



## Investor Presentation

*Citi's Annual BioPharma Conference  
Boston  
September 9, 2020*



*...at Hansa Biopharma we envision a world where all patients  
with rare immunologic diseases can lead long and healthy lives...*

# Forward-looking statement

This presentation may contain certain forward-looking statements and forecasts based on our current expectations and beliefs regarding future events and are subject to significant uncertainties and risks since they relate to events and depend on circumstances that will occur in the future. Some of these forward-looking statements, by their nature, could have an impact on Hansa Biopharma's business, financial condition and results of operations [or that of its parent, affiliate, or subsidiary companies]. Terms such as “anticipates”, “assumes”, “believes”, “can”, “could”, “estimates”, “expects”, “forecasts”, “intends”, “may”, “might”, “plans”, “should”, “projects”, “will”, “would” or, in each case, their negative, or other variations or comparable terminology are used to identify forward-looking statements. There are a number of factors that could cause actual results and developments to differ materially from those projected, whether expressly or impliedly, in a forward-looking statement or affect the extent to which a particular projection is realized. Such factors may include, but are not limited to, changes in implementation of Hansa Biopharma's strategy and its ability to further grow; risks and uncertainties associated with the development and/or approval of Hansa Biopharma's product candidates; ongoing clinical trials and expected trial results; the ability to commercialize imlifidase if approved; changes in legal or regulatory frameworks, requirements, or standards; technology changes and new products in Hansa Biopharma's potential market and industry; the ability to develop new products and enhance existing products; the impact of competition, changes in general economy and industry conditions and legislative, regulatory and political factors.

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# Business update September



# Imlifidase has received conditional approval in the European Union

## Imlifidase in kidney transplantation

### EMA (Europe)

- imlifidase received conditional approval for *“desensitization treatment of highly sensitized adult kidney transplant patients with a positive crossmatch against an available deceased donor”*
- The MAA for imlifidase in kidney transplant was accepted for review by EMA back in 2019 based on data from four completed phase 2 studies across Sweden, France and the US

### FDA (US)

- Given the existence of the US Kidney Allocation System (KAS), FDA has requested a Randomized Controlled Trial to be completed prior to potential submission of a BLA (Exp. 2023)
- Proposed study protocol submitted June 2020 and discussions are currently ongoing with the FDA. Once the final protocol has been agreed upon, Hansa Biopharma will proceed to set up centers in the US and start to enroll patients
- Given the continued impact of the COVID-19 pandemic in the US affecting patient enrollment and the timeline for the finalization of the study protocol Hansa expects recruitment of the first patient to be in H1 2021 (previously Q4 2020)



# First read-out in the Anti-GBM study in Q3'20. Recruitment in AMR & GBS expected to be reinitiated in Q4'20

## Ongoing Phase 2 programs

Enrollment status  
end Q2'2020



### Anti-GBM (investigator-initiated study)

- 15/15 patients enrolled in anti-GBM across 5 European countries
- First data read-out expected in Q3 2020



### Antibody Mediated Rejection

- 4/30 patients enrolled in AMR study.
- Recruitment is expected to be reinitiated in Q4 2020\*
- Enrollment is expected to be completed H2 2021



### Guillain-Barré Syndrome

- 4/30 patients enrolled in GBS study
- Recruitment is expected to be reinitiated in Q4 2020\*
- Enrollment is expected to be completed in H2 2021

■ Patients enrolled  
■ Patients left

\* Recruitment process was been impacted in Q2 following the COVID-19 virus pandemic causing a 3-6 months delay



# Broad pipeline in transplantation and auto-immune diseases

Candidate / Project	Indication	Research/ Preclinical	Phase 1	Potentially Pivotal/ Phase 2	Phase 3	Marketing Authorization	Marketed	Next Anticipated Milestone
Imlifidase	EU: Kidney transplantation in highly sensitized patients <sup>1,2</sup>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div>*)</div>	EU: Commercial launch Q4 2020
	US: Kidney transplantation in highly sensitized patients <sup>1,2</sup>	<div></div>	<div></div>	<div></div>	<div>**)</div>	<div></div>	<div></div>	First patient dosed H1 2021
	Anti-GBM antibody disease <sup>3</sup>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	High-level data read-out Q3 2020
	Antibody mediated kidney transplant rejection (AMR)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Complete enrolment of 30 patients H2'21
	Guillain-Barré syndrome (GBS)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Complete enrolment of 30 patients H2'21
NiceR	Recurring treatment in autoimmune disease, transplantation and oncology	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Development of CMC process / Tox studies
EnzE	Cancer immunotherapy	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Research phase

Completed

Ongoing

<sup>1</sup> Results from the Phase 1 study have been published, Winstedt et al. (2015) PLOS ONE 10(7)

<sup>2</sup> Lorant et al American Journal of Transplantation and 03+04 studies (Jordan et al New England Journal of Medicine)

<sup>3</sup> Investigator-initiated study by Mårten Segelmark, Professor at the universities in Linköping and Lund

\*) The EU Commission has granted conditional approval for imlifidase in highly sensitized kidney transplant patients. A post-approval study will commence in parallel with the launch

\*\*) FDA: Proposed study protocol submitted June 2020. Discussions are currently ongoing with the FDA. Once the final protocol has been agreed upon, Hansa Biopharma will proceed to set up centers in the US and start to enroll patients. Given the continued impact of the COVID-19 pandemic and the timeline for the finalization of the study protocol Hansa expect recruitment of the first patient to be in H1 2021



# Exclusive agreement with Sarepta Therapeutics to develop and promote imlifidase as pre-treatment ahead of gene therapy in select indications

## A unique opportunity to combine efforts...

...and to use the unique features of imlifidase to potentially enable gene therapy treatment in patients who today aren't eligible for these breakthrough therapies due to pre-existing neutralizing antibodies in two indications with a very high unmet medical need

## Structure of the partnership

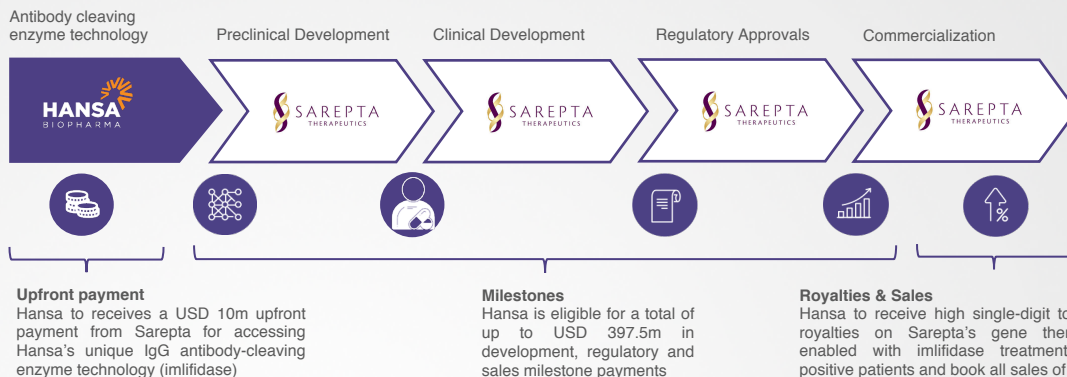
Sarepta will be responsible for conducting

- Preclinical/clinical studies with imlifidase
- Regulatory approvals
- Promotion of imlifidase as a pre-treatment to Sarepta's gene therapies following potential approval

Hansa will supply product, support with know-how and involve in the regulatory approval process

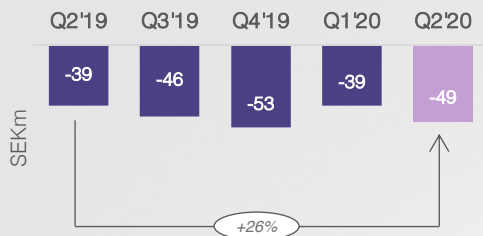
## Hansa's financial participation

Potential total deal value for Hansa amounts to up to USD ~400m in milestones plus royalties and incremental imlifidase sales

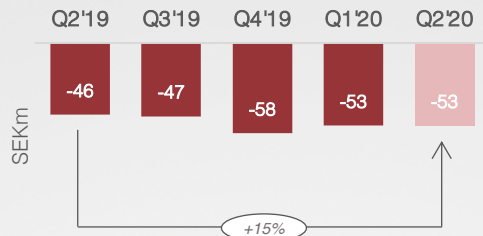


# Hansa Biopharma continues to invest in the R&D pipeline and the preparation towards the commercial launch

SG&A expenses (Q/Q)



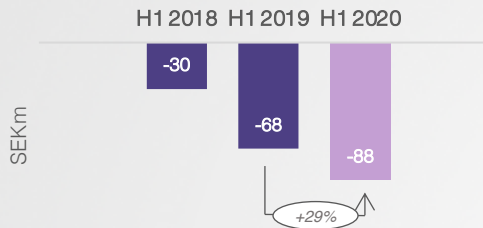
R&D expenses (Q/Q)



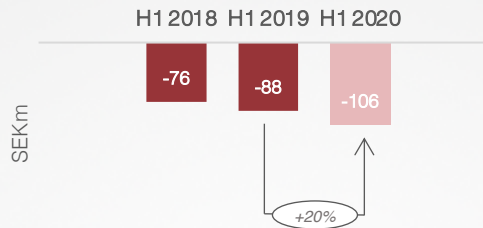
Net loss (Q/Q)



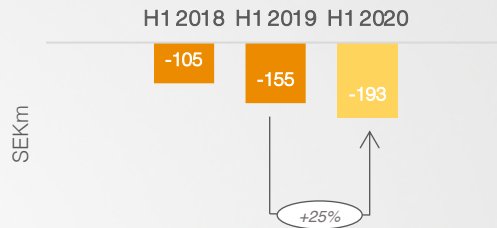
SG&A expenses (H1/H1)



R&D expenses (H1/H1)

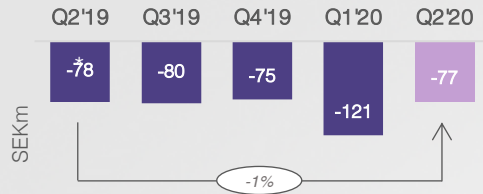


Net loss (H1/H1)

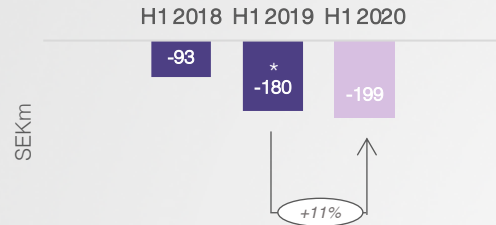


# Capital injection from the issue of 4.4m new shares (SEK 1.1bn) and upfront payment from Sarepta (SEK ~100m) will finance Hansa into 2023

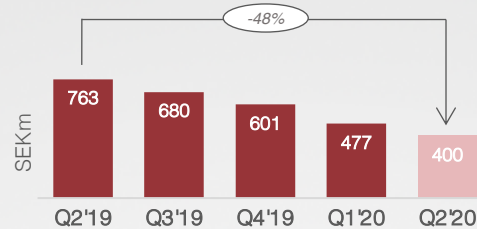
Operating cash flow (Q/Q)



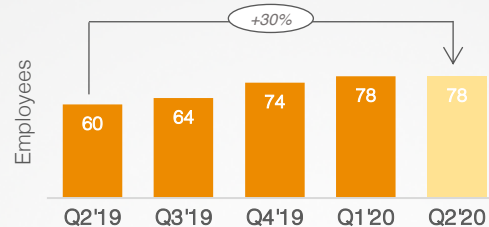
Operating cash flow (H1/H1)



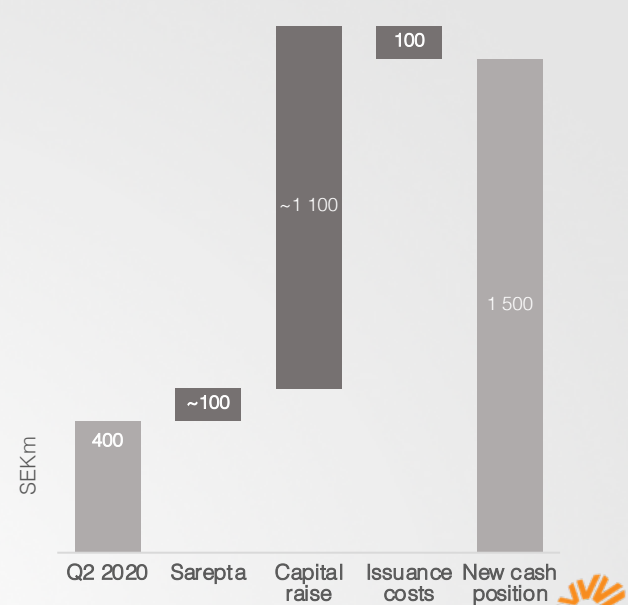
Cash & short term investments (Q/Q)



Number of employees (Q/Q)

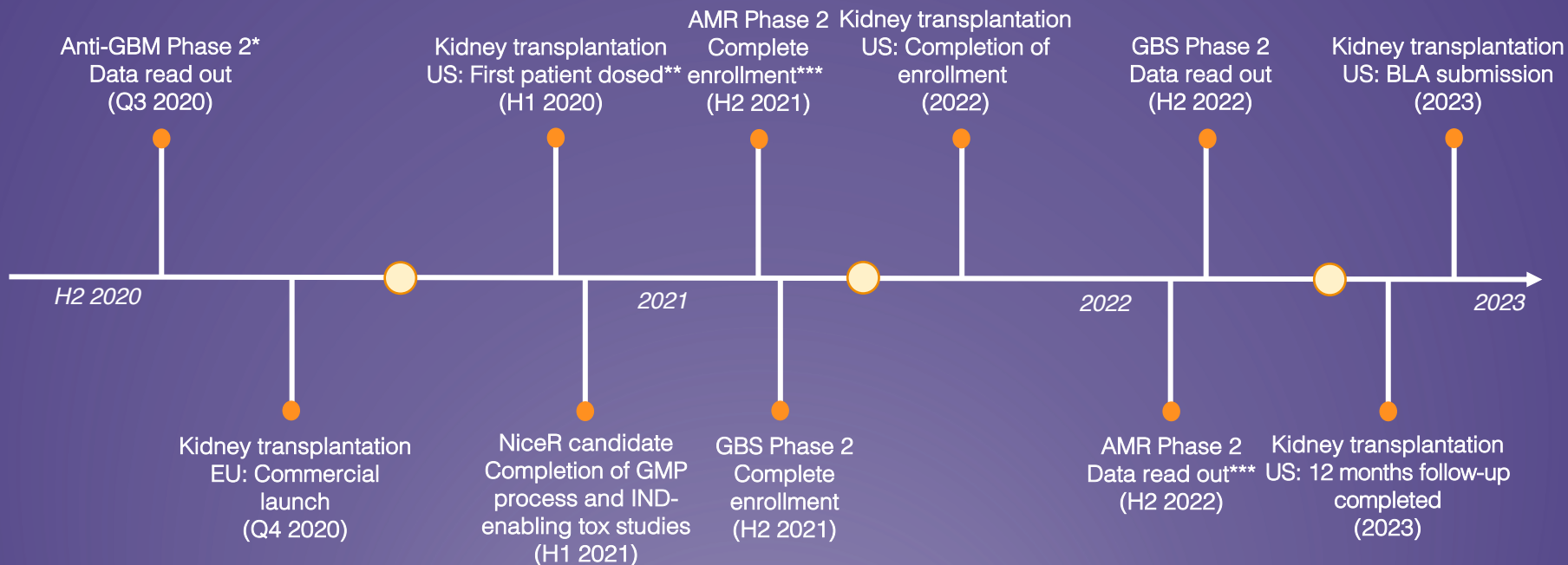


Cash position post Sarepta and capital raise



\* Excl. positive impact from sale of Genovis shares of SEK 89m in Q2'19

# Upcoming milestones



\*) Investigator-initiated study by Mårten Segelmark, Professor at the universities in Linköping and Lund

\*\*) FDA: Proposed study protocol submitted June 2020. Discussions are currently ongoing with the FDA. Once the final protocol has been agreed upon, Hansa Biopharma will proceed to set up centers in the US and start to enroll patients. Given the continued impact of the COVID-19 pandemic and the timeline for the finalization of the study protocol Hansa expect recruitment of the first patient to be in H1 2021

\*\*\*) AMR/GBS Due to the impact from the COVID-19 pandemic, the enrollment in GBS and AMR were temporarily halted for the past six months. Hansa Biopharma expects to reinstate enrollment of these studies in Q4 2020 under a risk-based, site-by-site approach. Enrollment of patients in the AMR study is now expected to be completed in the second half of 2021, while completion of patient enrollment in the GBS study is still expected in the second half of 2021. High-level data readout for both studies are expected in the second half of 2022.

# Company Overview





# Hansa Biopharma at a glance



## Company background

- Founded 2007 with HQ in Lund, Sweden
- Søren Tøllstrup, CEO – Ulf Wiinberg, Chairman
- ~80 employees (~2/3 in R&D) at June 30, 2020
- Operations in Sweden, US & across Europe
- Market cap: SEK ~9bn Sep 2020
- Listed on Nasdaq OMX Stockholm (HNSA)



## Leader in immunomodulatory enzymes for rare IgG-mediated diseases

- Imlifidase is a unique IgG antibody-cleaving enzyme. If approved, imlifidase may have the potential to meet a large unmet need and preserve and transform the lives of people with rare diseases
- Imlifidase has been studied in five clinical studies in kidney transplantation
- Imlifidase has been published in peer-reviewed journals (e.g. New England Journal of Medicine and the American Journal of Transplantation)



## Broad pipeline in transplantation and autoimmune diseases

- Lead indication in kidney transplantation in highly sensitized patients
  - The European commission has granted conditional approval for Idefix™ (imlifidase) in highly sensitized kidney transplant patients in the European Union
  - US: Study protocol for RCT submitted June 2020, discussions with FDA ongoing
- Anti-GBM antibody disease (Phase 2)
- Antibody mediated kidney transplant rejection (AMR) (Phase 2)
- Guillain-Barré syndrome (GBS) (Phase 2)
- NiceR - Recurring treatment in autoimmune disease, transplantation and oncology (Preclinical)
- EnzE – Cancer immunotherapy (Preclinical)



## Key financials\*

• Cash & short-term inv.	H1'20* SEK 400m / SEK 1.5bn post capital raise	FY'19 SEK 601m
• Operating Profits/Loss	H1'20* SEK -193m (H1'19 SEK -156m)	FY'19 SEK -360m
• Operating cash flow	H1'20* SEK -199m (H1'19 SEK -180m)	FY'19 SEK -335m

\* Unaudited

*...at Hansa Biopharma we envision  
a world where all patients with rare  
immunologic diseases can lead  
long and healthy lives...*

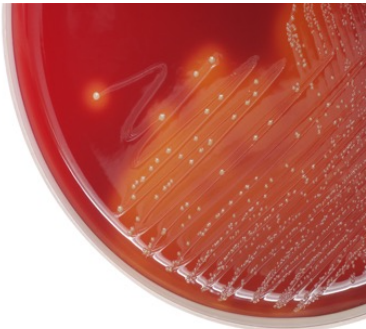


# Imlifidase – a novel approach to eliminate pathogenic IgG



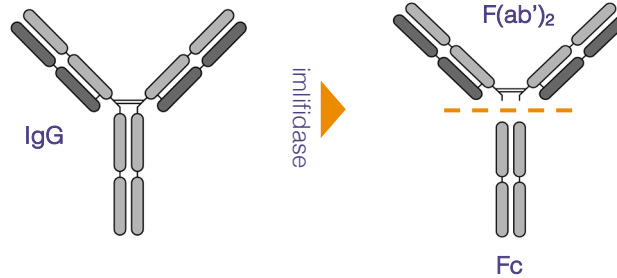
## Origins from *Streptococcus pyogenes*

- Species of Gram-positive, spherical bacteria in the genus *Streptococcus*
- Usually known from causing a strep throat infection



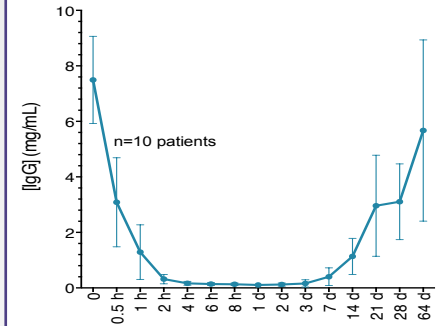
## Imlifidase, a unique IgG antibody-cleaving enzyme

- Interacts with Fc-part of IgG with extremely high specificity
- Cleaves IgG at the hinge region, generating one F(ab')<sub>2</sub> fragment and one homo-dimeric Fc-fragment



## Imlifidase inactivates IgG in 2 hours

- Rapid onset of action that inactivates IgG below detectable level in 2 hours
- IgG antibody-free window for approximately one week



# Our Equity Story



## Targeting rare diseases with a high unmet medical need

- Imlifidase is a unique IgG antibody-cleaving enzyme with a rapid onset of action and high specificity for inactivation of IgG in patients with rare immunologic diseases.



## Preparing for commercialization

- The European Commission has granted conditional approval for imlifidase in highly sensitized kidney transplant patients in the European Union.
- Imlifidase to be launched through Hansa's own medical and commercial organization, while we expected to pursue a partnership strategy outside core markets.
- In the US, a randomized controlled trial is planned to be initiated in H1 2021, which could support a future BLA submission in the US by 2023. The study protocol was submitted to the FDA June 2020.
- Broad technology protection with patent coverage throughout 2035 in key markets and orphan drug designation in both the US/EU in our lead indications.



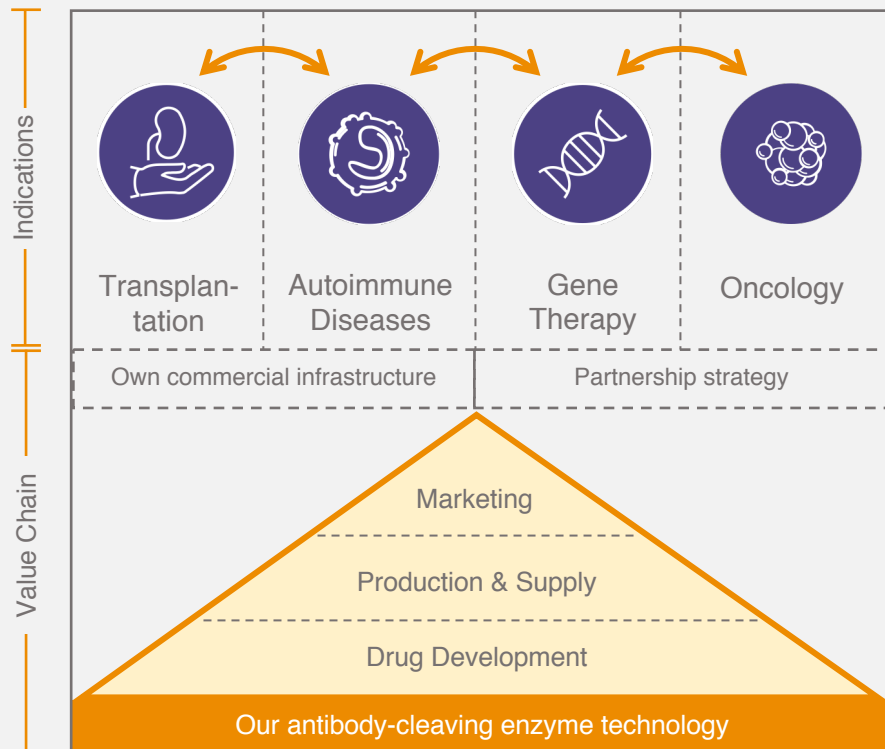
## Evolution into a fully integrated biopharmaceutical company

- Controlling the full value chain from early discovery through commercialization to maximize the value creation and capture.

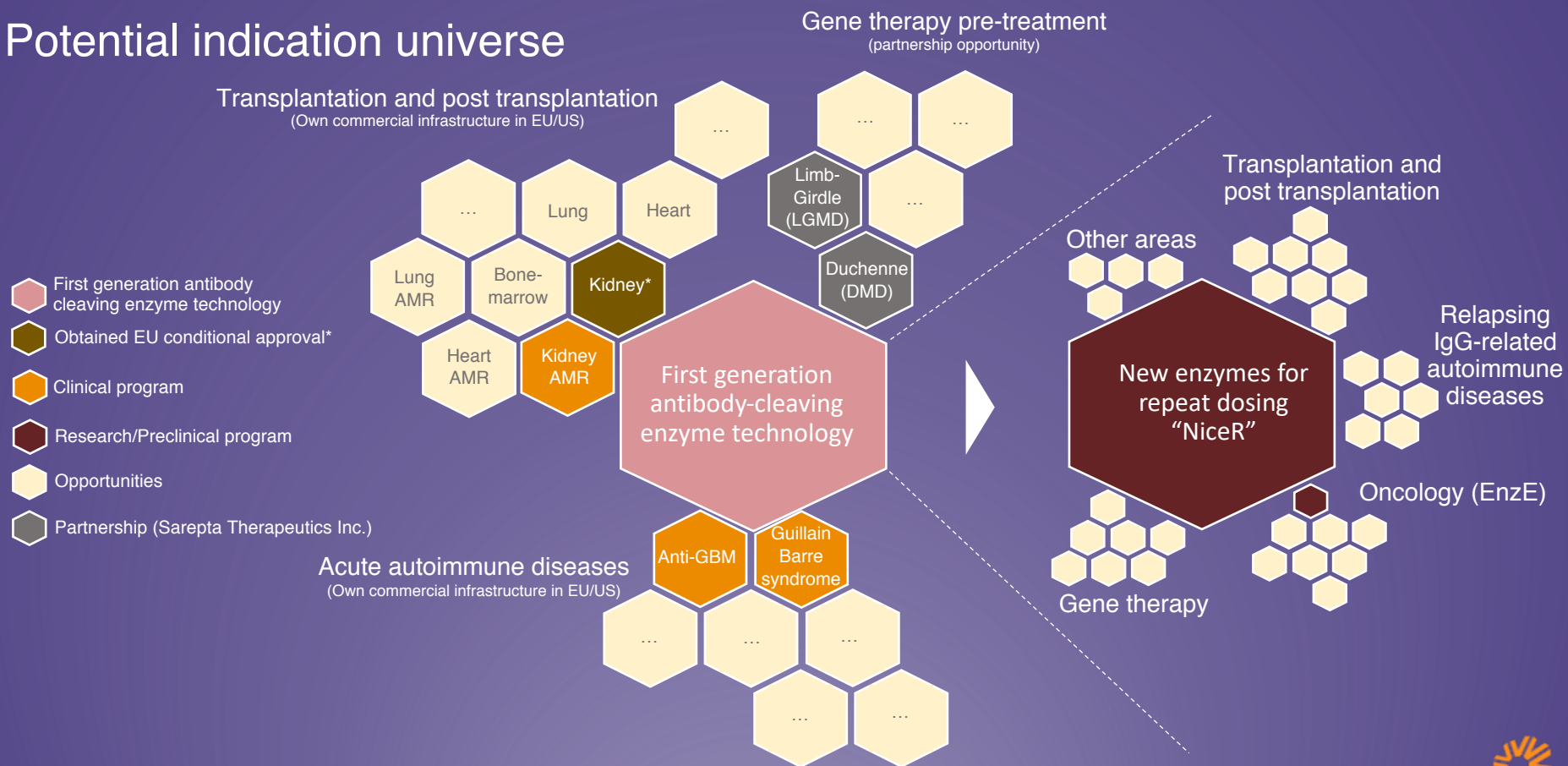


## Leveraging our proprietary antibody cleaving enzyme technology

- Advancing our pipeline with three Phase 2 programs in transplantation and acute autoimmune diseases.
- New set of modified enzymes under development (NiceR program) for repeat dosing; potentially enabling treatment in relapsing diseases and oncology.
- Exploring potential combination therapies in oncology with IgG-modulating enzymes and gene therapy in patients with neutralizing antibodies through potential partnerships.



# Potential indication universe



\* US: Study protocol submitted June 2020, discussions with FDA ongoing

# Our unique enzyme technology platform offers significant potential for growth and expansion

## Our strategic priorities



Establish a commercial and medical infrastructure in Europe ahead of commercial launch



Marketing authorization obtained in Europe for imlifidase as a treatment for highly sensitized patients to enable kidney transplantation. Conduct a new randomized, controlled study in the US in the context of KAS to support a BLA filing by 2023



Investigate the potential of imlifidase in autoimmune indications and post transplantation

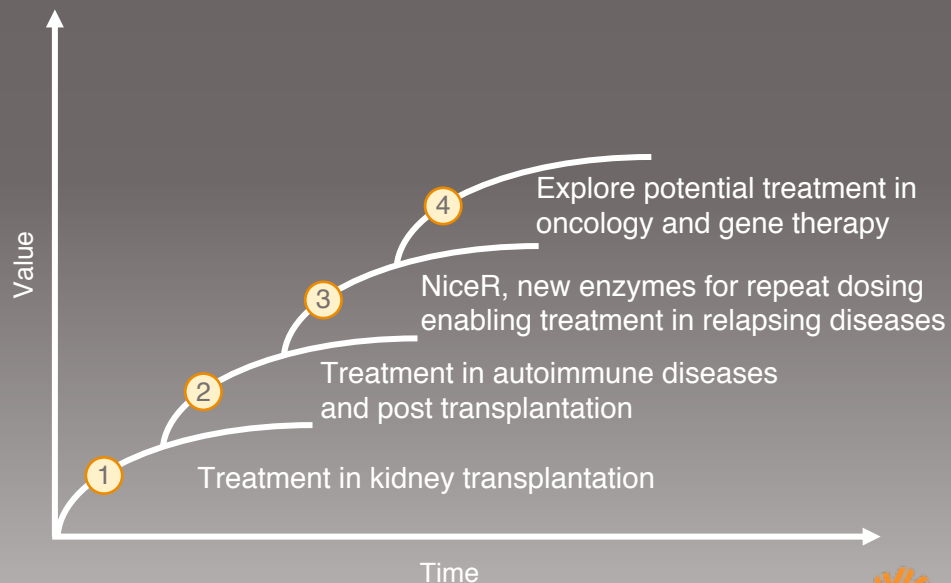


Advance a new set of immunomodulatory enzymes designed for repeat dosing in relapsing diseases (NiceR) into clinical development



Explore potential combination therapies with imlifidase in oncology and in gene therapy

## Our road map for growth and expansion





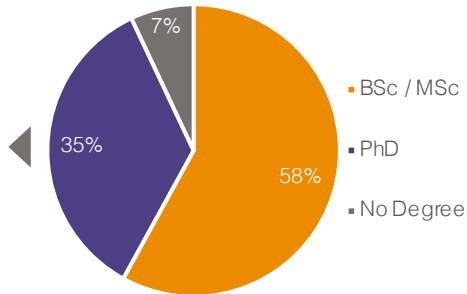
# The Hansa team has extensive experience from international life science industry and academia

Highly educated team with more than 1,100 “man years” in the life science industry and academia

More than 1/3 of the team holds a relevant life science PhD

PhD specializations include

- Applied Microbiology
- Biotechnology
- Cell and Molecular Biology
- Clinical Infection Medicine
- Engineering
- Experimental Clinical Chemistry
- Experimental Medicine
- Immune Technology
- Medical Microbiology
- Medical Science
- Physiological Chemistry

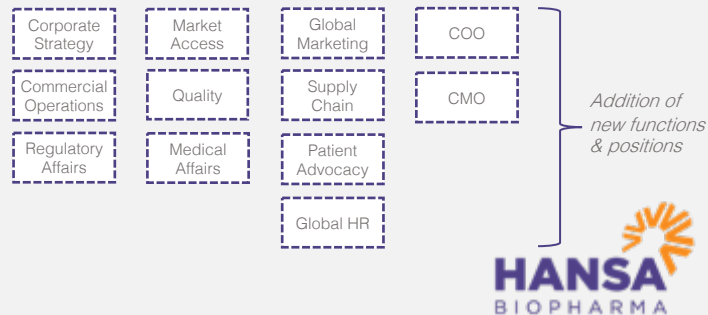
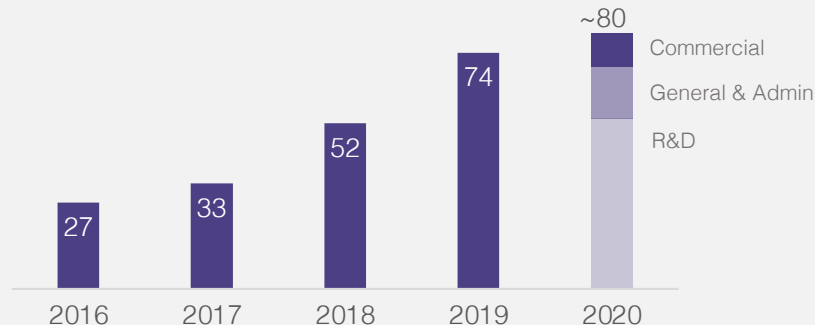


Vast experience from life science; +50% has worked in Big Pharma



We are building an organization in preparation to become a commercial-stage biopharma company

Staff has tripled in 5 years as new competences are being added



# Experienced Board and Executive Committee with many years in the global healthcare industry

## Executive Committee



**Sören Tulstrup**

**President & CEO (2018)**  
*+30 years in the Healthcare sector*  
*Ex-CEO at Vifor Pharma*  
*Ex-SVP at Shire Pharmaceuticals*  
*Ex-CEO at Santaris Pharma*



**Christian Kjellman**

**SVP & CSO/COO (2008)**  
*+20 years in the Healthcare sector*  
*Ex-Head of Research at Cartela*  
*Ex-Senior Scientist at Biogen*  
*MSc Chemical Biology, PhD in Tumour Immunology from Lund University*



**Donato Spota**

**SVP & CFO (2019)**  
*+20 years in the Healthcare sector*  
*Ex-CFO Basilea Pharmaceutica*  
*Senior Finance roles at Roche*



**Achim Kaufhold**

**CMO (2020)**  
*+40 years in the Healthcare sector*  
*Ex-CMO Basilea Pharmaceutica*  
*Ex-CEO Affitech (merged with Pharmexa A/S)*  
*Ex-CMO Chiron (acquired by Novartis)*



**Max Sakajja**

**VP, Corporate Strategy (2017)**  
*Ex-M&A Director at SOBI*  
*Ex-Global Product and Service Development Manager at Envirotainer*  
*Ex-independent life science industry management consultant*



**Henk D. van Troostwijk**

**SVP & CCO (2016)**  
*+20 years in the Healthcare sector*  
*Ex-GM at Raptor Pharmaceuticals*  
*Ex-BU Director at Genzyme Europe*



**Anne Säfström Lanner**

**CHRO (2019)**  
*Ex-Head of HR European Spallation Source*  
*Ex-Head of HR Cellavision*



**Ulf Wiinberg**

**Chairman (2016)**  
*+30 years in the Healthcare sector*  
*Ex-CEO at Lundbeck (2008-14)*  
*Ex-President at Wyeth of the global consumer health care and European Pharma business*



**Birgit Stattin Norinder**

**Board Member (2012)**  
*Ex-CEO and Chairman at Prolifix Ltd.*  
*Ex- SVP, Pharmacia & Upjohn*  
*Member of Hansa Biopharma Scientific Committee and Remuneration Committee*



**Anders Gersel Pedersen**

**Board Member (2018)**  
*+30 years in the Healthcare sector*  
*Ex-EVP R&D H.Lundbeck*  
*Chairman of Hansa Biopharma's Scientific Committee*



**Eva Nilsagård**

**Board Member (2019)**  
*interim CFO at OptiGroup AB*  
*CEO of Nilsagård Consulting AB*  
*Ex-CFO of Vitrolife and Plasta*  
*Chairman of Hansa Biopharma's Audit Committee*



**Mats Blom**

**Board Member (2019)**  
*CFO of NorthSea Therapeutics*  
*Ex-CFO Zealand Pharma*  
*Member of Hansa Biopharma's Audit Committee*



**Andreas Eggert**

**Board Member ( 2018)**  
*Ex- SVP at H. Lundbeck A/S*  
*Ex-VP Wyeth/Pfizer in the U.S.*  
*Member of Hansa Biopharma's Audit Committee and Remuneration Committee*

# From technology development to commercialisation in 13 years



Hansa Medical founded

IdeS (imlifidase) discovered and patented by Prof. Lars Björk, M.D. Lund University



Partnship with Axis-Shield for HBP-test



Imlifidase first-in-man study



Start imlifidase Phase 2 at Cedars Sinai and UUH



Imlifidase NEJM-publication; Anti-GBM initiated



Imlifidase MAA submitted to EMA; AMR & GBS Phase 2 initiated



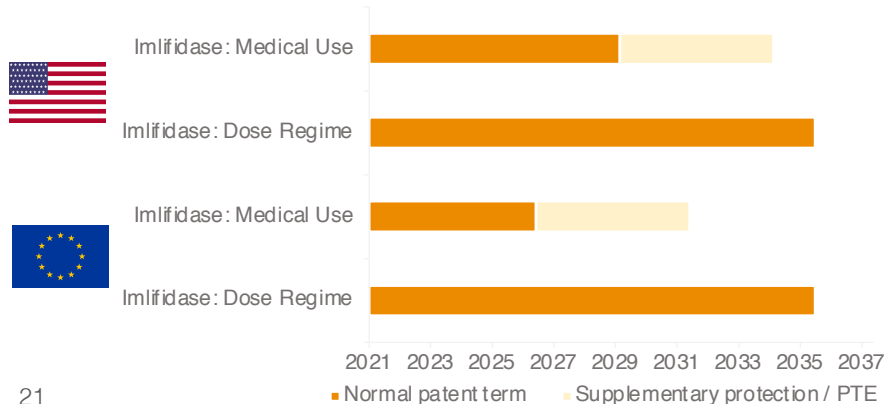
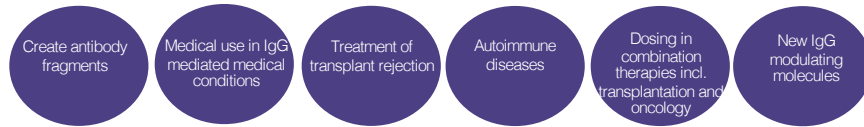
Partnship with Sarepta for gene therapy



# Strong technology protection through patents and orphan drug designation

## Patent coverage out to 2035 in key markets

- Hansa Biopharma's portfolio consist of 11 separate patent families incl. 7 patent families in relations to the use of imlifidase (granted/pending)
- Patents cover use of isolated imlifidase in:



## Orphan drug designation

- Orphan drug designation is granted to drugs intended for rare diseases (affecting max 5 patients in 10,000 persons in EU or affecting less than 200,000 patients in the US).
- Designation provides development and commercial incentives incl. 10 years market exclusivity in EU and 7 years in the US

**EMA**  
Orphan drug designation

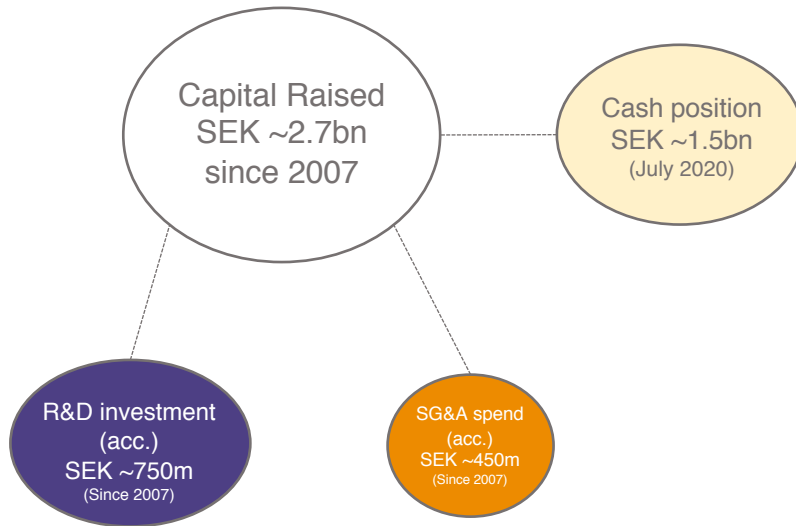
- Imlifidase for the prevention of graft rejection following solid organ transplantation (2017)
- Imlifidase for the treatment of the rare and acute disease anti-GBM (2018)

**FDA**  
Orphan drug designation

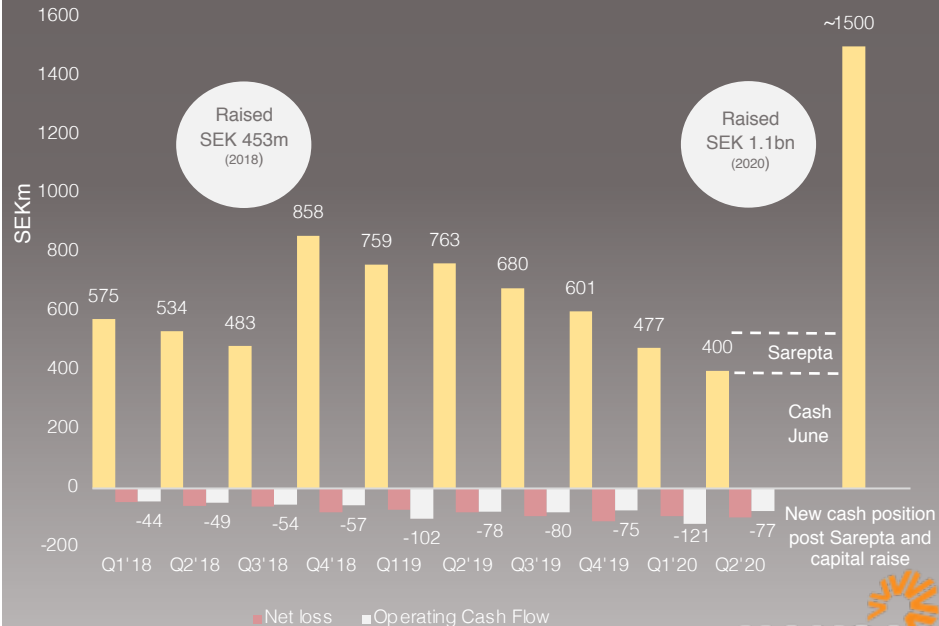
- Imlifidase for the prevention of antibody-mediated organ rejection in solid organ transplantation (2015)
- Imlifidase for the treatment of Guillian-Barré Syndrome (2018)
- Imlifidase for the treatment of the rare and acute disease anti-GBM (2018)

# With the recent capital injection Hansa Biopharma is financed into 2023

Since 2007 Hansa has mainly been backed by VCs funding the development of our enzyme platform



Capital injection from new shares (SEK 1.1bn) and Sarepta (SEK 100m) will finance Hansa into 2023





# Imlifidase in kidney transplantation



# Kidney transplantation saves lives, reduce costs and increase quality of life incl. gains for the society

## Several complications and risks with dialysis

- Undergoing dialysis treatment is associated with many complications and side effects incl. cardiovascular diseases<sup>1</sup>. In the long term, patients may also eventually lose access to dialysis as a result of failed ports, bad veins, and other factors<sup>2</sup>
- In general, patients on the kidney transplant waiting list and who are on dialysis have a lower quality of life than non-dialysed patients or patients who have been transplanted<sup>3</sup>
- First study in Europe on labor market outcomes demonstrates societal gains of enabling transplantation with three times as many transplant patients employed compared to dialysis patients.
- Lastly, extended dialysis is also a high-risk factor for removal from the transplant wait list<sup>6</sup>

<sup>1</sup> Cozzolino et al., 2018

<sup>2</sup> Sinnakirouchenan and Holley, 2011 Shenoy, 2017

<sup>3</sup> Wyld et al., 2012

<sup>4</sup> Jarl et al. Transplantation, 2018, 102:1375-1381

<sup>5</sup> NHS blood and transplant, 2018.

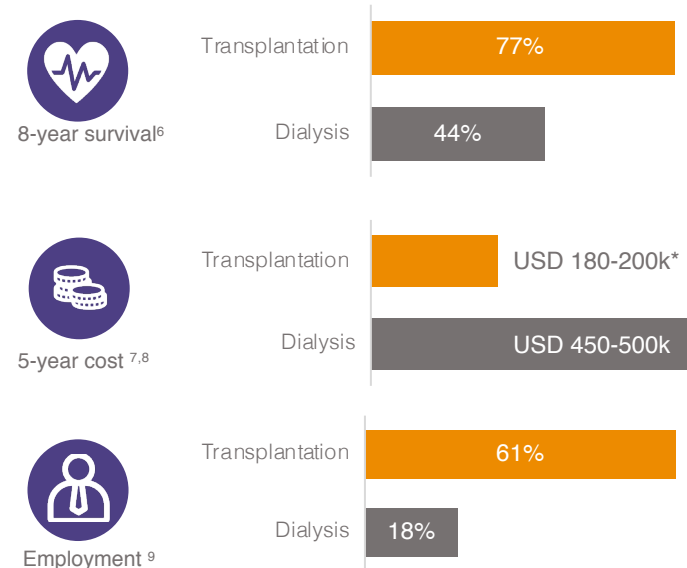
<sup>6</sup> Orandi et al. N Engl J Med 2016;374:940-50

<sup>7</sup> www.usrds.org

<sup>8</sup> Shehata et al, Transfus Med Rev 201, 24 Suppl 1: S7-S27

<sup>9</sup> Jarl et al. Transplantation, 2018, 102:1375-1381

## Transplantation leads to better outcomes



\*Cost of kidney transplantation and 5 years of immuno-suppression treatment<sup>6,7</sup>

# Approximately 10-15% of patients on wait list are highly sensitized

## Highly sensitized patients are difficult to match

- Causes of sensitization include



Pregnancy



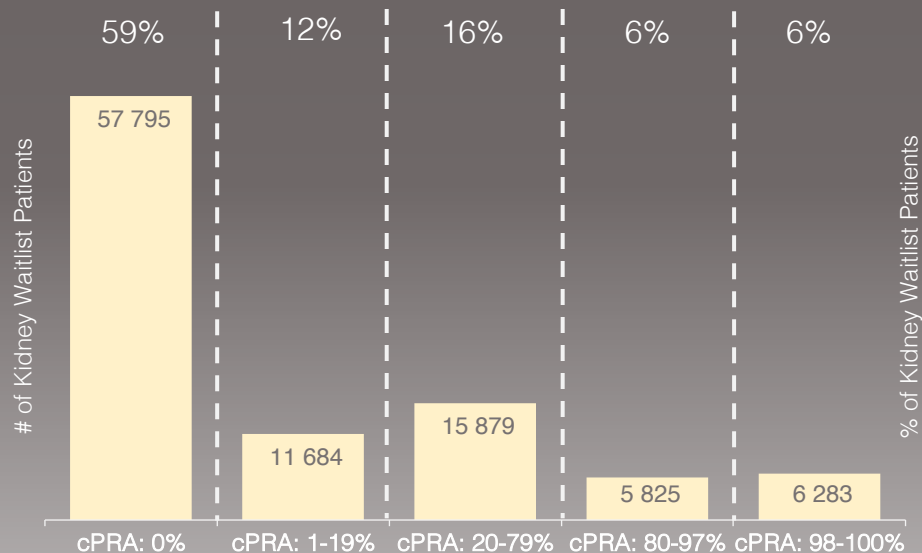
Blood transfusion



Previous transplantations

- Calculated Panel Reactive Antibodies (cPRA) is a measure for HLA-sensitization
- Inability to match or effectively desensitize patients remains a barrier for transplantation in highly sensitized patients
- Allocation Systems such as KAS and Eurotransplant rely on cPRA score to characterize patients for transplant

## US Kidney Waitlist Patients by cPRA in 2018



Source: Organ Procurement and Transplant Network,  
Advanced Report. Analysis as of September 25, 2018

# Imlifidase may enable transplantation in highly sensitized kidney patients

## Creating equity for highly sensitized patients

- Allocation systems increase transplantation rates, however the rates for highly sensitized patients are still very low compared with average or non-sensitized patients
- If approved, imlifidase may potentially:
  - Complement allocation systems (e.g. KAS, Euro-transplant) to reduce time to transplant in highly sensitized patients
  - Reduce the need for antibody matching and give sensitized patients access to a larger pool of organs
  - Reduce the risk for co-morbidities and mortality associated with dialysis and waiting time
  - Increase transplant rates in highly sensitized patients
  - Help reduce the number of discarded kidneys (1,000 donated kidneys are discarded in the U.S. alone every year<sup>3</sup>)

<sup>1</sup> Jordan et al. British Medical Bulletin, 2015, 114:113–125

<sup>2</sup> Orandi et al. N Engl J Med 2016;374:940-50

<sup>3</sup> Organ Procurement and Transplantation Network (OPTN)

<sup>4</sup> Jordan et al. British Medical Bulletin, 2015, 114:113-125

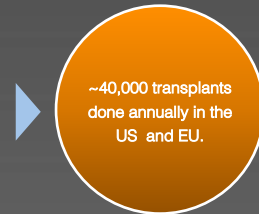
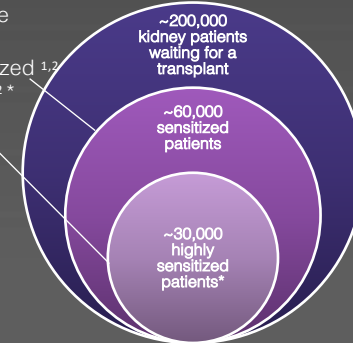


*Delilah, a 23 years old highly sensitized kidney transplant patient from California*

### U.S. + EU Kidney Transplant Waitlist Breakdown

>30% of waitlist patients are sensitized

- 15% moderately sensitized<sup>1,2</sup>
- 15% highly sensitized<sup>1,2 \*</sup>



\*Patients with sensitivity above cPRA 80%

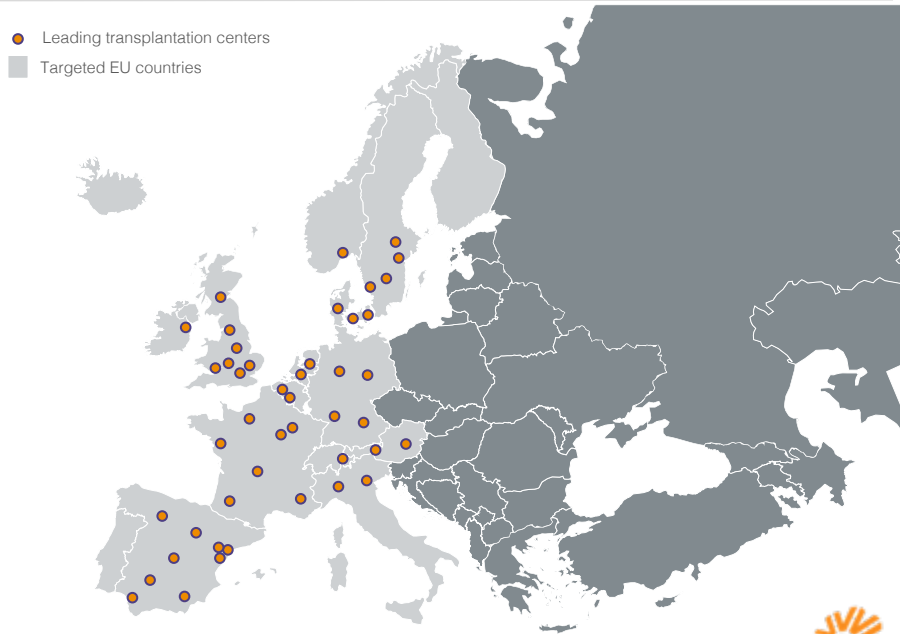
Source: The U.S. Department of Health and Human Services and .irodat.org

# Focused launch strategy targeting leading kidney transplantation centers to ensure positive experience

## EU launch under conditional approval

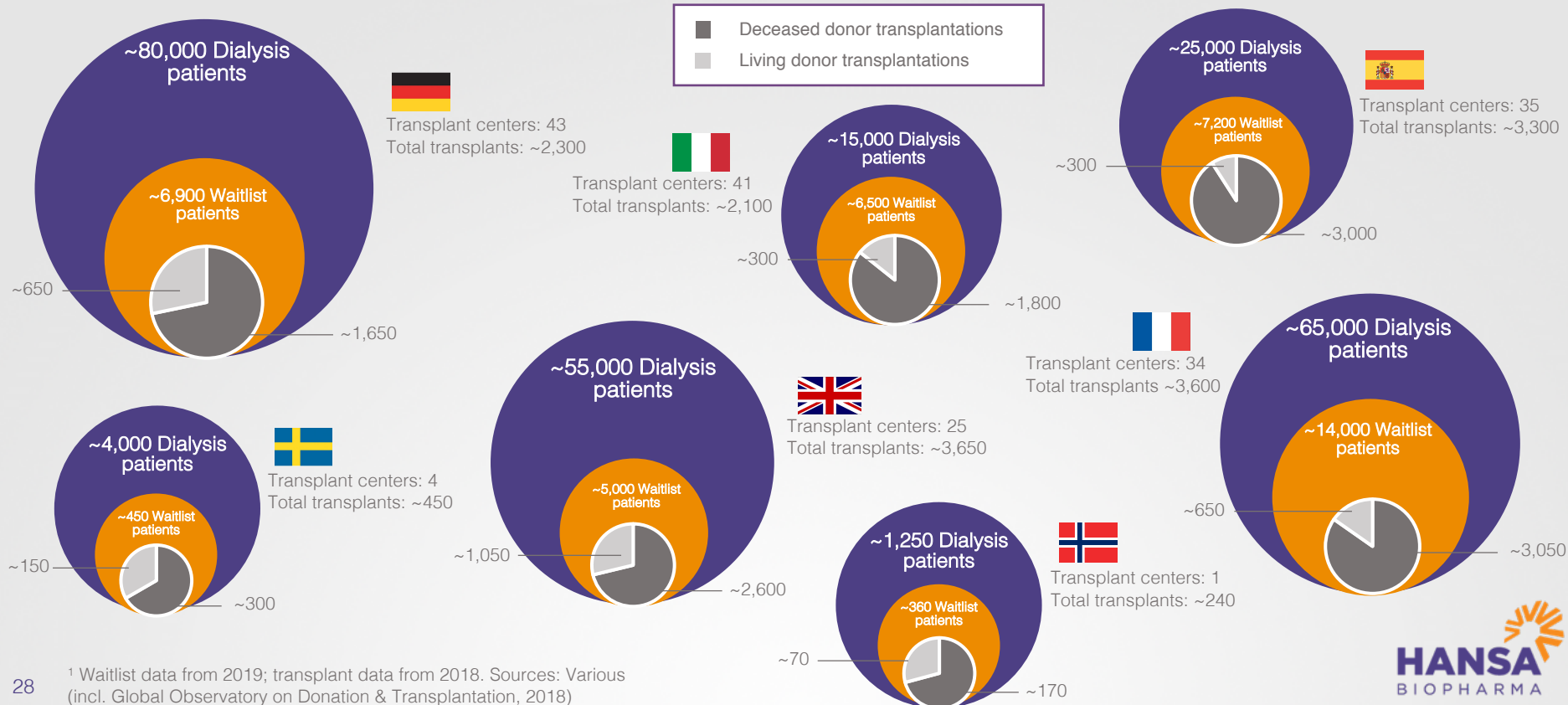
- A sequenced and focused strategy to launch imlifidase
  - Well defined and concentrated target audience
  - Center-focused launch strategy targeting leading clinics with the potential to become early adopters
  - Key to secure early positive experience in right patients; sales ramp-up as leading centers and clinicians gain experience
- Building awareness and Key Opinion Leader advocacy through Medical Science Liaisons (MSLs) in key European markets
- Post-approval study to be initiated following marketing authorization - an opportunity to generate relevant experience and broaden out the experience with imlifidase

## EU launch will focus on leading transplantation centers



# European transplantation landscape

Approximately 16,000 kidney transplants in EU5 plus Sweden and Norway<sup>1</sup> with 70-80% performed at leading transplantation centres in each country



<sup>1</sup> Waitlist data from 2019; transplant data from 2018. Sources: Various (incl. Global Observatory on Donation & Transplantation, 2018)

Completed and  
ongoing studies in  
kidney transplantation

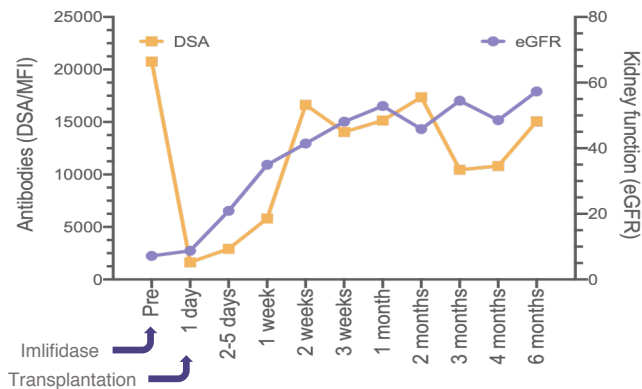










# Imlifidase has enabled kidney transplantation in 46 highly sensitized patients

## Pooled analysis from four Phase 2 trials

- Analysis included 46 patients
  - 50% had a cPRA of 100% (Average 99%)
  - 85% were crossmatch positive
  - 70% were retransplanted
- Donor Specific Antibody (DSA) levels rapidly decreased and all crossmatches were converted to negative, thus enabling transplantation in all patients
- At study completion, all patients alive and graft survival at 94% six months post transplantation



## Study design of our four Phase 2 trials

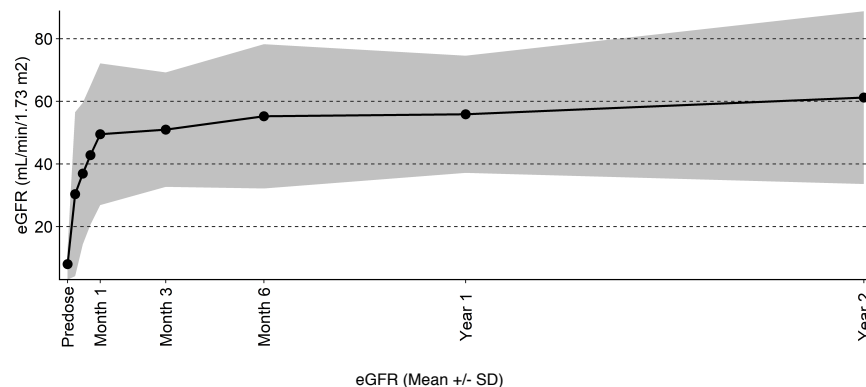
Study 02 Phase 2	Subjects	8 patients 
	Design	Single-center, single-arm, open-label
	Main objective	Efficacy defined as Imlifidase dosing scheme resulting in HLA antibody levels acceptable for transplantation, within 24 hours
Study 03 Phase 2	Subjects	10 patients 
	Design	Single-center, single-arm, open-label, no prior desensitization
	Main objective	Safety in the transplantation setting and efficacy defined as HLA antibody levels acceptable for transplantation
Study 04 Phase 2	Subjects	17 patients 
	Design	Investigator initiated, single-center, single-arm, open-label. All patients had prior desensitization with IVIG and/or PLEX
	Main objective	Safety in combination with Cedars Sinai's "standard protocol" for desensitization of highly sensitized patient
Study 06 Phase 2	Subjects	18 patients   
	Design	Multicenter, multinational, single-arm, open-label
	Main objective	Efficacy in creating a negative crossmatch test

# Two year follow-up data show graft survival of 90% and well functioning kidneys in 92% of these patients

## AMR frequency in line with less sensitized patients

- Two-year follow-up data post imlifidase treatment and transplantation show 90% graft survival for 31 patients
- Of the patients with data at two years, 92% had a well functioning kidney with median eGFR of 61ml/min/1.73 m<sup>2</sup>
- 33% of the patients experienced active antibody mediated rejections (AMR) within the first six months, which compares with 25-60% of patients in the literature for this group of highly sensitized patients<sup>1</sup>
- Only one patient experienced an AMR episode later than six months after transplantation
- The analysis concludes that the AMR frequency was comparable with other studies with less sensitized patients in crossmatch positive patients

## Median eGFR at 61ml/min/1.73 m<sup>2</sup> after year 2



## Study 01 Phase 1

# The 01 study showed complete removal of IgG and a good tolerability profile

## Efficacy

- ✓ Rapid degradation of IgG in serum in subjects dosed with 0.12 and 0.24 mg/kg imlifidase. Imlifidase had full effect within 6 hours. The entire IgG pool was converted into  $F(ab')_2$  and Fc-fragments. Maximal effect was accomplished 2-6 hours after dosing.

## Safety

- ✓ Newly synthesized intact IgG was clearly detectable in all subjects after 1-2 weeks after dosing. After 3 weeks the level of intact IgG constituted the main IgG fraction in serum

### CLINICALTRIALS.GOV ID

NCT01802697 (2013/2014)

### SUBJECTS

29 (20 active plus 9 placebo) healthy subjects (Sweden)

### DOSES/FOLLOW UP TIME

The starting dose was 0.01 mg/kg BW and the highest dose group received 0.24 mg/kg BW

### MAIN OBJECTIVES

- The objectives were to assess safety, efficacy in IgG cleavage, pharmacokinetics and immunogenicity of imlifidase following intravenous administration

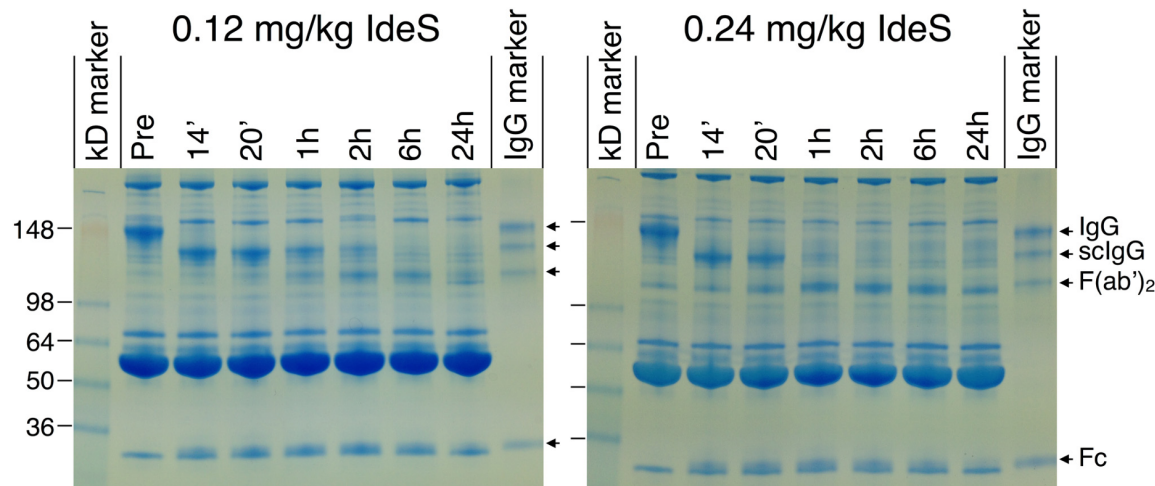
### STUDY DESIGN

- Randomized placebo-controlled dose-escalation study with 29 (20 active plus 9 placebo) healthy subjects

### STATUS

Completed

- The 01 study showed complete removal of IgG and that Imlifidase was considered safe to use

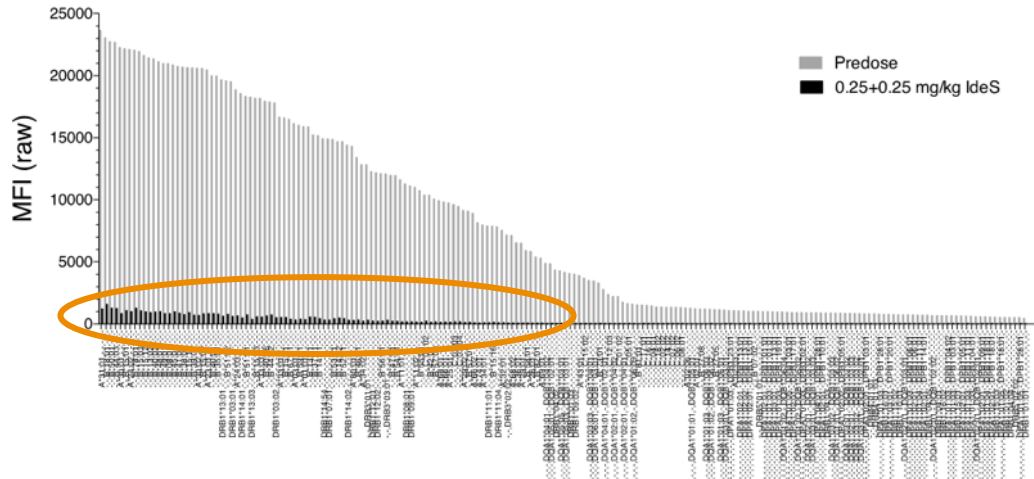


## Study 02 Phase 2

The 02 study showed that 1-2 doses of imlifidase at 0.25 mg/kg BW resulted in HLA antibody levels acceptable for transplantation<sup>1</sup>

- ✓ Imlifidase is well tolerated in patients with chronic kidney disease
- ✓ Efficacy results strongly support further development in the patient population
- ✓ The first HLA-incompatible transplantation ever after desensitization with imlifidase was performed in one of these patients (2014)

HLA-antibody levels before and after 6 hours treatment with imlifidase

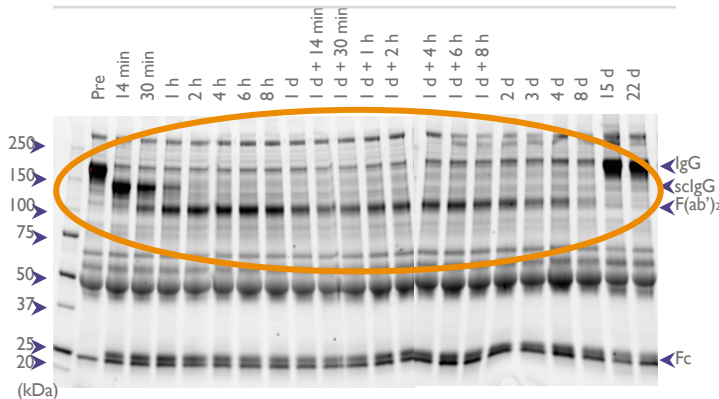


<sup>1</sup> Lorant et al (2018) American Journal of Transplantation (2018)

## Study 03 Phase 2

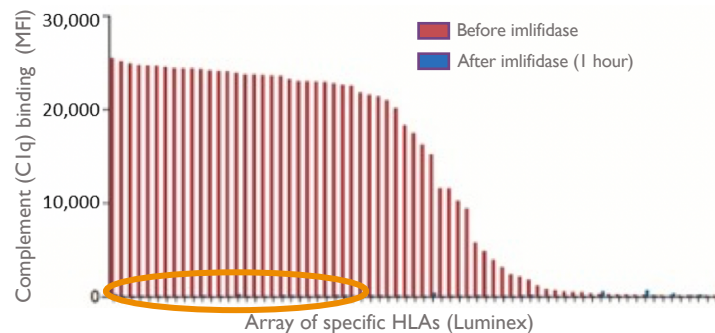
The 03 study proved safety and efficacy with HLA antibodies at acceptable levels; enabling transplantation in all patients

### Analysis of IgG in patient serum before and after imlifidase treatment



SDS-PAGE analysis of patient serum

### Analysis of complement binding HLA antibodies before and after imlifidase



CLiQ analysis of patient serum

### Protocol

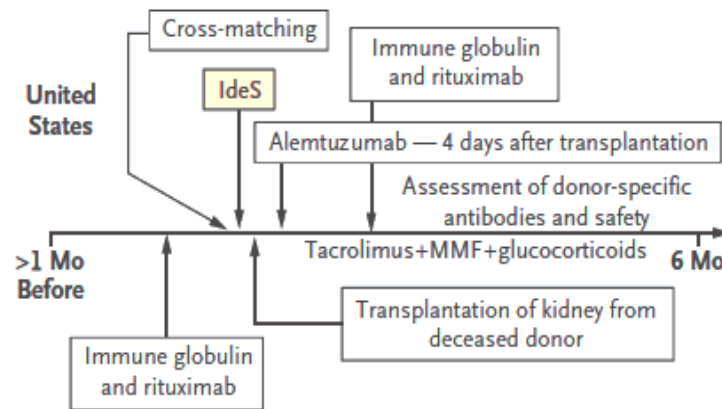
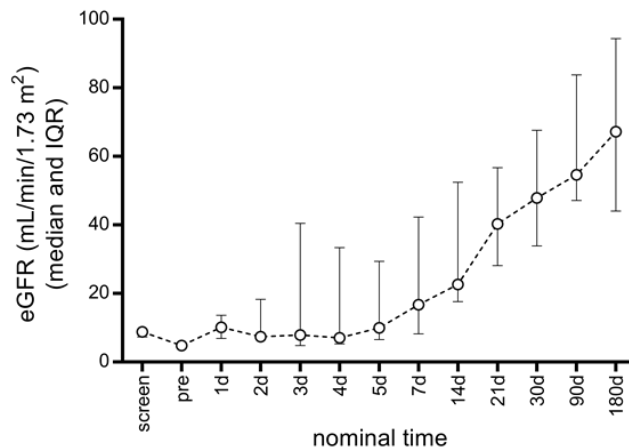


## Study 04 Phase 2

The 04 study proved safety and efficacy with Cedar Sinai's standard protocol (rituximab and IVIg)

Cedar's desensitization protocol in combination with imlifidase

Graft function (eGFR) post six months



CLINICALTRIALS.GOV ID

NCT024226684

SUBJECTS

17 Patients (US)

DOSES/FOLLOW UP TIME

0.24 mg/kg 180 days

MAIN OBJECTIVES

- Safety in combination with Cedars Sinai's "standard protocol" for desensitization of highly sensitized patients
- Efficacy in preventing AMR

STUDY DESIGN

- Investigator initiated study
- Investigator sponsored IND
- Imlifidase to desensitize patients previously treated with rituximab and IVIg
- Deceased donors only

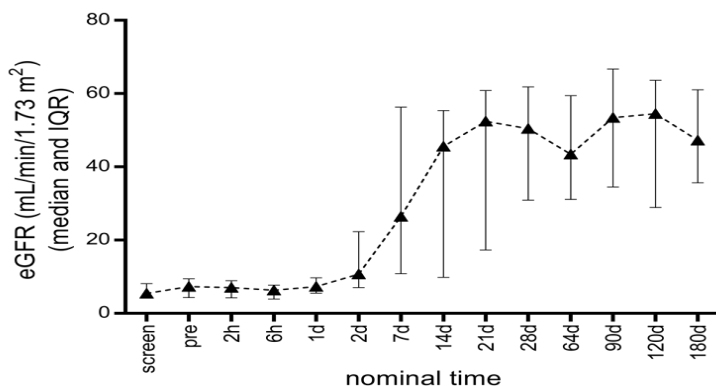
STATUS

Completed

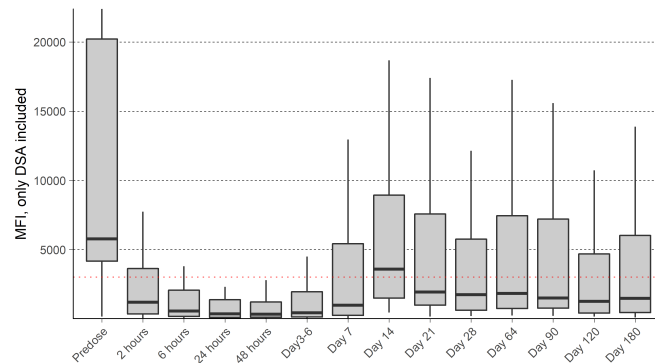
## Study 06 Phase 2

# The 06 study showed proved safety and efficacy in making highly sensitized patients eligible for kidney transplantation

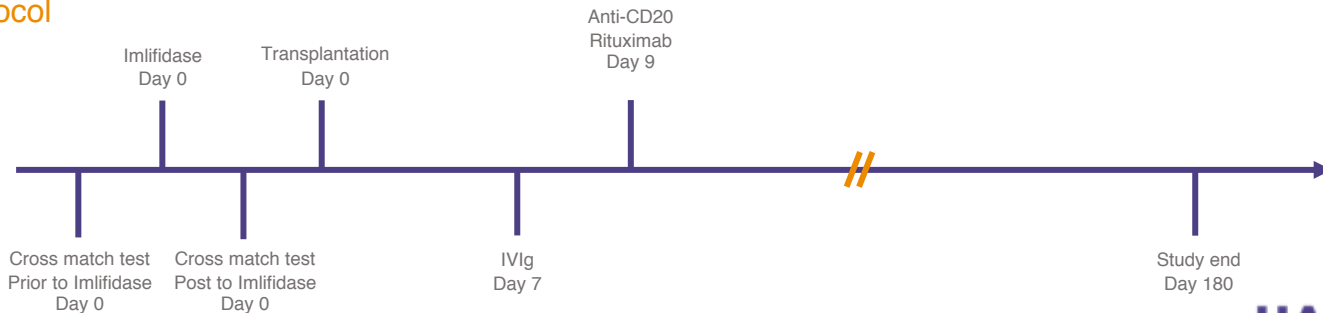
## Graft function (eGFR) post imlifidase



## DSA level pre-dose and post imlifidase



## Protocol









Jordan SC, et al. (2019).

Results from the international phase II study on the safety and efficacy of imlifidase in highly-sensitized kidney transplant patients. Abstract presented at ATC.



# Overview of all completed studies with imlifidase in transplantation

STUDY	SUBJECTS/ COUNTRY	STUDY DESIGN	PRIMARY ENDPOINT	SECONDARY ENDPOINTS	STATUS/ PUBLICATION
Study 01 Phase 1	29 subjects 	<ul style="list-style-type: none"> <li>Randomized placebo-controlled dose-escalation study with 29 (20 active plus 9 placebo) healthy subjects</li> </ul>	<ul style="list-style-type: none"> <li>Safety and tolerability</li> </ul>	<ul style="list-style-type: none"> <li>Efficacy in IgG cleavage, the pharmacokinetics (PK) and immunogenicity of imlifidase</li> </ul>	Complete PLOS ONE (2015) <sup>1</sup>
Study 02 Phase 2	8 subjects 	<ul style="list-style-type: none"> <li>Single-center, single-arm, open-label</li> </ul>	<ul style="list-style-type: none"> <li>Dosing resulting in HLA-antibody reduction (MFI&lt;1100)</li> </ul>	<ul style="list-style-type: none"> <li>Efficacy: HLA antibody reduction acceptable for transplantation (MFI &lt;1100 as measured in SAB assay)</li> </ul>	Complete Lorant et al (2018) American Journal of Transplantation <sup>2</sup>
Study 03 Phase 2	10 subjects 	<ul style="list-style-type: none"> <li>Single-center, single-arm, open-label</li> <li>No prior desensitization</li> </ul>	<ul style="list-style-type: none"> <li>Safety: AEs, clinical laboratory tests, vital signs, ECGs</li> </ul>	<ul style="list-style-type: none"> <li>Efficacy: HLA antibody reduction acceptable for transplantation (MFI &lt;1100 as measured in SAB assay)</li> </ul>	Complete The New England Journal of Medicine (2017) <sup>3</sup>
Study 04 Phase 2	17 subjects 	<ul style="list-style-type: none"> <li>Investigator initiated study, Single-center, single-arm, open-label</li> <li>All patients had prior desensitization with IVIG and/or plasmapheresis</li> </ul>	<ul style="list-style-type: none"> <li>Assessment of efficacy in eliminating DSAs in DSA and flow cytometry positive, highly sensitized patients</li> <li>Assessment of safety</li> <li>Assessment of efficacy/kidney function</li> </ul>	<ul style="list-style-type: none"> <li>Serum creatinine (0-6 months)</li> <li>Proteinuria (0-6 months)</li> <li>DSA at multiple timepoints posttransplant (day 0, D30, D90, D180)</li> </ul>	Complete The New England Journal of Medicine (2017) <sup>3</sup>
Study 06 "Highdes" Phase 2	18 subjects 	<ul style="list-style-type: none"> <li>Multicenter, multinational, single-arm, open-label Included pts who may have had prior unsuccessful desensitization or pts in whom it was unlikely to be effective</li> </ul>	<ul style="list-style-type: none"> <li>Crossmatch conversion in DSA+ patients who have a positive XM test to their available LD or DD</li> </ul>	<ul style="list-style-type: none"> <li>DSA reduction at multiple timepoints (2, 6, 24, 48 h after imlifidase)</li> <li>Time to create negative CDC XM test and/or flow cytometry (FACS) XM test</li> <li>Safety</li> </ul>	Complete Annals of Surgery (Lonze et al, only New York patients) Montgomery et al ATC abstract (2019) <sup>4</sup>
Long-term follow-up study	Up to 46 subjects 	<ul style="list-style-type: none"> <li>A prospective, observational long-term follow-up study of patients treated with imlifidase prior to kidney transplantation</li> </ul>	<ul style="list-style-type: none"> <li>Long-term graft survival in patients who have undergone kidney transplantation after imlifidase administration</li> </ul>	<ul style="list-style-type: none"> <li>Patient survival, kidney function, comorbidity, treatments and QoL</li> <li>Safety</li> <li>DSA</li> <li>Immunogenicity</li> </ul>	Ongoing

<sup>1</sup> Winstedt et al., "Complete Removal of Extracellular IgG Antibodies in a Randomized Dose Escalation Phase I Study with the Bacterial Enzyme IdeS – A Novel Therapeutic Opportunity", PLOS ONE 2015, 10(7)

<sup>2</sup> Lorant et al., "Safety, immunogenicity, pharmacokinetics and efficacy of degradation of anti-HLA antibodies by IdeS (imlifidase) in chronic kidney disease patients" Am J Transplant. 2018 Nov;18(11):2752-2762

<sup>3</sup> Jordan et al., "IgG Endopeptidase in Highly Sensitized Patients Undergoing Transplantation", N Engl J Med 2017;377:442-53.

<sup>4</sup> Montgomery et al., "Safety And Efficacy Of Imlifidase In Highly-sensitized Kidney Transplant Patients: Results From A Phase 2 Study" ATC Abstract, 2019

# Medical Advisory Board in kidney transplantation



## Professor Stanley Jordan

(Chairman) M.D., Ph.D., Director of Kidney Transplantation and Transplant Immunology, Kidney and Pancreas Transplant Center and Director of Division of Pediatric and Adult Nephrology, Cedars-Sinai Medical Center, Los Angeles, California



## Professor Robert Montgomery

M.D., Ph.D., FACS, Director at NYU Langone Transplant Institute, New York, NY, USA



## Professor Christophe Legendre

M.D., Ph.D. Professor at Paris Descartes University and Head of the Adult Nephrology and Transplantation unit at Necker Hospital in Paris.



## Professor Kathryn Wood

Ph.D. Fellow of the Academy of Medical Sciences, Professor of Immunology in the Nuffield Department of Surgical Sciences, University of Oxford, England, runs the Transplantation Research Immunology Group



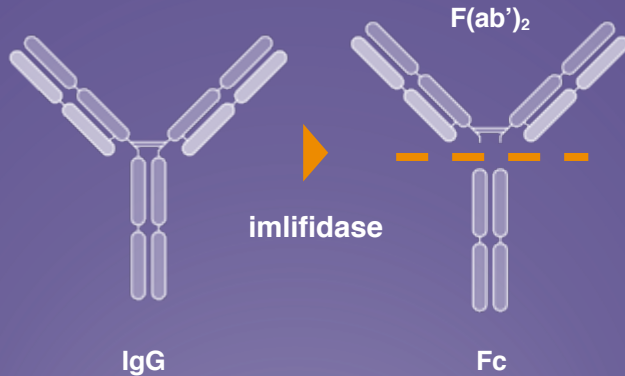
# CMC - Imlifidase



# Imlifidase, a novel approach to effectively eliminate pathogenic IgG

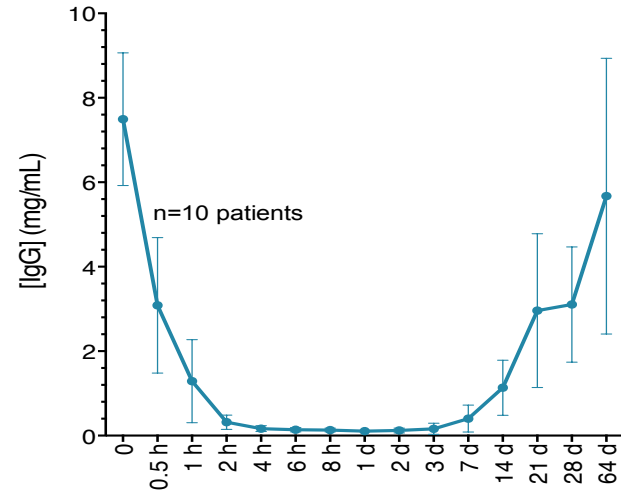
## Proven mechanism of action

- Interacts with Fc-part of IgG with extremely high specificity
- Cleaves IgG at the hinge region, generating one  $F(ab')_2$  fragment and one homo-dimeric Fc-fragment



## Inactivation of IgG in human serum

- Rapid onset of action that takes down IgG below detectable level in 2 hours post 15 min infusion
- IgG antibody-free window for approximately one week

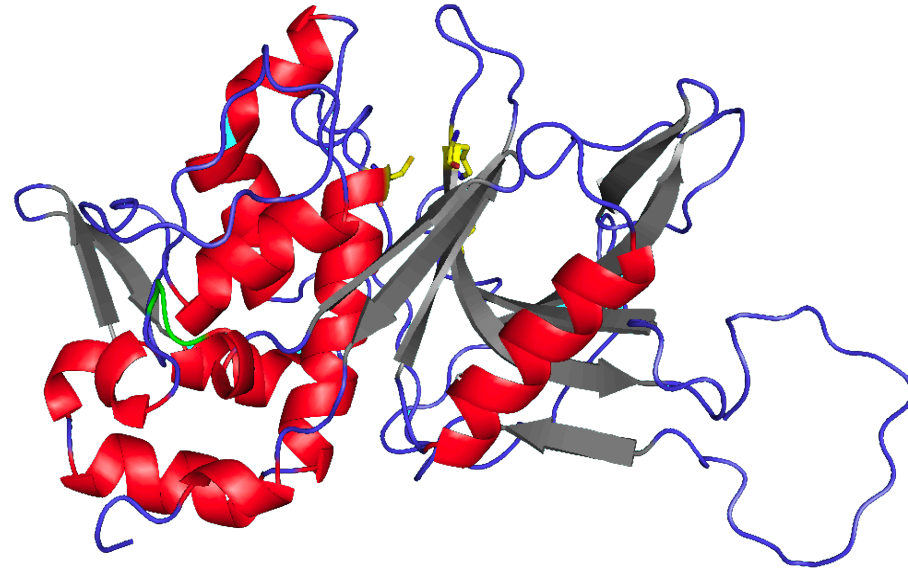


# Our IgG antibody-cleaving enzyme

## Origins from *Streptococcus pyogenes*

- Cysteine protease derived from an Immunoglobulin G (IgG)-degrading enzyme of *Streptococcus pyogenes*
- Contains only one cysteine - no disulfide bridges
- Monomeric protein with a molecular mass of 35 Kilo Dalton
- Isoelectric point of 6.1
- The coding gene for imlifidase is cloned and expressed in *Escherichia coli*

## Imlifidase consists of 311 amino acids



# Imlifidase is a lyophilized product formulation with a shelf life of 12 months at 2-8° Celsius storage

## Imlifidase will be infused in 15 minutes

- The product for commercial supply will be a lyophilized (cold chain) powder concentrate (11 mg solution) for infusion currently with a claimed shelf life of 12 months at 2-8°C storage. Ongoing stability studies indicate a shelf life of at least 24 months.
- Each vial is filled with 1.2 mL of a 10 mg/mL solution before freeze drying (=12 mg). Extractable volume after reconstitution with 1.2 mL sterile water is 1.1 mL of 10 mg/mL solution - resulting in 11 mg product
- The protein concentration, 10 mg/mL, has desirable characteristics with respect to not form aggregates
- Continuous stability programs ongoing to study changes in protein characteristics and performance.
- Imlifidase dose is clinically set to 0.25 mg/kg bodyweight (11 mg / 0.25 mg/kg = 44 kg (BW) / vial content) 2R vial size is suitable for the content



### Drug product composition

- Imlifidase protein
- Mannitol
- Tween
- EDTA
- Tris-HCl

# Supply Chain for imlifidase in kidney transplantation





# Manufacturing will be done in close collaboration with highly experienced European based third party CMOs

## Drug substance production process (API)

### Biotechpharma



#### Fermentation/ harvesting

- Working Cell Bank
- Pre-Cultivation
- Main Cultivation
- Cell Harvest

#### Protein purification

- Cell Disruption
- Protein Release

#### Protein purification cont.

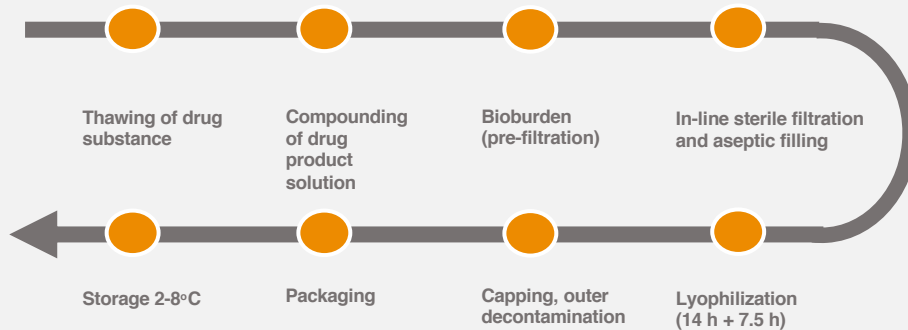
- Ion Exchange Chromatography
- Ceramic Hydroxy Apatite Chromatography
- Hydrophobic Interaction Chromatography
- Ultrafiltration/ Diafiltration

#### Filling

- Formulation, filtration, filling and storage (-80°C)

## Drug product production process (upscaling)

### Baxter



Thawing of drug substance

Compounding of drug product solution

Bioburden (pre-filtration)

In-line sterile filtration and aseptic filling

Storage 2-8°C

Packaging

Capping, outer decontamination

Lyophilization (14 h + 7.5 h)

**biotechpharma**

#### Facts

- Based in Vilnius, Lithuania
- Start-up Year: 2004
- Capacity: 300 L fermentor (1000 L fermentor in 2020)
- Certifications: GMP compliance, Manufacturing authorization license
- Inspections: National regulatory agency (EU), EU/US customer inspections, FDA mock inspection

**Baxter**

#### Facts

- Based in Halle/Westfalen Germany
- Start-up Year: 2001 (contract manufacturing)
- Capacity: 6-35 L drug product solution per batch (5,000-30,000 vials)
- Certifications: GMP compliance, Manufacturing authorization license
- Inspections: National regulatory agency (EU), FDA, EU/US customer inspections

**HANSA**  
BIOPHARMA

# Clinical development programs



# Broad pipeline in transplantation and auto-immune diseases

Candidate / Project	Indication	Research/ Preclinical	Phase 1	Potentially Pivotal/ Phase 2	Phase 3	Marketing Authorization	Marketed	Next Anticipated Milestone
Imlifidase	EU: Kidney transplantation in highly sensitized patients <sup>1,2</sup>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div>*)</div>	EU: Commercial launch Q4 2020
	US: Kidney transplantation in highly sensitized patients <sup>1,2</sup>	<div></div>	<div></div>	<div></div>	<div>**)</div>	<div></div>	<div></div>	First patient dosed H1 2021
	Anti-GBM antibody disease <sup>3</sup>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	High-level data read-out Q3 2020
	Antibody mediated kidney transplant rejection (AMR)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Complete enrolment of 30 patients H2'21
	Guillain-Barré syndrome (GBS)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Complete enrolment of 30 patients H2'21
NiceR	Recurring treatment in autoimmune disease, transplantation and oncology	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Development of CMC process / Tox studies
EnzE	Cancer immunotherapy	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Research phase

Completed

Ongoing

<sup>1</sup> Results from the Phase 1 study have been published, Winstedt et al. (2015) PLOS ONE 10(7)

<sup>2</sup> Lorant et al American Journal of Transplantation and 03+04 studies (Jordan et al New England Journal of Medicine)

<sup>3</sup> Investigator-initiated study by Mårten Segelmark, Professor at the universities in Linköping and Lund

\*) The EU Commission has granted conditional approval for imlifidase in highly sensitized kidney transplant patients. A post-approval study will commence in parallel with the launch

\*\*) FDA: Proposed study protocol submitted June 2020. Discussions are currently ongoing with the FDA. Once the final protocol has been agreed upon, Hansa Biopharma will proceed to set up centers in the US and start to enroll patients. Given the continued impact of the COVID-19 pandemic and the timeline for the finalization of the study protocol Hansa expect recruitment of the first patient to be in H1 2021

# First read-out in the Anti-GBM study in Q3'20. Recruitment in AMR & GBS expected to be reinitiated in Q4'20

## Ongoing Phase 2 programs

Enrollment status  
end Q2'2020



### Anti-GBM (investigator-initiated study)

- 15/15 patients enrolled in anti-GBM across 5 European countries
- First data read-out expected in Q3 2020



### Antibody Mediated Rejection

- 4/30 patients enrolled in AMR study.
- Recruitment is expected to be reinitiated in Q4 2020\*
- Enrollment is expected to be completed H2 2021



### Guillain-Barré Syndrome

- 4/30 patients enrolled in GBS study
- Recruitment is expected to be reinitiated in Q4 2020\*
- Enrollment is expected to be completed in H2 2021

■ Patients enrolled  
■ Patients left

\* Recruitment process was been impacted in Q2 following the COVID-19 virus pandemic causing a 3-6 months delay





# Anti-GBM, a rare acute autoimmune disease affecting kidneys and lungs; Enrollment completed in Q1 2020

## 2/3 of Anti-GBM patients lose kidney function<sup>2</sup>

- Indication: Antibodies are directed against an antigen intrinsic to the glomerular basement membrane (GBM) causing acute injury of kidney and/or lung
- Anti-GBM affects 1.6 in a million people annually with majority of patients losing their kidney function<sup>1,2</sup>, requiring chronic dialysis and kidney transplantation.
- The study is an open label investigator-initiated Phase 2 with Professor Mårten Segelmark at Linköping- and Lund University Hospital as the sponsor and principal investigator
- The study is designed to evaluate the safety and tolerability of imlifidase in patients with severe anti-GBM disease on top of standard care consisting of plasmapheresis, steroids and cyclophosphamide.
- 15/15 patients enrolled in anti-GBM across 5 European countries. First data read-out expected in Q3 2020.
- Our Anti-GBM program obtained Orphan Drug designation from both FDA and European Commission (2018)

1 Kluth et al . J Am Soc Nephrol. 1999 Nov;10(11):2446-53

2 Hellmark et al. J Autoimmun. 2014 Feb-Mar;48-49:108-12



# Favourable pre-clinical studies show that imlifidase degrades IgG bound to the GBM in vivo; preventing renal damage in animals

## CLINICALTRIALS.GOV ID

NCT03157037 (Since March 2017)

## SUBJECTS

15 patients targeted. Patients will be monitored for six months  
Recruitment at 15 clinics

## DOSES/FOLLOW UP TIME

Dosage 0.25mg/kg 180 days follow up

## MAIN OBJECTIVES

- Primary objective is to evaluate the safety and tolerability of imlifidase on background of standard of care, and assess efficacy based on renal function at six months after treatment

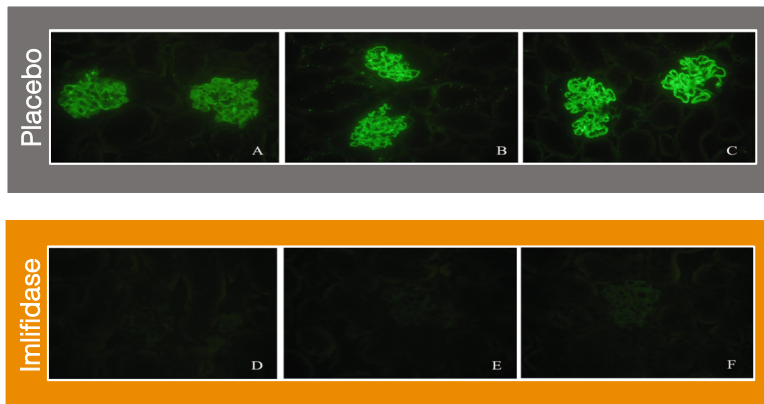
## STUDY DESIGN

- Open label, multicenter, single arm Phase 2 study with adverse renal prognosis
- Investigator initiated study

## STATUS

Ongoing

## Mouse anti-rabbit IgG (Fc specific)



## Inclusion criteria

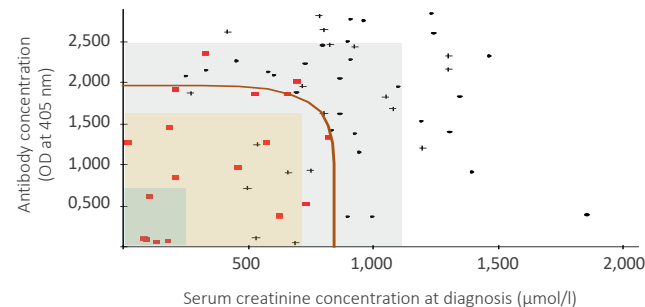
**Inclusion:** Toxic anti-GBM antibodies level as considered by the investigator. eGFR < 15 ml/min/1.73 m2 or if the patient is non-responsive to standard treatment, and has lost >15 ml/min/1.73 m2 after start of treatment

**Exclusion:** Anuria for more than 2 days (less than 200 ml during last 48 hours); Dialysis dependency for more than 5 days

Yang et al. Favorable pre-clinical studies: "Imlifidase degrades IgG bound to the GBM in vivo, thereby preventing renal damage in this animal model. Nephrology Dialysis Transplantation, 2010;25(8): 2479-86.

## Anti-GBM creatinine and antibody concentration

- Both creatinine and levels of antibodies predict outcome and we expect that imlifidase can treat the disease by degrading IgG bound to the GBM



# Long term graft survival is challenged by antibody mediated rejection post transplantation

## There is no approved treatment for AMR

- Active antibody mediated rejection after transplantation occurs in 10-15% of kidney transplants<sup>1</sup> or ~ 3,200<sup>2,3</sup> new patients annually<sup>4</sup> and is a significant challenge to long term graft survival
- Today's standard of care include plasma exchange, and treatment with steroid and IVIg. AMR patients not treated successfully risk graft failure, dialysis and return to the waitlist
- The AMR Phase 2 study is a randomized, open-label, multi-center, active control study designed to evaluate the safety and efficacy of imlifidase in eliminating donor specific antibodies (DSAs) in the treatment of active episodes of acute AMR in kidney transplant patients.
- 4/30 patient treated with imlifidase in AMR. 6/8 sites have been initiated to recruit patients in the US, Europe and Australia.
- Enrollment is expected to be completed H2 2021

<sup>1</sup> Puttarajappa et al., Journal of Transplantation, 2012, Article ID 193724.

<sup>2</sup> Jordan et al., British Medical Bulletin, 2015, 114:113-125.

<sup>3</sup> <http://www.irodat.org>.

<sup>4</sup> Seven major markets – US, Germany, UK, France, Spain, Italy, and Japan





## AMR Phase 2

# New AMR Phase 2 study initiated to test imlifidase ability to reduce the amount of DSA in AMR patients post transplantation

### CLINICALTRIALS.GOV ID

NCT03897205 (2019)

### SUBJECTS

30 patients targeted (20 patients will be treated with imlifidase and 10 with Plasma exchange). Recruitment from 8 sites in the U.S., EU and Australia.

### DOSES/FOLLOW UP TIME

1 dose of imlifidase (0.25 mg/kg) or 5-10 sessions of plasma exchange

### MAIN OBJECTIVES

- Imlifidase ability to reduce the amount of DSA in comparison with plasma exchange in patients who have an active AMR post transplantation
- Ensure safety for patients

### STUDY DESIGN

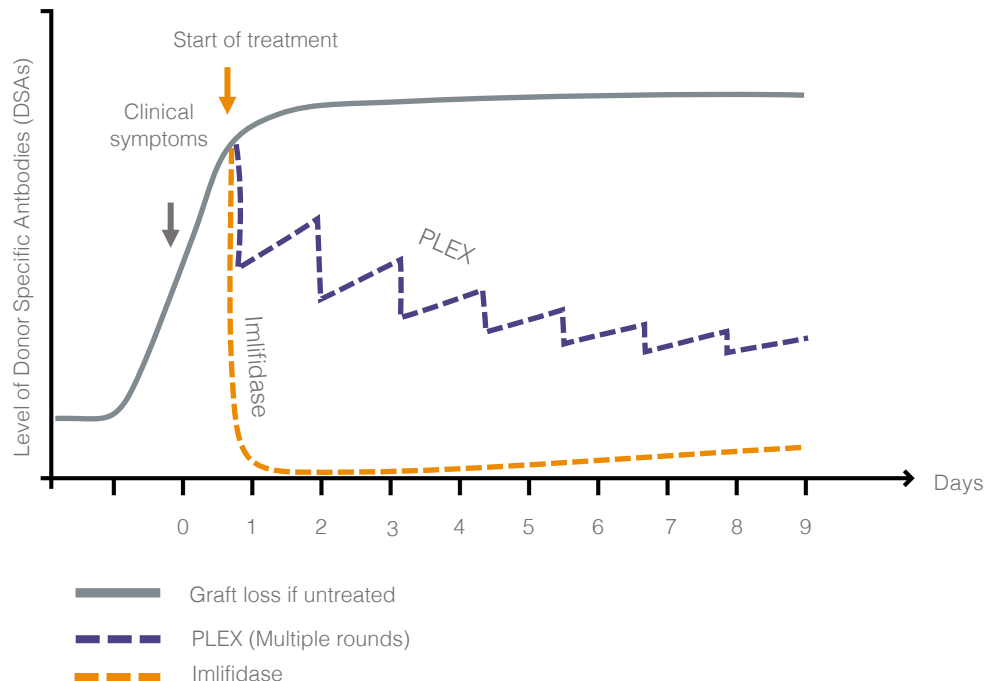
- Randomized, open-label multi-center, active control study, designed to evaluate the safety and efficacy of imlifidase in eliminating DSA in active AMR

### STATUS

Ongoing  
51

## Potential of using imlifidase vs. PLEX in AMR

*Illustrative*



# Guillain-Barré syndrome is an acute autoimmune attack on the peripheral nervous system

## GBS can affect anyone at any age

- GBS is an acute autoimmune attack on the peripheral nervous system, which rapidly and progressively weakens extremities.
- Only parts of the patients fully recover from GBS, thus a high unmet medical need for new treatments; 40% lose strength and have pain while mortality is 3-7%
- Addressable population of ~ 11,000<sup>1</sup> per year in 7MM<sup>2</sup>
- Current Standard of Care is treatment with IVIG or PLEX
- The new Phase 2 study is an open-label, single arm, multi-center study evaluating the safety, tolerability and efficacy of imlifidase in GBS patients in combination with standard of care intravenous immunoglobulin (IVIg)
- 4/30 patients enrolled. 6/10 sites are recruiting patients across France, UK and the Netherlands. Enrollment is expected to be completed in H2 2021
- In 2018, the FDA granted Orphan Drug Designation to imlifidase for the treatment of GBS

<sup>1</sup> McGrogan et al. Neuroepidemiology 2009;32(2):150-63.

<sup>2</sup> 7MM = Seven major markets – US, Germany, UK, France, Spain, Italy, and Japan



## GBS Phase 2

# New Phase 2 study initiated in GBS to evaluate safety, tolerability and efficacy of imlifidase in GBS patients

## CLINICALTRIALS.GOV ID

NCT03943589 (2019)

## SUBJECTS

30 patients targeted  
Recruitment at ten clinics in Europe  
(France, U.K. and the Netherlands)

## DOSES/FOLLOW UP TIME

Dosage 0.25mg/kg follow up 180  
days and 12 months

## MAIN OBJECTIVES

- safety and effectiveness of imlifidase in patients diagnosed with GBS

## STUDY DESIGN

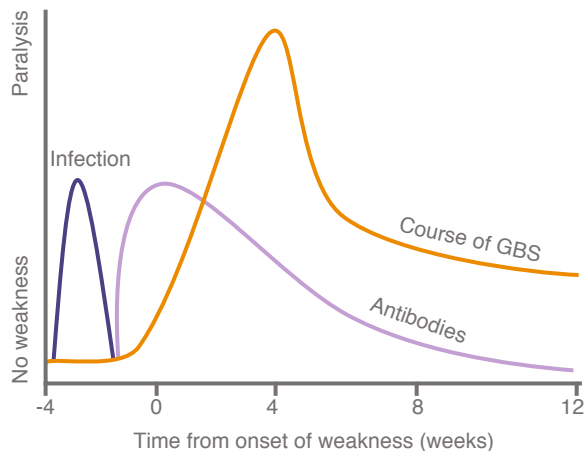
- Study is an open-label, single arm, multi-center trial evaluating safety, tolerability and efficacy of imlifidase, in combination with standard of care, IVIg, to treat GBS

## STATUS

Ongoing

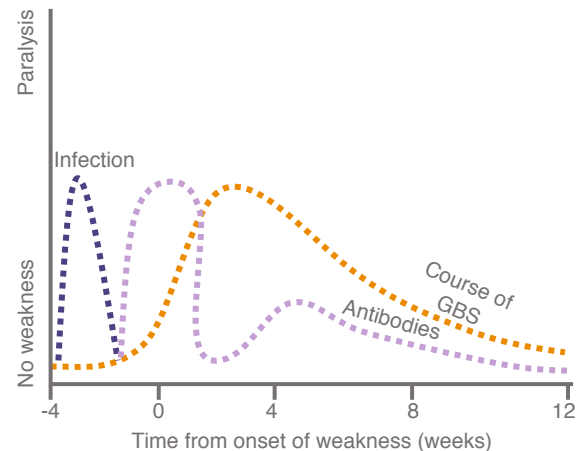
## Today's Standard of Care IVIg or PLEX

*Illustrative*



## Potential with imlifidase

*Illustrative*



# Pre-clinical programs

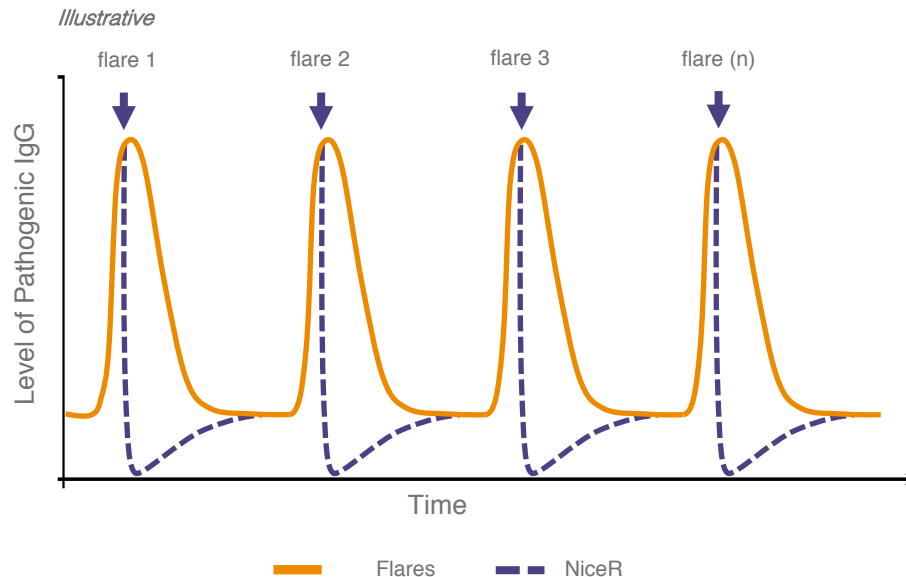


# “NiceR” – new set of enzymes for repeat dosing; potentially enabling treatment of relapsing diseases

## IgG-cleaving enzyme with lower immunogenicity

- Potential application for a broad array of indications, including reoccurring AMR, relapsing autoimmune diseases and oncology
- The first selected promising new drug candidate from the NiceR program is an IgG-cleaving enzyme (cysteine peptidase) with characteristics based on a homolog to imlifidase, but with lowered immunogenicity.
- Development of a GMP-manufacturing process has been initiated

## NiceR can potentially inactivate flares

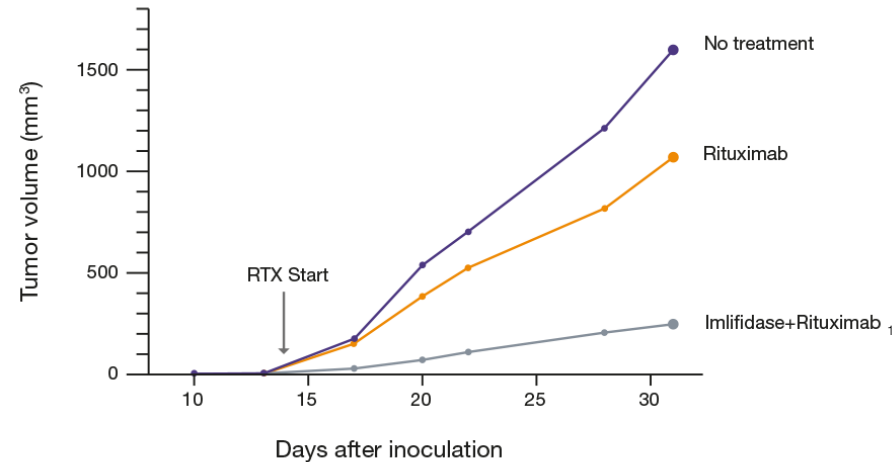


# Imlifidase / NiceR can potentially improve the therapeutic effect in oncology (EnzE)

## Proof of concept demonstrated in vivo for mice

- Enzyme based antibody enhancement through pre-treatment
- The abundance of normal IgG in blood interferes with therapeutic monoclonal antibodies
- Pre-treatment with imlifidase / NiceR has potential to significantly potentiate antibody-based cancer therapies
- Suppressive effect of IVIg on effector cell function abrogated by imlifidase
- Imlifidase can significantly improve the therapeutic effect of rituximab

## Mice with human IgG (~9mg/mL)



<sup>1</sup> Järnum et al. Mol Cancer Ther 2017;16:1887-1897

# Gene Therapy



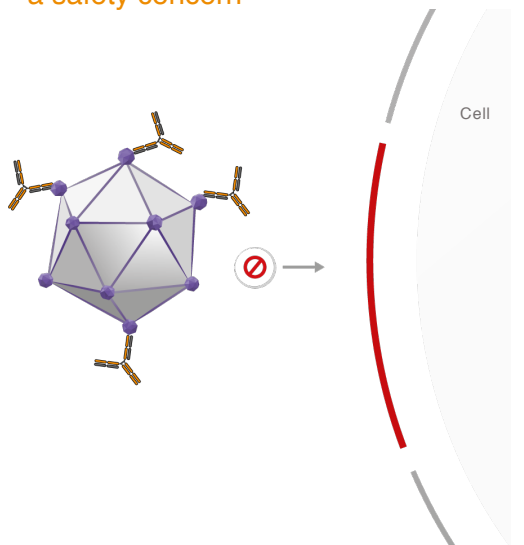


# Neutralizing antibodies (Nabs) are immunological barriers in gene therapy

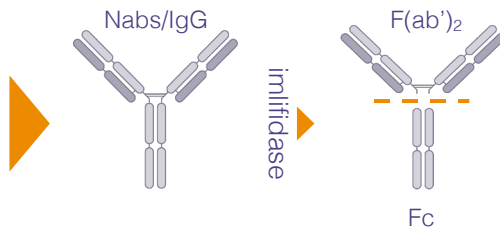
*Between approximately 5% and 70%<sup>1,2</sup> of patients considered for gene therapy treatment carry neutralizing anti-AAV antibodies forming a barrier for treatment eligibility*

*Our hypothesis is that imlifidase has the potential to eliminate neutralizing antibodies as a pre-treatment, prior to the introduction of gene therapy*

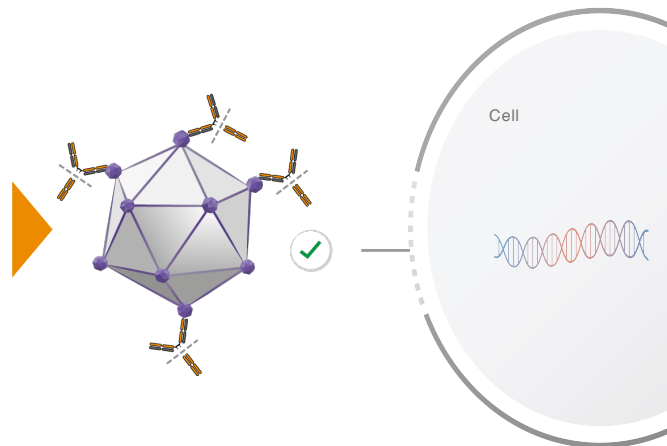
- 1 Antibodies prevent effective transfer of healthy gene sequence and can be a safety concern



- 2 Imlifidase is a unique IgG antibody-cleaving enzyme that cleaves IgG at the hinge region with extremely high specificity



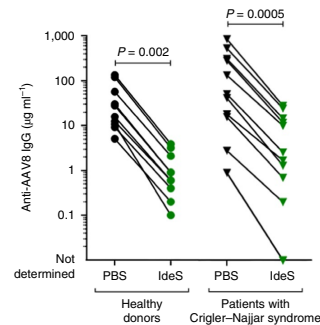
- 3 The idea is to eliminate the neutralizing antibodies as a pre-treatment to enable gene therapy



*Results from preclinical studies with imlifidase (ideS) in gene therapy demonstrate imlifidase as a potential solution to overcome pre-existing antibodies to AAV-based gene therapy*

### Implifidase tested in human plasma samples (GT patients)

- Imlifidase reduced anti-AAV antibody levels from human plasma samples in vitro, incl. plasma from prospective gene therapy trial participants



Leborgne et al. Nat Med (2020)

# Exclusive agreement with Sarepta Therapeutics to develop and promote imlifidase as pre-treatment ahead of gene therapy in select indications

## A unique opportunity to combine efforts...

...and to use the unique features of imlifidase to potentially enable gene therapy treatment in patients who today aren't eligible for these breakthrough therapies due to pre-existing neutralizing antibodies in two indications with a very high unmet medical need

## Structure of the partnership

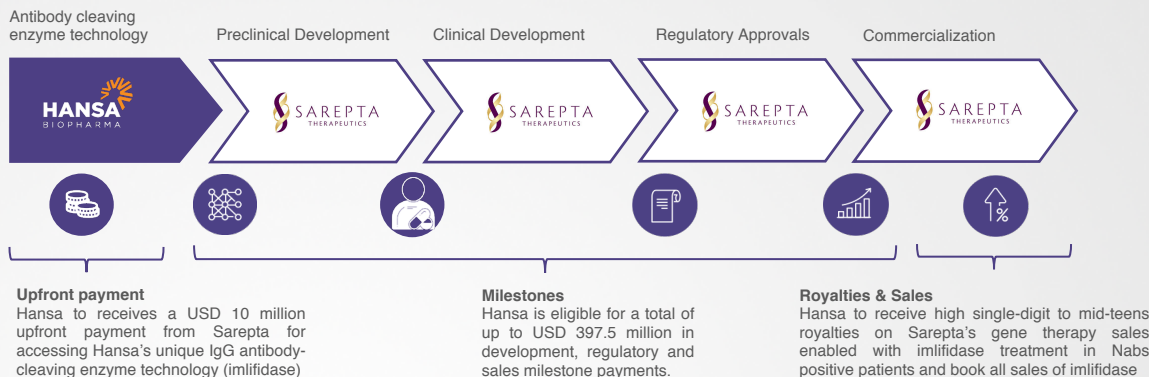
Sarepta will be responsible for conducting

- Pre-clinical/clinical studies with imlifidase
- Regulatory approvals
- Promotion of imlifidase as a pre-treatment to Sarepta's gene therapies following potential approval

Hansa will supply product, support with know-how and involve in the regulatory approval process

## Hansa's financial participation

Potential total deal value for Hansa amounts to up to USD ~400m plus royalties and incremental imlifidase sales

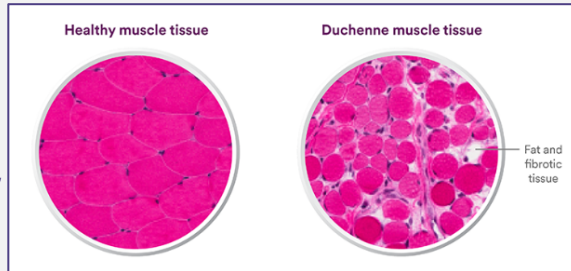


# Sarepta obtains a global and exclusive license to imlifidase in DMD and LGMD in gene therapy

## About Duchenne muscular dystrophy (DMD)

- Duchenne muscular dystrophy is a rare genetic disease caused by mutation in the DMD gene, encoding for the protein dystrophin
- Muscles in the body become weak and most patients use wheelchair by the age of 12
- Affects one in 3,500 to 5,000 males born worldwide (approximately 400-500 annual male cases in the US) of which approximately 15-20% are estimated to have pre-existing antibodies to AAV-based gene therapy which prevents the patients from being treated with gene therapy

*"On average, every day DMD takes the life of a child in the United States..."*

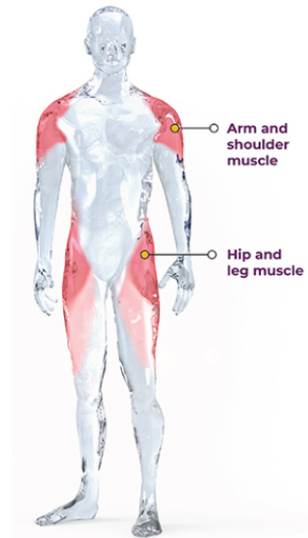


Source: Sarepta Therapeutics

<https://investorrelations.sarepta.com/static-files/0c4aca61-9419-45a5-afb1-ff2092644627>

## About Limb-girdle muscular dystrophy (LGMD)

- Limb-girdle muscular dystrophy is a group of diseases that cause weakness and wasting of the muscles
- May be caused by a single gene defect affecting specific proteins within muscle cells
- Global prevalence of 1.63 per 100,000 individuals (of which approximately 15-20% are estimated to have pre-existing antibodies to AAV-based gene therapy which prevents patients from being treated with gene therapy)



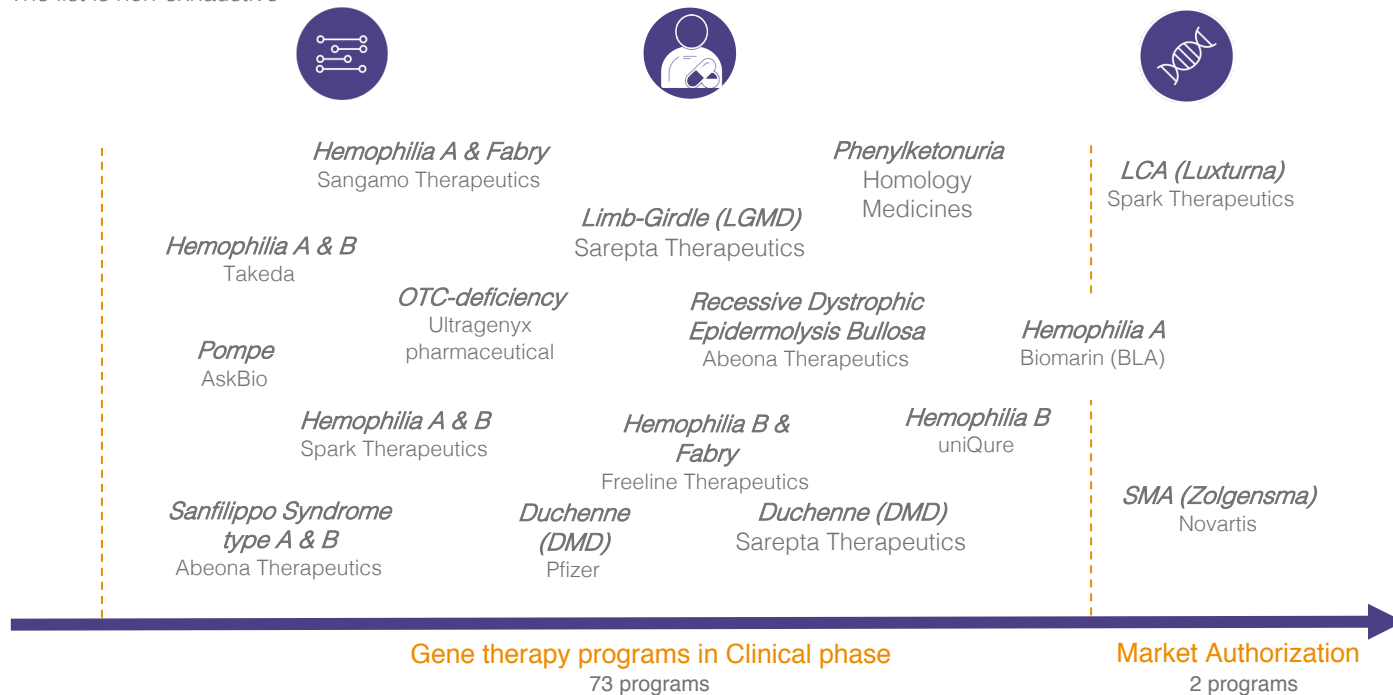
Source: Sarepta Therapeutics

<https://investorrelations.sarepta.com/static-files/0c4aca61-9419-45a5-afb1-ff2092644627>

# Emerging landscape in gene therapy

## Examples of big pharma and specialized players targeting rare diseases in gene therapy

*The list is non-exhaustive*



Today experimental protocols are used based on plasmapheresis, or with immunosuppressants; however these protocols have not demonstrated sufficient efficacy and safety

187 *in vivo* programs are ongoing in gene therapy including 73 clinical stage programs<sup>1</sup>

Two *in vivo* gene therapy products have been approved by FDA: **Luxturna** from Sparks/Roche and **Zolgensma** from Novartis

<sup>1</sup> Alacrita Consulting 2019 estimate based on publicly available data

# Capital Markets



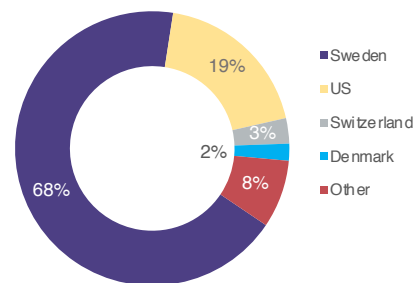
# Ownership in Hansa Biopharma

## Top 10 ownership as per June 30, 2020

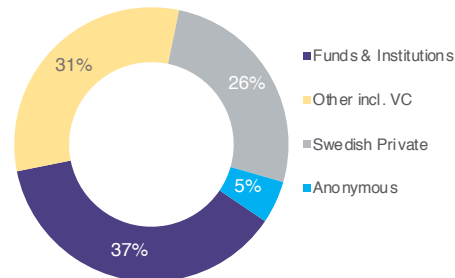
Name	No. of shares	Ownership in pct.
NXT2B	5 755 379	14.4
Consonance Capital Management LP	2 478 177	6.2
Invesco	1 999 188	5.0
Thomas Olausson	1 713 474	4.3
Avanza Pension	1 396 176	3.5
Gladiator	1 260 631	3.1
Fourth Swedish National Pension Fund	1 112 044	2.8
Third Swedish National Pension Fund	1 066 470	2.7
Vanguard	938 933	2.3
ClearBridge, LLC	741 306	1.9
Other	21 564 329	54.0
Outstanding A shares in total	40 026 107	100.0

## Classification of ownership

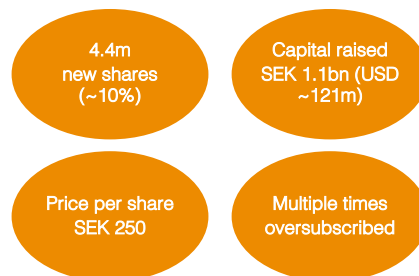
Ownership by country



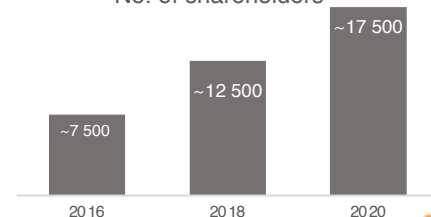
Ownership by type



Capital Raise July 2020



No. of shareholders





# Hansa Biopharma - Market data and share price development

## Market data (Sep 2020)

Stock Exchange: Nasdaq, Stockholm since Nov 2015  
(First North Oct 2007- Nov 2015)

Ticker HNSA

Market Cap: SEK ~9bn (USD ~900m)

52-week range: SEK 59-288 per share

Avg. Daily Turnover: vol ~400k shares

Shares outstanding: ~40m (pre-raise) ~45m (post-raise)

Shareholders ~17,500

Top 5 Shareholders: NXT2B 14.4%

As per June 30, 2020 (pre-raise)

Consonance 6.2%

Invesco 5.0%

Thomas Olausson 4.3%

Avanza Pension 3.5%

## 12 months Share price development (July 2020)



# Analysts covering Hansa Biopharma (ticker: HNSA, NASDAQ Stockholm)

Analyst	Bank / Research institution (year of initiation)	Location	Email	Phone
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Naresh Chouhan	Intron Health Research (2020)	London	<a href="mailto:naresh@intronhealthresearch.com">naresh@intronhealthresearch.com</a>	+44 7939 224 322
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Erik Hultgård	Carnegie (2019)	Stockholm	<a href="mailto:erik.hultgard@carnegie.com">erik.hultgard@carnegie.com</a>	+46 (0) 858-869 237
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Joseph Hedden	RX Securities (2016)	London	<a href="mailto:joseph@rxsecurities.com">joseph@rxsecurities.com</a>	+44 773 061 8803
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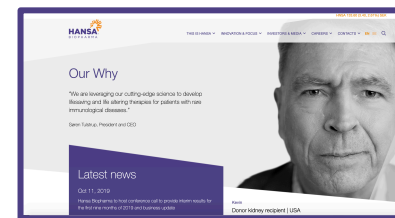
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Visit our web site  
[www.hansabiopharma.com](http://www.hansabiopharma.com)



## Calendar

Sep 9, 2020	Citi's Annual BioPharma Virtual Conference, Boston (virtual)
Sep 15, 2020	H.C. Wainwright Healthcare Conference, NYC (virtual)
Sep 16, 2020	Bank of America Merrill Lynch Healthcare Conf., London (virtual)
Sept 18, 2020	Morgan Stanley Global Healthcare Conference, NYC (virtual)
Sep 23, 2020	ABG Small & Mid Cap Seminar, Copenhagen and virtual
Oct 22, 2020	Interim Report Jan-Sep 2020
Oct 29, 2020	Hansa Biopharma Capital Markets, Copenhagen and virtual
Nov 17, 2020	Bryan Garnier Healthcare Conference, Paris
Nov 18, 2020	Jefferies Healthcare Conference, London
Nov 25, 2020	Ökonomisk Ugebrev Life Science Conference, Copenhagen
Feb 2, 2021	Interim report Jan-Dec 2020
April 22, 2021	Interim report for Jan-Mar 2021
July 15, 2021	Interim report for Jan-Jun 2021
Oct 21, 2021	Interim report for Jan-Sep 2021

