents, causing bacterial cell death



Source: Compound Interest (2014)

# Murepavadin addresses a significant unmet need

*Pseudomonas aeruginosa* is one of the most dangerous pathogens



**World Health Organization**

Critical priority 1 pathogen by WHO<sup>1</sup>



Responsible for 10% of all hospital acquired infections<sup>2</sup>





The 2<sup>nd</sup> leading cause of Nosocomial pneumonia with mortality rates of 30 – 40%<sup>3</sup>



## HABP / VABP due to *P.a.*<sup>4</sup>

Estimated cases per year in 2017 ('000)

|   |           |
|---|-----------|
|  USA:                  | 76 – 82   |
|  EU-15 <sup>5</sup> : | 214 – 228 |
| Total:  | 290 – 310 |

Notes:

- 1 WHO publishes a list of bacteria for which new antibiotics are urgently needed (February 2017)
- 2 Antimicrobial Agents and Chemotherapy; Multidrug-Resistant *Pseudomonas aeruginosa*: Risk Factors and Clinical Impact (2006) Valerie Aloush, Shiri Navon-Venezia, Yardena Seigman-Igra et al.
- 3 As per research published in Chest. 2006;129:1210-1218 Kollef (2006), Critical Care (2015) 19:219 Micek (2015), Intensive Care Med (2013) 39:682–692 Tumbarello (2013), American Journal of Respiratory and Critical Care Medicine. 2013;188(1):69-76. Planquette (2013) and Crit Care Med 2007 Vol. 35, No. 8: 1888-1895 Garnacho-Montero (2007)
- 4 Estimates as per leading management consulting firm commissioned by the company and calculated using US Census Bureau International Database and OECD; Includes confirmed and unconfirmed cases of nosocomial Pneumonia due to *Pseudomonas* infections; Patient split based on 26.3% and 73.7% in US and EU15 respectively (refer to slide 17)
- 5 EU-15 consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK

# Murepavadin: First OMPTA already in late-stage development for *Pseudomonas aeruginosa* infections



- New MoA / New class (OMPTA)<sup>1</sup>

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- Pathogen specific

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- Bactericidal

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- Highly potent including MDR<sup>2</sup> / XDR<sup>3</sup>

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- High lung penetration

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- Low resistance potential

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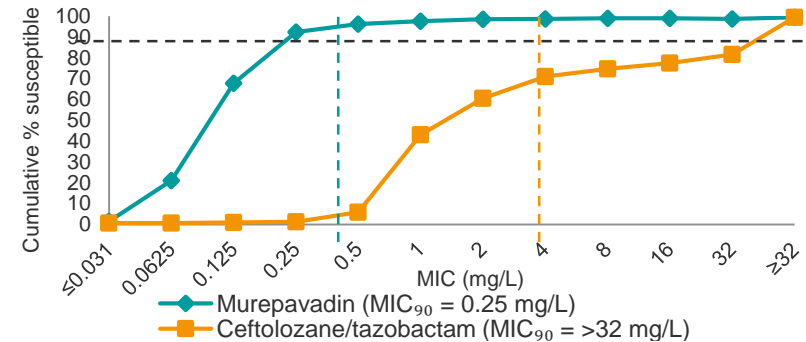
- QIDP<sup>4</sup> (add. 5 year exclusivity) and fast track status

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- Targeted at nosocomial pneumonia

## Highly potent and superior coverage

Cumulative susceptibility on 785 XDR isolates

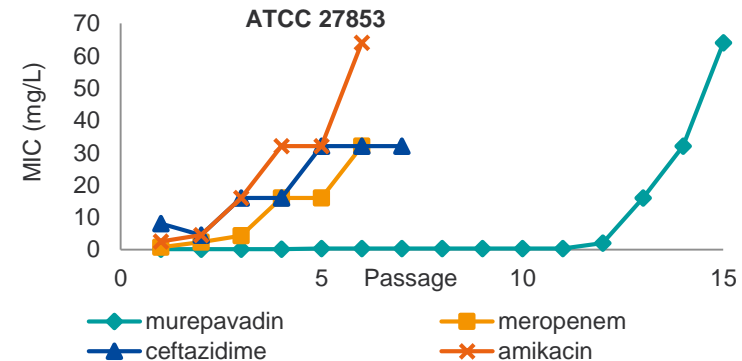


EUCAST breakpoints

- Murepavadin target MIC = 0.5mg / L
- Ceftolozane / tazobactam > 4mg / L

## 2-3x slower development of resistance

Resistance development: serial passage



EUCAST breakpoints

- meropenem >8 mg/L
- ceftazidime >8 mg/L
- amikacin > 16 mg/L

Notes:

- 1 Outer Membrane Protein Targeting Antibiotic
- 2 Multidrug-Resistant
- 3 Extensively Drug-Resistant
- 4 Qualified Infectious Disease Product and fast track designation granted for treatment of VABP due to *Pseudomonas aeruginosa*; 5 years of additional exclusivity

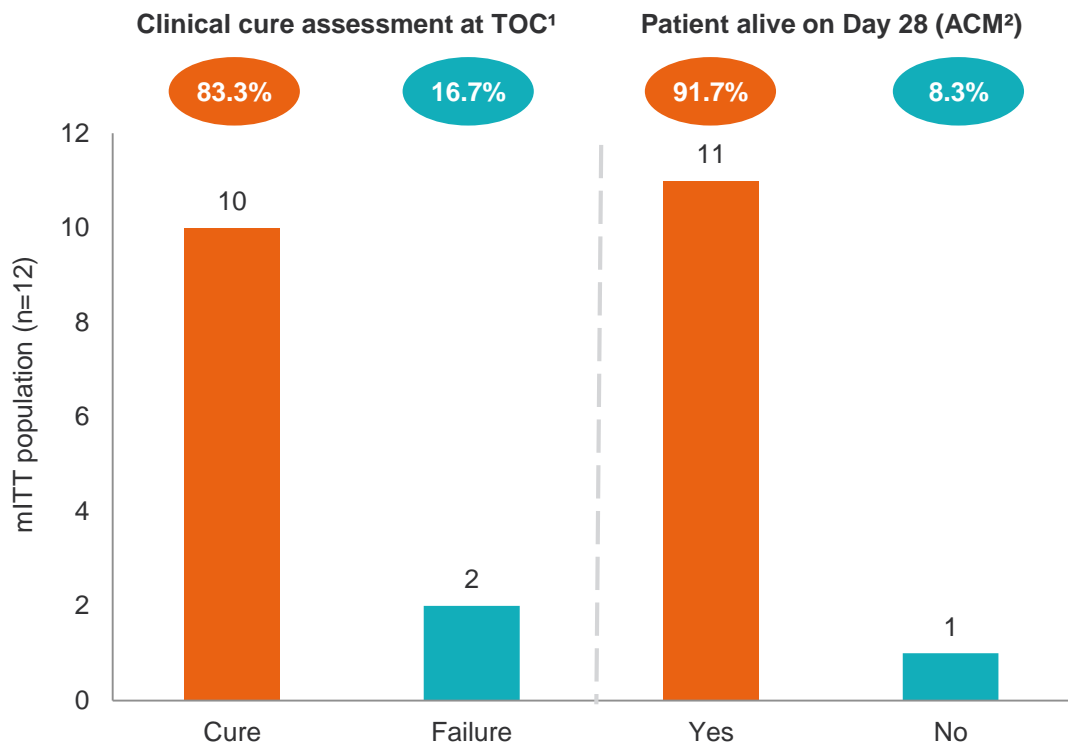


# Murepavadin: Very promising Phase II study results (in MDR/XDR population)



## Positive risk–benefit profile

### Phase II Study – VABP Murepavadin + Standard of Care (SoC) in MDR centers



### Other findings

- Median SOFA<sup>3</sup> score 4.5 → 3.0
- Median CPIS<sup>4</sup> score 10.0 → 5.0
- Median PaO<sub>2</sub>/FiO<sub>2</sub><sup>5</sup> 3 days
- No resistance observed
- Well tolerated in the study<sup>6</sup>

Source: Company information

Notes:

1 Test Of Cure

2 All-Cause Mortality

3 Sepsis-related organ failure assessment

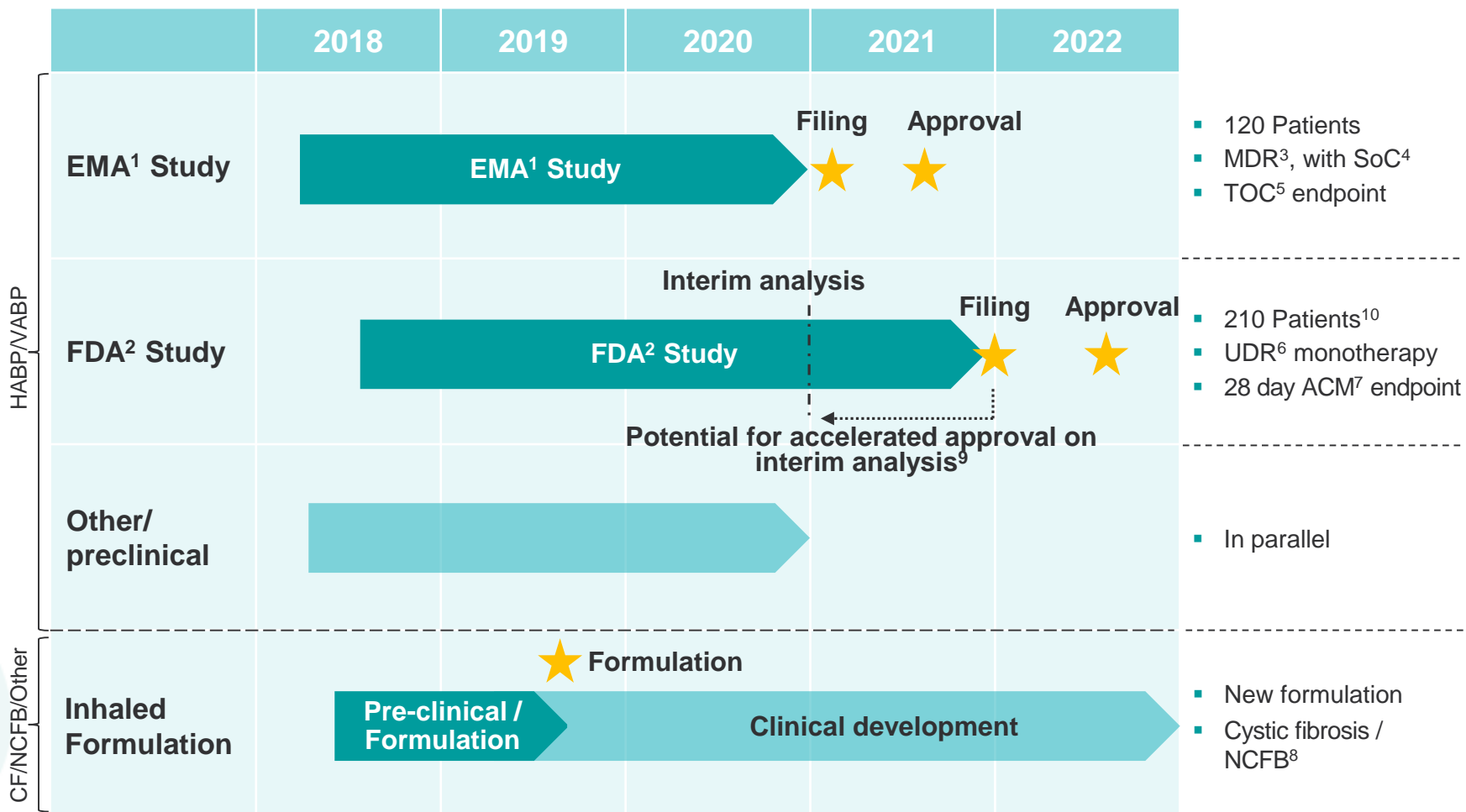
4 Clinical Pulmonary Infection

5 Partial pressure arterial Oxygen and Fraction of inspired Oxygen

6 Possible treatment related serious adverse events included one case of acute renal failure which resolved without sequelae following discontinuation of Murepavadin

27<sup>th</sup>  
ECCMID  
Vienna, Austria  
22 – 25 April 2017

# Murepavadin: Streamlined development pathway agreed with regulators



Note:

- 1 European Medicines Agency
- 2 Food and Drug Administration
- 3 Multi-Drug Resistant
- 4 Standard of Care

- 5 Test of Cure
- 6 Usual Drug Resistance
- 7 All-Cause Mortality
- 8 Non-Cystic Fibrosis bronchiectasis; FDA considering conditional approval on compelling data similar to Oncology compound

- 9 Assuming positive outcome for interim results, filing and approval can be accelerated
- 10 Micro ITT population

★ Target timeline

# Unique profile vs. other antibiotics / companies

Murepavadin compares favourably against its peers



## Antibiotics - Recent Launches / Late Stage Pipeline

|                          | HABP / VABP from <i>Pseudomonas aeruginosa</i>                |   |   |   |   |  | Other infections   |   |  |   |
|--------------------------|---|---|---|---|---|--|--|---|--|---|
|                          | POLYPHOR  | Allergan  | MERCK   | Melinta<br>THERAPEUTICS<br><small>The Antibiotic Company</small>            | MERCK   | SHIONOGI   | basilea<br>PHARMACEUTICALS   | TETRAPHASE<br><small>PHARMACEUTICALS</small>            | ACHAOPEN   | nabriva<br>THERAPEUTICS   |
| Product                  | Murepavadin   | AvyCaz  | Ceftazolanetazobactam (Zerbaxa)   | Meropenem-Vaborbactam (Vabomere)  | Cilastin-imipenem-relebactam  | Cefiderocol  | Ceftobiprole <sup>1</sup> (Zevtera)                                  | Eravacycline  | Plazomicin   | Lefamulin   |
| Class / MoA              | <ul style="list-style-type: none"> <li>New-OMPTAs</li> </ul>  |   |   |   |   |  |  |   |  | <ul style="list-style-type: none"> <li>(Gram-positive)</li> </ul> |
| Spectrum                 | <ul style="list-style-type: none"> <li>Targeted</li> </ul>    | Broad   | Broad   | Broad   | Broad   | Broad  | Broad  | Broad   | Broad  | Broad   |
| Indications <sup>2</sup> | <ul style="list-style-type: none"> <li>HABP / VABP</li> </ul> | <ul style="list-style-type: none"> <li>cUTI</li> <li>cIAI</li> <li>HABP / VABP</li> </ul> | <ul style="list-style-type: none"> <li>cUTI</li> <li>cIAI</li> <li>HABP / VABP</li> </ul> | <ul style="list-style-type: none"> <li>cUTI</li> <li>HABP / VABP</li> </ul> | <ul style="list-style-type: none"> <li>HABP / VABP</li> <li>cUTI</li> <li>cIAI</li> </ul> | <ul style="list-style-type: none"> <li>cUTI</li> <li>CRE</li> <li>AP</li> <li>HABP / VABP</li> </ul> | <ul style="list-style-type: none"> <li>HABP</li> <li>CABP</li> </ul> | <ul style="list-style-type: none"> <li>cIAI </li> </ul> | <ul style="list-style-type: none"> <li>cUTI </li> <li>CRE</li> <li>AP</li> </ul> | <ul style="list-style-type: none"> <li>CABP</li> </ul>            |

New class — OMPTAs     
 Targeted spectrum (Murepavadin)     
 HABP / VABP — 40% mortality

Source: Other company information, Other company websites

Notes:

1 Approved in EU; Only for HABP (excluding VABP)

2 CABP = Community Acquired Bacterial Infection, cIAI = complicated Intra-Abdominal infection, cUTI = complicated Urinary Tract Infection, CRE= Carbapenem-Resistant *Enterobacteriaceae*, AP = Acute Pyelonephritis

Approved     
 Filed

# Murepavadin: Unique market opportunity

*Potential for high price and rapid uptake*



## Distinctive features

- **First member of a new class**

- **Targeted therapy**

- **Focus on HABP/VABP (high mortality)**

## Premium Pricing

*Potential for premium pricing:*

- Novel agent with new mechanism of action

- Low possibility of misuse

- First indication with high unmet need
- ICU setting – highest doses and prices

## Rapid market uptake

*No incentive to spare:*

- New class with low resistance potential

- No impact on other pathogens and microbiome
- Narrow spectrum, consistency with guidelines

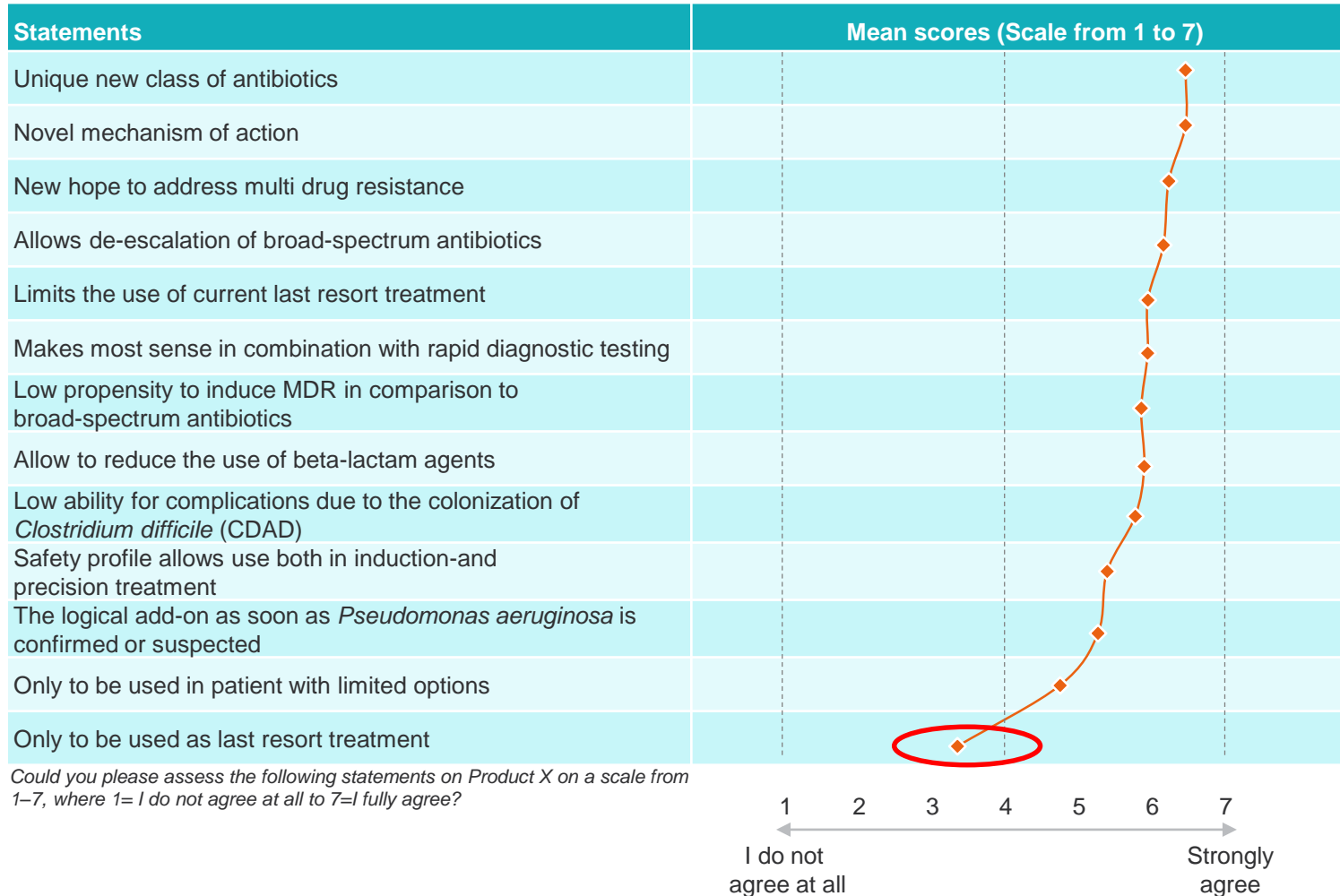
- High mortality / life threatening indication with strong urge to treat

**Validated with specific market research and pricing studies**

# Strong response in a blinded survey of healthcare practitioners



Assessment of product X statements / weighted mean scores per total sample (n=76)<sup>1</sup>  
 (based on “top to bottom” scores)



Source: GFK Research commissioned by the Company (2017)

Note:

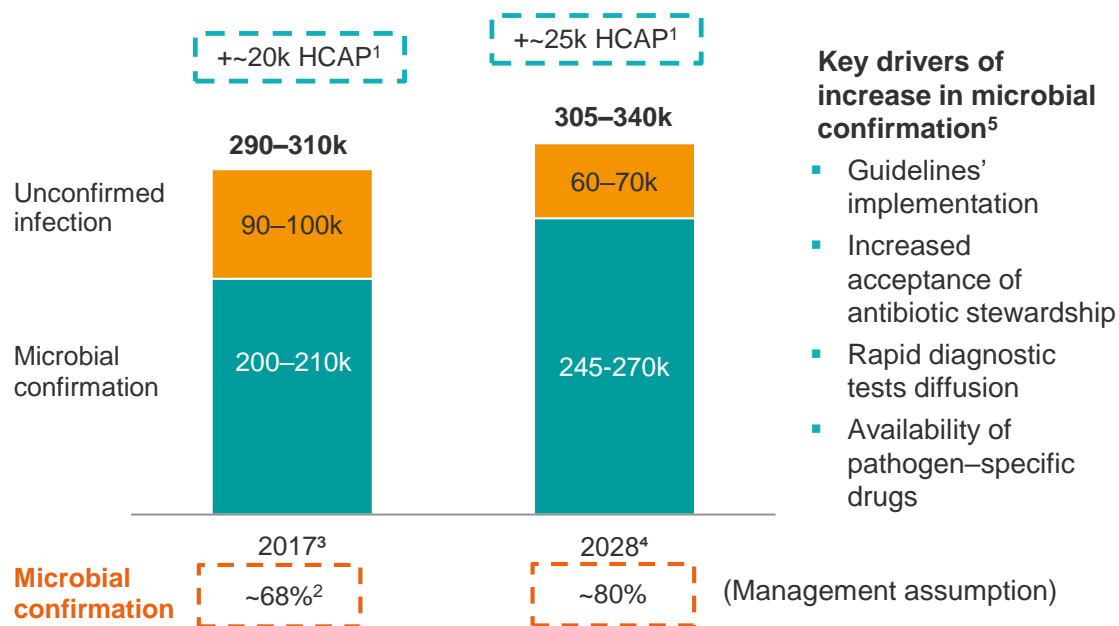
1 76 Intensive care unit specialist+Infectious disease specialist+Nurses+Pharmacists (US, Germany, Italy)

# Murepavadin: Overall potential estimated total market size of US\$2–3bn<sup>2</sup>



## No. of cases of Nosocomial Pneumonia due to *Pseudomonas* infections ('000)

HABP + VABP patient population in US + EU15\*



**Peak market potential of HABP/VABP + MDR HCAP<sup>1</sup> cases due to confirmed *Pseudomonas aeruginosa* — Year 2028**

**US + EU 15 combined: US\$2-3bn**

\*Range based on + / - 5% of estimates from the study by leading management consulting firm commissioned by the Company (2018)

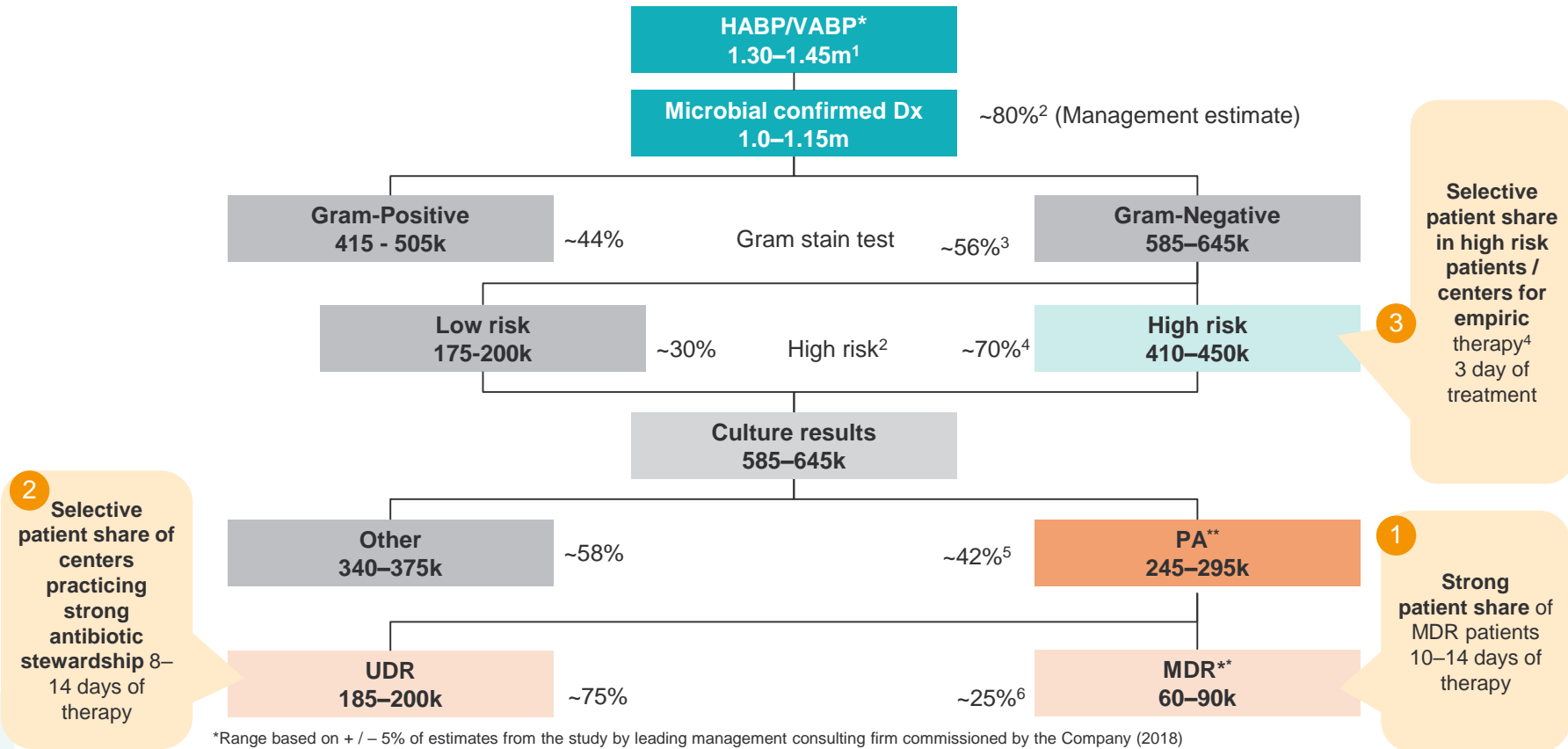
Notes:

- 1 HCAP = Healthcare Associated Pneumonia and only includes MDR patients; As per study by leading management consulting firm commissioned by the Company (2018) citing Kollef (2005) and Venditti (2009); Estimated number of HCAP MDR patients in 2028 represent 25k, indicating US + EU5 for 2022 applied to 2028; 2017 estimates based on 2022 figures of the study
- 2 Based on average of confirmation rates as per Study by leading management consulting firm commissioned by the Company (2018) citing Esperatti (2010), Cardoso (2015), Russell (2015), Webber (2007), Herkel (2016) and Hugonnet (2007)
- 3 Estimates as per leading management consulting firm commissioned by the Company (2018) citing US Census bureau and OECD hospital discharge rates;
- 4 Estimates as per leading management consulting firm commissioned by the Company (2018) using increased microbial confirmation (management assumption), OECD hospital discharge rates and population data (US Census Bureau and OECD); Patient population CAGR calculated at 0.3% for EU15 (2001 – 2015) and 0.8% for US (1995 – 2010) through 2028;
- 5 Based on management view

# Murepavadin: Potential for strong patient share of MDR patients plus use in centers with strong antibiotic stewardship and selective empiric treatment in high risk patients / centers



## HABP + VABP patient population in US + EU15 (2028)



\*Range based on + / - 5% of estimates from the study by leading management consulting firm commissioned by the Company (2018)

\*\* Higher level in the range includes HCAP MDR patients (25k) for US and EU5 for 2022 applied to 2028. Hence is higher than the indicated proportion / tree sum

Notes:

- Estimates as per leading management consulting firm commissioned by the company (2018) and calculated using US Census Bureau International Database and OECD; Incident patient population growth is assumed to be in line with hospital admissions representing 0.3% for EU15 (2001 - 2015) and 0.8% for US (1995 - 2010) through 2028 (patient numbers calculated using OECD hospital discharge rates)
- Management estimate based on increased implementation of antibiotic stewardship programs, emergence of rapid diagnostic tests (including FISH technology vs current reliance on slow microbiological culturing) and availability of pathogen specific drugs such as Murepavadin
- Based on proportion of HAP/VAP cases as per Study by leading management consulting firm commissioned by the Company (2018) citing Esperatti (2010), Russell (2015), Quartin (2013), Rotstein (2008), Richards (1999), and Webber (2007)
- Based on Gram-negative VAP/HAP patients with duration of onset of >5 days(%) as per Study by leading management consulting firm commissioned by the Company (2018) citing Herkel (2016), Gastmeier (2009), Pasquale (2013) and Weber (2007) as well as Gram-negative VAP/HAP patients receiving antibiotics within 90 days prior to onset (%) as per study by leading management consulting firm commissioned by the company (2018) citing Esperatti (2010), Celis (1998) and Pasquale (2013) (Europe averages also applied to US)
- Based on VAP/HAP patients with confirmed *P. aeruginosa* as per study by leading management consulting firm commissioned by the Company (2018) citing Esperatti (2014), Herkel (2016), Torres (2015), Kalanuria (2014), Rello (1998), Hunter (2012), Masterson (2008), NHSN report (2014), Richards (1999), Park (2005), Quartin (2013), Webber (2007), Kollef (2005) and Sievert (2013)
- Based on MDR *P. aeruginosa* infections as per Study by leading management consulting firm commissioned by the Company (2018) citing Tumbarello et al. (2013), ECDC (2016), Micek et al. (2015) and NHSN report (2014)

# IMMUNO-ONCOLOGY

## Balixafortide highlights



*High potential immuno-oncology asset with potential rapid path to market*

- **Most advanced CXCR4 antagonist<sup>1</sup>**
  - Potent and selective CXCR4 antagonist
  - Disruption of CXCR4 and SDF-1 axis renders cancer cells more susceptible to chemotherapy and increases immune cell infiltration into the tumour
  - Potential to enhance the activity of a range of chemo and immunotherapies
  - Optimised to enable higher dosing
- **Clinical proof of concept demonstrated Phase Ib / PoC<sup>2</sup> study in combination with Eribulin**
  - High tumor response rates in late stage and heavily pretreated metastatic breast cancer patients
  - Response rate compares favourably against published data of eribulin alone<sup>3</sup>
- **Development pathway defined**
  - One single pivotal trial agreed with both FDA and EMA
  - Base design: eribulin +/- balixafortide in patients with advanced metastatic breast cancer
  - Fast Track designation received from FDA
- **Targeted upcoming milestones**
  - Protocol finalization
  - End of Phase II meeting with FDA (~year end)
  - Start pivotal study (Q1 2019); first patient in (Q2 2019)

Note:

1 In clinical development for solid tumours

2 PoC = Proof of Concept

3 Reflects an indirect comparison

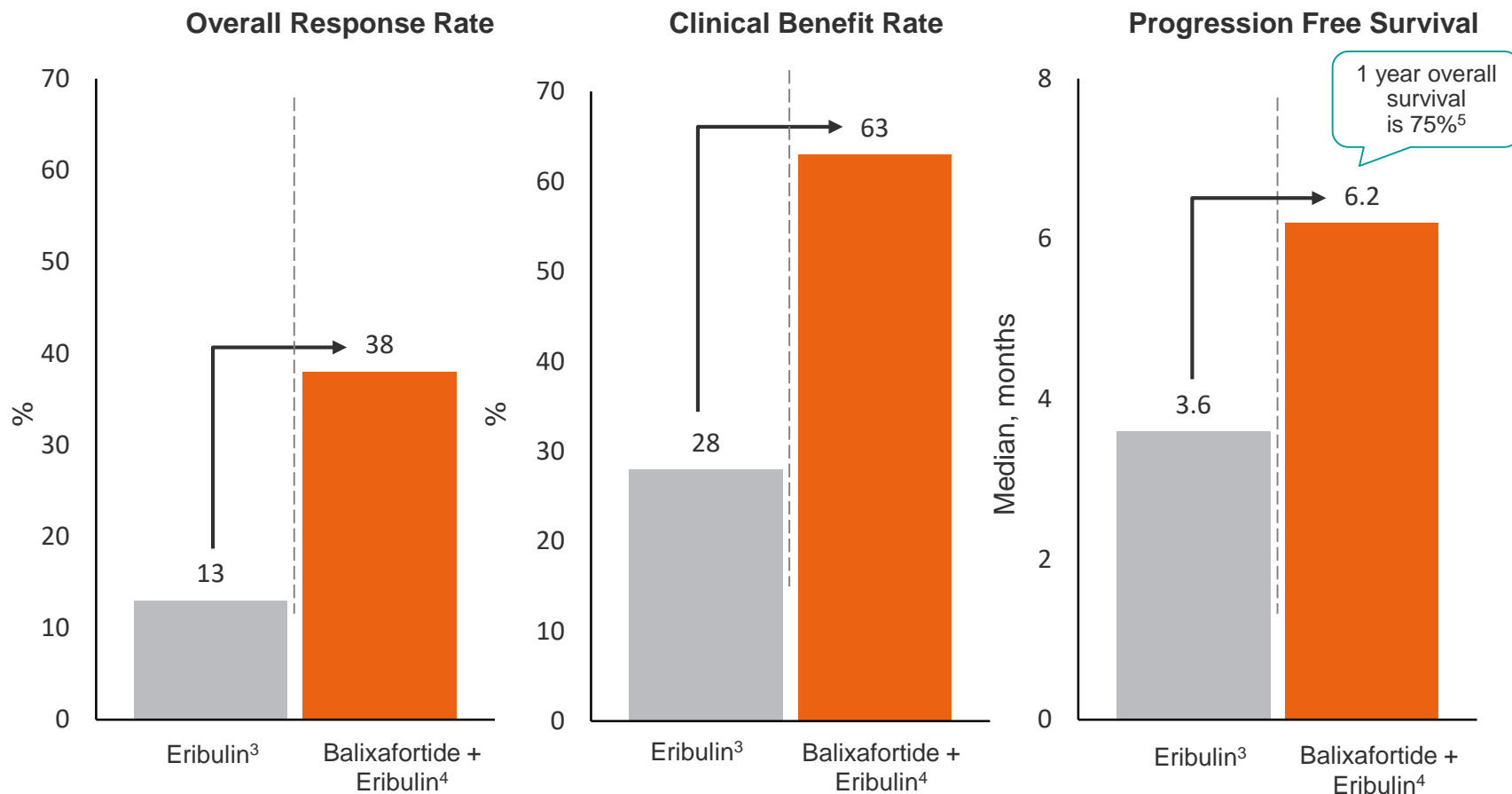


# Pharma pipeline: Balixafortide

*Proof of Concept demonstrated*



**Balixafortide (Ph Ib / PoC) Proof of Concept<sup>1</sup>—Improving treatment of advanced mBC<sup>2</sup> (Open label, n=24)**



Notes:

- 1 Reflects an indirect comparison
- 2 Metastatic Breast Cancer
- 3 "Embrace" Registration Trial for Eribulin
- 4 Polyphor trial – results from dose expansion cohort
- 5 Eribulin alone was 53% in EMBRACE pivotal trial and 64% in Capecitabine trial; Twelves et al., 2014; Cortes et al., 2011

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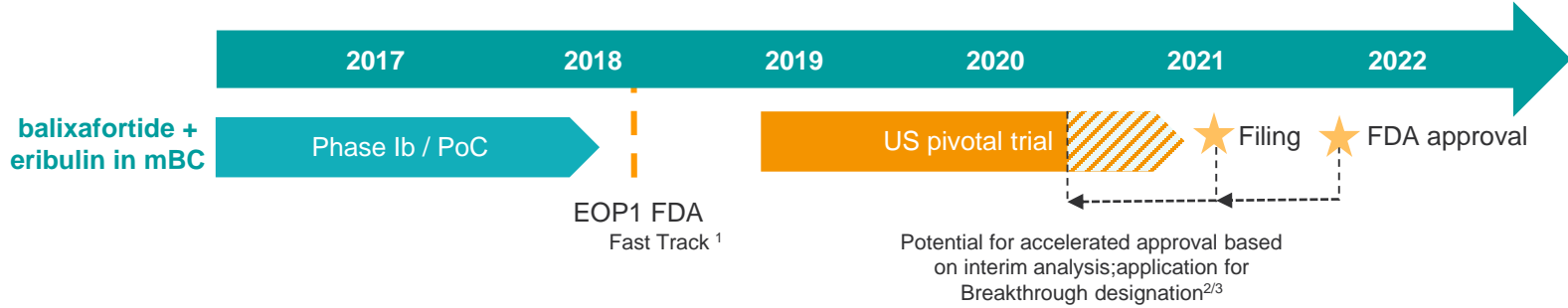
# Balixafortide: Strong development path with accelerated approval potential

*Development, regulatory and partnering strategy*

## Possible regulatory path for Balixafortide in mBC

- Focused registration study to secure rapid initial registration agreed with FDA:
  - Randomised study comparing balixafortide + eribulin to eribulin alone in HER2-negative mBCa with PFS as primary endpoint (320 Patients)
  - Potential for accelerated approval based on interim analysis of ORR
  - CXCR4 expression to be assessed as an exploratory biomarker
- Potential exploratory studies as basis for further indications:
  - With other classes of drugs approved for HER2-negative breast cancer, including capecitabine (Xeloda), palbociclib (Ibrance) or paclitaxel (Abraxane)
  - In additional tumour types depending subject to pre-clinical data (e.g. colo-rectal and pancreatic cancer in combination with check-point inhibitors)
  - May be initiated in parallel to US pivotal trial

## Base Case Scenario – US approval



Source: Company information

1 Fast track status granted  
 2 Conditional approval based on accelerated approval, timelines based on current estimates for recruitment  
 3 Being reviewed to take into account EMA advice

★ Target timeline      ..... Potential accelerated timeline

# OTHER ASSETS

## Further upside from innovative pipeline

Murepavadin (inhaled formulation), OMPTAs and POL6014 provide further upside



| Product / main indications   | Development  | Key trial results   | Comments   |
|--|--|---|--|
| <b>Murepavadin</b><br><b>POL7080</b><br><b>(inhaled)</b><br><br>CF / NCFB <sup>5</sup> | Pre-clinical   | <ul style="list-style-type: none"> <li>Highly potent at low doses</li> </ul>  | <ul style="list-style-type: none"> <li>Orphan indication</li> <li><b>Chronic usage → Potential Treatment Days pre year 2.6K→17.6K (+ 5x)</b></li> <li><b>IMI (EU/EFPIA) Cost contribution of up to EUR5m</b></li> </ul>              |
| <b>OMPTA<sup>1</sup></b><br><br>Gram-negative<br>ESKAPE <sup>2</sup> pathogens         | Pre-clinical   | <ul style="list-style-type: none"> <li><b>Highly effective vs MDR / XDR<sup>3</sup> ESKAPE pathogens</b></li> <li>In vitro and in vivo profile shows good safety</li> </ul> | <ul style="list-style-type: none"> <li>Hospital infections</li> <li>Further compounds</li> <li><b>Novo REPAIR Impact Fund financing of up to CHF11.5m</b></li> </ul>   |
| <b>POL6014<sup>4</sup></b><br><br>Cystic Fibrosis (CF)                                 | Phase Ib<br><i>(out-licensed to Santhera; 3M grant from CFF)</i> | <ul style="list-style-type: none"> <li>Full inhibition of elastase, even at lower dose</li> <li>Well-tolerated</li> </ul>   | <ul style="list-style-type: none"> <li>Orphan drug status</li> <li>Additional potential indications, including NCFB, PCD, AATD<sup>5</sup></li> <li>CHF6.5M Upfront + 121M in Milestones and up to double digit royalties</li> </ul> |

Source: Company information

Notes:

1 OMPTA = Outer Membrane Protein Targeting Antibiotic

2 *Enterococcus faecium, Staphylococcus aureus, Klebisella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, and Enterobacter spp.*

3 MDR = Multi Drug-Resistant; XDR = Extensively Drug-Resistant

4 Out-licensed to Santhera as of 15 Feb-18

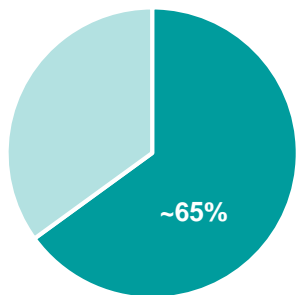
5 CF = Cystic Fibrosis; NCFB = Non-Cystic Fibrosis Bronchiectasis; PCD = Primary Ciliary Dyskinesia; AATD = Alpha-1 Antitrypsin Deficiency

# Further significant potential from the Murepavadin inhaled formulation

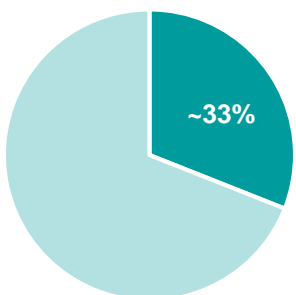


## *Pseudomonas aeruginosa* colonization

CF<sup>1</sup> patients

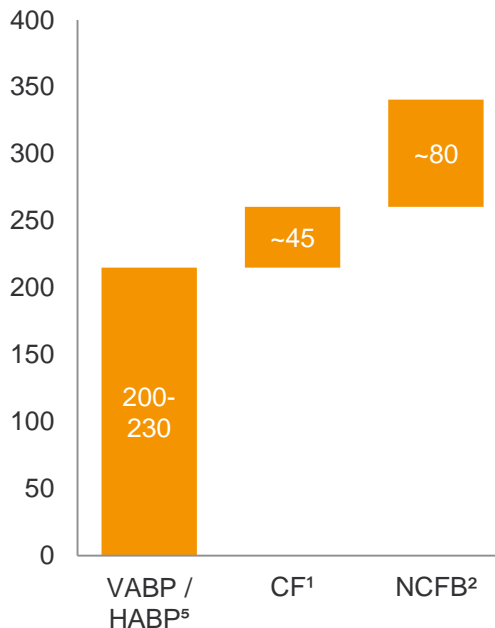


NCFB<sup>2</sup> patients

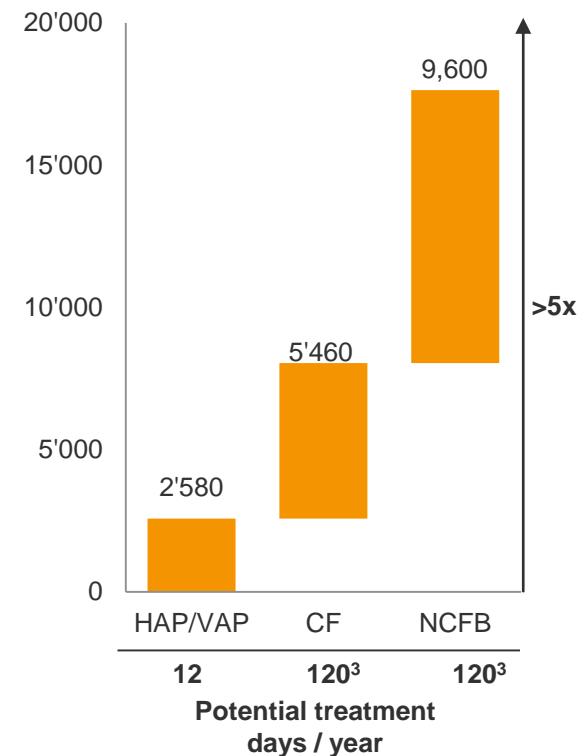


■ PA colonization    ■ Other

## Patient Population w/ *Pa* ('000), 2017



## Potential Tx Days / Yr<sup>4</sup>



### Notes:

- 1 CF Foundation Patient Registry Annual Report 2016; Change in *Pseudomonas aeruginosa* prevalence in cystic fibrosis adults over time (2016) Mathew R. Crull, Kathleen J. Ramos, Ellen Caldwell, Nicole Mayer-Hamblett, Moira L. Aitken and Christopher H. Goss
- 2 European Respiratory Journal 2012 40: P3983 and Respiratory Medicine 117 (2016) 179e189
- 3 FDA.gov, Montserrat Vendrell - The Open Respiratory Medicine Journal. 2015; 9: 30-36, Emma Vázquez-Espinosa - Therapeutics and Clinical Risk Management - Journals. 2015; 11: 407-415, 120 days / year assuming a similar regimen as inhaled tobramycin; Recommended doses as per pack insert of repeated cycles of 28 days followed by 28 off days
- 4 Calculated by taking product of potential treatment days / year and the average number of patients (HAP/VAP: 270\*12, CF: 35\*120, NCFB: 80\*120)
- 5 Estimates as per leading management consulting firm commissioned by the company (2018) and calculated using US Census Bureau International Database and OECD; Includes confirmed cases of nosocomial Pneumonia due to *Pseudomonas* infections only; upper end of range includes 20k HCAP patients

# New OMPTAs – multiple candidates’ generation potential



Targeting the most resistant gram-negative *ESKAPE*<sup>1</sup> pathogens

## Gram-negative infections with limited treatment options

MICs (µg/ml) against resistant isolates

|                      | <i>Acinetobacter baumannii</i> |        |        |        |      | <i>Enterobacter cloacae</i> |        |        |        |        | <i>Escherichia coli</i> |        |        |             | <i>Klebsiella pneumoniae</i> |        |        |        | <i>Pseudomonas aeruginosa</i> |              |       |        |               |         |         |     |     |
|----------------------|--------------------------------|--------|--------|--------|------|-----------------------------|--------|--------|--------|--------|-------------------------|--------|--------|-------------|------------------------------|--------|--------|--------|-------------------------------|--------------|-------|--------|---------------|---------|---------|-----|-----|
|                      | 1061150                        | 863866 | 872842 | 924711 | A461 | 1018083                     | 867213 | 878393 | 885517 | 950265 | 1038407                 | 926415 | 959670 | ESBL 401259 | ESBL 706543                  | 403575 | 501326 | 853420 | 946897                        | ESBL 2130474 | 33570 | 401190 | 500546 (IHMA) | UU 6419 | UU 8352 |     |     |
| <b>OMPTA</b>         | 1                              | 4      | 4      | 2      | 1    | 4                           | 8      | 2      | 4      | 1      | 1                       | 0.5    | 1      | 0.5         | 0.5                          | 2      | 0.5    | 2      | 4                             | 0.5          | 2     | 2      | 8             | 4       | 1       |     |     |
| <b>OMPTA 1</b>       | 0.06                           | 0.125  | 0.06   | 0.03   | 0.06 | 0.125                       | 0.125  | 0.06   | 0.06   | 0.06   | 0.125                   | 0.125  | 0.06   | 0.03        | 0.03                         | 0.125  | 0.06   | 0.25   | 0.25                          | 0.06         | 0.125 | 0.125  | 0.125         | 0.25    | 0.125   |     |     |
| <b>Colistin</b>      | 0.25                           | >64    | >8     | 8      |      |                             |        |        |        |        |                         |        |        |             |                              |        |        |        |                               | 0.125        | 0.5   | 0.5    | 0.5           | 0.5     | 0.25    |     |     |
| <b>Gentamicin</b>    | >64                            | >64    | >8     | 64     |      |                             |        |        |        |        |                         |        |        |             |                              |        |        |        |                               |              | 64    | >64    | >64           | >64     | >64     | >64 |     |
| <b>Tobramycin</b>    | >64                            | 4      | 0.25   | 0.25   | 0    |                             |        |        |        |        |                         |        |        |             |                              |        |        |        |                               |              | 8     | >64    | >64           | 32      | >64     | 32  |     |
| <b>Ciprofloxacin</b> | >64                            | 32     | >8     | >64    | >    |                             |        |        |        |        |                         |        |        |             |                              |        |        |        |                               |              | 4     | 32     | 64            | 32      | >64     | 16  | 8   |
| <b>Ceftazidime</b>   | >64                            | >64    | >8     | 32     |      |                             |        |        |        |        |                         |        |        |             |                              |        |        |        |                               |              | 4     | >64    | 64            | >64     | 16      | >64 | >64 |
| <b>Ceftriaxone</b>   | >64                            | >64    | >8     | >64    |      |                             |        |        |        |        |                         |        |        |             |                              |        |        |        |                               |              | 4     | >64    | >64           | >64     | >64     | >64 | >64 |
| <b>Meropenem</b>     | 16                             | 32     | >8     | 16     |      |                             |        |        |        |        |                         |        |        |             |                              |        |        |        |                               | 4            | ≤0.06 | 4      | >64           | 8       | 64      | >64 |     |

**Up to CHF11.5M Funding**  
 - Tranche 1: CHF 6.8M Equity @IPO Price  
 - Tranche 2: CHF 4.7M Project Financing

■ Sensitive      ■ Resistant

Notes:

<sup>1</sup> ESKAPE pathogens: Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa and Enterobacter spp.

# Polyphor strategic focus



Murepavadin + OMPTA

- Phase III development
- Further develop inhaled formulation
- Develop OMPTA platform to clinic
- Potential for own-commercialisation

Balixafortide

- Leverage rapid development path agreed with Regulatory Authorities
- Co-develop/ Co-commercialize

POL6014

- Out-licensed to Santhera

**May 15, 2018**

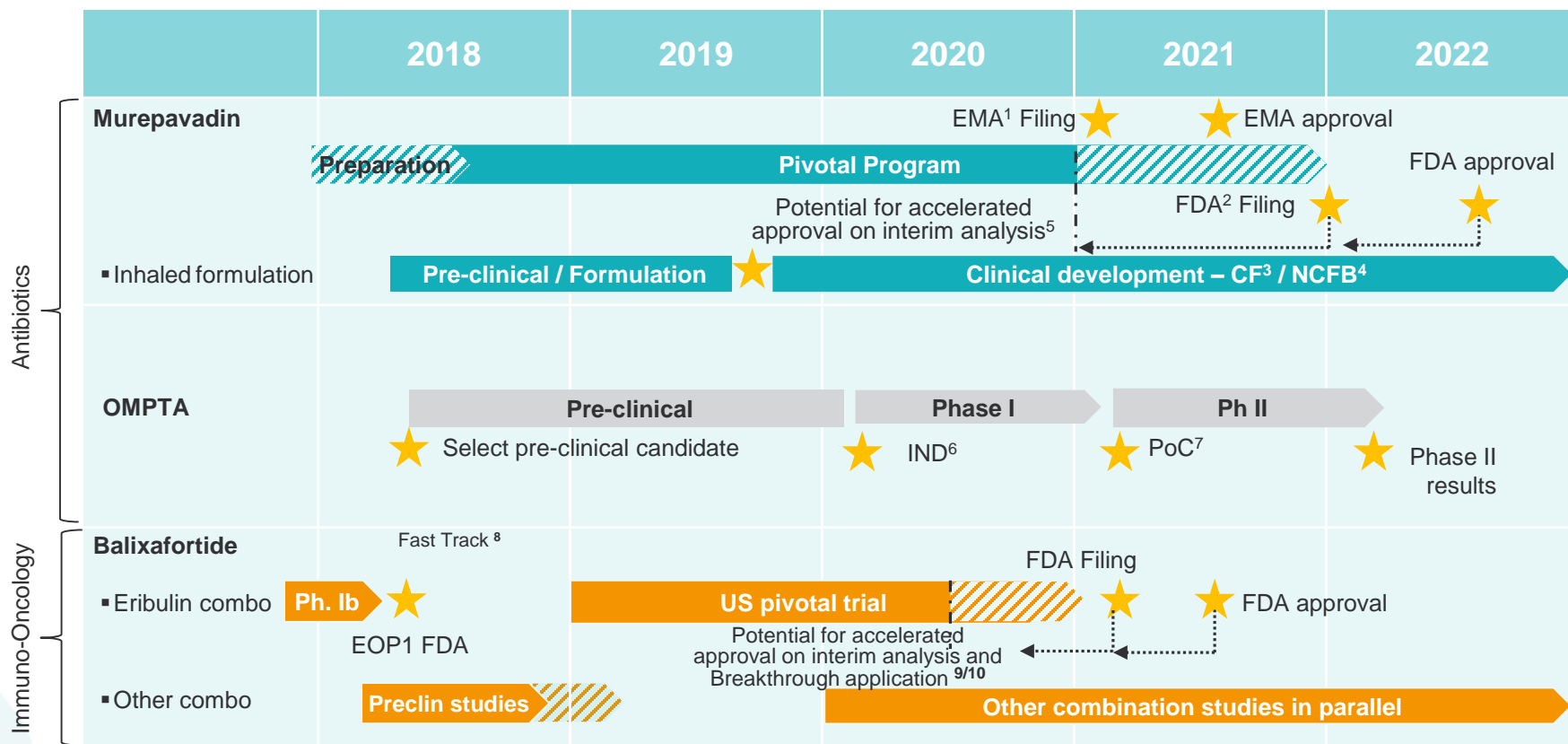
**IPO: CHF 155 M**

## **Funding**

- **Development of murepavadin towards regulatory approval**
- **Co-development of balixafortide**
- **Other and general corporate purpose**

# Strategic roadmap

Clearly defined development plan and value inflection points



★ Target timeline      ..... Potential accelerated timeline

Notes:

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

- 5 Assuming positive outcome for interim results, filing and approval can be accelerated
- 6 IND= Investigational New Drug (also called CTA in Europe)
- 7 PoC = Proof of Concept

- 8 Fast track status granted
- 9 Conditional approval based on accelerated approval, timelines based on current estimates for recruitment
- 10 Being reviewed to take into account EMA advice

# Investment Highlights



- 1** Polyphor: Innovative biopharmaceutical company with two late-stage clinical products entering final stage of development and with clear path to market
- 2** Pioneering the development of “OMPTA<sup>1</sup>”, potentially the first new class of antibiotics against gram negative bacteria in ~50 years<sup>2</sup>
- 3** Murepavadin: First OMPTA, in Phase III development for nosocomial pneumonia from *Pseudomonas aeruginosa* infections, potentially addressing an overall market opportunity estimated in a US\$2-3 billion range
- 4** Balixafortide: Upside in immuno-oncology, proof of concept demonstrated and potential rapid route to market agreed with the FDA in HER2-negative metastatic breast cancer<sup>3</sup>
- 5** Further upside potential from innovative pipeline—inhaled formulation of Murepavadin (pre-clinical for CF<sup>4</sup>, NCFB<sup>5</sup>), POL6014 (Phase Ib in CF<sup>4</sup>) and new OMPTAs
- 6** Experienced management team with strong support from leading Swiss investor base

Notes:

- 1 Outer Membrane Protein Targeting Antibiotic
- 2 University of Minnesota; Centre for Infectious Disease Research and Policy (August 2017)
- 3 In combination with eribulin
- 4 Cystic Fibrosis
- 5 Non Cystic Fibrosis Bronchiectasis



**Thank you**



POLYPHOR

# Appendix

## Financial Highlights

# Financial highlights

## P&L overview

### Income statement

| CHFm   | 30.06.18 | 30.06.17 | Diff. (%) |
|--|----------|----------|-----------|
| <b>Revenue</b>   |          |          |           |
| <b>Total revenue</b>                                       | 1 7.0    | 2.8      | 150       |
| <b>Costs and operating expenses</b>                        |          |          |           |
| Research and development                                   | 2 (21.7) | (15.3)   | 42        |
| Marketing and sales  | (0.6)    | (1.3)    | -55       |
| General and administrative                                 | 3 (2.8)  | (2.0)    | 38        |
| Capitalized costs of Technology Platforms and other income | 0.2      | 0.9      | -77       |
| <b>Net operating expenses</b>                              | (24.9)   | (17.7)   | 41        |
| <b>Operating loss</b>                                      | (18.0)   | (14.9)   | 20        |
| <b>Other Income/(expenses)</b>                             |          |          |           |
| Financial result   | 4 (2.9)  | (0.2)    | n.m.      |
| <b>Net loss for the period</b>                             | (20.8)   | (15.1)   | 37        |

### Comments

- 1 CHF 6.4m received in form of Santhera shares for POL6014
- 2 Increase driven by the clinical trials and extraordinary costs:
  - CHF 1.1m related to the IPO
  - CHF 2.8m impairment of technology platforms and leasehold improvements
- 3 Increase in H1-18 due to IPO costs and change in the allocation key
- 4 Includes CHF 2.3m loss on Santhera shares, mostly unrealized, interest expense and foreign exchange gains and losses

# Cash flow and balance sheet overview

## Selected cash flow items

| CHFm   | H1-18        | H1-17        | Diff. (%)   |
|--|--------------|--------------|-------------|
| Net cash from operating activities               | 1 (17.9)     | (13.8)       | 30          |
| Net cash from investing activities               | 2 1.1        | (1.0)        | n.m.        |
| Net cash flow from financing activities          | 3 144.9      | 10.2         | n.m.        |
| <b>Net increase/decrease in cash equivalents</b> | <b>128.1</b> | <b>(4.5)</b> | <b>n.m.</b> |
| <b>Cash and cash equivalents as of June 30</b>   | <b>152.6</b> | <b>10.0</b>  | <b>n.m.</b> |
| Average net cash burn*                           | (2.8)        | (2.5)        | 14          |

## Selected balance sheet items

| CHFm  | 30.06.18     | 31.12.17    | Diff. (%)   |
|---|--------------|-------------|-------------|
| <b>Assets</b>                                     |              |             |             |
| Cash equivalents and financial assets             | 155.6        | 24.6        | n.m.        |
| Accounts receivable and prepaid expenses          | 1.6          | 3.1         | -48         |
| <b>Total current assets</b>                       | <b>157.2</b> | <b>27.6</b> | <b>n.m.</b> |
| Property, plant and equipment (PPE)               | 4 3.3        | 4.4         | -23         |
| Technology Platforms                              | 5 4.9        | 7.8         | -37         |
| <b>Total non-current assets</b>                   | <b>8.7</b>   | <b>12.6</b> | <b>-31</b>  |
| <b>Total assets</b>                               | <b>165.9</b> | <b>40.3</b> | <b>n.m.</b> |
| <b>Liabilities and shareholders' equity</b>       |              |             |             |
| <b>Total current liabilities</b>                  | <b>11.8</b>  | <b>11.4</b> | <b>4</b>    |
| Pension liabilities                               | 6 6.4        | 7.3         | -12         |
| Other non-current liabilities                     | 7 2.5        | 4.3         | -42         |
| <b>Total non-current liabilities</b>              | <b>8.9</b>   | <b>11.5</b> | <b>-23</b>  |
| <b>Total shareholders' equity</b>                 | <b>145.3</b> | <b>17.3</b> | <b>n.m.</b> |
| <b>Total liabilities and shareholders' equity</b> | <b>165.9</b> | <b>40.3</b> | <b>n.m.</b> |

Note:

\* represents the average monthly cash used for operating and investing activities

## Comments

- 1 Increase due to higher R&D costs and IPO-related expenses
- 2 Includes maintenance of infrastructure and IT, capitalized costs of technology platforms in H1-17 and CHF 1.2m proceeds from sale of financial assets in H1-18
- 3 H1-18 includes CHF 144.2m net proceeds from IPO; H1-17 includes CHF 9.8m net proceeds from private placement
- 4 Includes impairment of CHF 0.5m in H1-18 due to rebuilding of some laboratories into offices (consolidation in one building)
- 5 Includes impairment charge on technology platforms of CHF 2.3m in H1-18 and CHF 5.7m per 31.12.2017
- 6 Defined contribution plan under Swiss pension accounting framework. Classified as defined benefit plan under IAS19. The decrease reflects the release of 35 employees
- 7 H1-17 includes CHF 4.8m interest bearing liabilities of which CHF 1.3m relate to a convertible loan, which was converted into shares at IPO