



HANSA

BIOPHARMA

**Investor Road Show
Presentation Q3 2023**

Lund, October 26, 2023

Forward-looking statements

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 Q3'2023



Continued progress with our strategic priorities

1 Q3: Continued progress against our key launch metrics

- Anticipate sales growth in coming periods as positive first outcomes leads to repeat usage
- Several agreements in new markets and increased access to organs to support growth
- Continued progress against key launch metrics; Sales to remain volatile we reach scale
- First patients selected for treatment through Eurotransplant's new pilot program
- ESOT Congress: 600+ attendees from the transplant community attended Hans-sponsored symposium

2 Advancing the pipeline

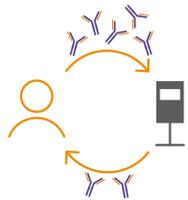
- Anti-GBM: Good momentum in pivotal phase 3
- ANCA: New IIT phase 2 initiated
- HNSA 5487: Encouraging high-level data from phase 1 trial in healthy volunteers
- Kidney Transplantation:
 - ConfldeS: Randomization completion mid-2024 (BLA submission expected in 2025)
 - Sustained positive outcomes in 5 year follow up study

The long-term market uptake of Idefix is highly dependent on successful early experiences in patients

For decades, medical practice (SoC) in transplantation has been predicated on compatibility as modalities came with certain limitations

Idefix addresses the limitations of these other modalities and is the first and only approved drug to enable incompatible kidney transplants

PLEX



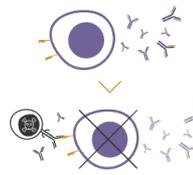
Plasmapheresis immunoadsorption
Mechanically removes antibodies from circulation

IVIg



immunoglobulins
IVIg/SCIg contains healthy antibodies that replaces pathogenic antibodies

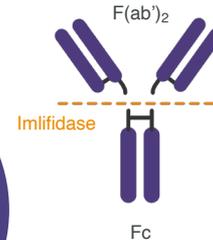
B-cells



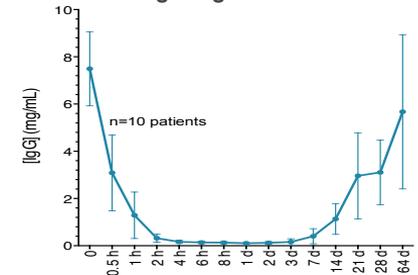
B-cell depleting mAbs
Lowering antibody levels through B-cell elimination

..with Idefix we are changing the entire ecosystem in transplantation

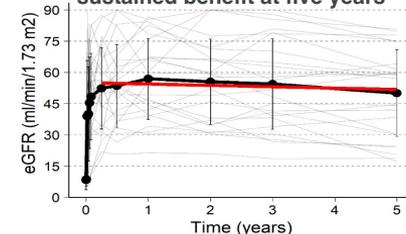
Idefix antibody-cleaving enzyme



Inactivates IgG in 2-6 hours creating an IgG-free window



Long term data confirms sustained benefit at five years



1950s

1980s

1990s

Continued progress against key launch metrics; Major markets to support growth going forward

Market Development

5

Medical guidelines issued by ESOT

National level



Market Access

13

9

Market access secured in 13 key European markets incl. EU4+UK

Patient Identification

16

2

Post Approval Study
~1/3 into completion

Transplant Center Readiness & Use

~50

25

~50 clinics are Idefirix "ready" to treat patients

600+

ESOT Congress:
Hansa-sponsored symposium with participation from >600

10

8

Ongoing HTA processes in ten countries incl. Portugal and Switzerland

✓

Eurotransplant:
First patients selected for new desensitization program

20+

10

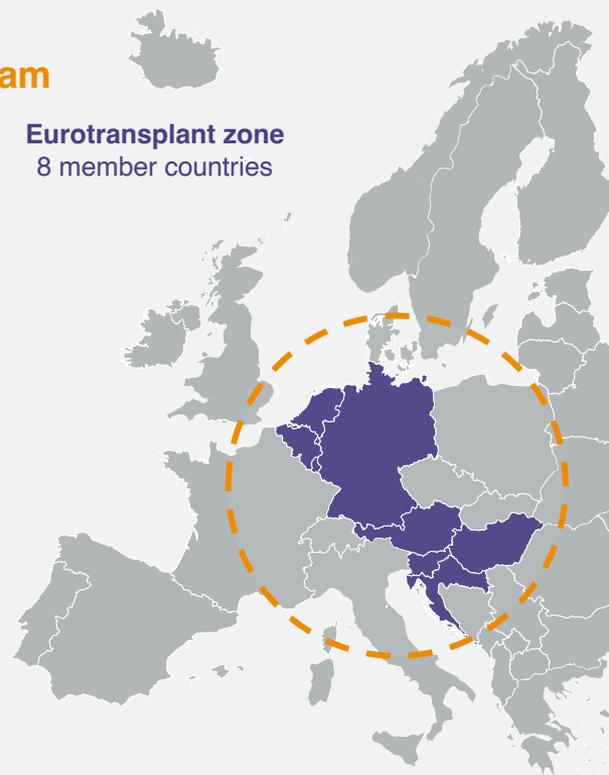
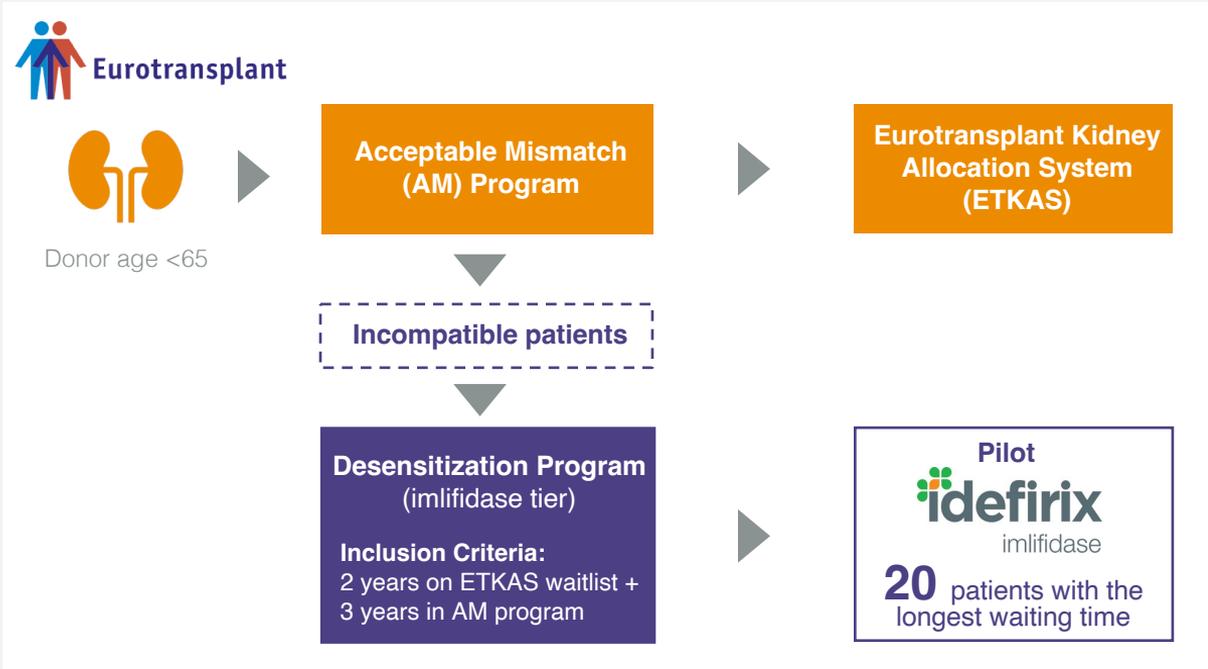
20+ centers have treated patients overall

Major markets to support growth going forward
France (repeat usage); Market expansion into new markets incl. U.K., Germany, Spain and Italy



Eurotransplant Desensitization Program set to transform desensitization across eight European membership countries

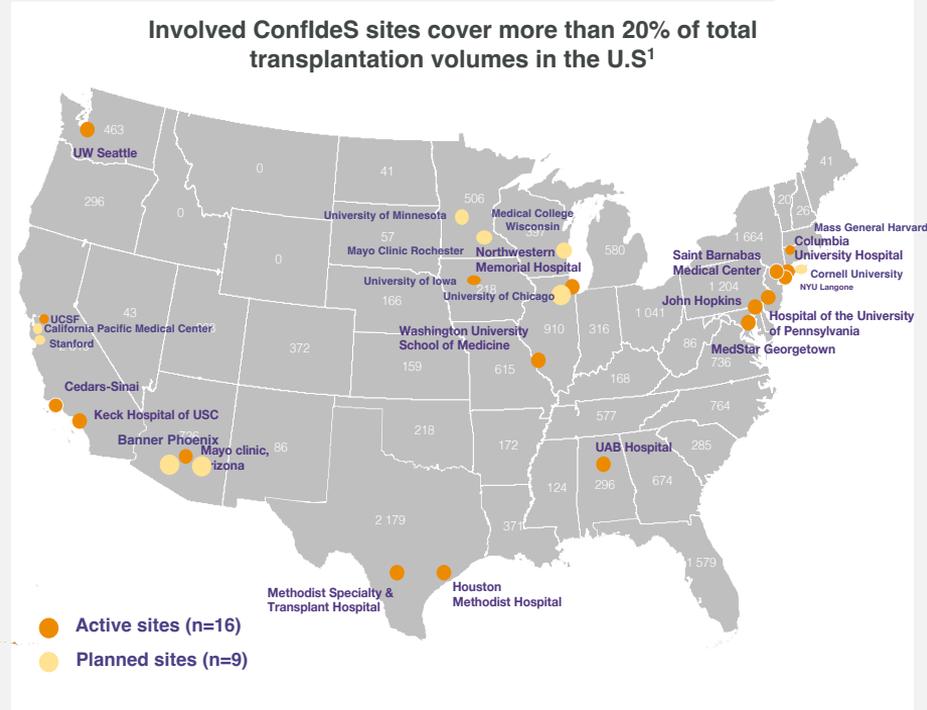
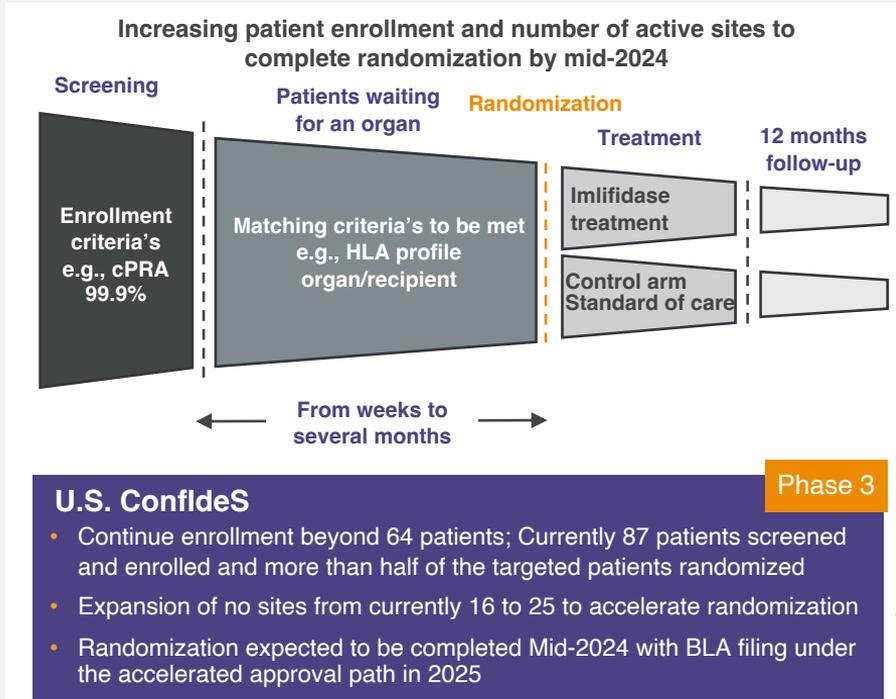
First patients selected for treatment through the Desensitization Program



Potential to disrupt transplantation care in the U.S. with imlifidase

~2,500 highly sensitized patients that have not been transplanted despite prioritization points on the waitlist

ConfideS phase 3 trial will further advance potential for imlifidase to address unmet need in desensitization



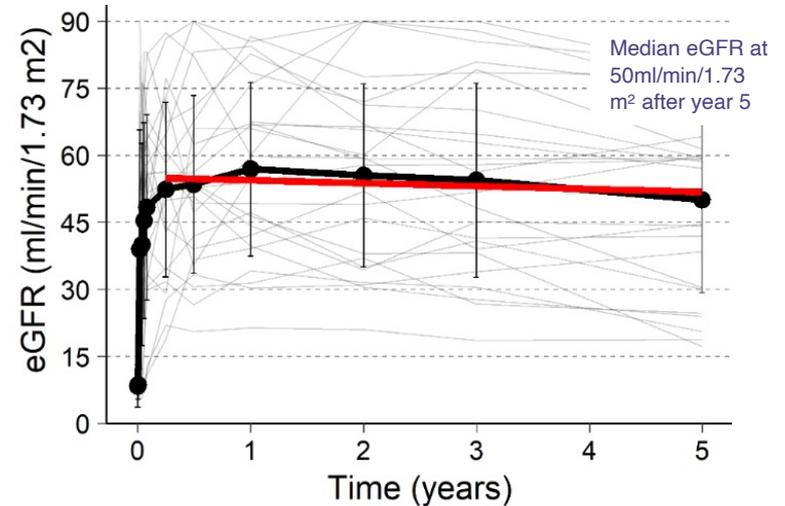
Long term data confirms sustained benefit at five years in graft survival and overall patient survival

Results is a continuation of the 3-year data

- After 5 years graft survival (death censored) was 82%, in line with outcomes seen at 3-years post-transplant
- Patient survival rate was 90%¹
- At five years kidney function measured by mean estimated glomerular filtration rate (eGFR) was 50 ml/min/m² at year 5
- The 5-year data is a continuation of the analysis at 3-years of crossmatch positive patients published in the *American Journal of Transplantation*
- Further data from extended pool analysis expected in 2024

¹ Three deaths occurring between six months and one year, and no deaths occurring between one and five years (not related to imlifidase)

Stable long-term outcomes on graft survival and patient survival



Encouraging high-level results for HNSA-5487 first in human trial

Lower immunogenicity would potentially allow for repeat dosing in a range of IgG-driven indications

High-level results from 36 healthy volunteers

- Study design: Double blind, randomized, placebo-controlled trial evaluating safety, tolerability, PK and PD of SAD of HNSA-5487
- Demonstrated tolerability and safety
- Pharmacodynamics (PD) showed a fast and complete cleavage of IgG to F(ab')₂ and Fc-fragments with increasing doses
- Pharmacokinetics (PK) was in line with expectations
- Further analysis around endpoints and immunogenicity profile to be completed in 2024 incl. selection of lead indication

Potential indication universe for HNSA-5487



Continued momentum with seven clinical programs in areas of high unmet need

New clinical program in DMD planned for Q4

Phase 1

HNSA-5487 (Lead from NiceR)



- Encouraging first read-out
- Ongoing collection of immunogenicity data into 2024

Pre-treatment Gene Therapy Duchenne



- Partnered with Sarepta
- Initiate clinical study (phase 1b) in a small patient group Q4'23

Phase 2

Antibody Mediated Rejection (AMR)



- Positive topline data on primary endpoint announced Nov 2022
- Full data read-out in Q4 2023

Guillain-Barré syndrome (GBS)



- Safety and tolerability data expected in Q4 2023
- Matched control data expected in 2024

ANCA-associated vasculitis



• Patients enrolled
• Patients remaining

- First three patients treated out of a target of ten in investigator-initiated Phase 2 study

Phase 3

US ConfIdes Study in kidney



- 87 patients enrolled; more than half of 64 targeted patients randomized
- Randomization to complete mid'24
- BLA submission 2025

Post Approval Study in kidney



- 50 patients to be enrolled at 20-25 clinics in Europe
- ~1/3 into completion. Study to complete by the end of 2025

Anti-GBM disease



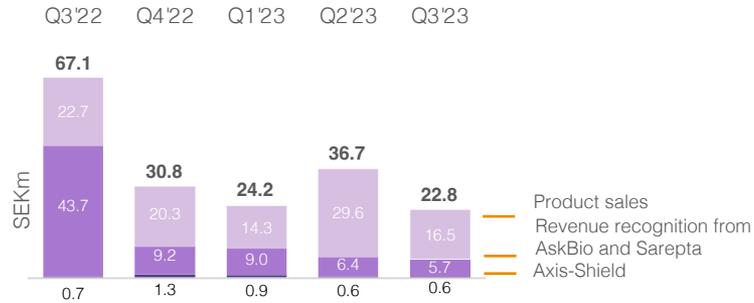
• Patients enrolled
• Patients remaining

- 50 patients to be enrolled at 30-40 sites (25 active sites)
- Granted orphan drug designation (FDA, EMA)

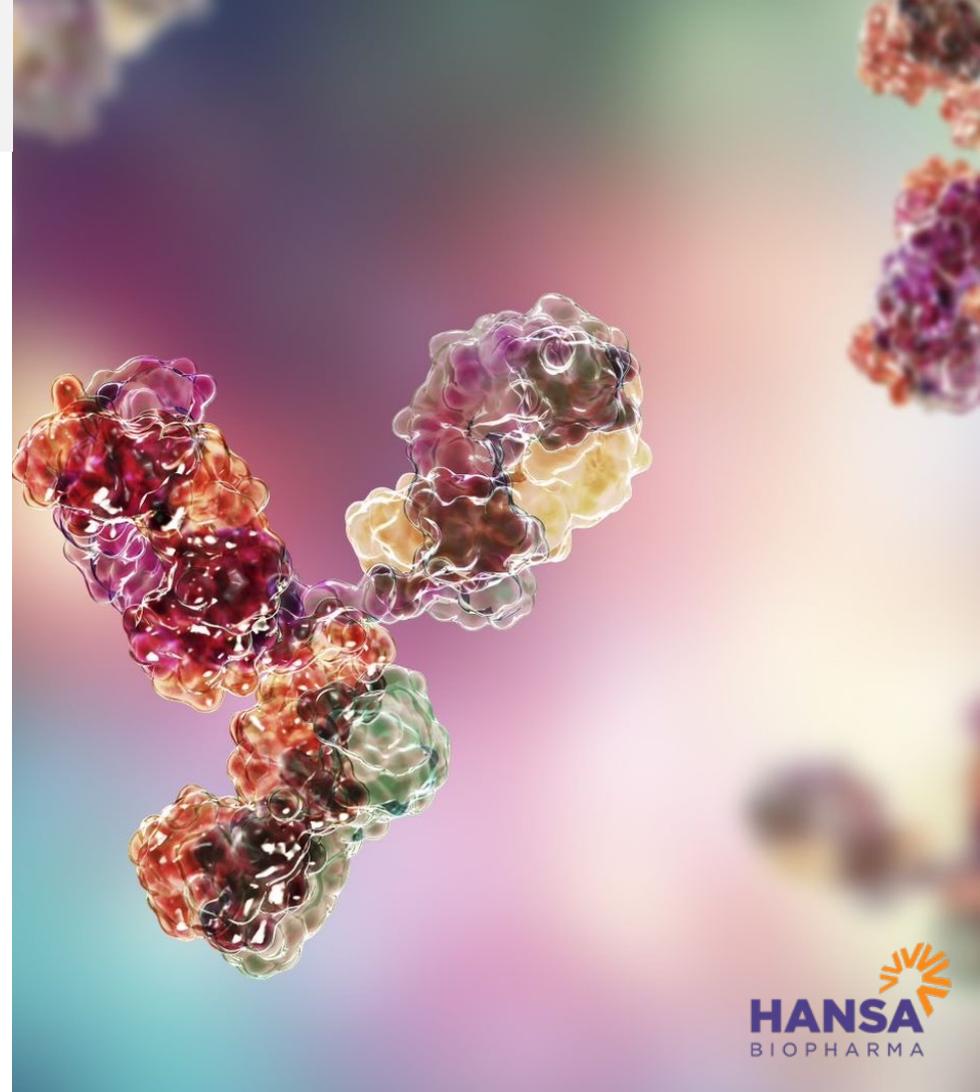
- Next generation enzymes
- Gene Therapy
- Autoimmune / Allograft
- Transplantation

Q3 2023 Revenue amounted to SEK ~23m including SEK ~17m in product sales

Revenue (Q/Q)



Revenue (9M/9M)



Continued investments in commercialization and R&D activities

SG&A expenses (Q/Q)



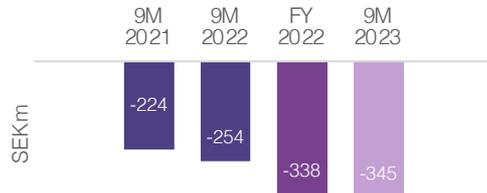
R&D expenses (Q/Q)



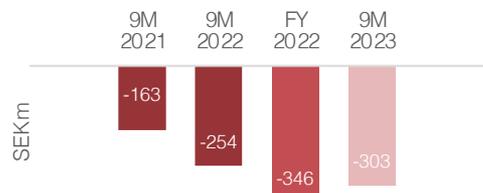
Net loss (Q/Q)



SG&A expenses (9M/9M)



R&D expenses (9M/9M)

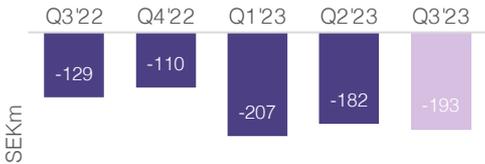


Net loss (9M/9M)



With current cash position and projected burn-rate, Hansa's operations are financed into 2025

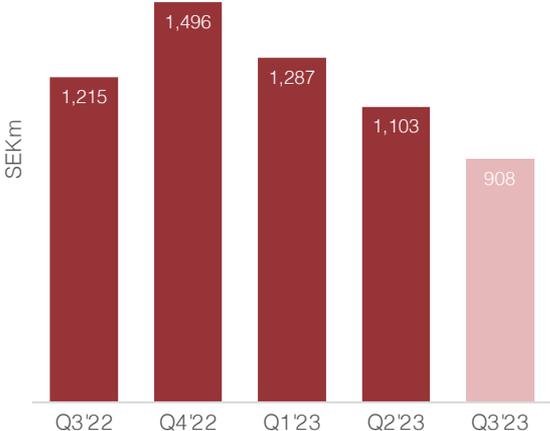
Operating cash flow (Q/Q)



Operating cash flow (9M/9M)



Cash & short-term investments (Q/Q)



Number of employees (Q/Q)



Achieved and upcoming milestones

2023		2024
9M 2023	Q4 2023	
<ul style="list-style-type: none"> ✓ U.S. ConfideS (Kidney tx) Phase 3: Continued enrollment beyond 64 patients ✓ Anti-GBM disease Phase 3: First patient enrolled ✓ GBS Phase 2: Complete enrollment ✓ ANCA-associated vasculitis Phase 2: First patient enrolled ✓ HNSA-5487 (Lead NiceR candidate): Initiate Phase 1 study ✓ Genethon Crigler-Najjar: Initiate preclinical study with imlifidase prior to GNT-0003 	<ul style="list-style-type: none"> ✓ HNSA-5487 (Lead NiceR candidate): High-level data readout from Phase 1 ✓ Long-term follow-up (Kidney tx): 5-year data readout - GBS Phase 2: First data readout - AMR Phase 2: Full data readout - Sarepta DMD pre-treatment Phase 1b: Commence clinical study 	<ul style="list-style-type: none"> - GBS Phase 2: Outcome of the comparative efficacy analysis to IGOS data - Genethon Crigler-Najjar Phase 1/2: Initiate clinical study with imlifidase prior to GNT-0003 - HNSA-5487 (Lead NiceR candidate): Further analysis around endpoints to be completed in 2024 incl. lead indication - U.S. ConfideS (Kidney tx) Phase 3: Complete randomization
		2025
		<ul style="list-style-type: none"> - U.S. ConfideS (Kidney tx) Phase 3: BLA submission

Company overview



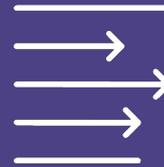
Hansa Biopharma today

A successful track record and a promising future...



A validated technology

- ✓ Commercial stage biotech company
- ✓ Approval in kidney transplantation (EU)
- ✓ Market Access in 13 European markets
- ✓ PoC in autoimmune diseases
- ✓ Three partnerships in gene therapy



Broad clinical pipeline

- Imlifidase being investigated in seven ongoing clinical programs in transplantation and autoimmune disease
- Planned clinical study in gene therapy
- HNSA-5487: Encouraging data from phase I first-in-human trial



Skilled and experienced team

- A high-performance organization with 20 years on average in life science
- Purpose driven culture
- Headquartered in Lund, Sweden with 168 employees (September 2023)
- Operations in both EU and the US



Financial position

- Hansa is financed into 2025
- Market cap (USD): ~124m (Oct. 2023)
- Listed on Nasdaq Stockholm
- 21,000 shareholders
- Foreign ownership make up ~43%

We are building a global leader in rare diseases

Today

We are launching our first commercially approved product for enablement of kidney transplantation in Europe*

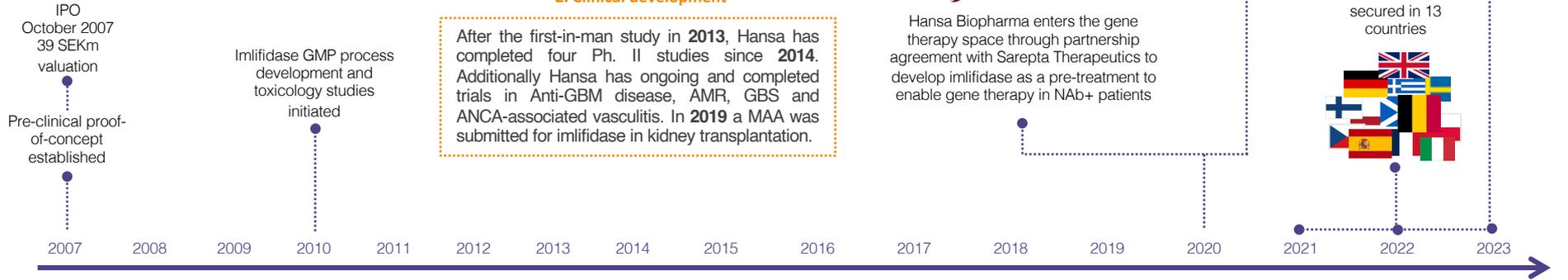


Tomorrow

We envision a world where patients with rare immunologic diseases and conditions can lead long and healthy lives



Hansa Biopharma's history



Discovery, proof of concept and pre-clinical research

1. Turning foe into friend

The therapeutic potential in using a bacterial enzyme with specificity for IgG-antibodies, to neutralize pathogenic antibodies was discovered around **2006**. The original enzyme, IdeS, has been developed by *Streptococcus pyogenes* over thousands of years and by transferring a majority of the IdeS coding nucleotide into harmless *E. coli*-bacteria, the IgG-cleaving part of the IdeS molecule can be expressed and purified, resulting in the Hansa Biopharma drug imlifidase, i.e., turning a former foe to a friend.

Clinical development

First Ph. II study of imlifidase in kidney transplantation

Starts trading on NASDAQ Stockholm main board

3. Commercialization

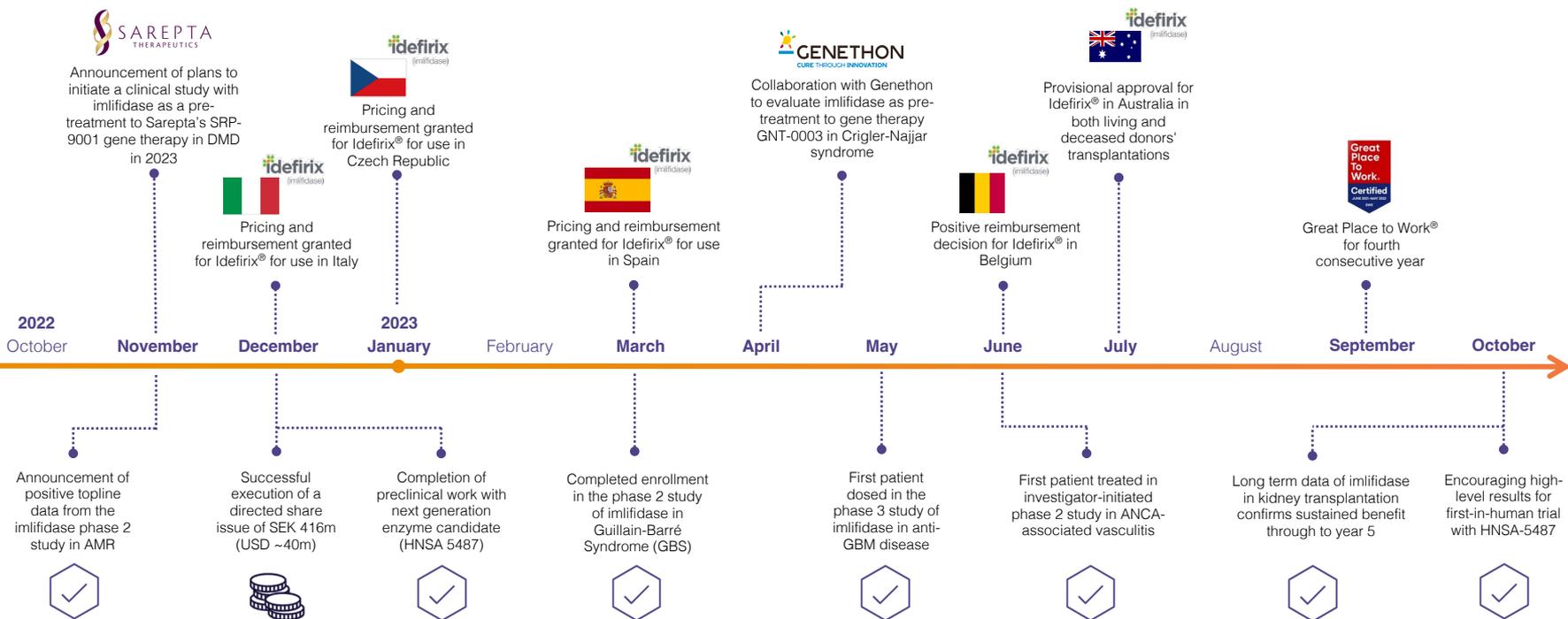
In August **2020**, Hansa received conditional approval for Idefirix (imlifidase) in kidney transplantation. Additionally, Hansa entered into the gene therapy field through a commercial partnership with Sarepta Therapeutics. Thus far, Hansa achieved market access in 13 European markets including the five largest markets. Market access procedures are ongoing in additional countries.

Commercialization

Hansa Biopharma enters collaborations with Medison (commercial), AskBio and Genethon (both gene therapy)



Key milestones achieved during the last 12 months



Imlifidase

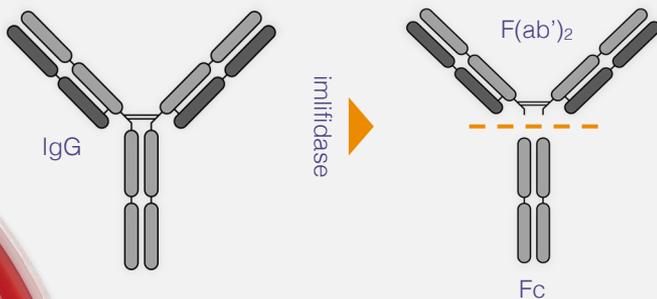
a novel approach to eliminate pathogenic IgG

Origins from a bacteria *Streptococcus pyogenes*

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

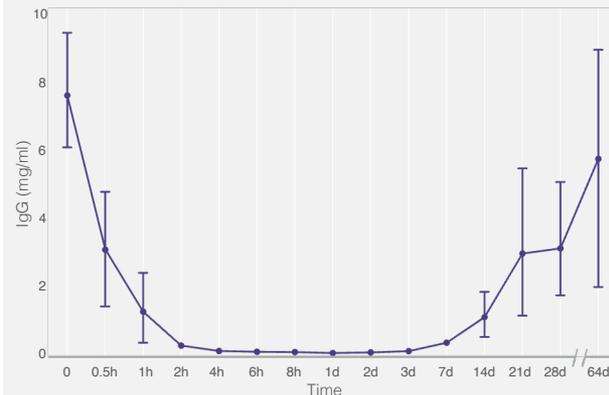
A unique IgG antibody-cleaving enzyme

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



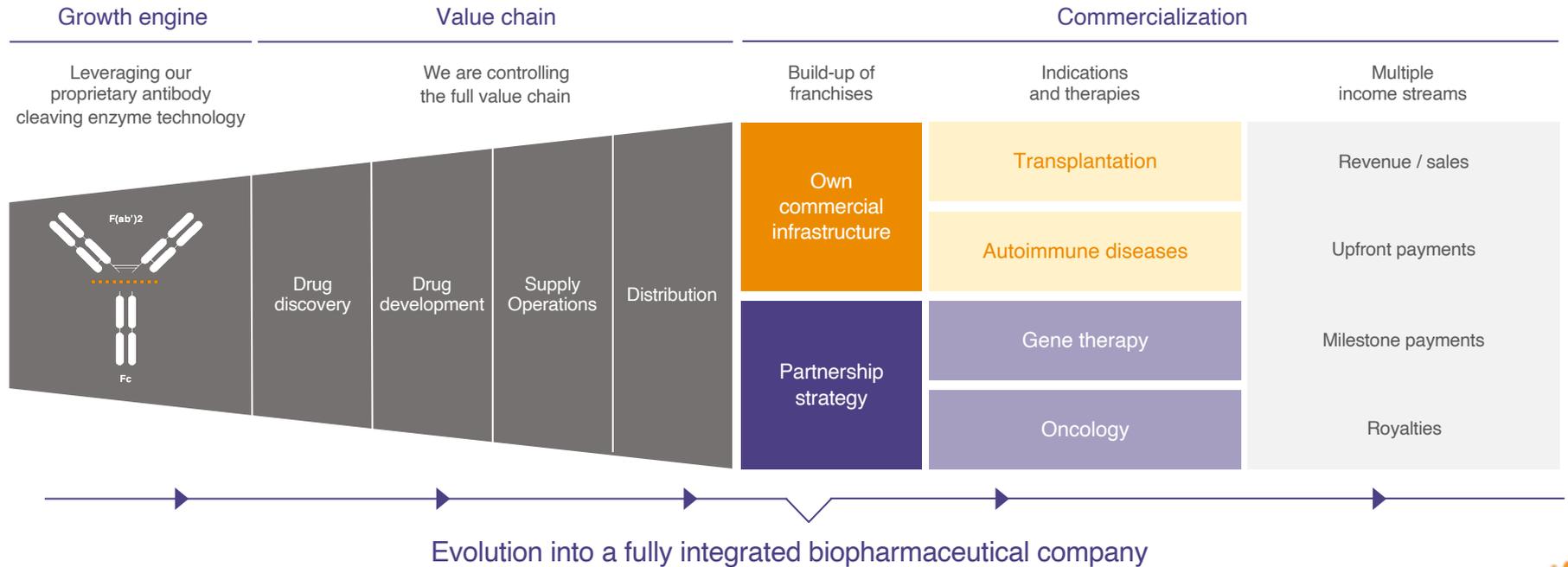
Inactivates IgG in 2-6 hours

- Rapid onset of action that inactivates IgG below detectable level in 2-6 hours
- IgG antibody-free window for approximately one week

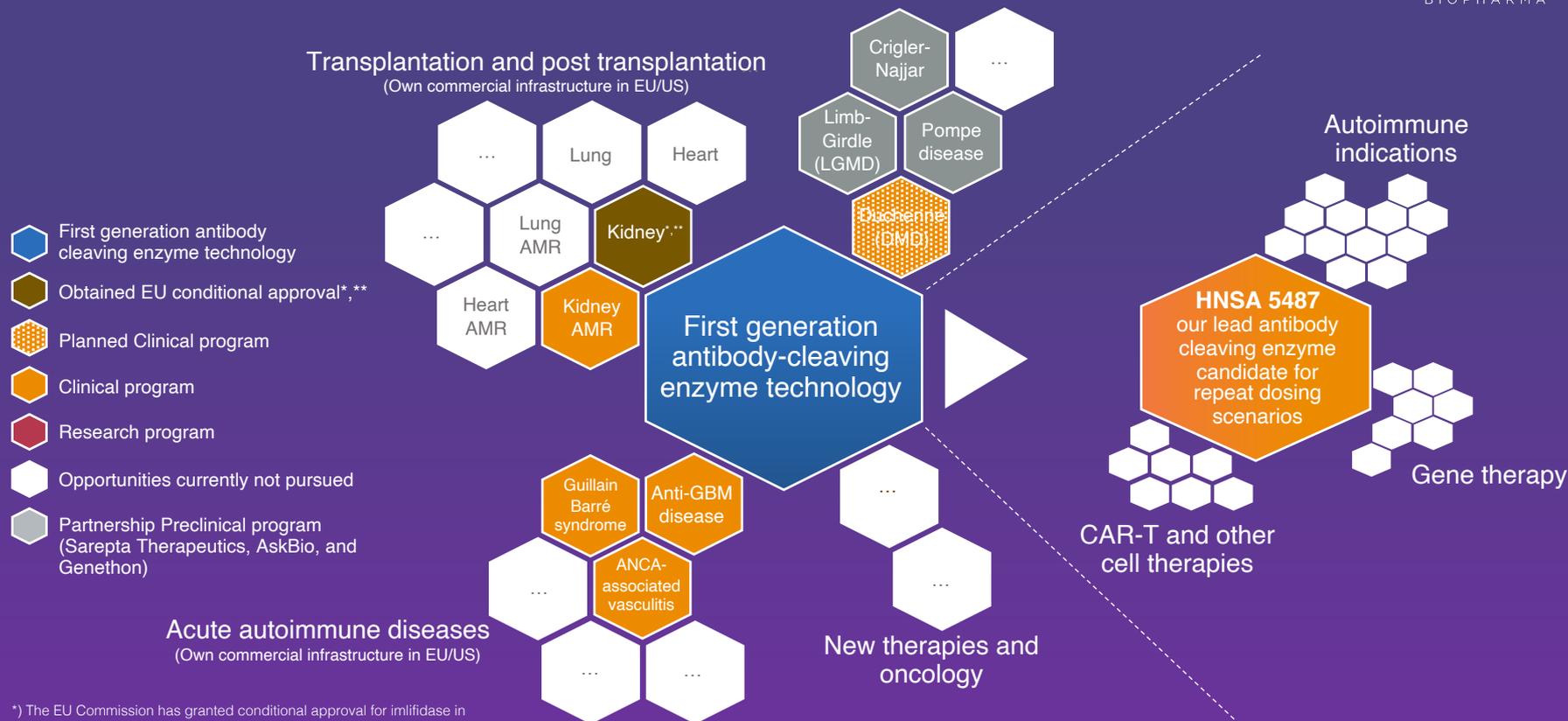


Our Business model

Leveraging our technology platform to develop new therapies targeting rare diseases with unmet medical need across a range of indications



Potential indication universe



- First generation antibody cleaving enzyme technology
- Obtained EU conditional approval*,**
- Planned Clinical program
- Clinical program
- Research program
- Opportunities currently not pursued
- Partnership Preclinical program (Sarepta Therapeutics, AskBio, and Genethon)

*) The EU Commission has granted conditional approval for imlifidase in highly sensitized kidney transplant patients.
 **) In the US a new study has commenced targeting a BLA filing in 2024

Our strategic priorities

Our mission is to become a global leader in rare diseases



Commercialize Idefirix® in first indications and markets

- Successfully launch Idefirix® in Europe
- Secure FDA approval and launch Idefirix® in the U.S.
- Geographical expansion



Advance ongoing imlifidase clinical programs in transplantation and autoimmune diseases

- Achieve approval/usage of imlifidase in follow-on indications
- Broaden our Idefirix® label beyond kidney transplantation



Expand IgG-cleaving enzyme technology platform into new disease areas and indications

- Explore gene therapy opportunity
- Explore opportunities in Oncology and stem cell transplantation (HSCT)
- Develop our next generation IgG-cleaving enzymes to allow for recurring treatment

Build focused, integrated, agile and empowered international organization and seek partnerships to accelerate growth and reduce risk

Our culture is driven by people passionate about making changes



Purpose driven culture

Helping patients with rare diseases serves as a **strong purpose** for our colleagues to **go the extra mile**



Diverse and international

~45%
Internationals across
~35 nationalities

~55/45
Male/female gender split in
the leadership team



Skilled and experienced team

>50%
With relevant PhD in R&D

~20 years*
of life science experience
on average from
Big Pharma, Biotech
and Academia

*covers Management, R&D, and Commercial functions



Motivated workforce

For fourth consecutive year Hansa is certified as a **Great Place to Work®** with **100%** participation rate in the survey



Experienced Board and Executive Committee

Extensive experience from the global healthcare industry

Executive Committee



Søren 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
Shareholding: 26,541



Hitto Kaufmann

Joins Hansa as CSO on Dec. 1, 2023
+20 years within R&D and manufacturing
Currently CSO at Pieris Pharmaceuticals
Ex-Head of Strategy and Operations at Sanofi
Shareholding: 0



Donato Spota

SVP & CFO (2019)
+20 years in the Healthcare sector
Ex-CFO Basilea Pharmaceutica
Senior Finance roles at Roche
Shareholding: 6,573



Achim Kaufhold

SVP & CMO (2020) and interim CSO
+40 years in the Healthcare sector
Ex-CMO Basilea Pharmaceutica
Ex-CEO Affitech (merged with Pharmexa A/S)
Ex-CMO Chiron (acquired by Novartis)
Shareholding: 0



Matthew Shaulis

CCO & US President (2023)
+20 years in the Healthcare sector
Ex-SVP Global Commercial and Medical Go-To-Market model transformation at Pfizer Inc.
Shareholding: 0



Anne Säfström Lanner

SVP & CHRO (2019)
Ex-Head of HR European Spallation Source
Ex-Head of HR Cellavision
Shareholding: 3,565



Peter Nicklin

Chairman (2022)
+30 years in the Healthcare sector
Chairman of Tunstall Healthcare, Sciensus & Versantis
Held senior executive roles at Baxter, Bayer, Novartis & Bristol-Myers Squibb
Shareholding: 14,500



Hilary Malone

Board Member (2021)
COO at Valo Health (US)
Chief Regulatory Officer & Head of Global Regulatory Affairs at Sanofi (2013-2019)
SVP & Head of Worldwide Regulatory Strategy at Pfizer (2009-2011)
Shareholding: 0



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
Shareholding: 2,500



Eva Nilsagård

Board Member (2019)
Board member of several companies, e.g. Adolife, Bufab, Irras, Abirane
Ex-CFO of Vitrolife and Plasta
Chairman of Hansa Biopharma's Audit Committee
Shareholding: 3,000



Mats Blom

Board Member (2019)
CFO of NorthSea Therapeutics
Ex-CFO Zealand Pharma
Member of Hansa Biopharma's Audit Committee
Shareholding: 1,000



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
Shareholding: 5,500

Hansa Biopharma's Governance Structure

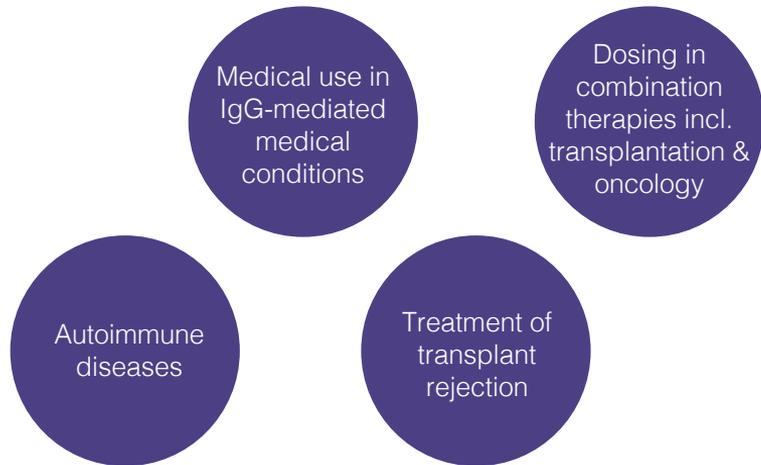


→ Electing / Appointing
← Reporting / Informing

Strong technology protection through patents and orphan drug designations

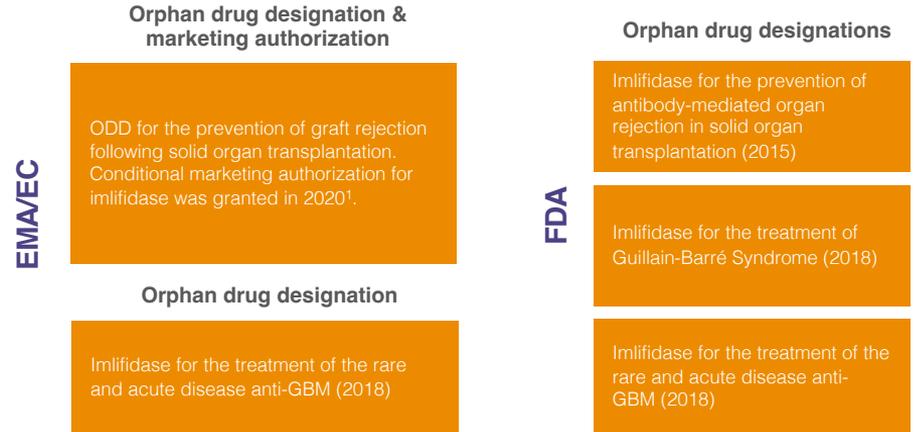
Patent coverage out to 2035 in key markets

- Our lead product, imlifidase, is protected by six patent families including both granted patents and pending applications and cover the use of isolated imlifidase
- Patents cover use of isolated imlifidase at least 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)
- The designation provides development and commercial incentives, including ten years of market exclusivity in the EU and seven years in the U.S., protocol assistance on the development of the drug, including clinical studies and certain exemptions from or reductions in regulatory fees



Hansa Biopharma is financed into 2025

Financing to support the continued development of Hansa's antibody-cleaving enzyme technology platform and commercial preparations toward regulatory approval in the U.S.

Capital Raised
SEK ~4bn
since 2007*

Cash position
SEK ~908m
(Sept. 2023)

R&D investment
(acc.)
SEK ~1.6bn
(Since 2007)

SG&A spend
(acc.)
SEK ~1.5bn
(Since 2007)



*Including SEK ~750m from NovaQuest financing agreement & SEK ~100m upfront payments from Sarepta

Mid-term financial priorities

Our key financial priorities over the coming years will be focused on ensuring a successful European launch of Idefirix[®], while targeting mid-term product profitability

**With the recent financing Hansa is fully financed into 2025
We expect to use our current cash position to:**

SEK ~908m
(USD ~83m)
in cash and short-term investments
post recent financing



Fund the launch and commercial expansion of Idefirix[®] in kidney transplantation across Europe and start preparations for a potential launch in the U.S.

Complete our EU post-approval commitments and patient enrolment in our ConfideS study as well as advance in our long-term follow-up study to the five-year data readout in 2023

Strengthen ongoing product development activities and expand the Company's R&D pipeline, including AMR, GBS, and anti-GBM disease

Advance our next generation enzymes (HNSA-5487) into clinical development as well as our initiatives in our other indications such as gene therapy and oncology

Fund working capital and general corporate purposes

Strategic plan to build U.S. presence ahead of potential regulatory approval and commercial launch of imlifidase in the US

Three shots on goal to enter important US market



US pivotal phase 3 study in kidney transplantation



Pivotal phase 3 study in anti-GBM disease



Pre-treatment to SRP-9001 in Gene Therapy (DMD)

Critical functions to be established

- Small and agile team with deep clinical and U.S. marketplace expertise
- Comprehensive functional coverage with dedicated U.S. based and experienced team members
- Strength of global strategy and key global functions

Timeline



US functions to be established over time		
US Market Access	US Marketing	US Regulatory
Supply Chain/Distribution	US Key Account Mgmt	US Clinical Operations
US Commercial Operations	US Medical Affairs/MSLs	US ISTs & Outcomes
US HR	US Finance/Corporate	US Legal/Compliance

An exciting journey ahead!

✓ This is just the beginning!

- ✓ Clinical validation
- ✓ External validation
- ✓ Regulatory validation
- ✓ Validated manufacturing
- ✓ Strong IPR
- ✓ Exciting pipeline
- ✓ Strong team

Key milestones to be achieved

- Expand Idefix[®] label in transplantation and in other solid organs
- Expand our platform and obtain regulatory approval in indications beyond kidney transplantation
- Advance our lead second generation molecule HNSA-5487 successfully through phase 1 and identify lead indication area
- Expand partnerships in gene therapy
- Advance imlifidase as pre-treatment into Limb-Girdle, Duchenne, Pompe Disease and Crigler-Najjar syndrome in gene therapy
- Show PoC in new indications
- Advance potential combination treatment into the clinic

Idefix[®] approved in EU under conditional approval for kidney transplantation

Our future

Hansa Biopharma is a recognized global leader in rare diseases across multiple broad therapeutic areas with several market leading products and a highly valuable pipeline of late-stage drug candidates



Stock images

Imlifidase in kidney transplantation



Idefirix[®] is the first and only approved drug in Europe for desensitization of highly sensitized kidney transplant patients

Between 80,000 and 100,000 kidney transplant patients are waiting for a new kidney in both Europe and the U.S. Availability of organs remain a big challenge since only 1 in 4 patients are offered access to a lifesaving transplantation, while many highly sensitized patients are unlikely to be transplanted even under current prioritization programs

Low complexity transplants

High complexity transplants



First patient experiences with Idefirix in highly sensitized kidney patients post approval published

54-year-old man successfully transplanted at Vall d'Hebron, Barcelona after two failed transplantation attempts in the 90s and being on dialysis since 1984

[Link article from Vall d'Hebron news forum August 25, 2022](#)



29-year-old woman transplanted at Erasmus, Rotterdam after being dialysis dependent since 2016 and experiencing two graft losses

[Link article in Amazing Erasmus from July 7, 2022](#)



Addressable market (annually)
4,000-6,000
split across Europe and the US

Patients that are likely to be transplanted with a compatible donor

Patients unlikely to be transplanted under current prioritization programs

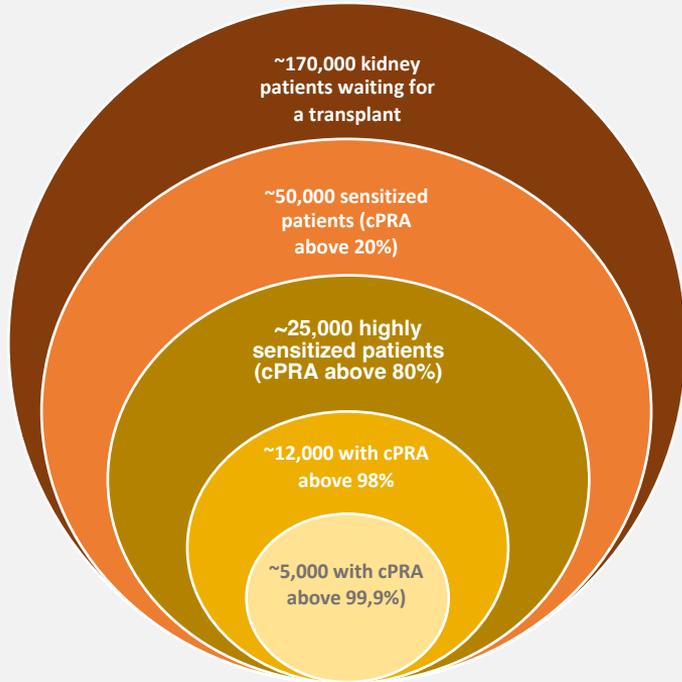


¹ EDQM. (2020). International figures on donation and Transplantation 2019
² SRTR Database and individual assessments of allocation systems

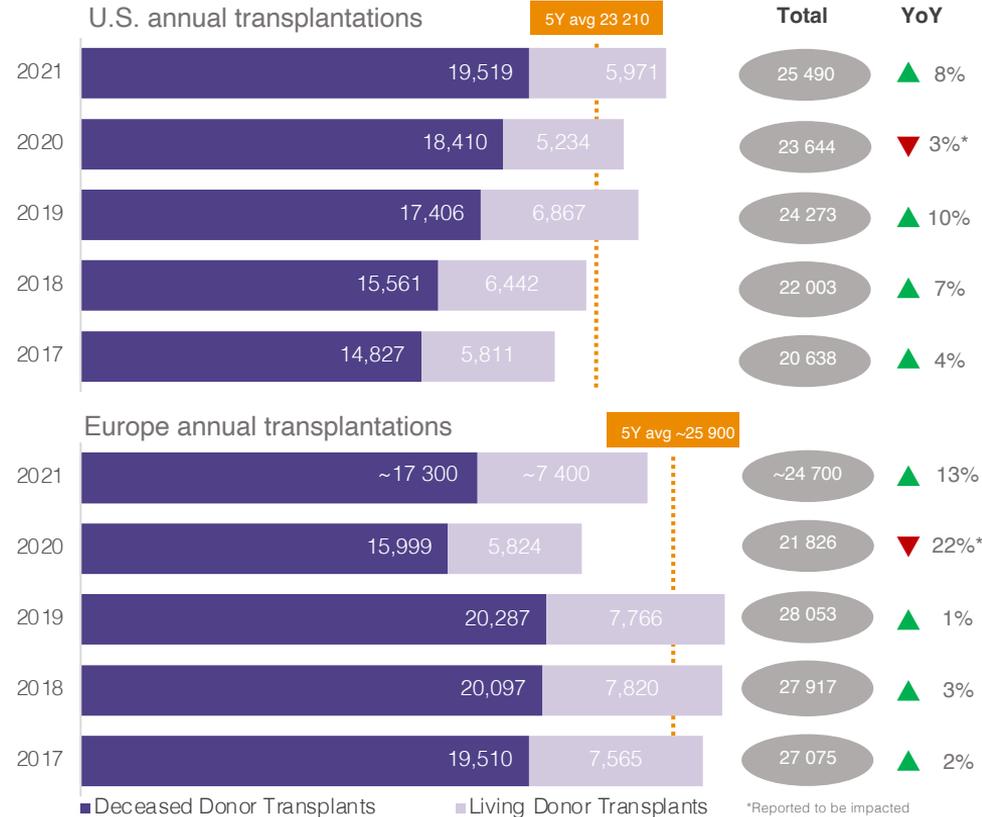
The kidney transplantation landscape in Europe and the U.S.

Up to 15% of patients waiting for a new kidney are highly sensitized

Breakdown of the kidney transplant waitlist in U.S. and EU



~50,000 transplants done annually in the U.S. and Europe



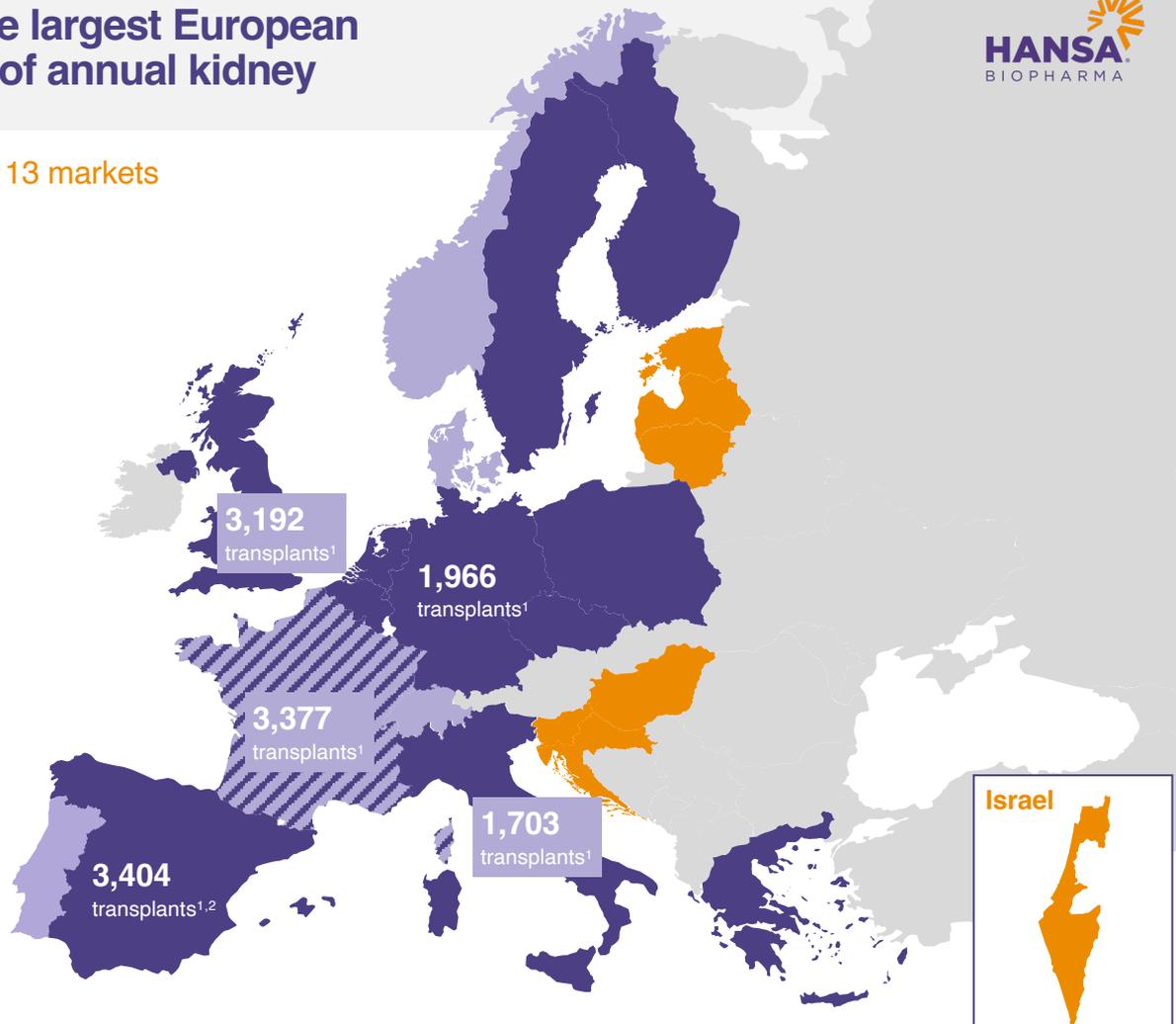
*Reported to be impacted by the COVID-19 pandemic

Source: Global Observatory on Donation and Transplantation, <http://www.transplant-observatory.org/>

Market Access secured in the five largest European markets representing two thirds of annual kidney transplants in Europe

Positive reimbursement decisions received in 13 markets

- Health Technology Assessments (HTA) dossiers submitted
- Reimbursed Early Access Program
- Pricing & reimbursement obtained (country or clinic level)
- Territories covered commercially by Medison Pharma



¹ Annual kidney transplantations 2022. Transplantation data is from Global Observatory on Donation and Transplantation. <https://www.transplantobservatory.org/> [Accessed 2023-07-10]

² A positive recommendation for pricing and reimbursement of Idefix® in Spain was published on February 6, 2023. https://www.sanidad.gob.es/profesionales/farmacologia/pdf/20230202_ACUERDOS_CIPM_230.pdf

Scaling Idefix[®] globally as we transform the desensitization treatment landscape and advance a new way of transplanting patients

1 Build the foundation for Idefix[®]

- ✓ Commercialize in early-launch countries
- ✓ Secure Market Access in key markets
- ✓ Ensure clinical readiness/KOL engagement
- ✓ Implement medical guidelines (ESOT and country specific guidelines)
- ✓ Increase awareness on unmet need
- ✓ Initiate post approval study in Europe
- ✓ Support patient and organ access

2 Expanding internationally

- Leverage experience to scale Idefix in Europe
- Secure FDA approval and launch in the U.S.
- Geographical expansion beyond core markets
- Full marketing authorization in Europe

3 Potential label expansion

- Potentially expand into living donor transplantation
- Potentially expand into other solid organs

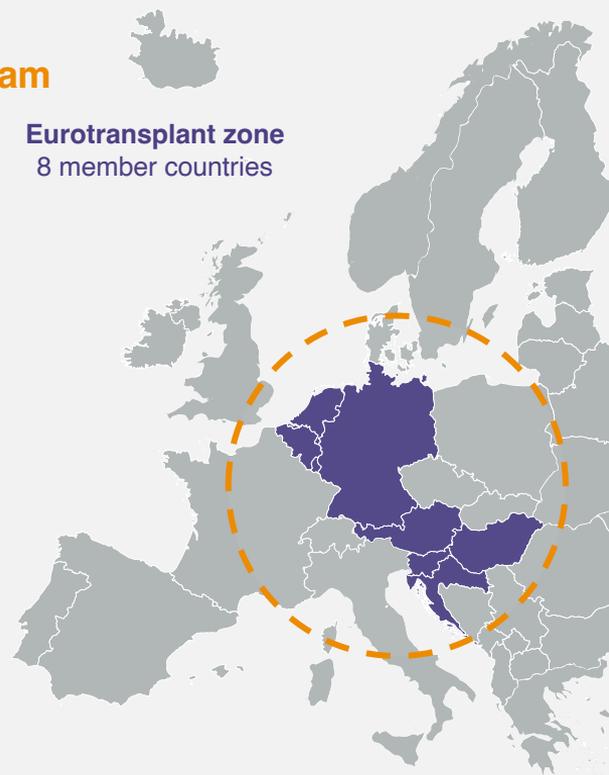
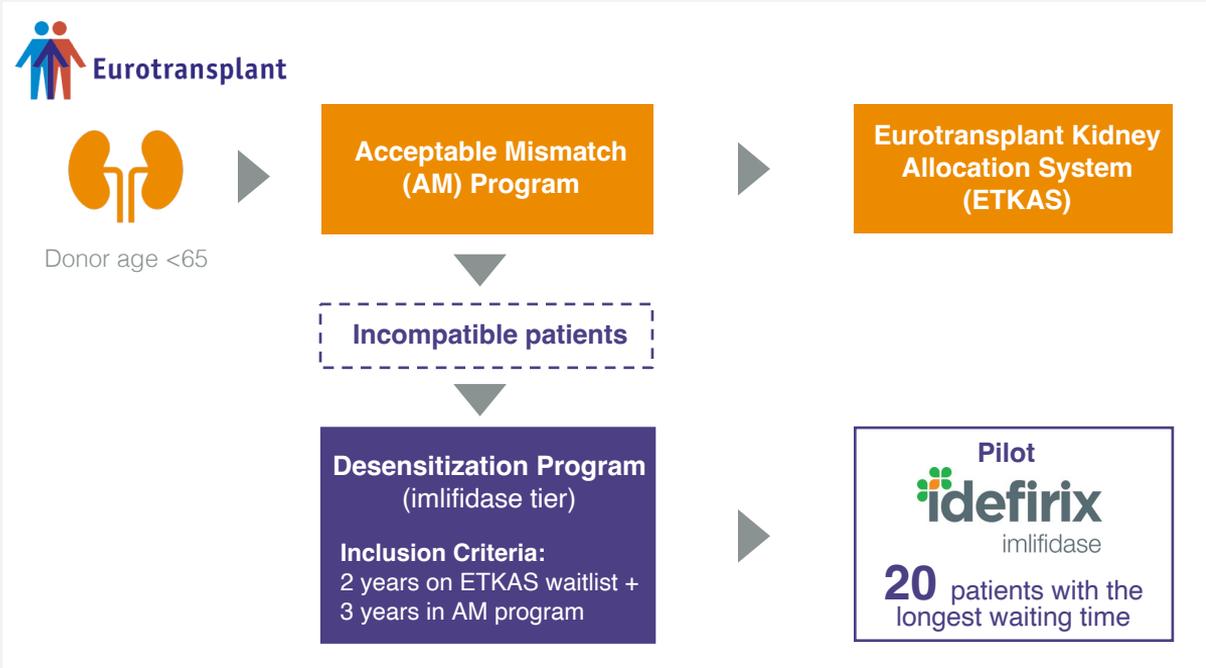
Key activity matrix

Commercial sales uptake



Eurotransplant Desensitization Program set to transform desensitization across eight European membership countries

First patients selected for treatment through the Desensitization Program



Highly sensitized patients are difficult to match with an available kidney

Transplantation leads to better outcomes, saves lives and increase quality of life for patients

Causes of sensitization include:



Pregnancy



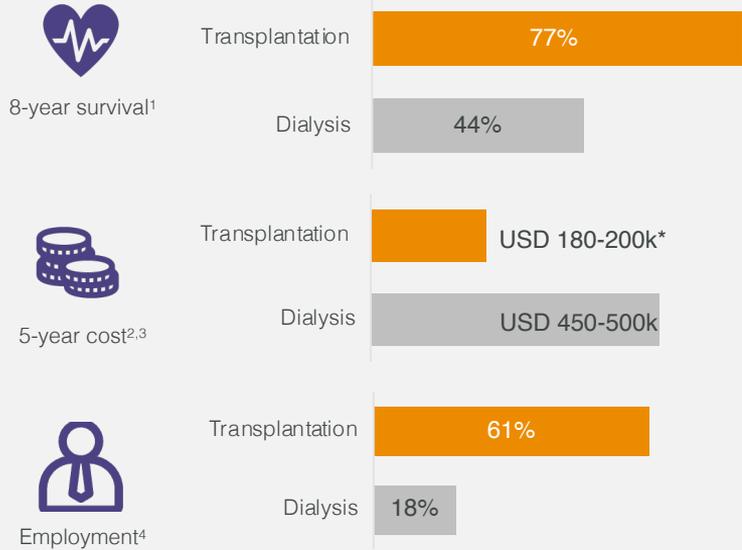
Blood transfusion



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

Better outcomes with transplantation



¹ Orandi et al. N Engl J Med 2016;374:940-50

² www.usrds.org

³ Shehata et al. Transfus Med Rev 2011, 24 Suppl 1: S7-S27

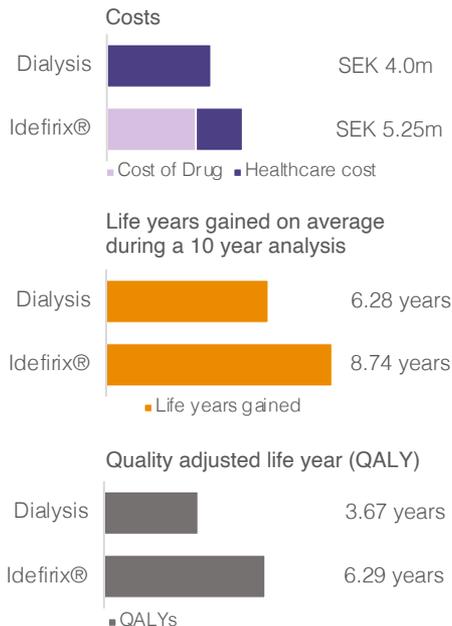
⁴ Jarl et al. Transplantation, 2018, 102:1375-1381

*Cost of kidney transplantation and 5 years of immuno-suppression treatment^{6,7}

First HTA report (TLV) published in Sweden favourable to the use Idefirix® in highly sensitized patients incompatible to a deceased donor

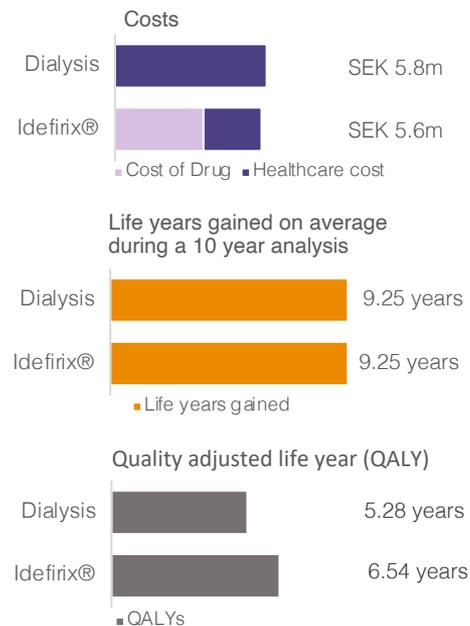
Two cost-effectiveness scenarios presented – both within the accepted threshold for costs related to new drugs
 One scenario even concluding Idefirix treatment would lead to an overall cost saving – rare for orphan drugs

Scenario 1
High dialysis mortality



Costs per quality adjusted life year (QALY)
 SEK 460k
 (EUR 45k)

Scenario 2
Low dialysis mortality



Scenario 2 supports Idefirix® as a cost saving drug

Costs per quality adjusted life year (QALY)
 SEK -170k
 (EUR -17k)

Completed and ongoing studies in kidney transplantation



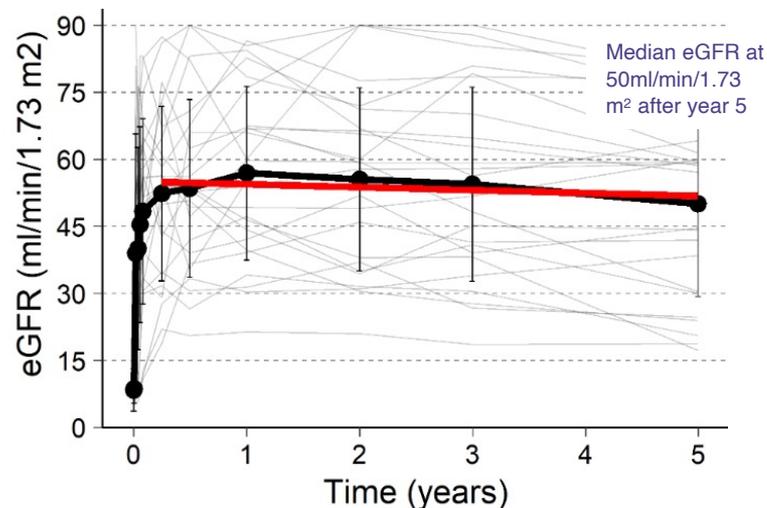
Long term data confirms sustained benefit at five years in graft survival and overall patient survival

Results is a continuation of the 3-year data

- After 5 years graft survival (death censored) was 82%, in line with outcomes seen at 3-years post-transplant
- Patient survival rate was 90%¹
- At five years kidney function measured by mean estimated glomerular filtration rate (eGFR) was 50 ml/min/m² at year 5
- The 5-year data is a continuation of the analysis at 3-years of crossmatch positive patients published in the *American Journal of Transplantation*
- Further data from extended pool analysis expected in 2024

¹ Three deaths occurring between six months and one year, and no deaths occurring between one and five years (not related to imlifidase)

Stable long-term outcomes on graft survival and patient survival

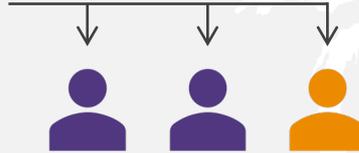


Imlifidase may complement the US Kidney Allocation System, as thousands of patients are still unlikely to find a match

- Factors impacting the KAS score¹**
- Waiting time
 - Age
 - Transplantation history
 - Sensitization (cPRA score)
 - Distance and recipient
 - Quality of donor kidney (KDPI)

KAS gives patients points with regards to levels of sensitization, increasing the likelihood of finding a match for sensitized patients

Transplantation of highly sensitized patients has increased since the introduction of KAS. However, thousands of patients are still unlikely to find a match



Highly sensitized patients are less likely to find a matching organ from a deceased donor through KAS

		cPRA%	Est. no. of organs to find match ²	Estimated number of patients on waitlist (U.S) ³
Degree of sensitization	Less or moderate	0-20	1-2	~66,000
		20-80	2-14	~16,000
Highly sensitized		80-98	14-300	~5,000
		98-99.9	300-3,000	~3,500
		>99.9	3,000-300,000	~2,500



If approved, Idefirix® may address highly sensitized kidney transplant patients, who are incompatible to a deceased donor in the US Kidney Allocation System

¹ OPTN, https://optn.transplant.hrsa.gov/media/1200/optn_policies.pdf

² p=95%, Clinical Journal of the American Society of Nephrology, 2016

³ Company estimates, OPTN and Global Observatory on Donation and Transplantation

U.S. ConfideS study: Potential to disrupt transplantation care in the U.S. with imlifidase

U.S. trial design

64 highly sensitized kidney patients with the highest unmet medical need

- Patients with a cPRA score of $\geq 99.9\%$ will be enrolled
- First patients enrolled at Columbia University, NYC
- 87 patients enrolled across 16 sites with more than half randomized as of Q3, 2023
- 1:1 Randomization
- When a donor organ becomes available and a positive crossmatch with the intended recipient indicates that the organ is not compatible, the patient will be randomized to either imlifidase or to a control arm, where patients either remain waitlisted for a match or receive experimental desensitization treatment*

Primary endpoint

- Mean estimated glomerular filtration rate (eGFR) “kidney function” at 12 months.
- For randomized patients who do not undergo transplantation, lose their graft or die before 12 months, eGFR will be set to zero, consistent with kidney failure

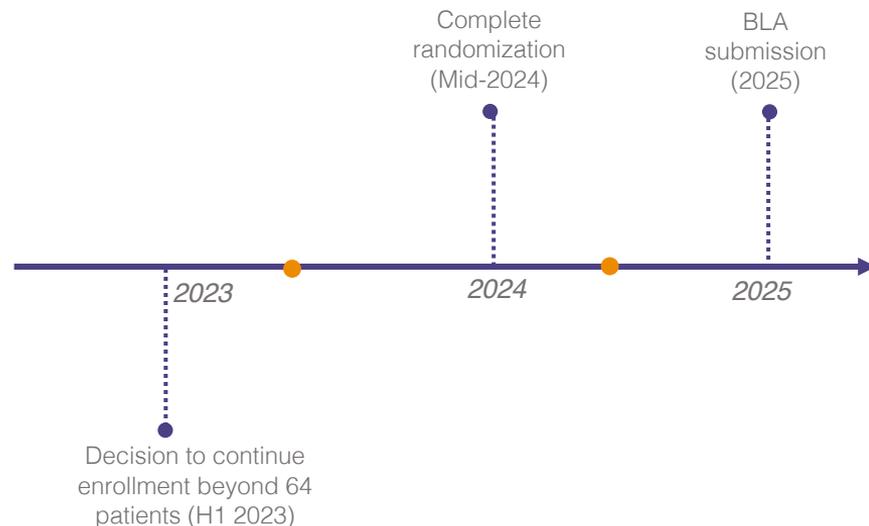
Secondary endpoint

- Patient survival at 12 months

Up to 25 leading transplantation centers in the U.S. will be engaged in the study

- Robert A. Montgomery, M.D. Professor of Surgery and Director, NYU Langone Transplant Institute, NYC is appointed to be the principal investigator

Timeline



*Experimental desensitization treatment can include any combination of plasma exchange (PLEX), intravenous IVIg, anti-CD20 antibody, and eculizumab. Link to the full protocol at [ClinicalTrials.gov](https://clinicaltrials.gov)

Idefirix receives provisional approval in Australia

First market to approve use in transplants from both living and deceased donors

Australian kidney disease and transplantation statistics

~15,200 patients suffer from ESRD and receive dialysis

1,338 patients were waitlisted for a kidney transplant from deceased donors in 2021

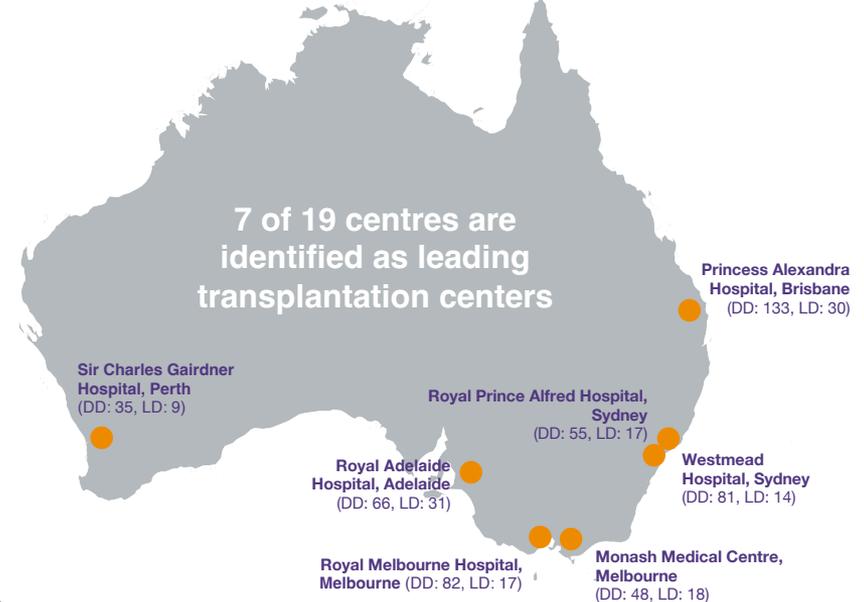
857 kidney transplantations were carried out in 2021

~21% of patients waitlisted have a cPRA score of 95 or higher

76/24 deceased vs living donor transplantations

Full approval in Australia will require submission to the TGA of further safety and efficacy data from studies that are currently underway (e.g. long-term follow-up, Post Approval Study and U.S ConfIdes study)

Kidney transplantation landscape in Australia



Sources:

1. ANZDATA. The Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) collects information about people receiving dialysis or kidney transplant for end-stage kidney disease in Australia and New Zealand.
2. ANZDATA 2022 Annual Report #45; available at: <https://www.anzdata.org.au/report/anzdata-45th-annual-report-2022-data-to-2021/>

First patient treated in post-authorization efficacy study (PAES) of Idefirix® (imlifidase) in highly sensitized kidney transplant patients

The study will provide further important insights regarding Idefirix® desensitization treatment of highly sensitized kidney transplant patients

An open-label Phase 3 study in 50 patients

- First patient was treated by Dr. Oriol Bestard, Chair of Nephrology and Kidney Transplantation at Vall d'Hebron University Hospital in Barcelona
- Ongoing enrollment ~1/3 into completion end of Q3'23
- The study is an obligation under the conditional marketing authorization for Idefirix® granted by EMA in August 2020, in order to complete a full marketing authorization in the EU. Study is expected to be complete by the end of 2025
- The aim will be to confirm the long-term efficacy and safety of Idefirix® with the primary objective to determine the one-year graft failure-free survival of the Idefirix® treated and transplanted patients.
- In addition, a total of 50-100 patients undergoing compatible kidney transplantation at the participating centers will be included and serve as a non-comparative concurrent reference cohort, with no formal comparison, to contextualize the one-year graft failure-free survival of the Idefirix® treated patients



Study 01 Phase 1

The 01 study results

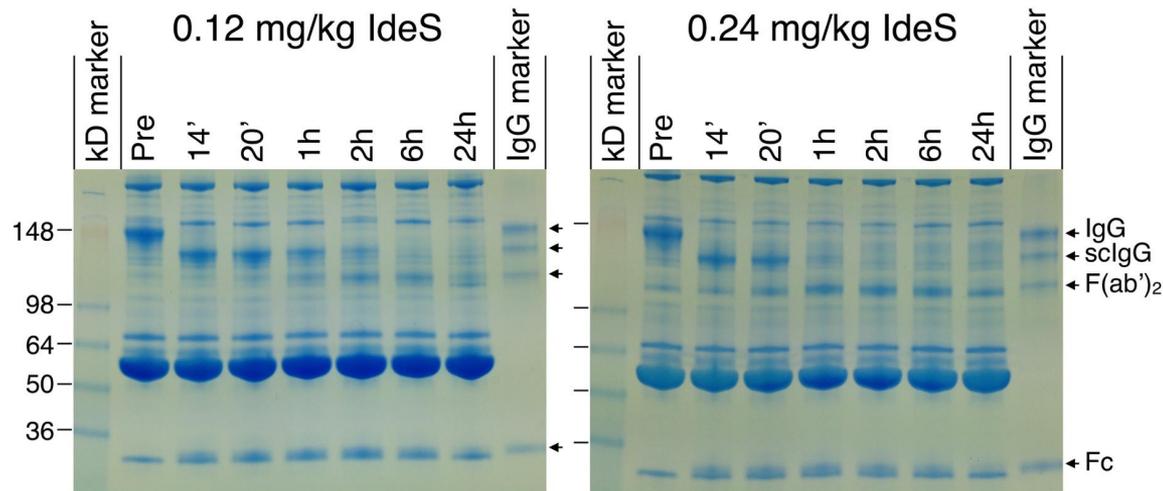
Data showed complete removal of IgG and a good tolerability profile

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 that Imlifidase was considered safe to use
- 49

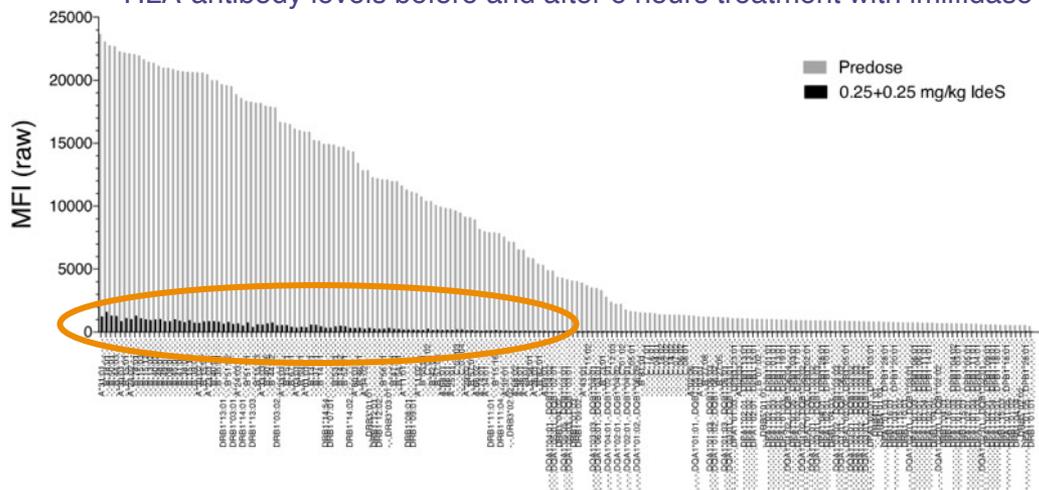
Study 02 Phase 2

The 02 study results

Data showed that 1-2 doses of imlifidase at 0.25 mg/kg BW resulted in HLA antibody levels acceptable for transplantation¹

- ✓ 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



¹ Lorant et al (2018) American Journal of Transplantation (2018)

Study 03 Phase 2

The 03 study proved safety and efficacy

HLA antibodies at acceptable levels; enabling transplantation in all patients

CLINICALTRIALS.GOV ID

NCT02475551

SUBJECTS

10 Patients (Sweden)

DOSES/FOLLOW UP TIME

0.25 and 0.50 mg/kg during 180 days

MAIN OBJECTIVES

- Safety in the transplantation setting
- Efficacy defined as HLA antibody levels acceptable for transplantation

STUDY DESIGN

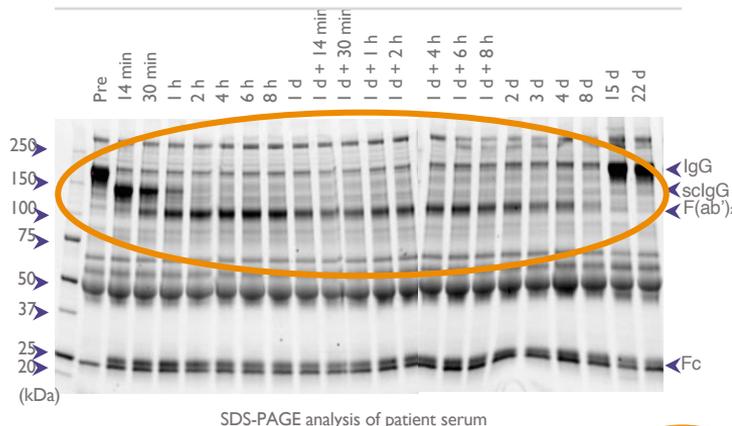
- Single-center, single-arm, open-label, no prior desensitization
- Similar design as 13-HMedIdeS-02 but transplantation part of protocol
- In deceased and living donors

STATUS

Completed

- 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



Analysis of complement binding HLA antibodies before and after imlifidase



Protocol

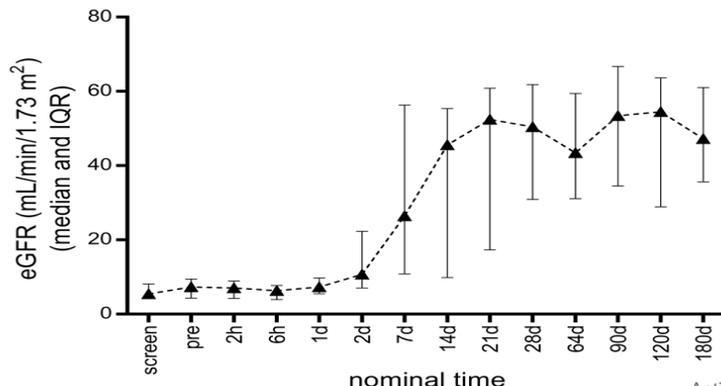


Study 06 Phase 2

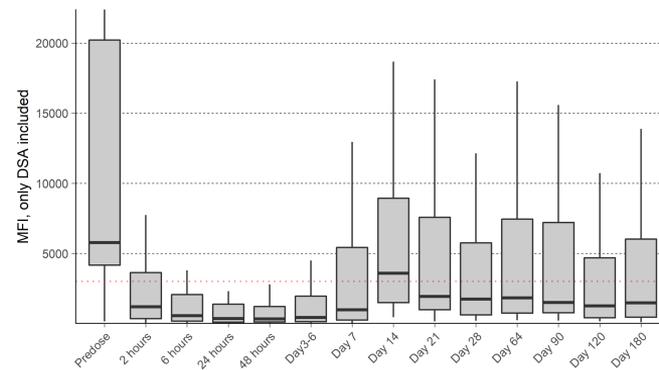
The 06 study results

Study showed proved safety and efficacy in making highly sensitized patients eligible for kidney transplantation

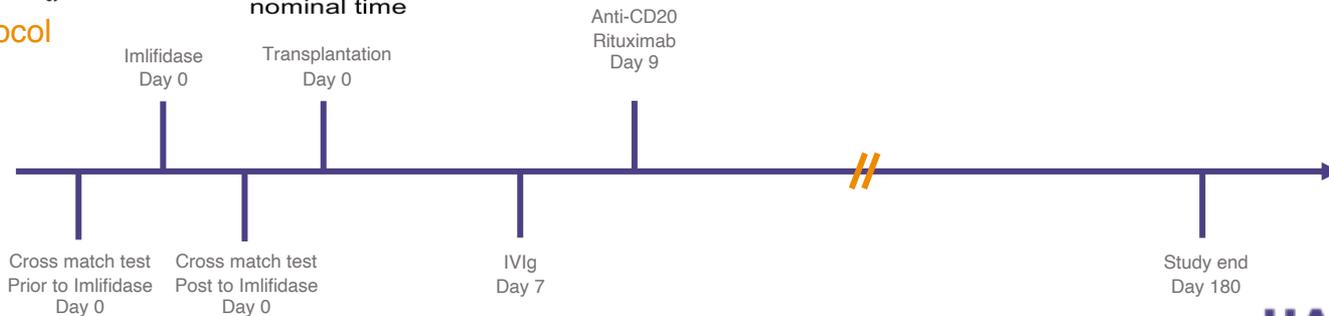
Graft function (eGFR) post imlifidase



DSA level pre-dose and post imlifidase



Protocol



CLINICALTRIALS.GOV ID

NCT02790437

SUBJECTS

18 Patients (US+Sweden+France)
19 safety set, 18 efficacy set

DOSES/FOLLOW UP TIME

0.25 mg/kg 180 days

MAIN OBJECTTTIVES

- Efficacy in creating a negative crossmatch test

STUDY DESGIN

- Multicenter, multinational, single-arm, open-label Included patients who may have had prior unsuccessful desensitization or patients in whom it was unlikely to be effective

STATUS

Completed

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.

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"> Randomized placebo-controlled dose-escalation study with 29 (20 active plus 9 placebo) healthy subjects 	<ul style="list-style-type: none"> Safety and tolerability 	<ul style="list-style-type: none"> Efficacy in IgG cleavage, the pharmacokinetics (PK) and immunogenicity of imlifidase 	Complete PLOS ONE (2015) ¹
Study 02 Phase 2	8 subjects 	<ul style="list-style-type: none"> Single-center, single-arm, open-label 	<ul style="list-style-type: none"> Dosing resulting in HLA-antibody reduction (MFI < 1100) 	<ul style="list-style-type: none"> Efficacy: HLA antibody reduction acceptable for transplantation (MFI < 1100 as measured in SAB assay) 	Complete Lorant et al (2018) American Journal of Transplantation ²
Study 03 Phase 2	10 subjects 	<ul style="list-style-type: none"> Single-center, single-arm, open-label No prior desensitization 	<ul style="list-style-type: none"> Safety: AEs, clinical laboratory tests, vital signs, ECGs 	<ul style="list-style-type: none"> Efficacy: HLA antibody reduction acceptable for transplantation (MFI < 1100 as measured in SAB assay) 	Complete The New England Journal of Medicine (2017) ³
Study 04 Phase 2	17 subjects 	<ul style="list-style-type: none"> Investigator initiated study, Single-center, single-arm, open-label All patients had prior desensitization with IVIG and/or plasmapheresis 	<ul style="list-style-type: none"> Assessment of efficacy in eliminating DSAs in DSA and flow cytometry positive, highly sensitized patients Assessment of safety Assessment of efficacy/kidney function 	<ul style="list-style-type: none"> Serum creatinine (0-6 months) Proteinuria (0-6 months) DSA at multiple timepoints posttransplant (day 0, D30, D90, D180) 	Complete The New England Journal of Medicine (2017) ³
Study 06 "Highdies" Phase 2	18 subjects 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Crossmatch conversion in DSA+ patients who have a positive XM test to their available LD or DD 	<ul style="list-style-type: none"> DSA reduction at multiple timepoints (2, 6, 24, 48 h after imlifidase) Time to create negative CDC XM test and/or flow cytometry (FACS) XM test Safety 	Complete Annals of Surgery (Lonze et al, only New York patients) Montgomery et al ATC abstract (2019) ⁴
Long-term follow-up study	Up to 46 subjects 	<ul style="list-style-type: none"> A prospective, observational long-term follow-up study of patients treated with imlifidase prior to kidney transplantation 	<ul style="list-style-type: none"> Long-term graft survival in patients who have undergone kidney transplantation after imlifidase administration 	<ul style="list-style-type: none"> Patient survival, kidney function, comorbidity, treatments and QoL Safety DSA Immunogenicity 	Ongoing Long term data confirms benefit through to year 5 (Oct. 2023)

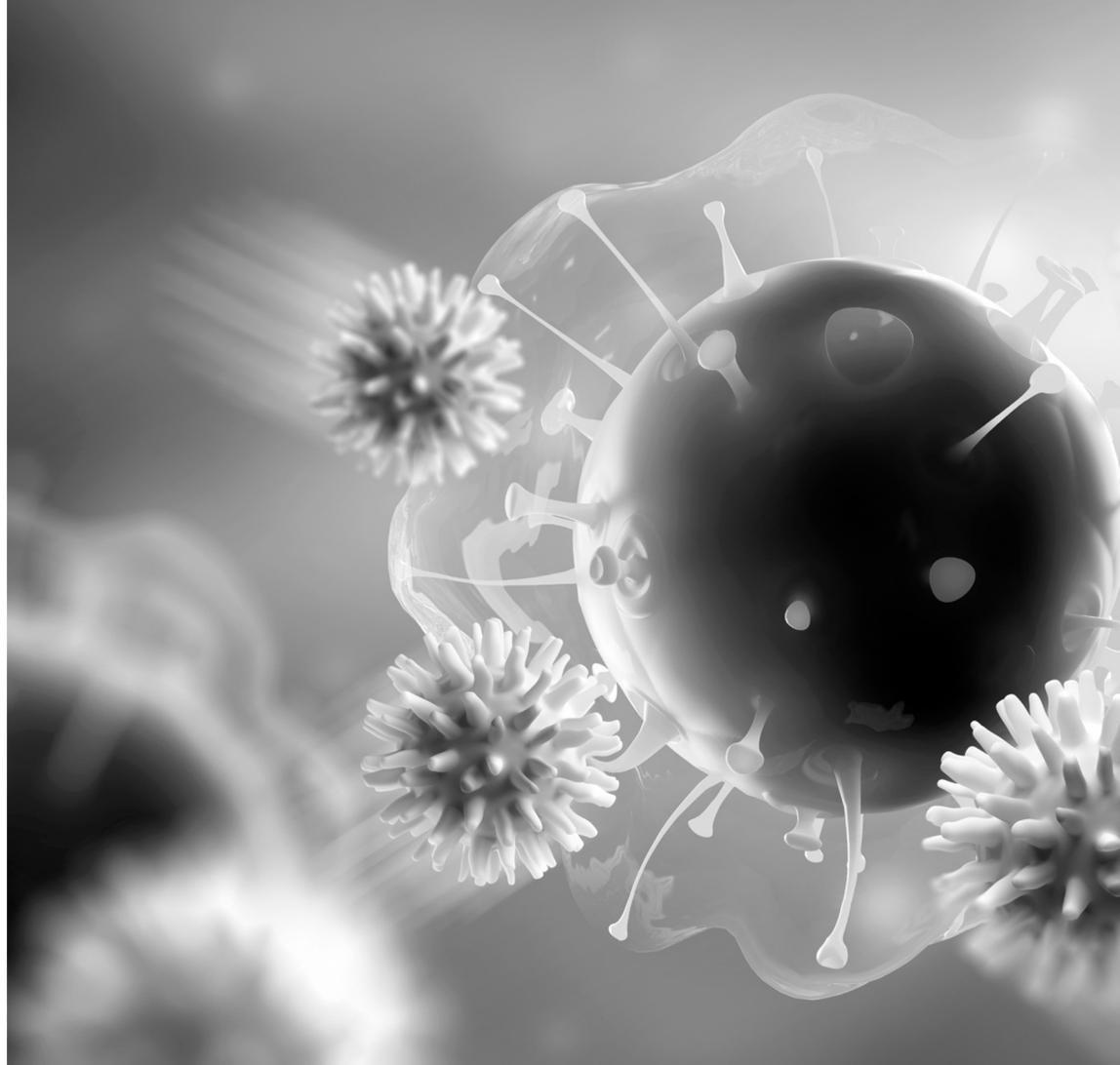
¹ Winstedt et al., "Complete Removal of Extracellular IgG Antibodies in a Randomized Dose Escalation Phase I Study with the Bacterial Enzyme IdeS – A Novel Therapeutic Opportunity", PLOS ONE 2015, 10(7)

² 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

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

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

Our antibody cleaving enzyme technology



Broad clinical pipeline in transplantation and autoimmune diseases

Project	Indication	Research/ Preclinical	Phase 1	Phase 2	Phase 3	Marketing Authorization	Marketed	Partner	Next Anticipated Milestone
Imlifidase	EU: Kidney transplantation in highly sensitized patients ^{1,2}	Completed	Completed	Completed	Planned	Completed	Ongoing		EU: Additional agreements around reimbursement / Post approval study to be completed by 2025
	US: Kidney transplantation in highly sensitized patients ^{1,2}	Completed	Completed	Completed	Ongoing				Completion of randomization (64 patients) mid 2024
	Anti-GBM antibody disease ³	Completed	Completed	Completed	Ongoing				Complete enrollment (50 patients)
	Antibody mediated rejection in kidney transplantation (AMR)	Completed	Completed	Ongoing					Full data read out H2 2023
	Guillain-Barré syndrome (GBS)	Completed	Completed	Ongoing					Topline data H2 2023 / Comparative efficacy analysis 2024
	ANCA-associated vasculitis ⁴	Completed	Completed	Ongoing					Complete enrollment (10 patients)
	Pre-treatment ahead of gene therapy in Duchenne	Ongoing	Planned					Sarepta Therapeutics	Initiate clinical study of imlifidase as pre-treatment in DMD 2023
	Pre-treatment ahead of gene therapy in Limb-Girdle	Ongoing						Sarepta Therapeutics	Preclinical research
	Pre-treatment ahead of gene therapy in Pompe disease	Ongoing						AskBio	Preclinical research
	Pre-treatment ahead of gene therapy in Crigler-Najjar syndrome	Ongoing						Genethon	Preclinical research
HN5A-5487	Lead molecule from second-generation IgG antibody cleaving enzymes (NiceR)	Completed	Ongoing						Further analysis around endpoints from Phase 1 to be completed in 2024 incl. selection of lead indication

Completed
 Ongoing
 Planned
 Post approval study running in parallel with commercial launch

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

² Lorant et al., American Journal of Transplantation and 03+04 studies (Jordan et al., New England Journal of Medicine)

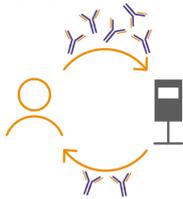
³ Investigator-initiated study by Márten Segelmark, Professor at the universities in Linköping and Lund, Sweden

⁴ Investigator-initiated study by Dr. Adrian Schreiber and Dr. Philipp Enghard, at Charité Universitätsmedizin, Berlin, Germany

Development of IgG-modulating technologies

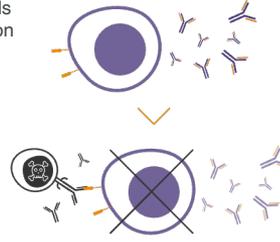
Mechanisms can be both complementary and competing

PLEX, plasmapheresis, immunoadsorption
Mechanically removes antibodies from circulation



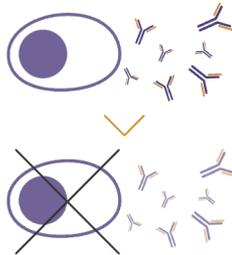
1950s

B-cell depleting mAbs
Lowering antibody levels through B-cell elimination



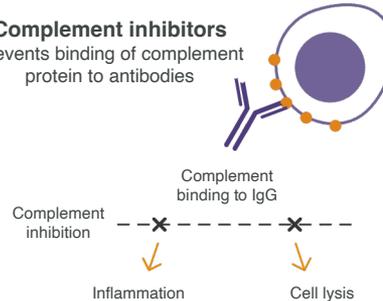
1990s

Proteasome inhibitors
Depletes antibody producing long-lived plasma cells and lowers overall immunoglobulin levels



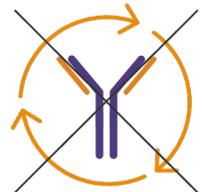
2000s

Complement inhibitors
Prevents binding of complement protein to antibodies



2010s

FcRn-inhibitors
Lowering IgG through blocking of antibody recycling

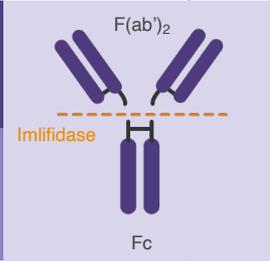


2020s

Imlifidase – IgG-cleaving enzyme

Deactivates IgG within 2-6 hours through enzymatic cleavage. IgG-free window for approximately one week

Unique mechanism-of-action is the basis for competitive advantage vs other IgG-modulating therapies

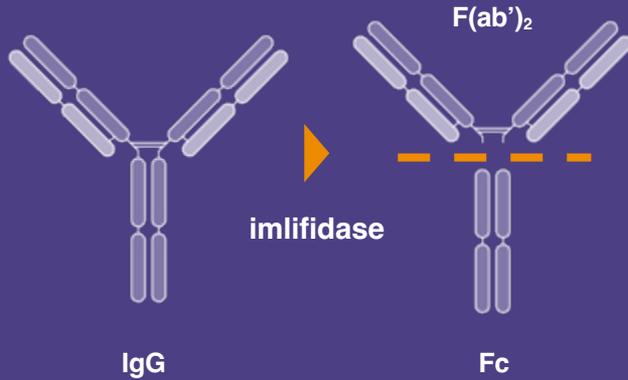


Imlifidase mode of action

Novel approach to effectively eliminate pathogenic IgG

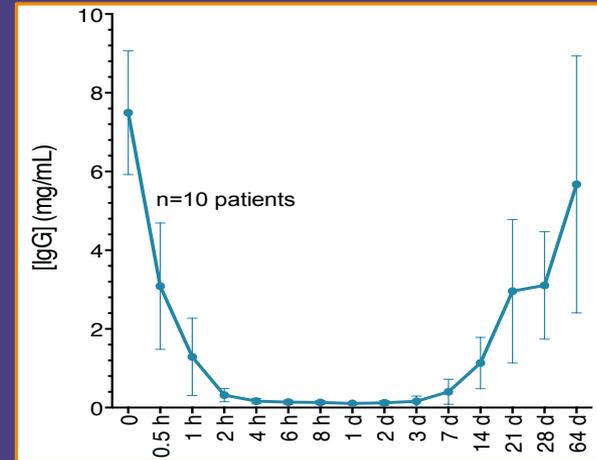
Proven mechanism of action

- 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 2-6 hours post 15 min infusion
- IgG antibody-free window for approximately one week



Our unique antibody cleaving enzyme technology may have relevance across a range of indications

Targeting rare IgG mediated diseases



Auto-immune diseases

Anti-GBM disease paves the way for development in other autoimmune diseases

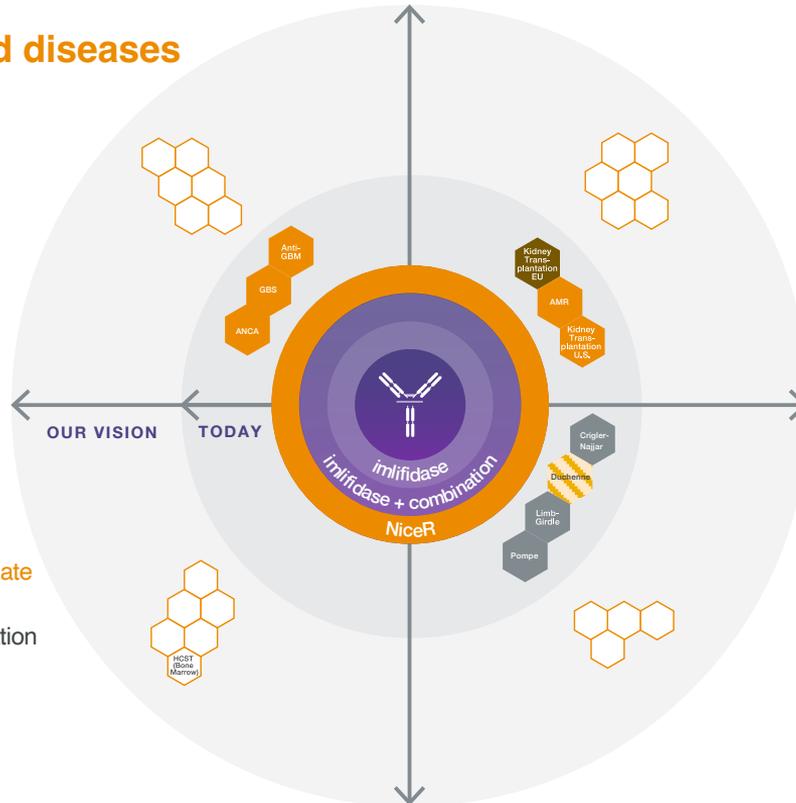
- Rapidly progressive glomerulonephritis
- Neurological disorders
- Skin and blood disorders



New therapies

IgG-cleaving enzymes to enable or even potentiate cancer therapy

- Allogenic stem cell (bone marrow) transplantation (HSCT)



Transplantation

Shaping a new standard for desensitization will help enable new indications in transplantations

- Antibody mediated rejection (AMR) in kidney transplantation
- Other transplantation types



Gene therapy

Exploring opportunities in gene therapy

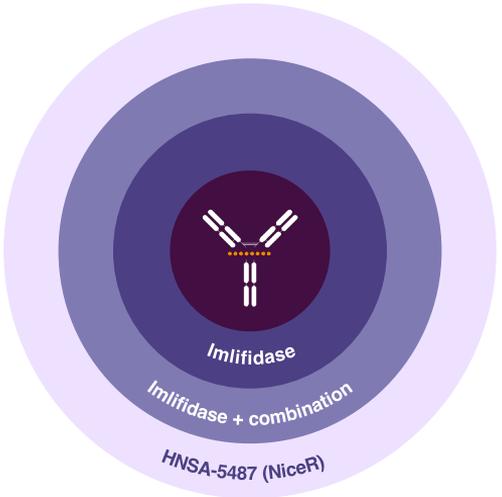
- Encouraging preclinical data published in Nature
- Validation through collaborations with Sarepta, AskBio, and Genethon
- Wide indication landscape beyond

The technology platform is the primary basis for achieving our vision

Targeting rare IgG mediated diseases and conditions

Key opportunities:

- Expanding into **new indications**
- Reduce immune response to IgG-cleaving enzyme, i.e. allow **repeated treatment**
- **Combination therapy**, i.e. induction and maintenance therapy



IgG levels after imlifidase treatment in highly sensitized patients – First 30 days



IgG levels after imlifidase treatment in highly sensitized patients – 1 year and beyond

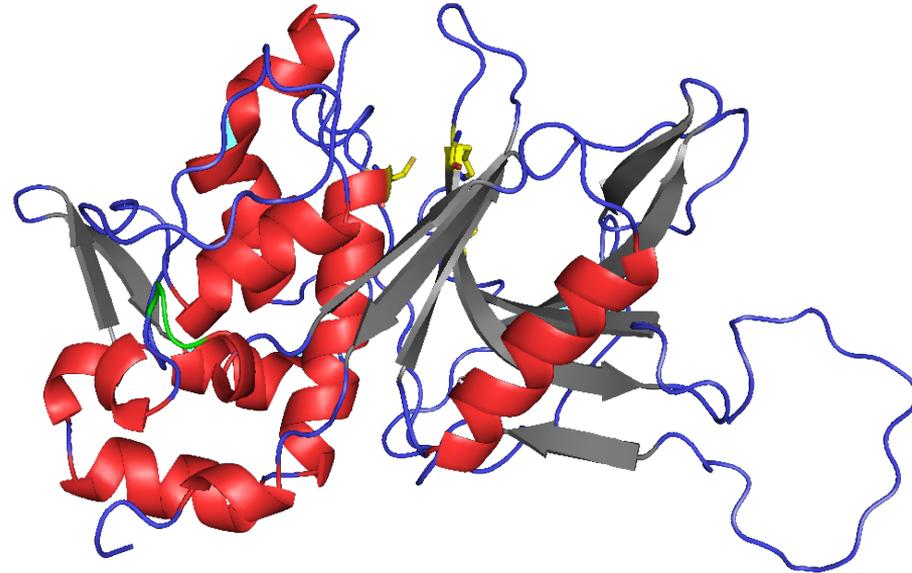


Our IgG antibody-cleaving enzyme, imlifidase

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

Shelf life of 18 months at 2-8° Celsius storage; Ongoing stability studies indicate a shelf life of at least 24 months.

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 18 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



Manufacturing process

Hansa has close collaborations with highly experienced European based third party CMOs

Drug substance production process (API)

Northway Biotech



Fermentation/ harvesting

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

Protein purification

- Cell Disruption
- Protein Release

Protein purification cont.

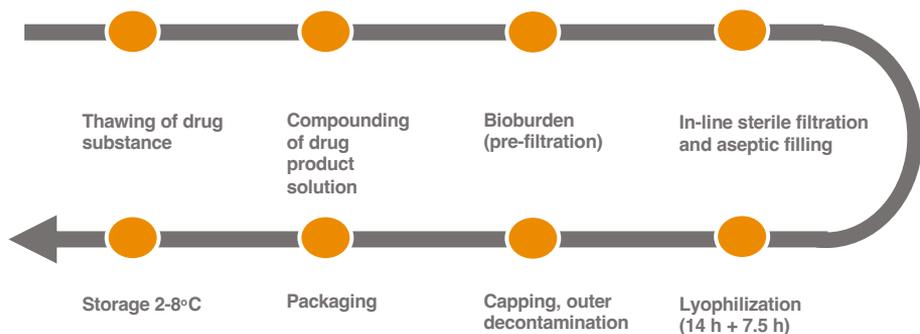
- Ion Exchange Chromatography
- Ceramic Hydroxy Apatite Chromatography
- Hydrophobic Interaction Chromatography
- Ultrafiltration/ Diafiltration

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)



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



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



Clinical development programs



Autoimmune attacks

A result of when the body's immune system by mistake damages its own tissue

Blood

Autoimmune hemolytic anemia,
Immune thrombocytopenia



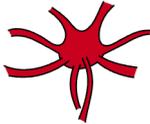
GI tract

Crohn's disease



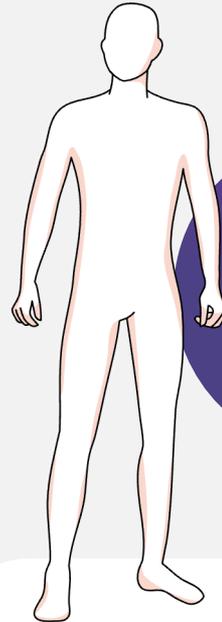
Nerves

Guillain-Barré syndrome,
Myasthenia gravis



Lung

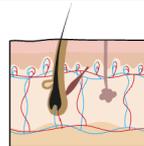
Wegner's granulomatosis



Over
100 different
types of
Autoimmune
disorders

Skin

Psoriasis, Pemphigus



Brain

Multiple sclerosis,
Neuromyelitis optica



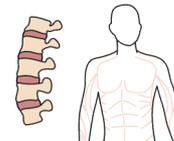
Thyroid

Hashimoto's disease,
Graves' disease



Kidney

Anti-GBM disease



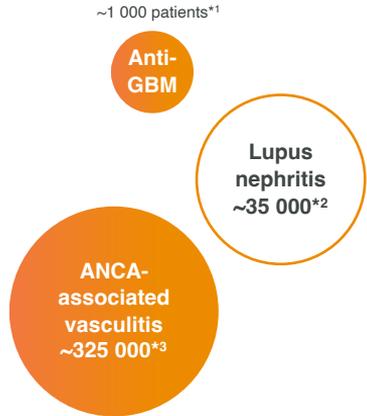
Bone and muscle

Rheumatoid arthritis,
Dermatomyositis+ 32

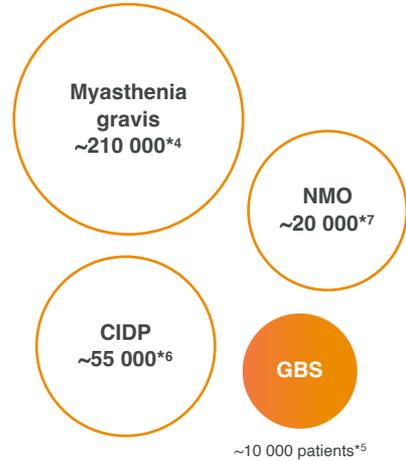
Hansa's antibody cleaving enzyme technology

may have relevance in several autoimmune diseases where IgG plays an important role in the pathogenesis

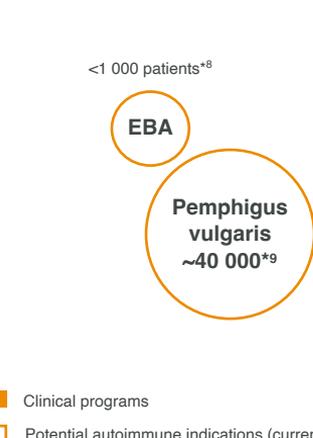
Rapidly progressive glomerulonephritis



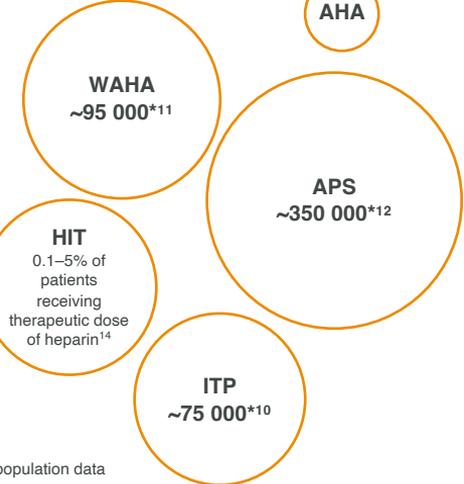
Neurological disorders



Skin disorders



Blood disorders



■ Clinical programs
□ Potential autoimmune indications (currently not pursued)

*Total disease populations in EU & US, based on prevalence and population data

CIDP: Chronic inflammatory demyelinating polyradiculoneuropathy
NMO: Neuromyelitis optica
EBA: Epidermolysis bullosa acquisita
ITP: Immune thrombocytopenia
WAHA: Warm antibody hemolytic anemia
APS: Antiphospholipid syndrome
AHA: acquired hemophilia A
HIT: Heparin-induced thrombocytopenia

¹DeVrieze, B.W. and Hurley, J.A. *Goodpasture Syndrome*. StatPearls Publishing, Jan 2021. <https://www.ncbi.nlm.nih.gov/books/NBK459291/> [accessed 2021-03-29]
²Patel, M et al. *The Prevalence and Incidence of Biopsy-Proven Lupus Nephritis in the UK*. Arthritis & Rheumatism, 2006.
³Berti A, Cornec D, Crowson CS, Specks U, Matteson EL. *The Epidemiology of ANCA Associated Vasculitis in the U.S.: A 20 Year Population Based Study*. Arthritis Rheumatol, 2017;69.
⁴Myasthenia Gravis. National Organization for Rare Disorders. <https://rarediseases.org/rare-diseases/myasthenia-gravis/> [accessed 2021-03-29]
⁵Gullain-Barré syndrome. Orpha.net. https://www.orpha.net/consor/cgi-bin/OC_Exp.php?lng=GB&Expert=2103 [accessed 2021-03-29]
⁶Chronic Inflammatory Demyelinating Polyneuropathy: Considerations for Diagnosis, Management, and Population Health. The American Journal of Managed Care, <https://www.ajmc.com/view/chronic-inflammatory-demyelinating-polyneuropathy-considerations-for-diagnosis-management-and-population-health> [accessed 2021-03-29]
⁷Marrie, R.A. *The Incidence and Prevalence of Neuromyelitis Optica*. International Journal of MS Care, 2013 Fall: 113-118

⁸Mehren, C.R. and Gniadecki, R. *Epidermolysis bullosa acquisita: current diagnosis and therapy*. Dermatol Reports, 2011;10-05
⁹Wententeil, S. et al. *Prevalence Estimates for Pemphigus in the United States*. JAMA Dermatol, May 2019; 627-629.
¹⁰Immune Thrombocytopenia. National Organization for Rare Disorders. <https://rarediseases.org/rare-diseases/immune-thrombocytopenia/> [accessed 2021-03-29]
¹¹Warm Autoimmune Hemolytic Anemia. National Organization for Rare Disorders. <https://rarediseases.org/rare-diseases/warm-autoimmune-hemolytic-anemia/> [accessed 2021-03-29]
¹²Litvinova, E. et al. *Prevalence and Significance of Non-conventional Antiphospholipid Antibodies in Patients With Clinical APS Criteria*. Frontiers in Immunology, 2018;12-14.
¹³NORD. Acquired Hemophilia [accessed 2022-10-17], available at <https://rarediseases.org/rare-diseases/acquired-hemophilia/>
¹⁴Hogan M, Berger JS. Heparin-induced thrombocytopenia (HIT): Review of incidence, diagnosis, and management. Vascular Medicine. 2020;25(2):160-173. doi:10.1177/1358863X19898253

Anti-GBM, a rare acute autoimmune disease

Incidences

1.6

in a million affected annually^{1,2}

Standard of Care

- Plasma Exchange
- Cyclophosphamide (CYC)
- Glucocorticoids

Results from Phase 2 study of imlifidase in anti-GBM disease published in Journal of American Society of Nephrology (JASN)³

10 out of 15 patients were dialysis independent after six months vs. the historical cohort⁴, where only 18% had functioning kidney

Inflammation in the glomeruli

Early symptoms are unspecific...

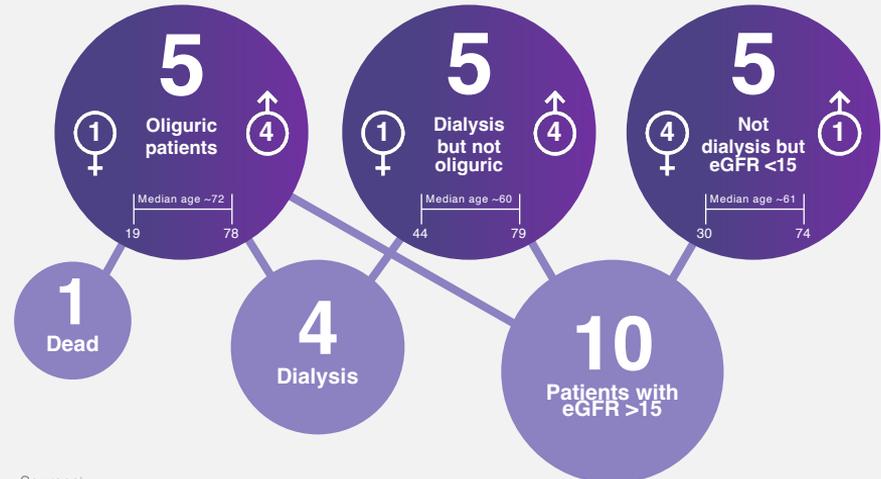
...but can lead to rapid destruction of the kidney and/or the lung

Data published in JASN

Endopeptidase Cleavage of Anti-Glomerular Basement Membrane Antibodies in vivo in Severe Kidney Disease: An Open-Label Phase 2a Study

Frank Uhlir,^{1,2} Madeline Szpin,¹ Andras Knoblich,^{3,4} Annette Bruchfeld,^{1,5} Inga Soren,¹ Leonard Keating,⁶ Eric Dargatzis,⁷ Arnaud Lisonet,⁷ Nassim Kassar,¹⁰ Cedric Ruffat,¹¹ Munk Myllyvaara,¹² Vladimir Tesar,⁶ Anders Remuzzi,¹³ Christian Eggers,¹⁴ Charlotte Elling,¹⁵ Stephen McAdoon,¹⁶ Johan Malm,¹⁵ Ingeborg Bajema,¹⁶ Elisabeth Sorensen,¹⁶ and Martin Sogahard,¹⁷

ABSTRACT
Background The prognosis for kidney survival is poor in patients presenting with circulating anti-glomerular basement membrane (GBM) antibodies and severe kidney injury. It is unknown if treatment with an endopeptidase that cleaves circulating and kidney bound IgG can alter the prognosis.
Methods An investigator-driven phase 2a open-arm study (Subcut 2016-00262) was performed in 17 hospitals in five European countries. A single dose of 0.25 mg/kg of imlifidase was given to 15 adults treated with cyclophosphamide and corticosteroids, but plasma exchange only if autoantibodies rebounded. The primary outcomes were safety and dialysis independence at 6 months.
Results At inclusion, ten patients were dialysis dependent and the other five had eGFR levels between 7 and 14 mL/min per 1.73 m². The median age was 67 years (range 39-77), six were women, and six were also positive for antineutrophil cytoplasmic antibodies. Three 6 hours after imlifidase infusion, all patients had anti-GBM antibodies levels below the reference range of a preproliferated assay. At 6 months 67% then out of control cohort (P=0.001). Patient's exact renal, eight serious adverse events (including one death) were reported, none assessed as probably or possibly related to the study drug.
Conclusions In this pilot study, the use of imlifidase was associated with a better outcome compared with controlled trial.
Clinical Trial registration number: EUDRACT 2016-00402-2-39 <https://www.clinicaltrialsregister.eu/ctr-search/search?term=001377-26>/results



Sources¹

- 1 Wang et al., J. Intern. Med., 2015
- 2 Desai et al., Front. Endocrinol., 2019
- 3 Uhlir et al. JASN (2022)
- 4 McAdoon et al.: Patients double-seropositive for ANCA and anti-GBM antibodies have varied renal survival, frequency of relapse, and outcomes compared to single-seropositive patients. Kidney Int 92: 693-702, 2017

New pivotal phase 3 trial with imlifidase in 50 anti-GBM patients to evaluate kidney function after six months

Study Design

- Open-label, controlled, randomised, multi-centre Phase 3 trial evaluating renal function in patients with severe anti-GBM disease imlifidase + SoC vs. SoC

Subjects

- 50 anti-GBM patients to be enrolled
- Patients will be followed for six months
- Recruitment at 30-40 clinics across US/UK/EU

Doses/Follow up time

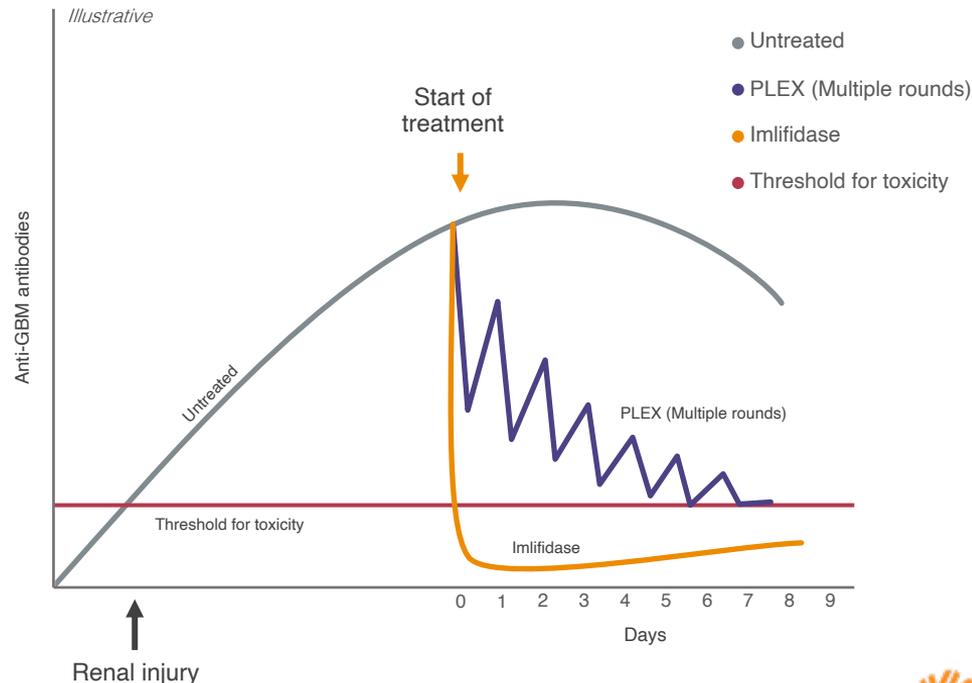
- Dosage 0.25mg/kg with 180 days follow up

Main Objectives

- Renal function is evaluated by estimated glomerular filtration rate (eGFR) at 6 months
- Dialysis need at 6 months

Status

- 9/50 patients enrolled at end of Q3'23



Guillain-Barré Syndrome (GBS) is an aggressive acute autoimmune attack on the peripheral nervous system

Incidences

1-2

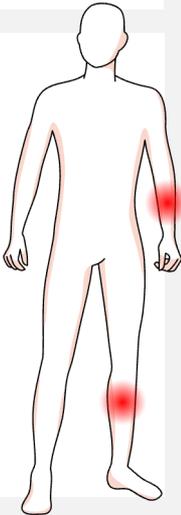
in 100,000 annually in 7 major markets

Standard of Care

- Intravenous immune globulin (IVIg) or
- Plasma Exchange (PLEX)

Indication

- Rapidly and progressively weakens extremities
- Triggered frequently by viral infections



High unmet need

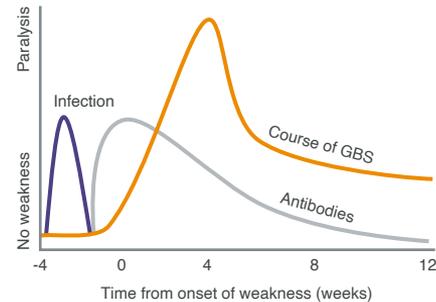
- 1/3 of hospitalized patients require mechanical ventilation
- Remaining long lasting symptoms in ca 40% of patients

FDA granted Orphan Drug Designation to imlifidase for the treatment of GBS

Phase 2 study to evaluate safety and effectiveness of imlifidase in patients diagnosed with GBS

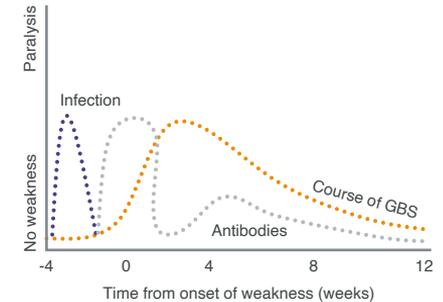
Today's Standard of Care IVIg or PLEX

Illustrative



Potential with imlifidase

Illustrative



Study design: Study is an open-label, single arm, multi-center trial in 30 patients

Data read-out: Topline data expected Q4 2023; Comparative efficacy analysis to a match cohort (IGOS data base at Erasmus, Rotterdam) expected 2024

Sources:

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

New investigator-initiated phase 2 study in ANCA-associated vasculitis

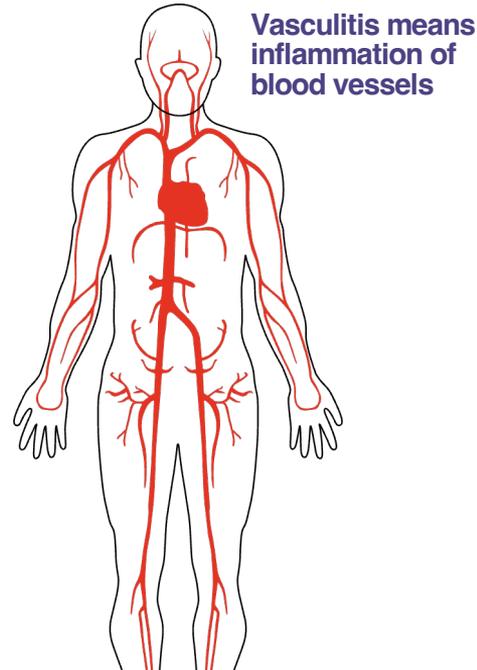
- a group of autoimmune diseases characterized by inflammation of blood vessels with very few treatment options today

Incidences

~3 in 100,000 annually across EU/US of which 8-36% are estimated to have Acute Respiratory Distress Syndrome due to pulmonary hemorrhage^{1,2}

Standard of Care

- Current protocol is Immunosuppression and Intensive support care



The investigator-initiated trial (IIT) is sponsored by Charité Universitätsmedizin, Berlin



Indication

- Causes damage to small blood vessels in the body resulting in inflammation and damage to organs, such as the kidneys, lungs etc.³
- Progress of the disease results in end stage kidney disease in 25 percent of patients⁵
- Most severe cases involving lungs lead to respiratory failure⁴
- Few treatment options today

Study design

- Single arm, single center, phase 2 study with the primary objective to evaluate efficacy and safety on top of SoC
- 10 patients with severe ANCA-associated vasculitis and Acute Respiratory Distress Syndrome will be treated with imlifidase on top of SoC
- 3 out of a target of 10 patients treated Q3'23
- Trial led by Dr. Adrian Schreiber and Dr. Philipp Enghard at Charité

1. Bertl A, et al. Arthritis Rheum atol. 2017;69.
 2. Rathmann J, et al. RMD Open. 2023;9:e002949.
 3. Falk RJ, Jennette JC. The New England journal of medicine. 1988;318(25):1651-7.
 4. Flossmann O, et al. Annals of the rheumatic diseases. 2011;70(3):488-94.
 5. Booth AD, et al. American journal of kidney diseases. 2003;41(4):776-84.

Positive topline data from the imlifidase phase 2 study in antibody mediated rejection (AMR) episodes post kidney transplantation

Incidences

Acute AMR episodes occur in

5-7%

of annual kidney transplants¹
(2,500-3,500 patients across US/EU)

Standard of Care

- Intravenous immune globulin (IVIg) or
- Plasma Exchange (PLEX) or
- Steroids

Top-line data readout from phase 2 trial demonstrates a significant superior capacity of imlifidase to rapidly reduce levels of DSAs vs. PLEX (SoC) in the five days following the start of the treatment

High unmet need

- AMR is one of the most challenging adverse events after kidney transplantation leading to graft dysfunction and loss
- There is no approved treatment for AMR

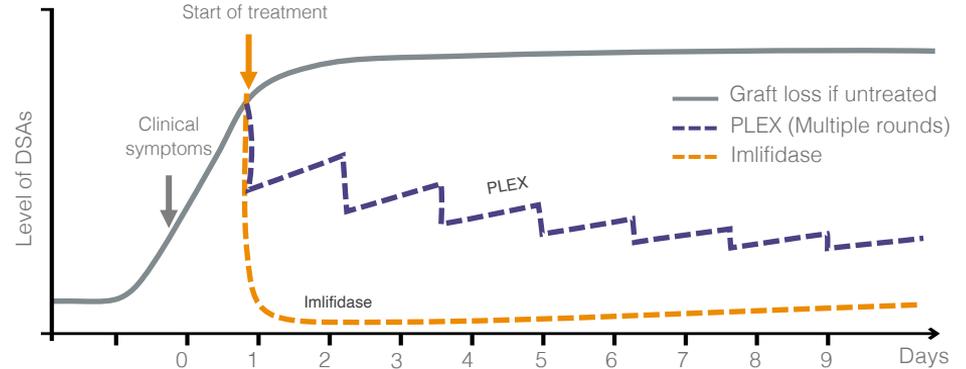
Phase 2 study design

30 patients with active or chronic active AMR episodes post kidney transplantation have been enrolled and randomized 2:1 to imlifidase vs. SoC

Full data read out from phase 2 study expected to be announced in Q4'23

Potential with imlifidase vs. PLEX in AMR

Illustrative



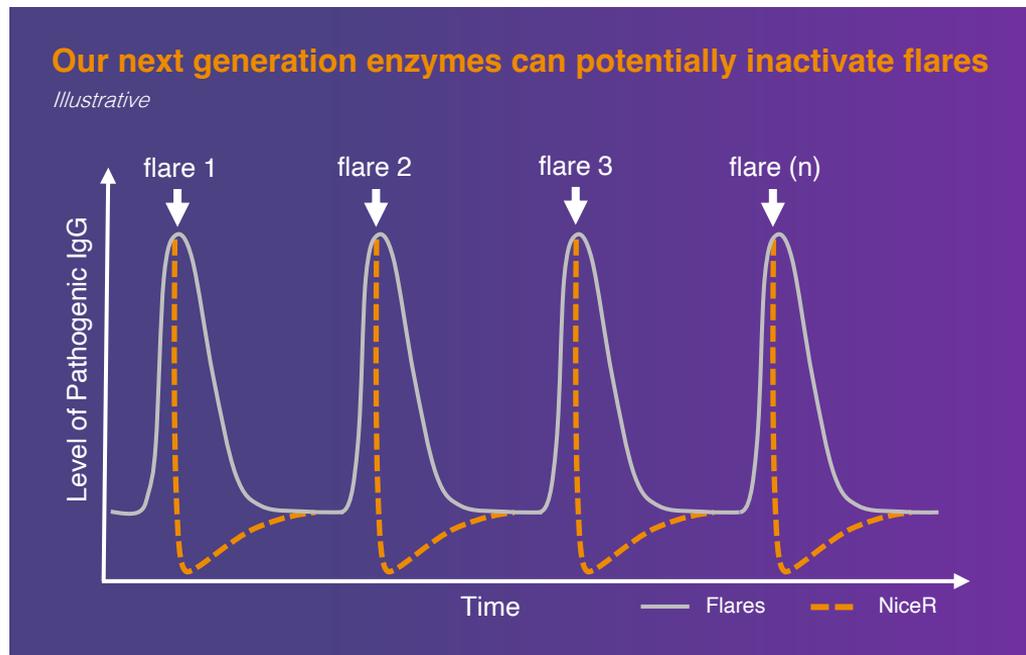
¹ Puttarajappa et al., Journal of Transplantation, 2012, Article ID 193724.

HNSA-5487, Hansa's next generation enzymes

Objective to potentially enabling repeat dosing in autoimmune conditions, gene therapy, CAR-T and other cell therapies

NiceR - Novel Immunoglobulin Cleaving Enzymes for Repeat dosing with lower immunogenicity

- HNSA-5487 is an IgG-cleaving enzyme (cysteine peptidase) with characteristics based on a homolog to imlifidase, but with lowered immunogenicity
- Encouraging high-level results for first-in-human trial in 36 healthy volunteers of HNSA-5487 announced in October 2023
 - ✓ Study demonstrated tolerability and safety
 - ✓ Pharmacodynamics (PD) showed a fast and complete cleavage of IgG to F(ab')₂ and Fc-fragments with increasing doses
 - ✓ Pharmacokinetics (PK) was in line with expectations
 - ✓ Further analysis around endpoints and immunogenicity profile to be completed in 2024 incl. selection of lead indication



Gene Therapy



Exploring opportunities in gene therapy

Exploring the opportunities in systemic administration of gene therapy for our unique antibody cleaving enzyme platform to potentially enable gene therapy treatment in NAb+ patients

A
revolutionary
approach

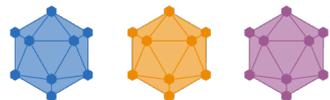
Significant
unmet need

Encouraging
pre-clinical
data

Partnership
strategy

Tropism and target tissue

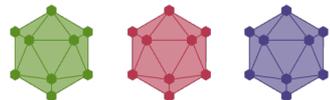
AAV subtypes targets different tissues



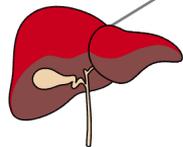
AAV 1, 2 & 5



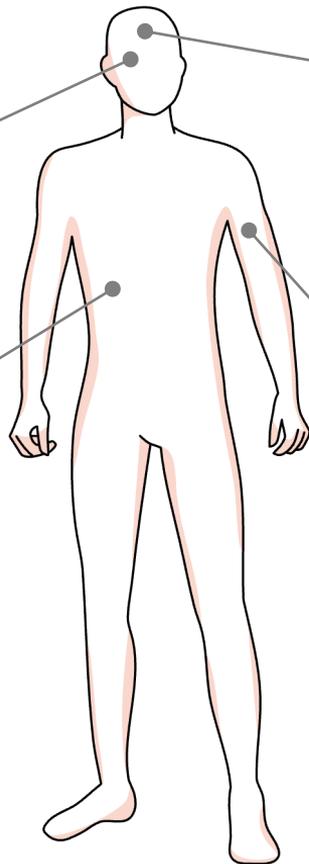
Eye (local target)
 $\sim 1 \times 10^{11}$ vg



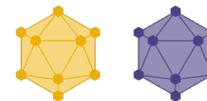
AAV 3, 7 & 8



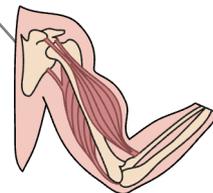
Liver (systemic)
 $\sim 1 \times 10^{14}$ vg



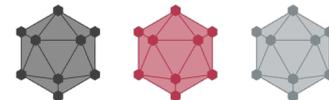
Brain (local target)
 $\sim 1 \times 10^{12}$ vg



AAV 4 & 8



Muscle (systemic)
 $\sim 1 \times 10^{15}$ vg



AAV 6, 7, rh74

Target tissues

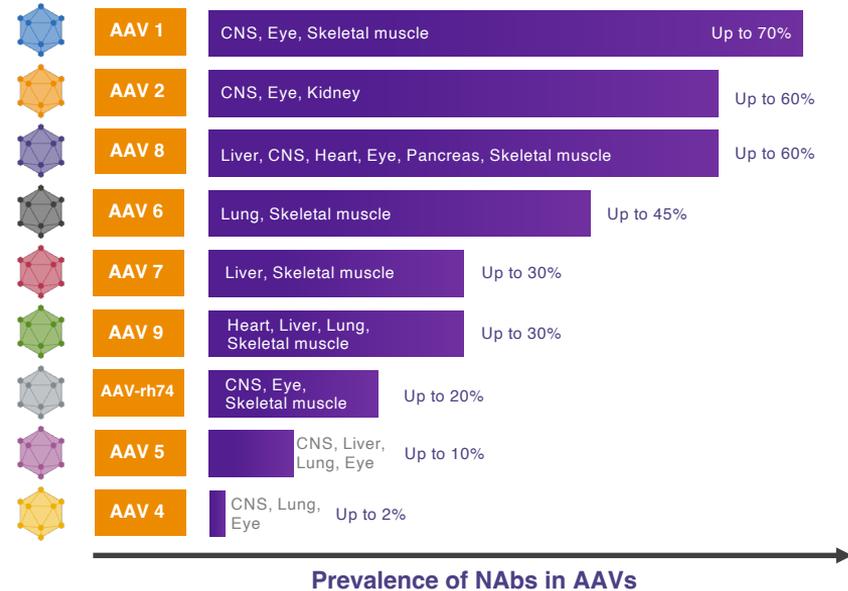
Dose of gene therapy (vg)

Introducing Adeno Associated Virus (AAVs)

AAVs, the delivery system of Gene Therapy

- Wildtype Adeno Associated Viruses (AAV) belong to the family of parvoviruses
- AAVs come in many serotypes with different tissue distribution
- They carry their genetic information as DNA and normally do not integrate into the host genome but remains in the cells as episomes
- Recombinant AAV is commonly used for gene delivery, resulting in safe and long-term expression of the transgene

Pre-existing antibodies towards AAVs are a limiting factor in Gene Therapy and excludes patients from clinical trials.

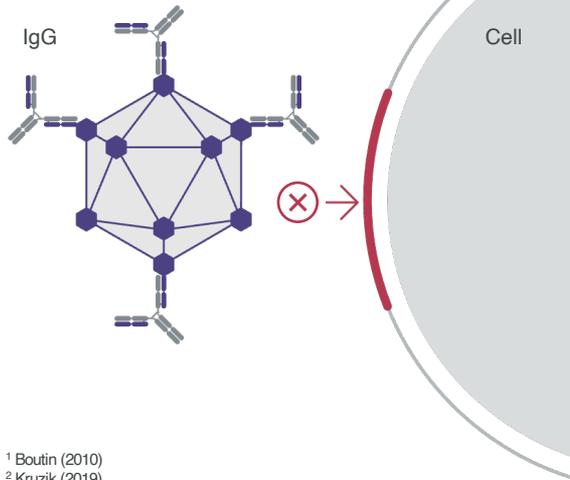


Source: Boutin et al. (2010), Griffin et al. (2019), Wang et al. (2018), Calcedo & Wilson (2013), Falese et al. (2017), Haiyan et al. (2017), Ellsworth et al. (2018), Greig et al. (2017)

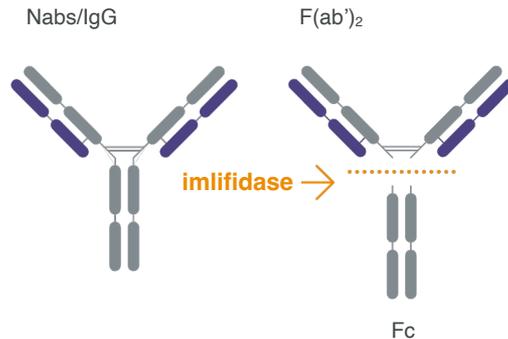
Neutralizing antibodies (Nabs) are immunological barriers in gene therapy; imlifidase may potentially eliminate Nabs

Between approximately 5%-70%^{1,2} of patients considered for gene therapy treatment carry neutralizing anti-AAV antibodies forming a barrier for treatment eligibility

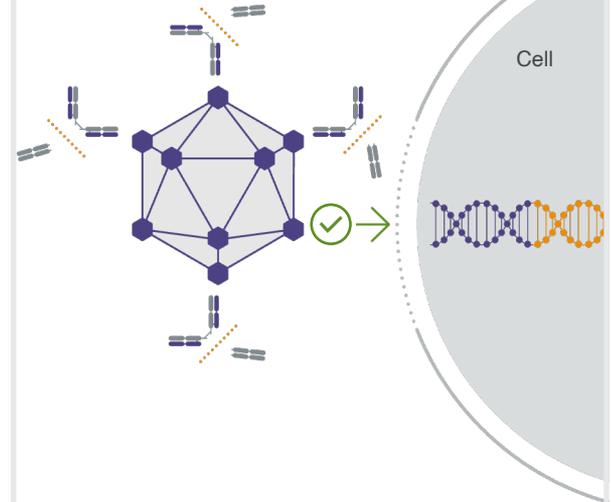
1 Antibodies prevent effective transfer of healthy gene sequence and can be a safety concern



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



¹ Boutin (2010)

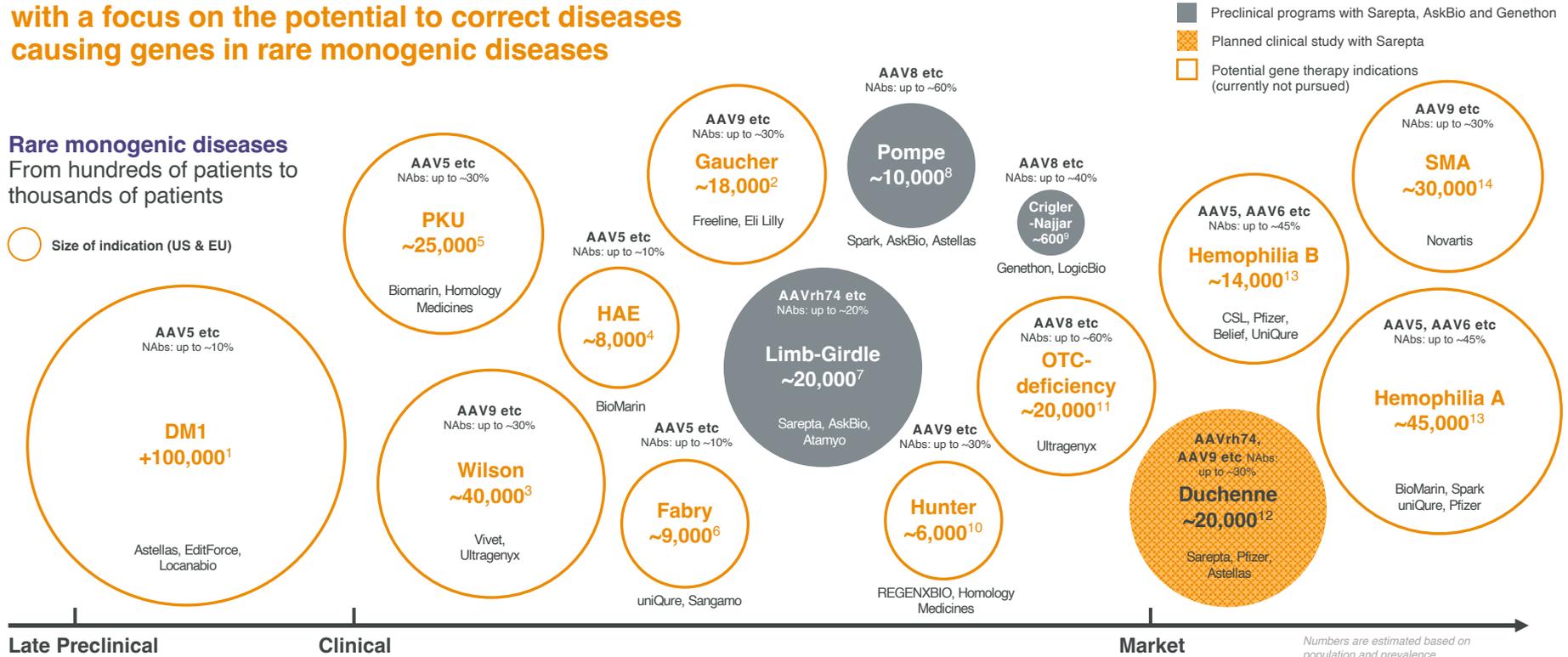
² Kruzik (2019)

Systemic gene therapy is an emerging opportunity

with a focus on the potential to correct diseases causing genes in rare monogenic diseases

Rare monogenic diseases
From hundreds of patients to thousands of patients

○ Size of indication (US & EU)



Late Preclinical

Clinical

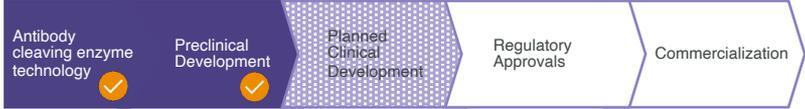
Market

Numbers are estimated based on population and prevalence

1. RareDiseases.org. <https://rarediseases.org/search/GenesA-Z.php?myfilter=1> [Accessed 2023-06-28]
 2. Medlineplus.gov. <https://medlineplus.gov/genetics/condition/duplication-19p11.21-microdeletion-syndrome.html> [Accessed 2023-06-28]
 3. Santali TD, Lauren TL, Munk DE, Vitting H, Weiss HK, Di P. The Prevalence of Wilson's Disease: An Update. Hepatology. 2020 Feb;71(2):722-732. doi: 10.1002/hep.23911. Epub 2020 Jan 31. PMID: 31449670.
 4. Grant A, Grant JA. Hereditary angioedema: epidemiology, management, and role of kallikrein. Biologics. 2013;7:1103-13. doi: 10.2147/BTT.S27568. Epub 2013 May 3. PMID: 2360243; PMCID: PMC3647445.
 5. Hillert A, et al. The Genetic Landscape and Epidemiology of Phenylketonuria. Am J Hum Genet. 2020 Aug 6;107(2):234-250. doi: 10.1016/j.ajhg.2020.06.006. Epub 2020 Jul 14. PMID: 32668217; PMCID: PMC7413869.
 6. Medlineplus.gov. <https://medlineplus.gov/genetics/condition/fabry-disease.html> [Accessed 2023-07-12]
 7. Liang, WC., Jong, YJ., Wang, LH, et al. Clinical, pathological, imaging, and genetic characterization in a Taiwanese cohort with limb-girdle muscular dystrophy. Orphanet J Rare Dis. 15, 160 (2020). <https://doi.org/10.1186/s13023-020-1514-5>
 8. RareDiseases.org. <https://rarediseases.org/search/GenesA-Z.php?myfilter=1> [Accessed 2023-07-12]
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 11. RareDiseases.org. <https://rarediseases.org/search/GenesA-Z.php?myfilter=1>
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 14. Genethon.com. <https://www.genethon.com/en/askbio> [Accessed 2023-06-15]
 15. Weisbart, T.E.C., Robertson, A., Wilson, I.J., et al. Prevalence, incidence and carrier frequency of 5q-linked spinal muscular atrophy - a literature review. Orphanet J Rare Dis 12, 124 (2017). <https://doi.org/10.1186/s13023-017-0671-8>

Global exclusive agreements with three partners in gene therapy

To develop and promote imlifidase as pre-treatment ahead of gene therapy in select indications

Partner	Access to key resources	Indication exclusivity	Collaborative research, development and commercialization
	<ul style="list-style-type: none"> World leader within gene therapy targeted at muscular dystrophies Pre-clinical and clinical plan Regulatory Promotion FDA approval in 4–5-year-old kids suffering with DMD 	<p>Duchenne Muscular Dystrophy (DMD) 1/3,500 to 5,000 male births worldwide</p>	
		<p>Limb-Girdle Muscular Dystrophy Global prevalence of ~1.6 per 100k individuals</p>	
	<ul style="list-style-type: none"> Early innovator in gene therapy Conducts pre-clinical and clinical trials (Phase 1/2) 	<p>Pompe disease Approximate incidence is 1 per 40,000 births, or ~200 per year in the US + EU</p>	 <p>Exclusive option for AskBio to negotiate a potential full development and commercialization agreement</p>
	<ul style="list-style-type: none"> A pioneer in the discovery and development of gene therapies Conducts pre-clinical and clinical trials (Phase 1/2) 	<p>Crigler-Najjar syndrome Approximately incidence is 0.6-1 case per one million people or 600 patients in Europe and the U.S</p>	 <p>The initial agreement is focused on research and development The companies will consider a subsequent agreement for commercialization at a later stage</p>

Global and exclusive agreement with Sarepta Therapeutics

to develop and promote imlifidase as pre-treatment ahead of gene therapy in select indications



Indication exclusivity:

- Duchenne Muscular Dystrophy (DMD)
- Limb-Girdle Muscular Dystrophy (LGMD)

Hansa's key resources

- Imlifidase validated with positive clinical efficacy and safety data as well as European approval
- Positive preclinical data published in *Nature* (2020) and at *ASGCT* (May 2023)
- Clear path to U.S. approval (kidney transplant)



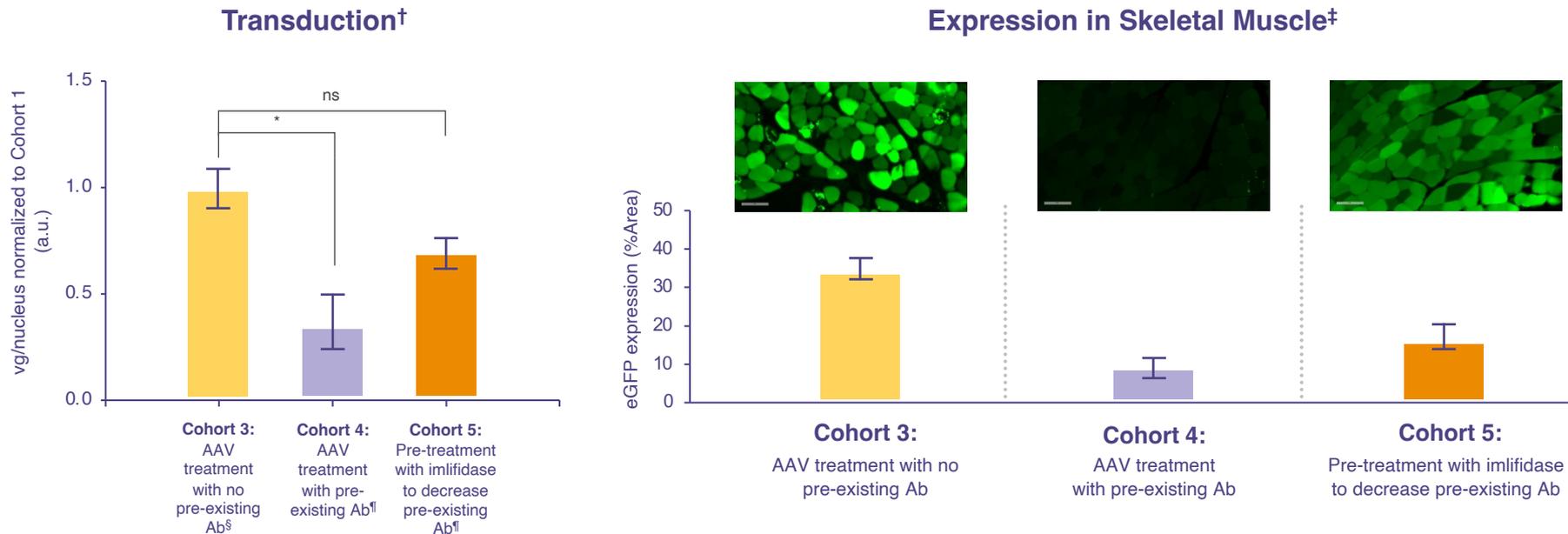
Sarepta's key resources

- World leader within gene therapy targeted at muscular dystrophies
- Pre-clinical plan: PoC and IND-tox
- Clinical / Regulatory
- Promotion
- FDA approval in 4–5-year-olds suffering with DMD

Collaborative research, development and commercialization – working together at every stage



Imlifidase pre-treatment decreases pre-existing antibodies and enhances transduction and transgene expression in NHPs



[†]P<0.05. [‡]Data are represented as mean ± SEM and analyzed by one-way ANOVA followed by post-hoc analysis with Dunnett's multiple comparison test. [§]Data are represented as the mean ± SEM for the percent area for all of the muscle tissues analyzed at terminal necropsy. [¶]AAVrh74 titer ≤1:400. ^{¶¶}AAVrh74 titer 1:800–1:1600.

AAV, adeno-associated virus; AAVrh74, adeno-associated virus rhesus isolate serotype 74; Ab, antibody; a.u., arbitrary units; eGFP, enhanced green fluorescent protein; NHP, non-human primate; ns, not significant; vg, viral genome.

Duchenne muscular dystrophy (DMD) is progressive and causes irreversible muscle damage and loss of function

Incidences

1 in **3,500** to **5,000**

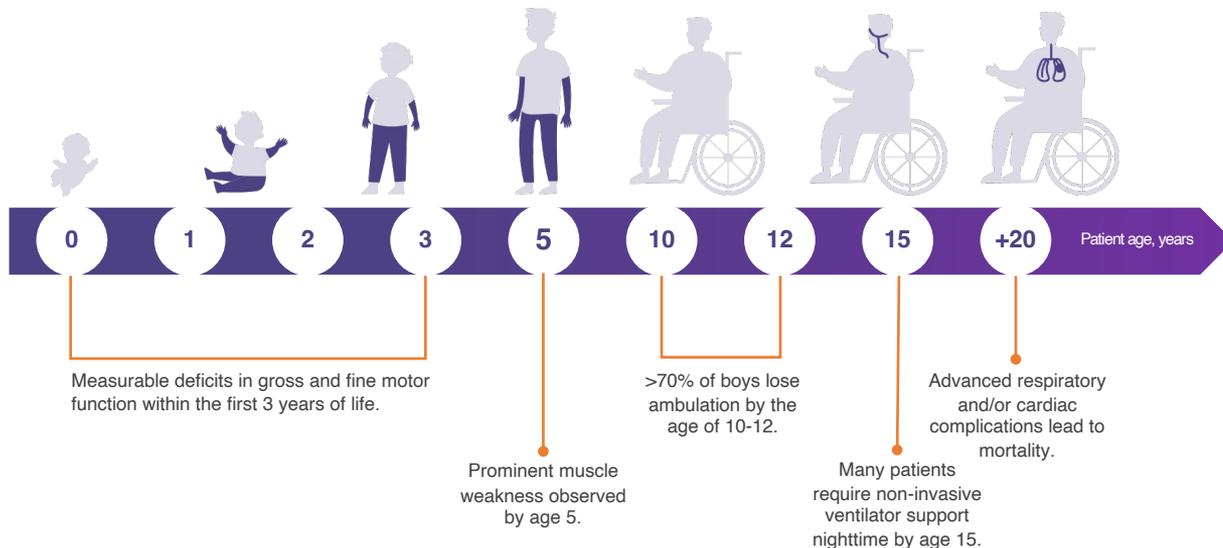
male births worldwide

~14% have pre-existing IgG antibodies to rh74

High unmet need

- DMD is a rare, fatal neuromuscular genetic disease
- Muscle weakness noticeable by age 3-5, and most patients use a wheelchair by the time they are 12, many require respiratory aid by late teens.
- Life expectancy 26-30 years

DMD signs at early age, with most patients using a wheelchair by age 12



SRP-9001 has been rationally designed to maximize expression in tissues most affected by Duchenne

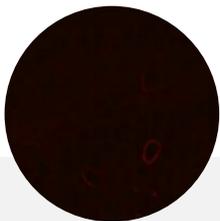
SRP-9001 gene therapy treatment

- SRP-9001 (delandistrogene moxeparvovec) AAVrh74 vector with a micro-dystrophin transgene
- Functional benefit as well as micro-dystrophin expression demonstrated

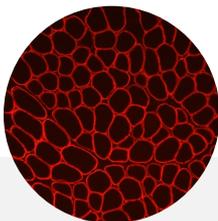
FDA approval in 4-5 year olds suffering with DMD

SRP-9001 treatment leads to restoration of DAPC, reduced CK, and improved histopathology

Pre-treatment



Post-treatment



4- to 5-year-old group showed significant improvement in North Star Ambulatory Assessment (NSAA) vs. placebo at week 48

For more details and data regarding Sarepta's gene therapy programs, please refer to www.sarepta.com

Limb-girdle muscular dystrophy (LGMD) is a group of diseases that cause weakness and wasting of the muscles

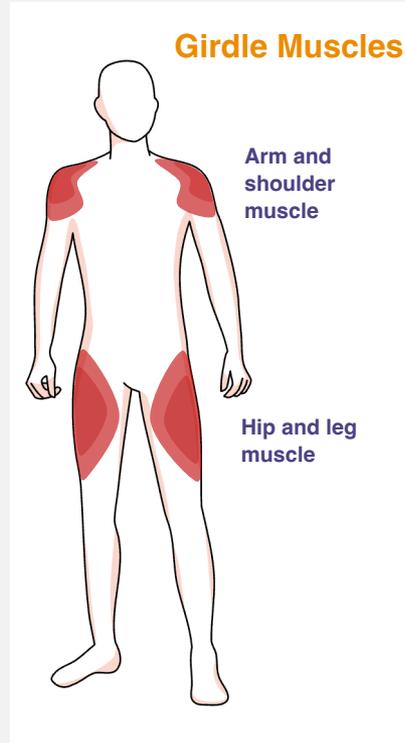
Incidences

1.63 per **100,000** individuals;
over 30 subtypes exist, and both genders are affected equally.

~15% of patients have pre-existing IgG antibodies to rh74

Indication

- Limb-Girdle can be caused by a single gene defect that affects specific proteins within the muscle cell
- Symptoms may appear at any age. Patients may have trouble getting out of chairs or climbing stairs. Eventually, they may need a wheelchair to get around.



SRP-9003 β -sarcoglycan (SGCB) gene therapy for treatment of LGMD2E

Initiation of VOYAGENE

On Feb 17, 2023, Sarepta announced that it had commenced dosing in the VOYAGENE study (Study SRP-9003-102) a Phase 1 trial of SRP-9003,

VOYAGENE is a U.S.-only study that will enroll ambulant patients aged 18 years or older and non-ambulant patients, ages 4-50 years, using clinical process SRP-9003 material.

Following positive results in the initial Phase 1 study SRP-9003-101 exploring two different doses, the VOYAGENE study will allow gathering additional data on the intended dose of SRP-9003 in a broader population of patients while finalizing plans for a global Phase 3 study (SRP-9003-301) that utilizes commercially representative material.

More information on the study is available at <https://genesislcmd.com/study/voyagene>

Collaboration with AskBio to evaluate imlifidase in gene therapy targeting Pompe disease

Feasibility program to evaluate imlifidase as pre-treatment ahead of gene therapy in Pompe disease for patients with pre-existing neutralizing antibodies (NAbs) to adeno-associated virus (AAV)



Hansa's key resources and deliverables

- Imlifidase validated with positive clinical efficacy and safety data as well as European approval
- Significant know-how around antibody cleaving enzymes
- Clear path to U.S. approval (kidney transplant)
- Hansa supplies material and provides additional support



Fully owned subsidiary of Bayer AG

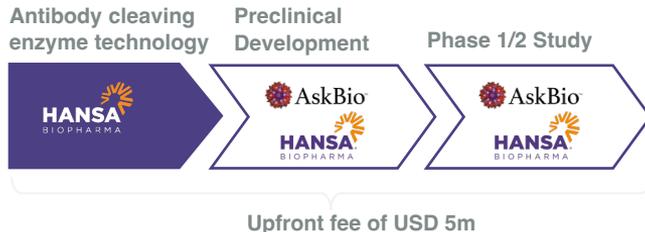
AskBio's key resources and deliverables

- Early innovator in the Gene Therapy space with AAV platform and ongoing clinical stage Pompe disease program
- Conducts pre-clinical and clinical trials according to agreed plan



Current agreement scoped around a feasibility program which covers preclinical work and a Phase 1/2 study

Exclusive option for AskBio to negotiate a potential full development and commercialization agreement



Pompe disease, an ultra-rare disease is caused by the deficiency of an enzyme called alpha-glucosidase (GAA)

Incidences

An ultra-rare indication impacting

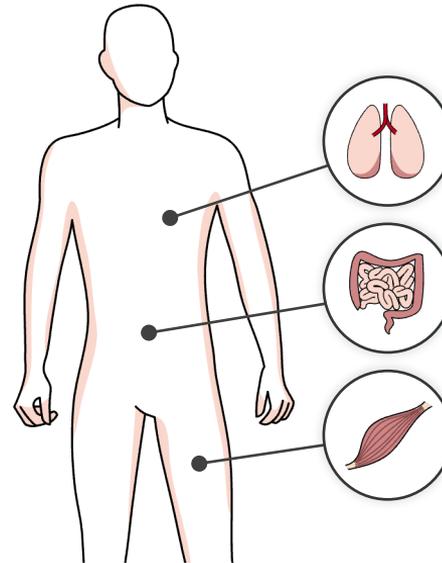
1 in **40,000** births or **~200** cases per year across US and Europe

~40-60% patients have pre-existing IgG antibodies to AAV8

Indication

- Defect in a gene making an enzyme called acid alpha-glucosidase (GAA), which is used to break down glycogen
- Accumulation of glycogen result in severe impact on the normal organ and muscle function

Late Onset Pompe Disease



Respiratory

- Respiratory failure
- Diaphragm weakness, sleep-disordered breathing
- Orthopnoea, dyspnea, aspiration

Gastrointestinal

- Difficulty chewing/jaw muscle fatigue
- Poor weight gain/maintenance
- Swallowing difficulties/weak tongue

Musculoskeletal

- Proximal muscle weakness, muscle pain
- Frequent falls, gait abnormalities, difficulty walking/climbing stairs/getting up
- EMG abnormalities, elevated CK, MRI changes

Sources:

¹Pompe Disease, <https://rarediseases.org/rare-diseases/nmopa-disease/> [accessed 2023-05-15]

²Calculated by Hansa on the basis of incidence numbers from <https://rarediseases.org/rare-diseases/nmopa-disease/> and life expectancy estimates from <https://nmopediseasenews.com/late-onset-nmopa-disease/>, as well as population statistics for the United States and European Union/Europe.

³ESGCT 27th Annual Congress Abstracts, Sensitivity of different AAV serotypes to pre-existing NABs, https://www.esgct.eu/home/Barcelona%202019/NEW_All%20Barcelona%20Abstracts.pdf

⁴Prevalence of serum IgG and neutralizing factors against adeno-associated virus (AAV) types 1, 2, 5, 6, 8, and 9 in the healthy population: implications for gene therapy using AAV vectors. Hum Gene Ther. 2010. <https://pubmed.ncbi.nlm.nih.gov/20095819/>

Collaboration with Genethon to evaluate imlifidase in gene therapy targeting Crigler-Najjar Syndrome



Hansa's key resources and deliverables

- Imlifidase validated with positive clinical efficacy and safety data as well as European approval and clear path to U.S. approval
- Significant know-how around antibody cleaving enzymes
- Hansa supplies material and provides additional support



Genethon's key resources and deliverables

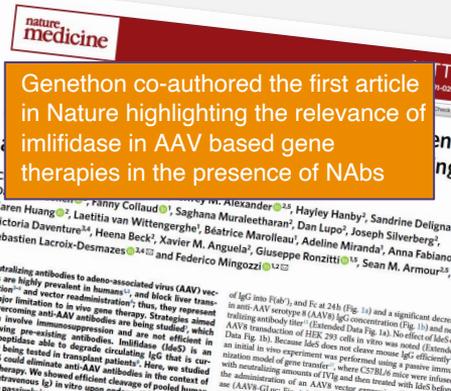
- A pioneer in the discovery and development of gene therapies
- A not-for-profit organization
- Conducts pre-clinical and clinical trials (Phase 1/2)



Initial agreement focused on research and development



Upon completion the two companies will consider a subsequent agreement for commercialization



Crigler-Najjar (CN) syndrome is an ultra-rare hereditary disorder caused by deficiency in UGT1A1 (liver enzyme)

Incidences

An ultra-rare indication impacting

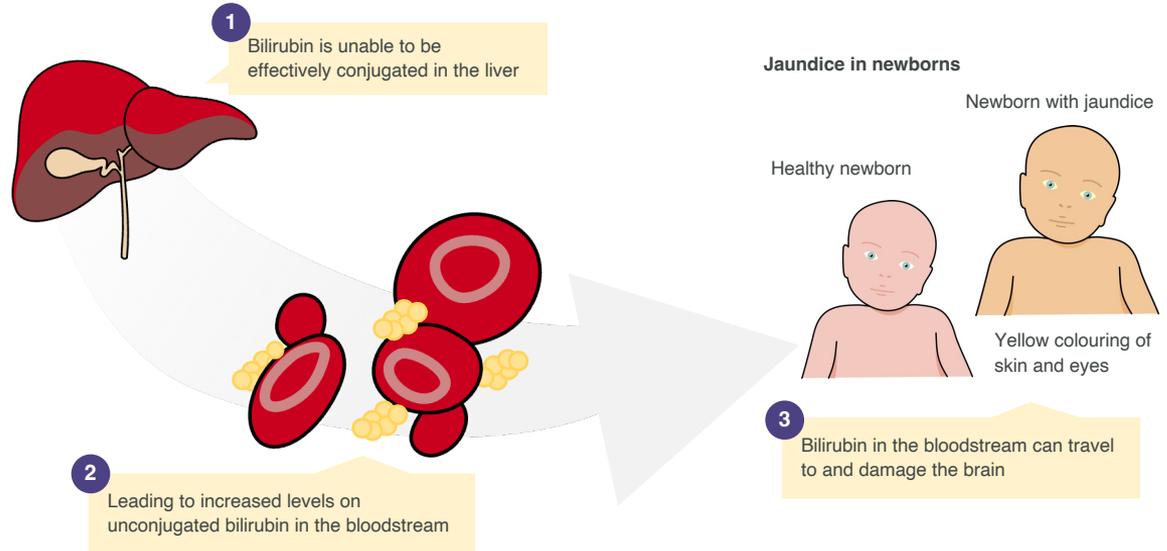
0.6-1 per **1,000,000** newborns around the world^{1,2}

~**30%** of patients have pre-existing IgG antibodies to AAV8

Indication

- Build-up of free bilirubin in serum and body tissues, which can become toxic in the brain³
- Severity can vary from mild to severe, no medication approved for treatment so far

Build-up of free bilirubin in serum and tissue can become toxic in the brain



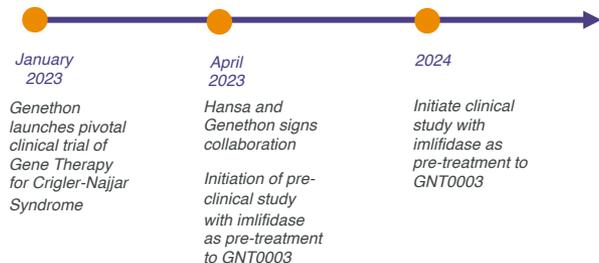
Sources:
¹Collaud F, Bortolussi G, Guianvarc'h L, Aronson SJ, Bordet T, Veron P, Charles S, Vidal P, Sola MS, Rundwasser S, Dufour DG, Lacoste F, Luc C, Wittenberghe LV, Martin S, Le Bec C, Bosma PJ, Muro AF, Ronzitti G, Hebben M, Mingozi F. Preclinical Development of an AAV8-hUGT1A1 Vector for the Treatment of Crigler-Najjar Syndrome. Mol Ther Methods Clin Dev. 2019 Mar 15;12:157-174.
²Ebrahimi A, Rahim F. Crigler-Najjar Syndrome: Current Perspectives and the Application of Clinical Genetics. Endocr Metab Immune Disord Drug Targets. 2018;18(3):201-211.
³American Liver Foundation. <https://liverfoundation.org/liver-diseases/pediatric-liver-information-center/pediatric-liver-disease/crigler-najjar-syndrome/> [Accessed 2023-06-13]

Feasibility program to evaluate imlifidase as pre-treatment to Genethon's gene therapy in patients with severe Crigler-Najjar syndrome

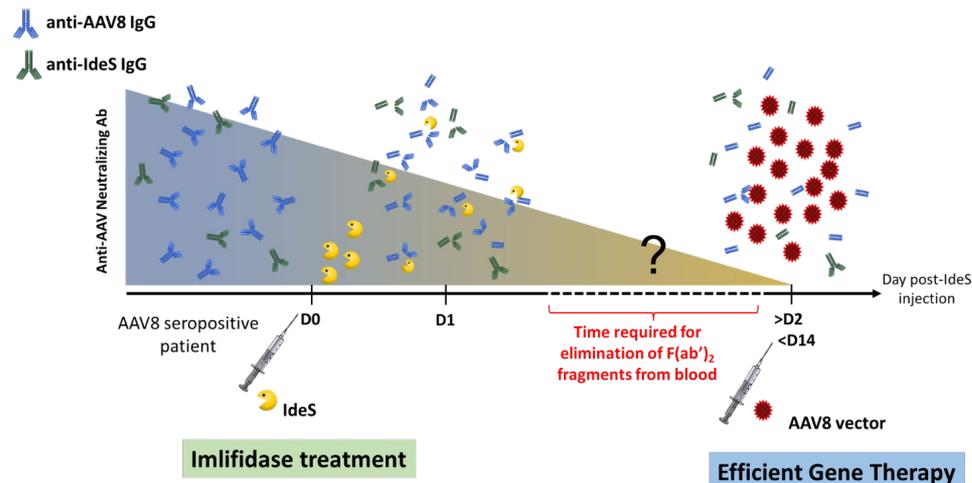
Study design and timeline

- Study expected in a small patient population
- GNT0003: 5E12 vg/kg
- Imlifidase: 0.25 mg/kg (possible with two doses)

Timeline



Evaluation of safety and efficacy of “GNT0003” in seropositive to AAV8 patients pre-treated with imlifidase



ESG Overview



At Hansa we are committed to driving our business forward in a sustainable way guided by three strategic ESG principles



Healthy people

Address unmet medical need and ensure equitable access to care



Healthy business

Make a difference by operating an ethical, transparent and responsible business and cultivate an engaged culture of collaboration, inspiration and innovation



Healthy planet

Embrace sustainable decision making and environment stewardship



Formalising our ESG approach

At Hansa, we have always strived to achieve sustainable business practices. We are now formalizing our approach to sustainability and ESG issues, starting with identifying our key material focus areas.



Our mission: We leverage our unique enzyme technology platform to develop innovative, lifesaving and life altering immunomodulating therapies, bring these to the patients with rare diseases who need them, and generate value to society at large.

Our key ESG material aspects



Environment

Climate & waste impacts of production and logistics

Hansa's environmental impact is small because our production is limited in volume. However, as we grow, we need to be transparent about, and make efforts to limit, our climate and waste impacts.



Social

Unmet needs and equity in health

Patients with rare conditions in general, and highly sensitized patients in particular, have many unmet needs which our therapies help address. These unmet needs can also be reinforced by ethnic or socio-economic status, particularly regarding access to organ transplants. Collaboration with patient groups can help us reach even more patients who can benefit from our treatments.



Putting patients first

In the biopharma industry, there is a risk that patient access to innovative treatment is delayed. Hansa can therefore provide bridge financing on a case-by-case basis to benefit patients who have limited treatment options.



Employee wellbeing, diversity and inclusion

Ensuring employee wellbeing, diversity and inclusion is a fundamental commitment at Hansa. It is also essential for attracting talent in a fast-growing organization and delivering on our strategy.



Third-party risks

We diligently select new business partners, as well as monitor our existing partners and require them to comply with all laws and regulations and our Code of Conduct.



Pricing

In Europe, value-based pricing and universal health coverage is common, but in other countries access is a pressing issue. We can expand access to unfunded patients through collaboration with patient groups.



Governance

Safety, efficacy and ethics

To build a successful company and achieve our mission to extend and enhance the lives of the patients we serve, we must hold ourselves to the very highest standards. Trust is at the core of everything we do.



Return to investors

Biopharma companies need to remain economically attractive as an investment, so as to continue to secure capital and develop new treatments.



UN Sustainable Development Goals

The Sustainable Development Goals (SDGs) were adopted by all UN Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. They have since become a gold standard for sustainability across businesses, and each of our recommended factors have been developed to align with relevant goals.



Capital Markets

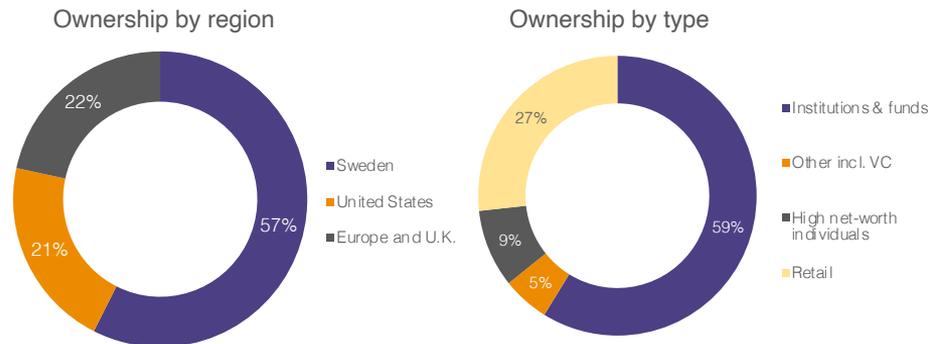


Ownership in Hansa Biopharma

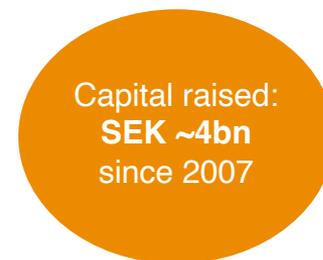
Top 10 shareholders as per September 30, 2023

Name	No. of shares	Ownership
Redmile Group, LLC	10,626,131	20.3%
Nexttobe AB	2,155,379	4.1%
Olausson, Thomas	1,917,000	3.7%
Fjärde AP-Fonden (AP 4)	1,900,000	3.2%
Försäkrings AB Avanza Pension	1,765,506	3.4%
Jeansson, Theodor	1,559,749	3.0%
Tredje AP-Fonden (AP 3)	1,389,650	2.6%
VOB & T Trading AB	644,800	1.2%
BWG Invest SARL	600,000	1.1%
Ålandsbanken Abp (Sweden)	552,249	1.1%
Other	29,333,498	55.9%
Total	52,443,962	100.0%

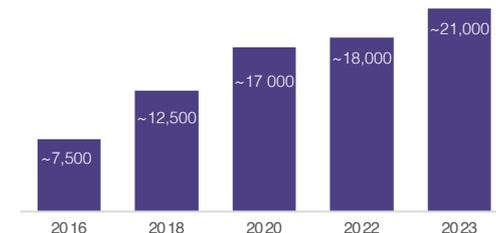
Classification of ownership as per June 30, 2023



Capital Raises



No. of shareholders



Contact our Investor Relations and Corporate Affairs team

Contact



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Calendar and events

Oct 26, 2023

Nov 21, 2023

Nov 23, 2023

Dec 6, 2023

Dec 14, 2023

Jan 8, 2024

Feb 2, 2024

Feb 28, 2024

Mar 20, 2024

Apr 17, 2024

July 17, 2024

Oct 23, 2024

Interim Report for January-September 2023

SEB Healthcare Seminar 2023, Stockholm

Redeye Life Science Day, Stockholm

Carlsquare Life Science Investor Day, Stockholm

Redeye Investor Forum, Gothenburg

JPM week, San Francisco

Full-year Report for January-December 2023

Ökonomisk Ugebrev Life Science Event, Cph

Annual Report 2023

Interim Report for January-March 2024

Half-year Report January-June 2024

Interim Report for January-September 2024

