HANSA BIOPHARMA

Investor Road Show
Year-end Report/Q4 2023

Lund, February 2, 2024

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.

The factors set forth above are not exhaustive and additional factors could adversely affect our business and financial performance. We operate in a very competitive and rapidly changing environment, and it is not possible to predict all factors, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results.

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HANSA BIOPHARMA

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HANSA BIOPHARMA

Business update Q4’2023

HANSA BIOPHARMA

Hansa enters 2024 in a strong position to successfully execute on our key priorities

1 Q4: Strong commercial performance

- ✓ **Strong revenue generation in Q4 2023**
  - SEK 43m in Idefirix product sales
  - Growth supported by U.K., Germany, and Spain
- ✓ **Commercial partnership with NewBridge**
  - Covering MENA in kidney transplantation
- ✓ **Market Access for Idefirix® in Slovenia**
- ✓ **Initiated restructuring program**
  - Will provide SEK 75-85m in annual savings

2 Pipeline: Encouraging read-outs across several indications

- ✓ **AMR:** Full data from AMR phase 2 study
- ✓ **GBS:** Positive high-level phase 2 data
- ✓ **Anti-GBM:** Positive momentum continues
- ✓ **HNSA-5487:** Encouraging high-level P1 data
- ✓ **Kidney Transplantation:**
  - ConfIdeS: Randomization completion mid-2024
  - Sustained positive outcomes out to year 5
- ✓ **SRP-9001-104 imlifidase in DMD:**
  - Initiation of phase 1 study mid-December 2023

Key strategic priorities

Commercialize Idefirix® in first indication and markets

1

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

Advance our ongoing clinical programs

2

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

Expand our IgG-cleaving enzyme technology

3

- Expand IgG-cleaving enzyme technology platform into gene therapy
- Develop next gen IgG-cleaving enzymes for repeat usage

Continued progress against our key launch metrics led by in-market growth

Market Development

7 | -

Medical guidelines implemented on a national level in 7 countries

Market Access

14 | 9

Market access secured in 14 European markets, more recently in Slovenia

Patient Identification

28 | 6

Post Approval Study ~56% into completion

Transplant Center Readiness & Use

~50 | 25

~50 clinics are Idefirix "ready" to treat patients

10 | 8

Ongoing HTA processes in 10 countries incl. Portugal and Switzerland

✓

Eurotransplant:
First patient treated in the ET desensitization program; 1st and 2nd wave patient assessment initiated in Q4'23

23 | 10

23 centers have treated patients overall; 14 centers have repeat usage

Major markets to support growth going forward France, U.K., Germany, Spain and Italy

Q4 2023 Q4 2022

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

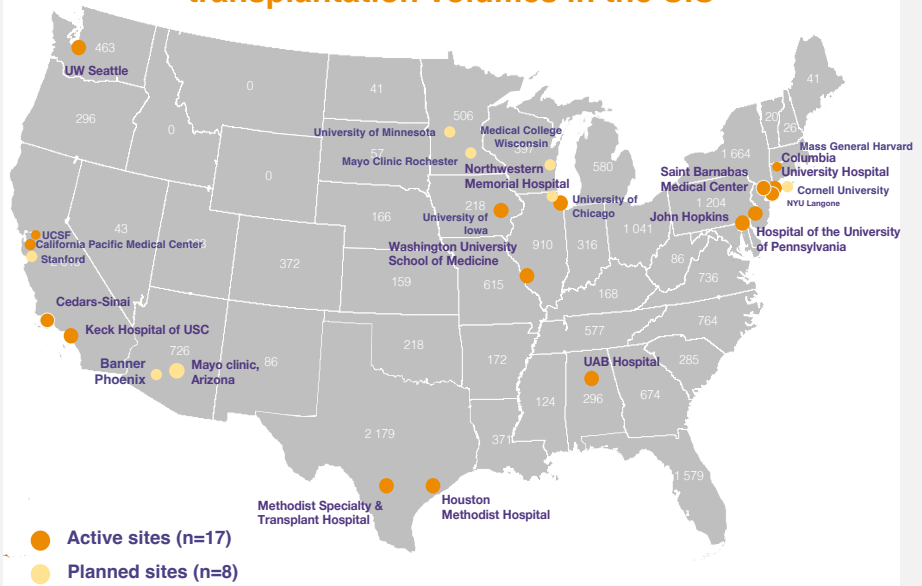
ConfIdeS phase 3 trial will further advance potential for imlifidase to address unmet need in desensitization

U.S. ConfIdeS

Phase 3

- Continue enrollment beyond 64 patients
- Currently 104 patients screened and enrolled
- 40 out of 64 targeted patients randomized
- Expansion from 17 to 25 site to accelerate randomization
- Randomization expected to complete mid-2024
- BLA filing in 2025

ConfIdeS sites cover more than 20% of total transplantation volumes in the U.S[1]



[1]Organ Procurement & Transplantation Network, OPTN (2023)

Commercial partnership with NewBridge Pharmaceuticals expands market to Middle East & North Africa (MENA)

The MENA region will be the third region outside Europe where Idefirix is commercialized aimed at enabling kidney transplantation in highly sensitized kidney transplant patients

GCC Transplantation Key Facts

~1,500 kidney transplantations in 2022[1]

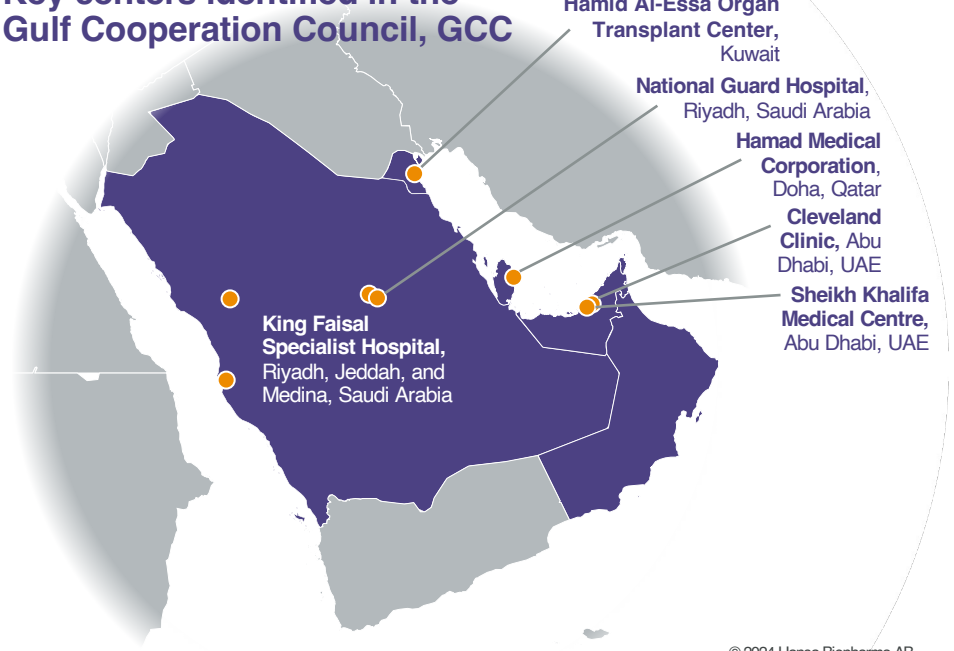
It's estimated that 10-15% of patients waiting for a kidney offer are highly sensitized[2,3]

19% / 81% deceased vs living transplantations[1]

NewBridge Pharmaceuticals, HQ in Dubai, UAE

- A regional specialty company with a comprehensive pharmaceutical platform of services and expertise
- Established to in-license and commercialize U.S. FDA or EMA approved innovative therapeutics that address unmet medical needs the MENA regions

Key centers identified in the Gulf Cooperation Council, GCC



1. Transplant Observatory (2023), https://www.transplant-observatory.org/export-database/
2. EDQM. (2020). International figures on donation and Transplantation 2019
3. SRTR Database and individual assessments of allocation systems

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Advancing HNSA 5487 – a high potential next-gen enzyme for repeat dosing

HNSA-5487

- Engineered for lower immunogenicity
- Short and long-term interval dosing
- Broad range of indications (prolonged or intermittent IgG-free window)

Broaden the IgG free window

Rapidly cleaves IgG and could potentially create a longer IgG-low period

Address unmet need in autoimmune disease

Powerful 5487 IgG cleaving in combination with humoral inhibitor could result in greater control of disease in variety of autoimmune diseases

Enable re-dosing in gene therapy

Could provide solutions to enable re-dosing in AAV gene therapy and prolonged dosing of oncolytic viruses

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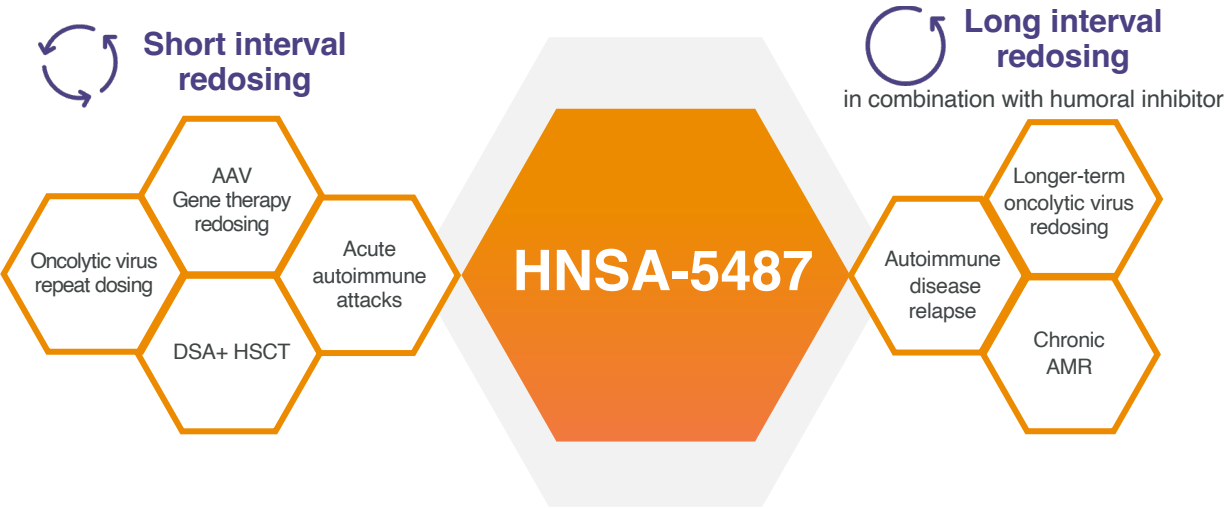
Potential indication landscape for HNSA-5487 and reasons to believe



First in Human Study Results

- ✓ Administration was safe and well tolerated
- ✓ PD showed a fast and complete cleavage of IgG to F(ab')$_2$ and Fc-fragments with ascending doses; PK in line with expectations
- ✓ Further analysis around endpoints and immunogenicity to be completed in 2024 incl. selection of lead indication

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Strong momentum across the pipeline in areas of high unmet need

Phase 1

HNSA-5487 (Lead from NiceR)

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

Pre-treatment Gene Therapy Duchenne

- Study site activated in Dec'23
- Dosing of first patient imminent

Phase 2

Antibody Mediated Rejection (AMR)

- Primary endpoint met
- Plans to publish in peer-reviewed journal

Guillain-Barré syndrome (GBS)

- Positive high-level data
- Further analysis in 2024 to contextualize efficacy data

ANCA-associated vasculitis

- 10 to be enrolled
- 1/3 into completion

Phase 3

US ConfIdeS Study in kidney

- 104 patients enrolled;
- 40 of 64 patients randomized
- Randomization to complete mid'24

Post Approval Study in kidney

- 50 patients to be enrolled
- 56% into completion
- Study to complete by 2025

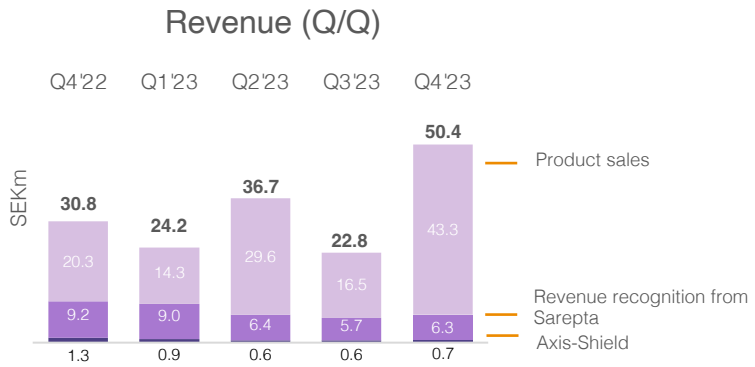
Anti-GBM disease

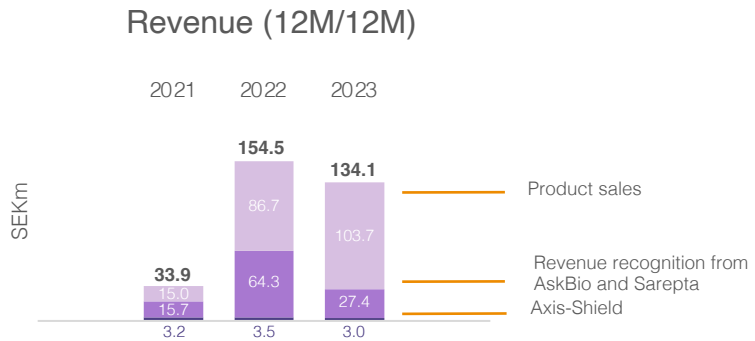
- 50 patients to be enrolled
- 36% into completion
- Complete enrollment in 2025

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

Strong revenue generation in Q4 2023, including SEK 43m in Idefirix product sales

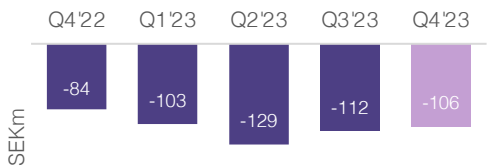
Product sales improved +113% vs Q4 2022 and +163% vs Q3 2023; Growth driven by uptake in U.K., Spain, Germany



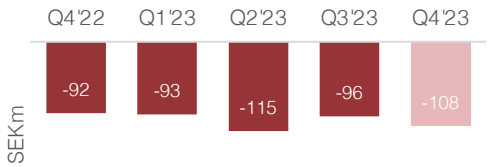


Continued investments in commercialization and R&D activities

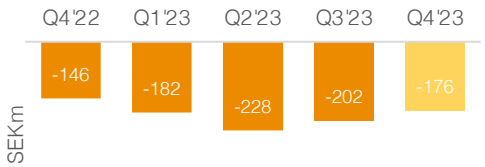
SG&A expenses (Q/Q)



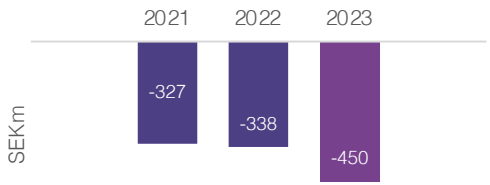
R&D expenses (Q/Q)



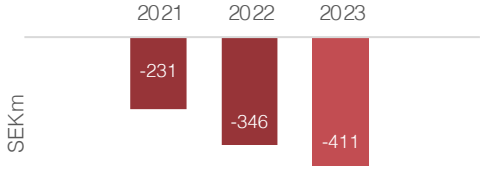
Operating loss (Q/Q)



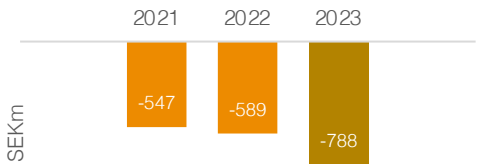
SG&A expenses (12M/12M)



R&D expenses (12M/12M)

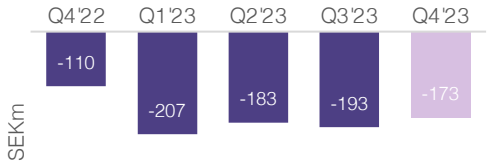


Operating loss (12M/12M)

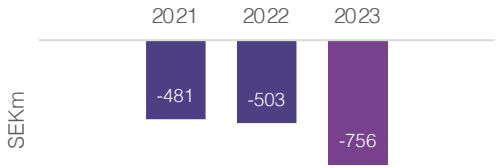


With current cash position and projected burn-rate, Hansa's operations are financed into 2025

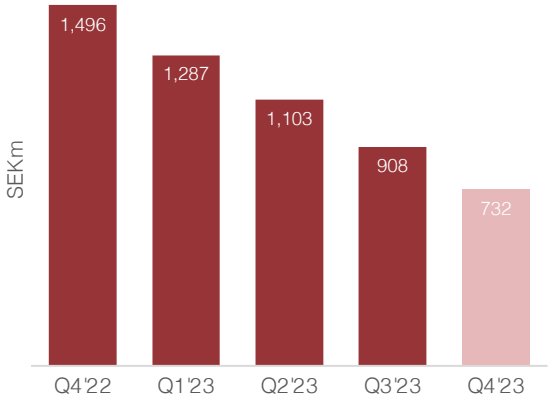
Operating cash flow (Q/Q)



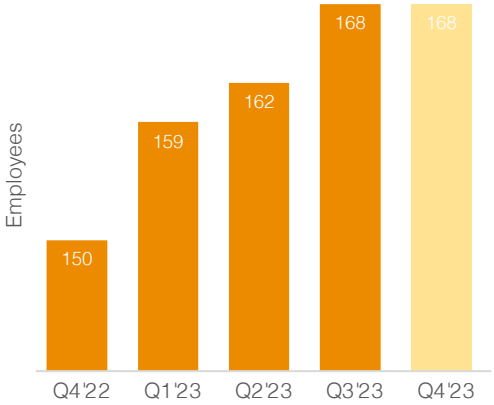
Operating cash flow (12M/12M)



Cash & short-term investments (Q/Q)



Number of employees (Q/Q)



2023 achievements and upcoming milestones 2024/25

2023

Q4 2023

- **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

2024

- **GBS Phase 2:** Outcome of comparative efficacy analysis
- **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
- **Sarepta imlifidase in phase 1b in DMD:** First high level data read-out from phase 1b

2025

- **U.S. ConfIdeS (Kidney tx) Phase 3:** BLA submission
- **Anti-GBM disease Phase 3:** Complete enrolment

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Company overview

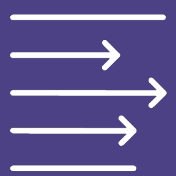
HANSA BIOPHARMA

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 14 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
- Ongoing 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 (168 employees Dec'23)
- Operations in both EU and the US

Financial position

- Hansa is financed into 2025
- Market cap (USD): ~185m (Feb. 2023)
- Listed on Nasdaq Stockholm
- 20,000 shareholders
- Foreign ownership make up ~43%

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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

* European Economic Area incl EU plus Iceland, Liechtenstein and Norway

Stock images

Hansa Biopharma's history

2007

IPO October 2007 39 SEKm valuation

Pre-clinical proof-of-concept established

2013

Imlifidase GMP process development and toxicology studies initiated

2. Clinical development

After the first-in-man study in **2013**, Hansa has completed four Ph. II studies since **2014**. Additionally Hansa has ongoing and completed trials in anti-GBM disease, AMR, GBS and ANCA-associated vasculitis. In **2019** a MAA was submitted for imlifidase in kidney transplantation.

2020

Hansa Biopharma enters the gene therapy space through partnership agreement with Sarepta Therapeutics to develop imlifidase as a pre-treatment to enable gene therapy in NAb+ patients

2021

The EU Commission grants conditional approval for Idefirix® in highly sensitized kidney transplant patients in Europe

2022

Market access secured in 13 countries

2023

Provisional approval received in Australia; Marks first time Idefirix has been approved in both living and deceased donors

Discovery, proof of concept and pre-clinical research | Clinical development | Commercialization

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.

First Ph. II study of imlifidase in kidney transplantation

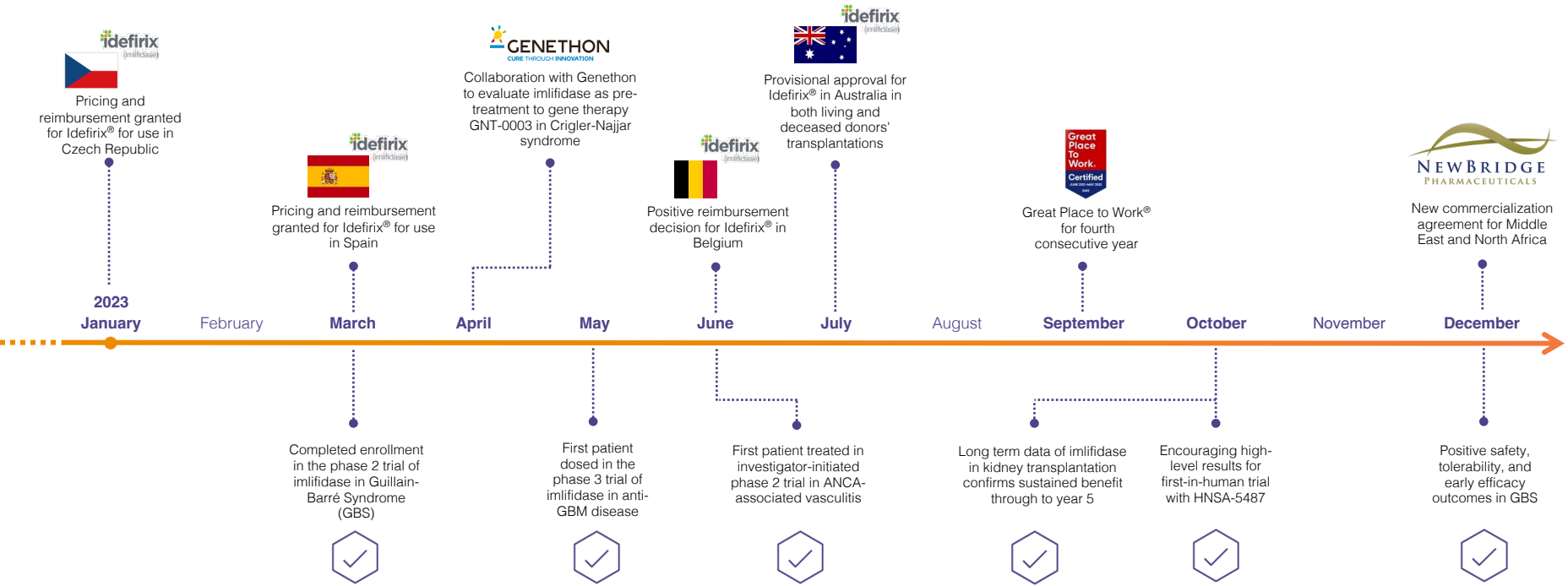
Starts trading on NASDAQ Stockholm main board

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.

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

Key milestones achieved during the last 12 months

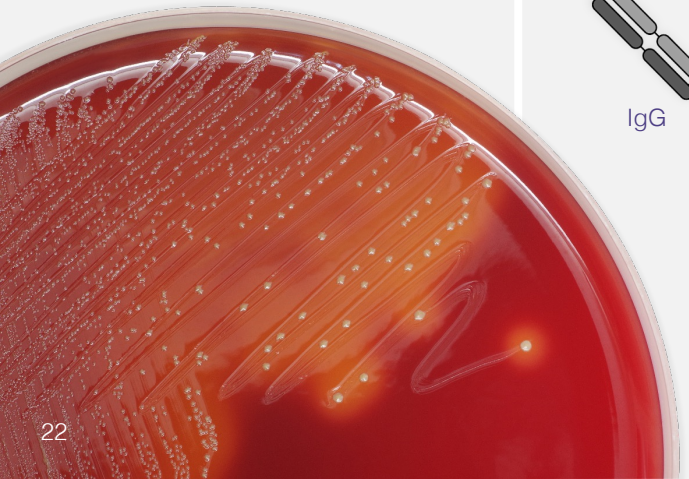


Imlifidase

a novel approach to eliminate pathogenic IgG

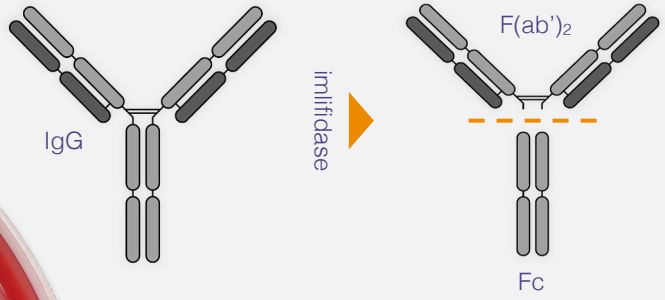
Origins from a bacteria *Streptococcus pyogenes*

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



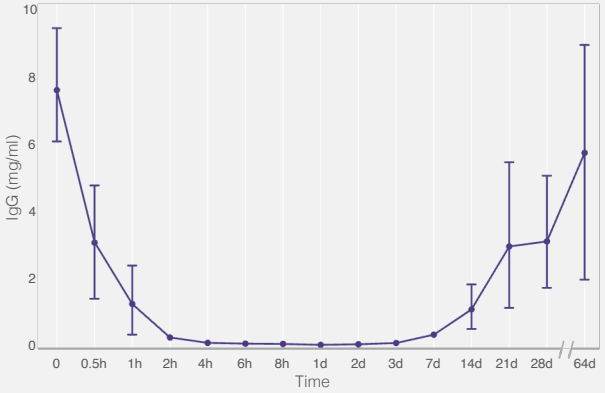
A unique IgG antibody-cleaving enzyme

- 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



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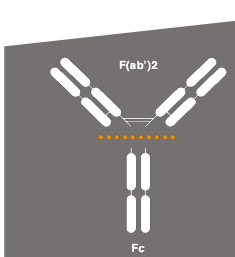
Our Business model

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

Growth engine

Leveraging our proprietary antibody cleaving enzyme technology



Value chain

We are controlling the full value chain

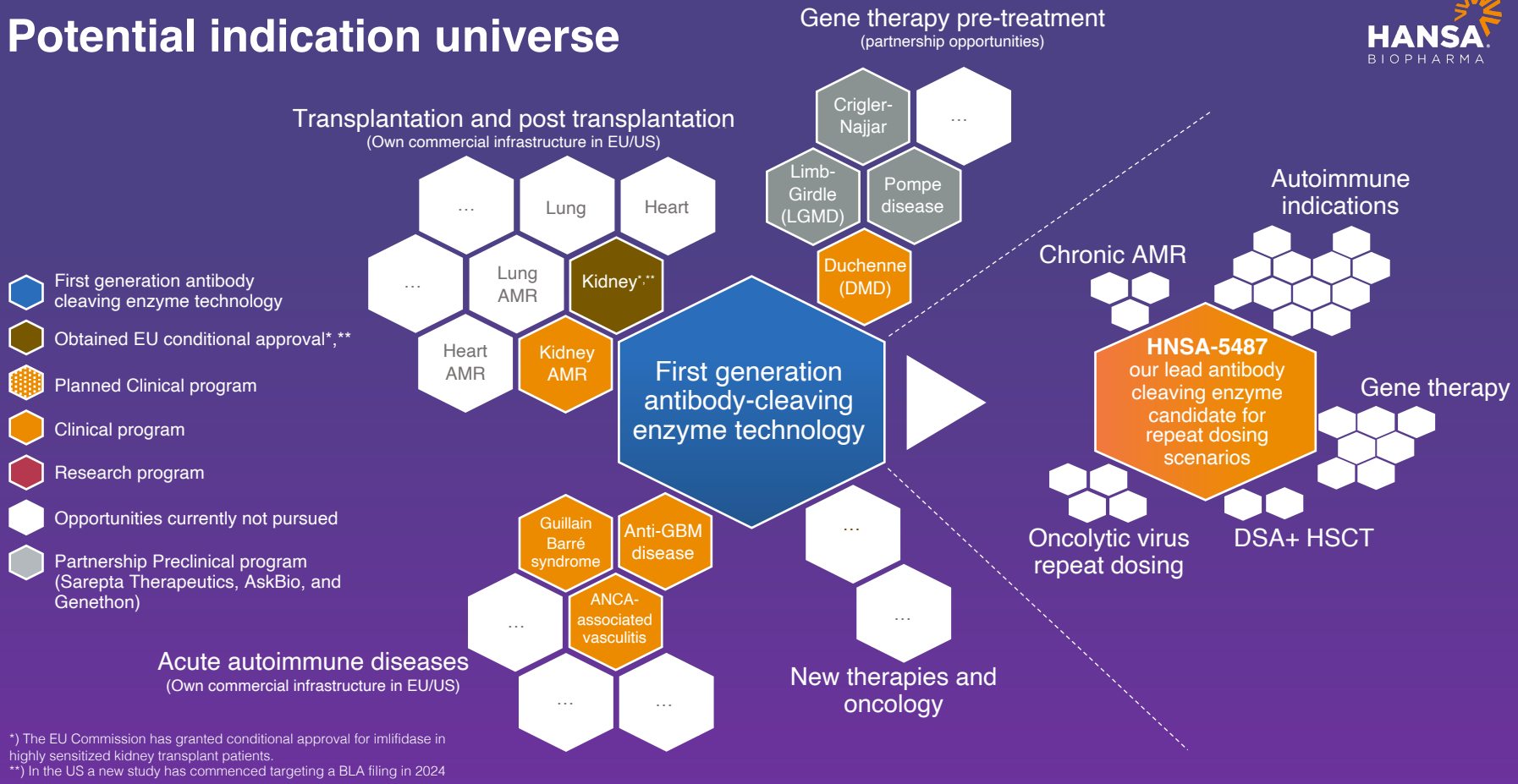
- Drug discovery
- Drug development
- Supply Operations
- Distribution

Commercialization

Build-up of franchises	Indications and therapies	Multiple income streams
Own commercial infrastructure	Transplantation	Revenue / sales
	Autoimmune diseases	Upfront payments
Partnership strategy	Gene therapy	Milestone payments
	Oncology	Royalties

Evolution into a fully integrated biopharmaceutical company

Potential indication universe



*) 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

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Key strategic priorities

Commercialize Idefirix® in first indication and markets

1

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

Advance our ongoing clinical programs

2

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

Expand our IgG-cleaving enzyme technology

3

- Expand our IgG-cleaving enzyme technology platform into gene therapy
- Develop our next gen IgG-cleaving enzymes for repeat usage

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: 50,347

Hitto Kaufmann

CSO (2023)

+20 years in R&D

Ex-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: 15,076

Achim Kaufhold

SVP & CMO (2020)

+40 years in the Healthcare sector

Ex-CMO Basilea Pharmaceutica

Ex-CEO Affitech (merged with Pharmexa A/S)

Ex-CMO Chiron (acquired by Novartis)

Shareholding: 8,800

Matthew Shaulis

CCO & US President (2023)

+20 years in the Healthcare sector

Ex-SVP Global Commerical 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: 7,273

Board of Directors

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. Addlife, Bufab, Irras, Xbrane

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)

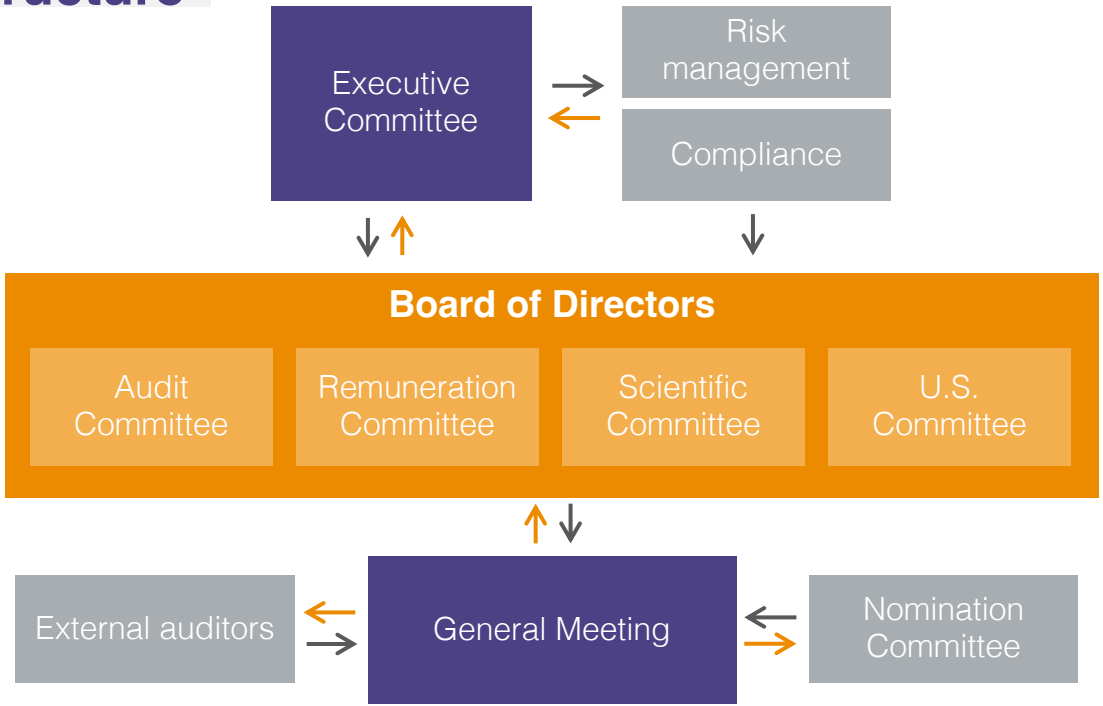
Ex- SVP at H. Lundbeck A/S

Ex-VP Wyeth/Pfizer in the U.S.

Member of Hansa Biopharma's Audit Committee and Renumeration Committee

Shareholding: 5,500

Hansa Biopharma's Governance Structure



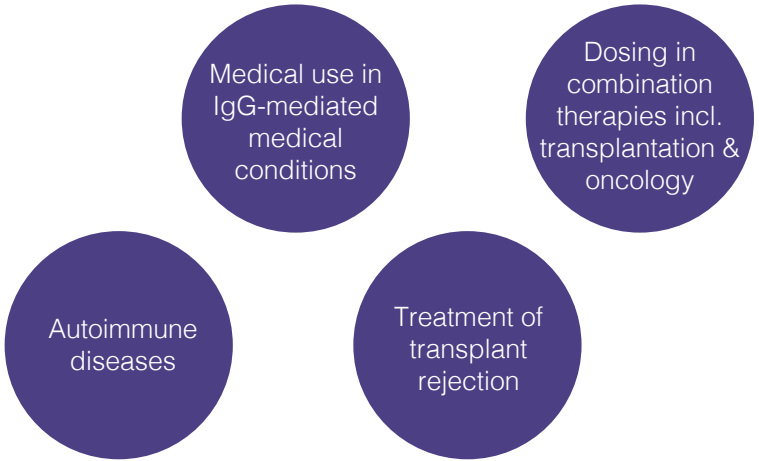
Electing / Appointing

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 imlifidase
- Patents cover use of 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

	Orphan drug designation & marketing authorization	Orphan drug designations
EMA/EC	ODD for the prevention of graft rejection following solid organ transplantation. Conditional marketing authorization for imlifidase was granted in 2020[1].	
	Orphan drug designation	
	Imlifidase for the treatment of the rare and acute disease anti-GBM (2018)	
FDA		Imlifidase for the prevention of antibody-mediated organ rejection in solid organ transplantation (2015)
		Imlifidase for the treatment of Guillain-Barré Syndrome (2018)
		Imlifidase for the treatment of the rare and acute disease anti-GBM (2018)

[1]Idefirix is indicated for desensitisation treatment of highly sensitised adult kidney transplant patients with positive crossmatch against an available deceased donor. The use of Idefirix should be reserved for patients unlikely to be transplanted under the available kidney allocation system including prioritisation programmes for highly sensitised patients.

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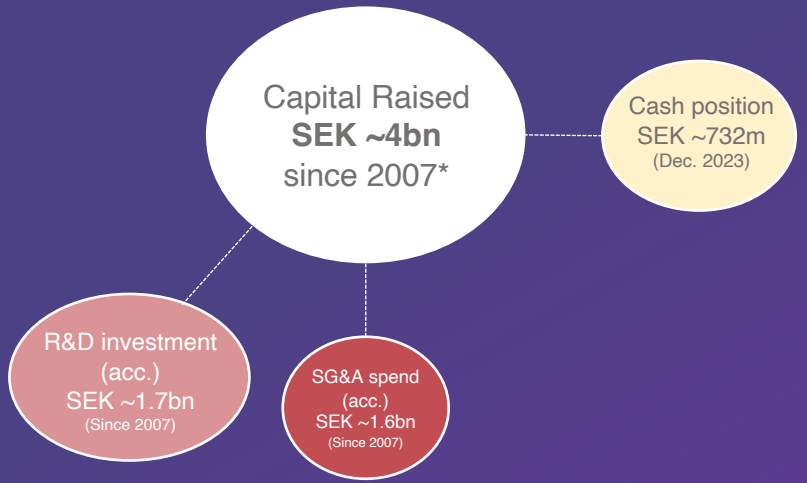
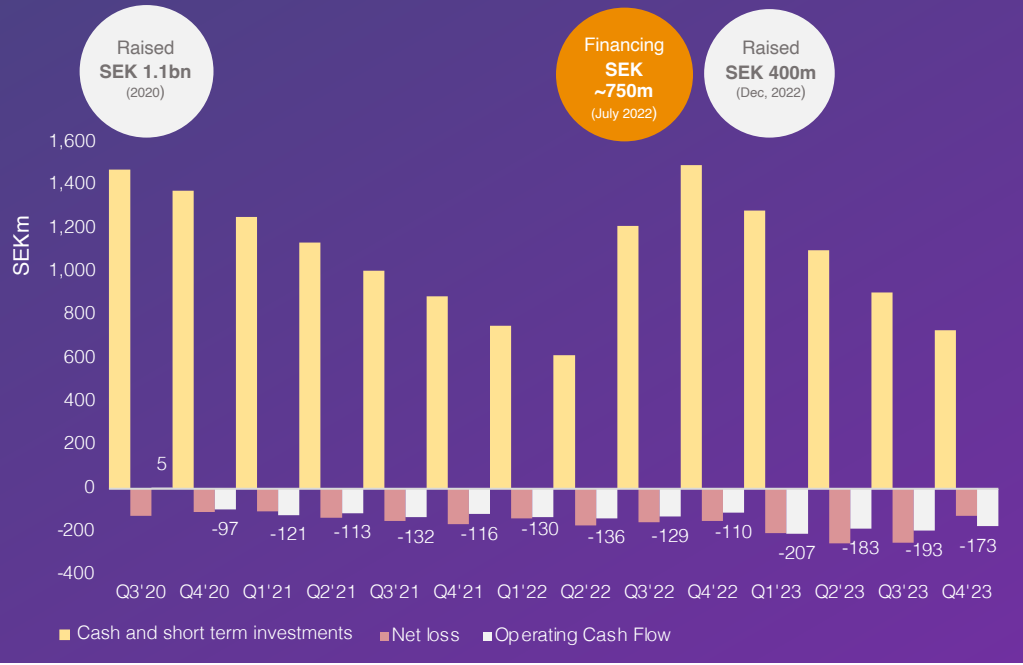
Hansa Biopharma is financed into 2025

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





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

HANSA BIOPHARMA

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:

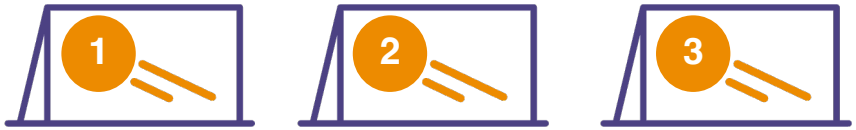
SEK ~732m
(USD ~72m)
in cash and short-term investments post recent financing

- 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 enrollment in our ConfIdeS study
- Advance our R&D pipeline through achieve approval/usage of imlifidase in follow-on indications and broaden the Idefirix label beyond kidney transplantation
- Advance our next generation enzymes (HNSA-5487) in the clinical as well as our initiatives in our other indications such as gene therapy and oncology
- Fund working capital and general corporate purposes

HANSA BIOPHARMA

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

Near-to-Midterm — Mid-to-Longer term

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

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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 Idefirix® 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

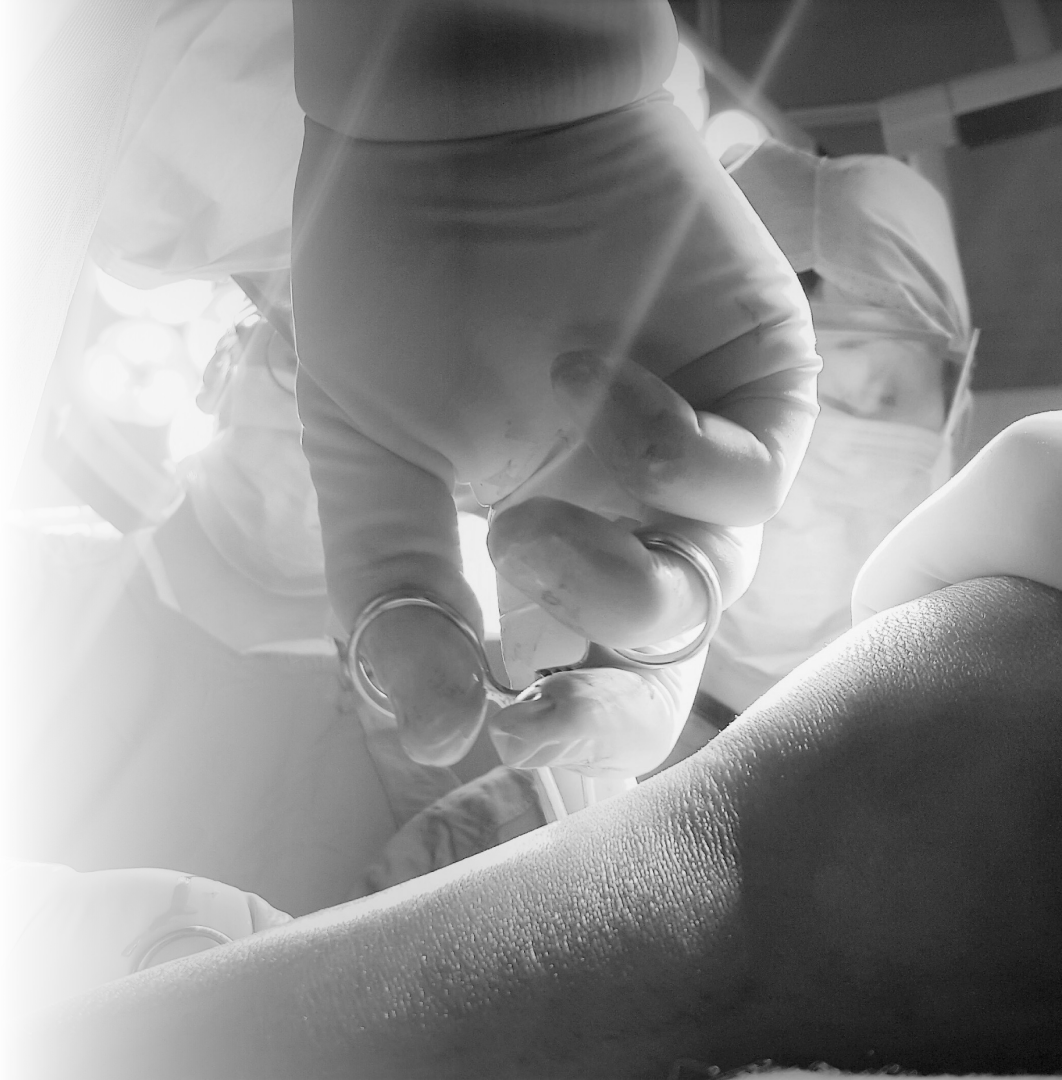
Idefirix® approved in EU under conditional approval for kidney transplantation

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

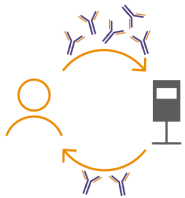


HANSA BIOPHARMA

The long-term market uptake of Idefirix 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

PLEX



Plasmapheresis immunoadsorption
Mechanically removes antibodies from circulation

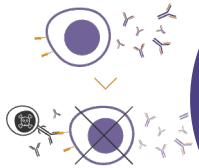
1950s

IVIg

immunoglobulins
IVIg/SCIg contains healthy antibodies that replaces pathogenic antibodies

1980s

B-cells



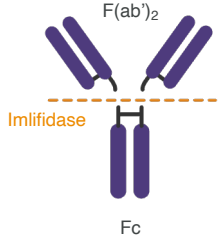
B-cell depleting mAbs
Lowering antibody levels through B-cell elimination

1990s

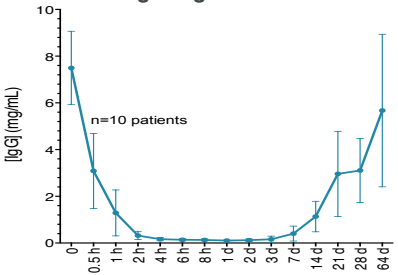
..with Idefirix we are changing the entire ecosystem in transplantation

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

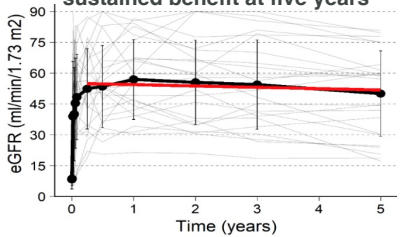
Idefirix antibody-cleaving enzyme



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



Long term data confirms sustained benefit at five years



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

Inability to match or effectively desensitize patients remains a barrier for transplantation in highly sensitized patients.
Between 80,000 and 100,000 kidney transplant patients are waiting for a new kidney in both Europe and the U.S.

Low complexity transplants ← Calculated Panel Reactive Antibodies (cPRA) is a measure for HLA-sensitization → High complexity transplants

~70% of patients[1,2]	15-20% of patients[1,2]	10-15% of patients[1,2]
Non or less sensitized (cPRA < 20%)	Moderately sensitized (20% < cPRA < 80%)	Highly sensitized (cPRA > 80%)

Causes of sensitization include

Pregnancy

Blood transfusion

Previous transplantations

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

idefirix® imlifidase

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

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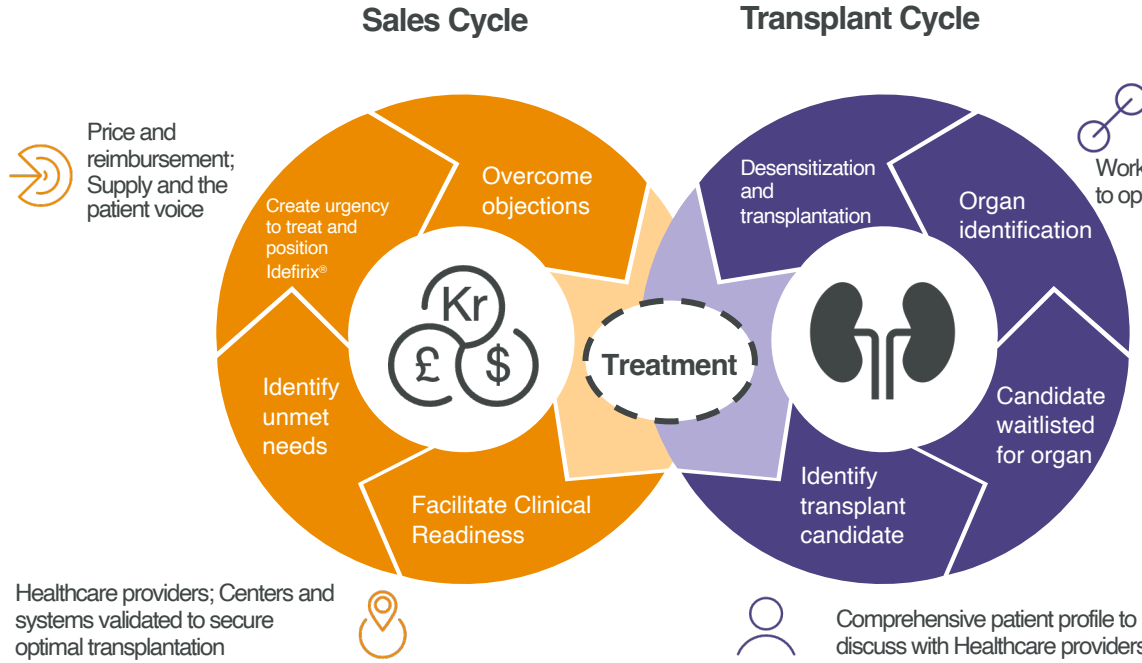
The unique market position of Idefirix® requires consideration of both the sales- and the transplant cycle

Sales and transplant cycle adds complexity and time to patient treatment

Excellence revolves around four strategic themes

- **Market Access**
- **Clinical readiness**
- **Organ allocation**
- **Patient selection and treatment**



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Encouraging patient outcome in new markets following imlifidase-enabled kidney transplantations

Austin HEALTH

First living donor transplantation in Australia enabled by imlifidase was carried out in a 64-year-old highly sensitized male patient (cPRA 99.8)

The patient had been waitlisted for more than 4 years and received two incompatible kidney offers previously

Link article in The Age from November 5, 2023

MEDIZINISCHE UNIVERSITÄT WIEN

51-year-old highly sensitized male patient transplanted at the University Hospital Vienna following graft loss 20 years after receiving a kidney from his father

The patient had been on dialysis for four years with deteriorating kidney function

Link article in Medical University of Vienna News from August 8, 2023

43-year-old highly sensitized female kidney transplant patient was transplanted at University Hospital of Padua after being on dialysis for almost 14 years and experiencing one graft loss

This transplantation was the first imlifidase-enabled kidney transplantation in Italy

Link article Veneto.it from December 14, 2022

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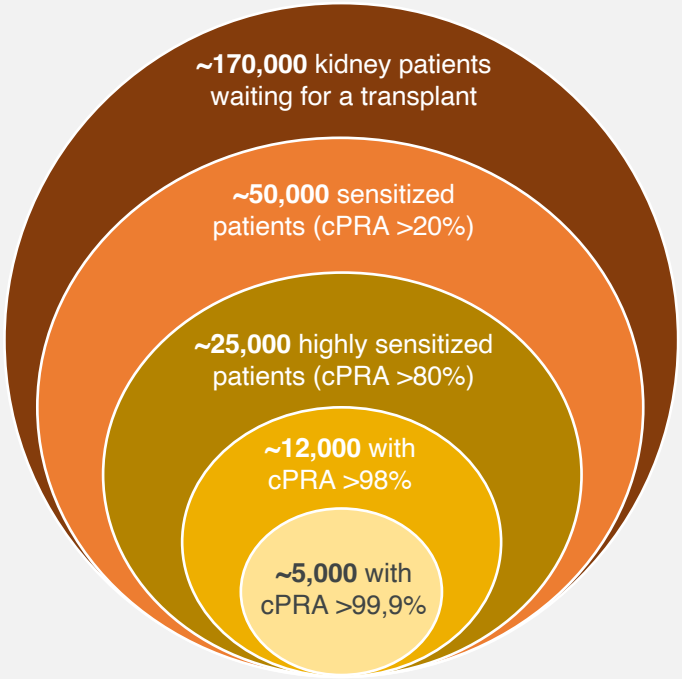
Only 1 in 4 patients are offered access to a lifesaving transplantation

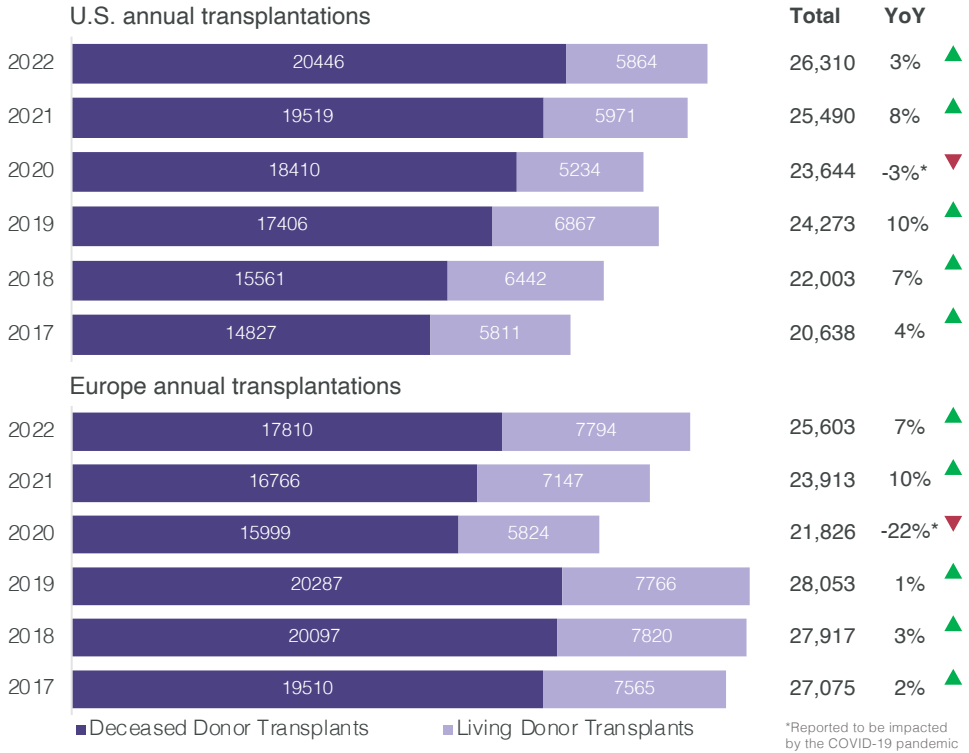
Up to 15% of patients are highly sensitized

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



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

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



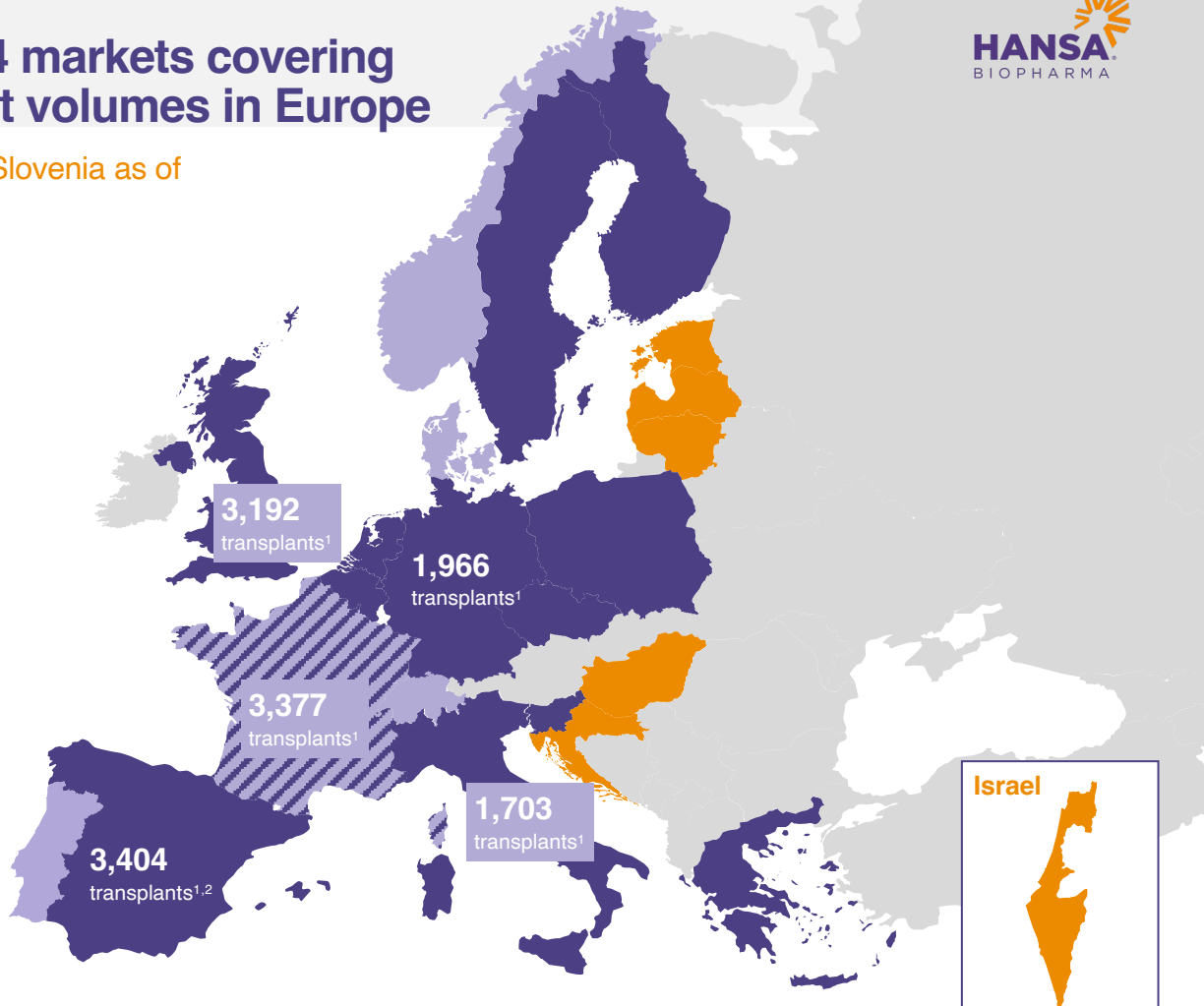
*Reported to be impacted by the COVID-19 pandemic

Source: Global Observatory on Donation and Transplantation (2023) and Company estimates

Market Access obtained in 14 markets covering markets with 3/4 of transplant volumes in Europe

Positive reimbursement decision received in Slovenia as of February 1, 2024

- 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.transplant-observatory.org/ [Accessed 2023-07-10]

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

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

Key activity matrix

1 Build the foundation for Idefirix®

- ✓ 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

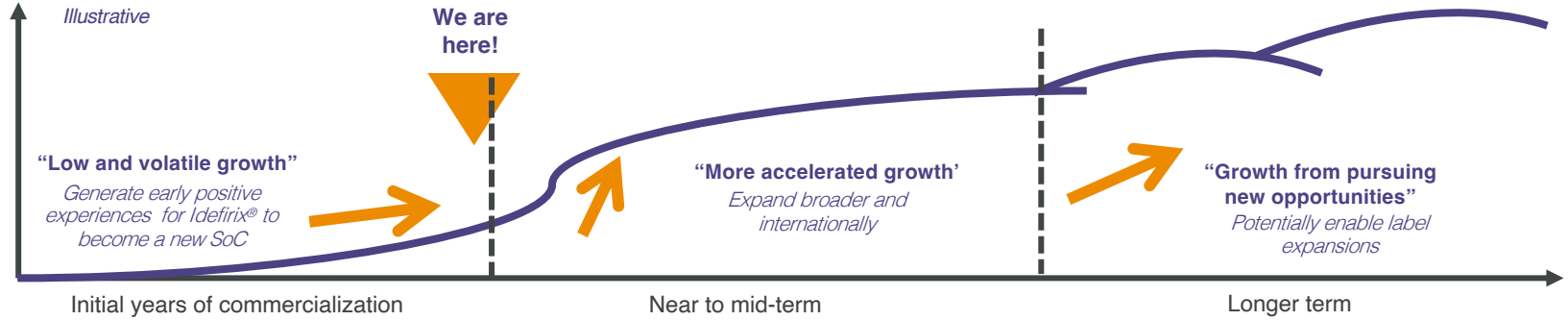
2 Expanding internationally

- Leverage experience to scale Idefirix 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

Commercial sales uptake



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

First patient treated in the new Eurotransplant Desensitization Program; Second wave of patients identified for treatment through the Program

Eurotransplant

Donor age <65

Acceptable Mismatch (AM) Program

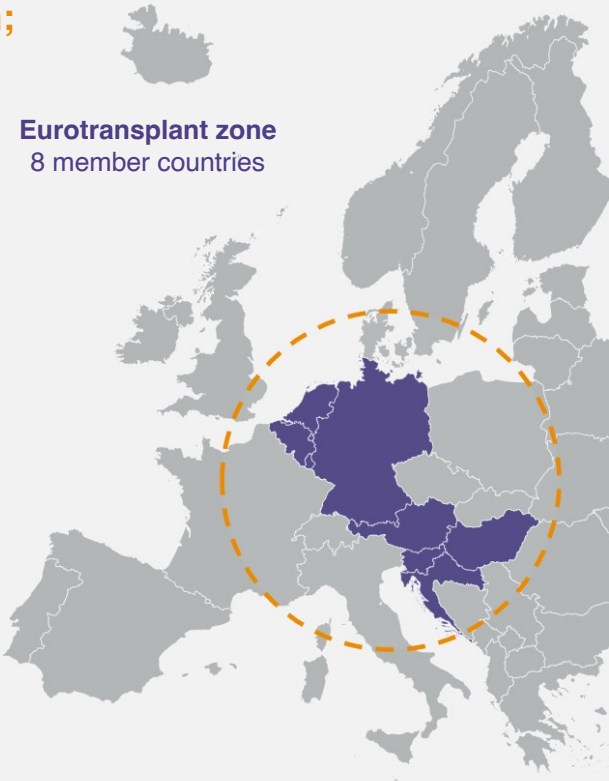
Eurotransplant Kidney Allocation System (ETKAS)

Incompatible patients

Desensitization Program
(imlifidase tier)

Inclusion Criteria:
2 years on ETKAS waitlist +
3 years in AM program

Pilot
idefirix
imlifidase
20 patients with the longest waiting time



Completed and ongoing studies in kidney transplantation

HANSA BIOPHARMA

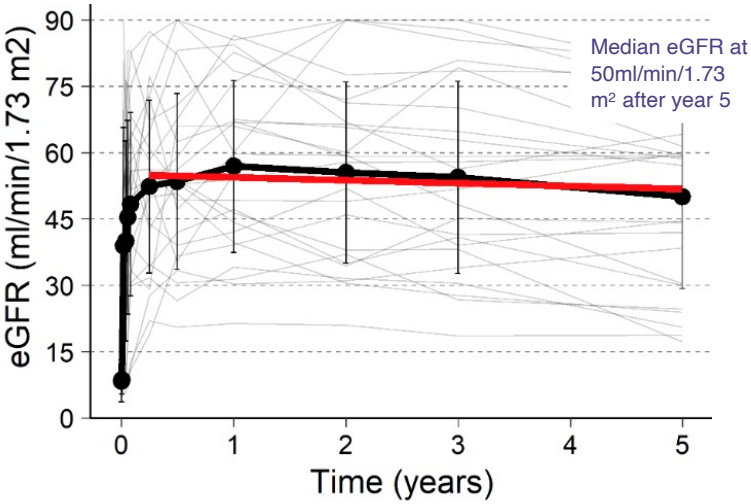
Long term data confirms sustained benefit at five years in graft survival and overall patient survival

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/m^2 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



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

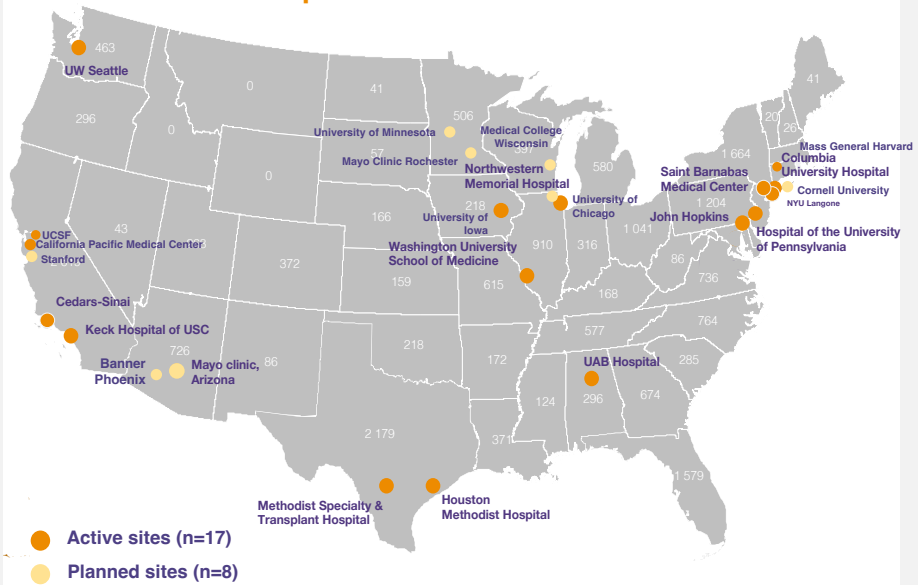
ConfIdeS phase 3 trial will further advance potential for imlifidase to address unmet need in desensitization

U.S. ConfIdeS

Phase 3

- Continue enrollment beyond 64 patients
- Currently 104 patients screened and enrolled
- 40 out of 64 targeted patients randomized
- Expansion from 17 to 25 site to accelerate randomization
- Randomization expected to complete mid-2024
- BLA filing in 2025

Involved ConfIdeS sites cover more than 20% of total transplantation volumes in the U.S[1]



[1]Organ Procurement & Transplantation Network, OPTN (2023)

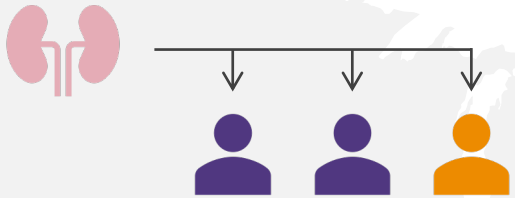
Imlifidase may complement the US Kidney Allocation System, as thousands of patients are still unlikely to find a match

Factors impacting the KAS score[1]
- 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

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

idefirix (imlifidase)

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

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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 ≥99.9% will be enrolled
- First patients enrolled at Columbia University, NYC
- 104 patients enrolled across 17 sites with 40 of targeted 64 patients randomized
- 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

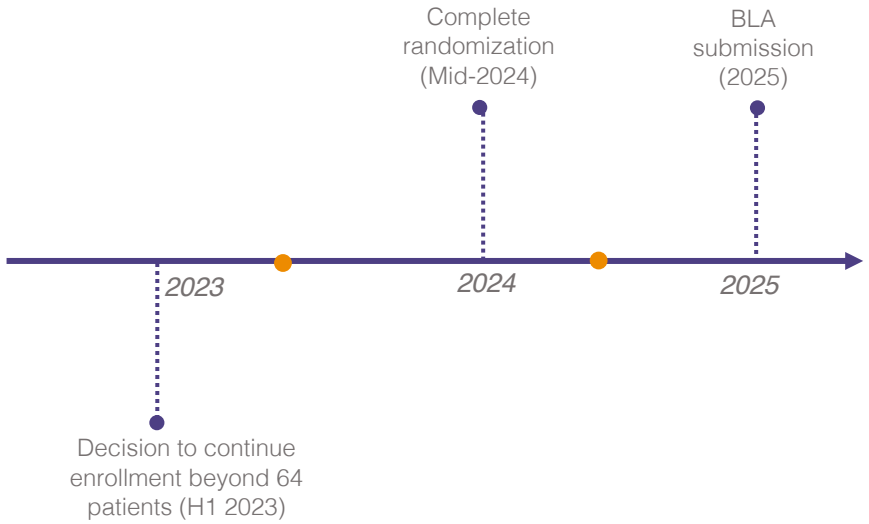
Secondary endpoint

- 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 ClincalTrials.gov

HANSA BIOPHARMA

Idefirix receives provisional approval in Australia

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

Transplant statistics

~15,200 patients suffer from ESRD and need dialysis

1,338 waitlisted for deceased donors in 2021

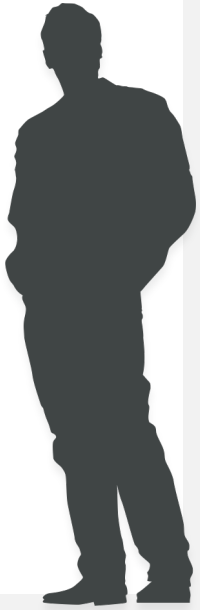
~21% of patients on waitlist have a cPRA score of 95 or higher

76/24 deceased vs living donor transplantations

First living donor transplantation

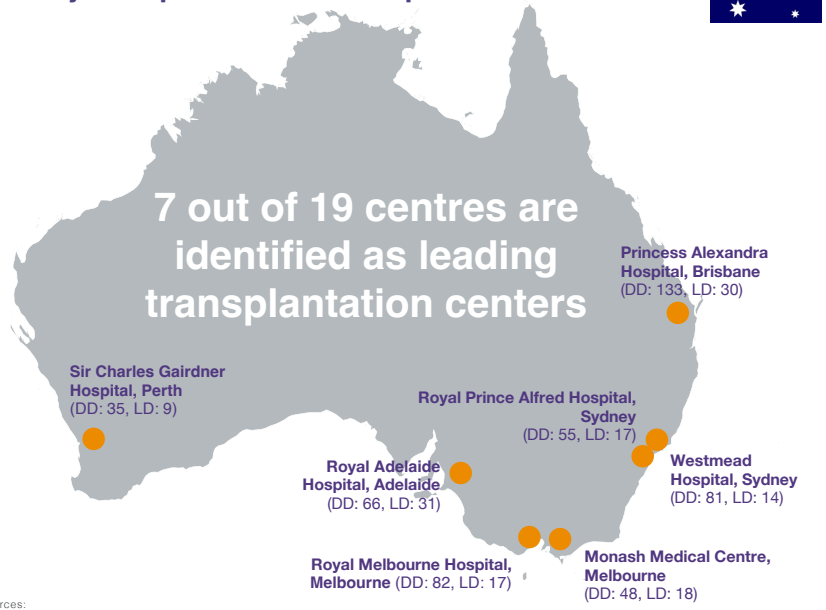
First living donor transplantation in Australia enabled by imlifidase was carried out in a 64-year-old highly sensitized male patient (cPRA >99.8)

The patient had been waitlisted for more than 4 years and received two kidney offers previously



Link article in The Age from November 5, 2023

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/

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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 ~56% into completion end of Q4'23
- 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

The 01 study results

Data showed complete removal of IgG and a good tolerability profile

Study 01
Phase 1

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 OBJECTTIVES

- 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

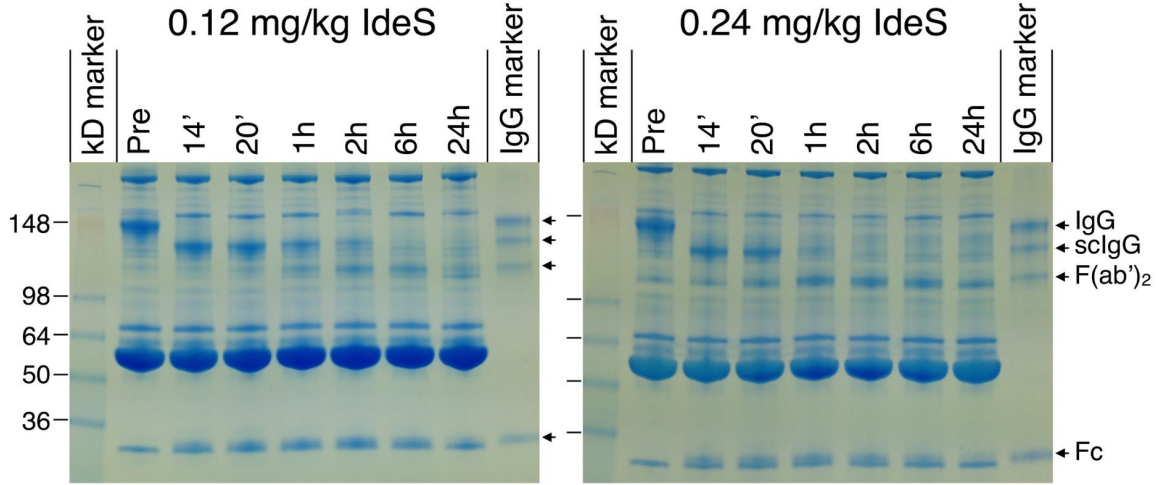
- The 01 study showed that Imlifidase was considered safe to use

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



Winstedt el al., PLOS ONE 2015, 10(7)

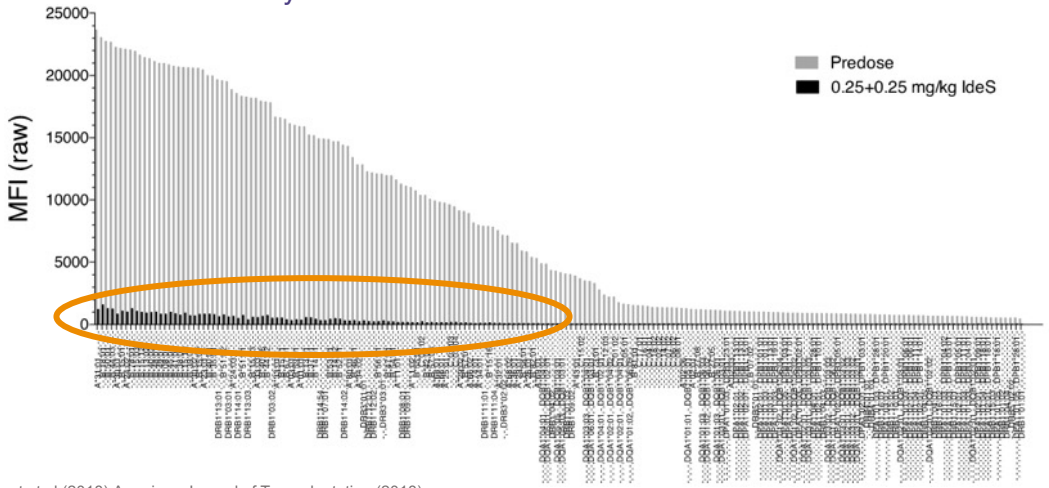
Study 02
Phase 2

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 transplantation[1]

- ✓ 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)

CLINICALTRIALS.GOV ID

NCT02224820

SUBJECTS

8 Patients with chronic kidney disease (Sweden)

DOSES/FOLLOW UP TIME

0.12 & 0.25 mg/kg BW given once or twice within 48 hours

MAIN OBJECTTIVES

- Efficacy defined as Imlifidase dosing scheme resulting in HLA antibody levels acceptable for transplantation, within 24 hours from dosing
- Safety

STUDY DESIGN

- Single-center, Single arm with ascending doses, open-label
- Transplantation not part of protocol

STATUS

Completed

- Primary efficacy endpoint reached
- Safe and well tolerated

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The 03 study proved safety and efficacy

HLA antibodies at acceptable levels; enabling transplantation in all patients

Study 03
Phase 2

CLINICALTRIALS.GOV ID

NCT02475551

SUBJECTS

10 Patients (Sweden)

DOSES/FOLLOW UP TIME

0.25 and 0.50 mg/kg during 180 days

MAIN OBJECTTIVES

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

STUDY DESIGN

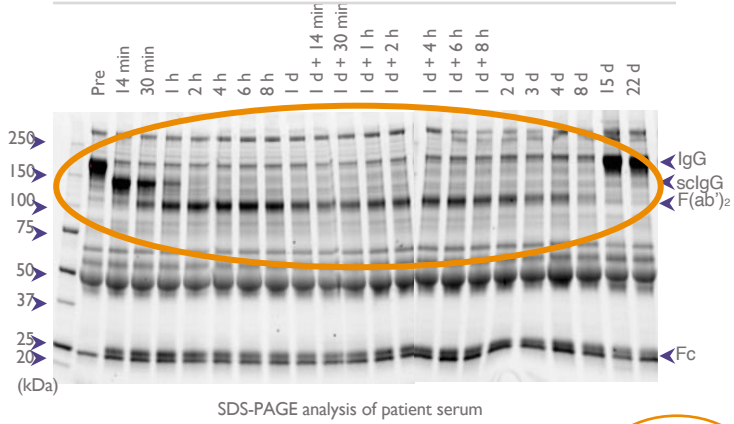
- Single-center, single-arm, open-label, no prior desensitization
- Similar design as 13-HMedIdeS-02 but transplantation part of protocol
- In deceased and living donors

STATUS

Completed

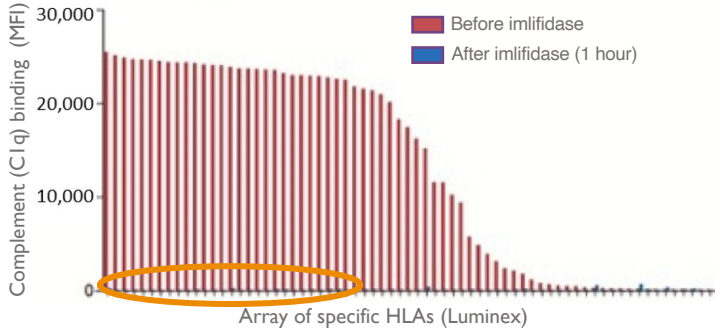
- Proofed safety and efficacy with HLA antibodies at acceptable levels; enabling transplantation in all patients

Analysis of IgG in patient serum before and after imlifidase treatment



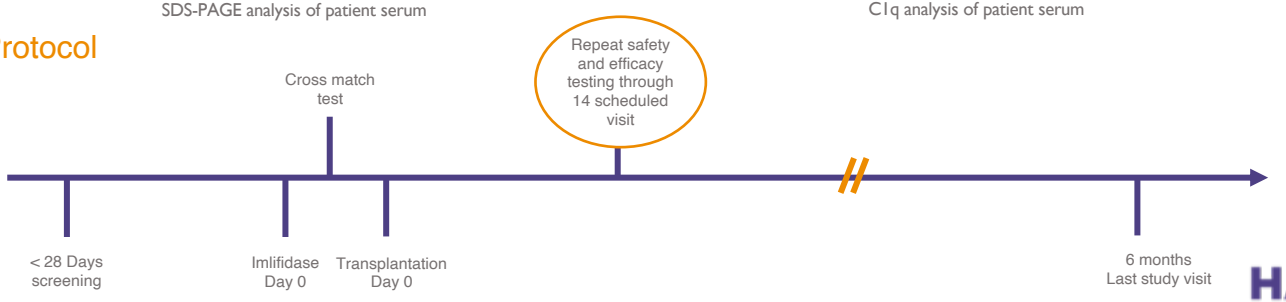
SDS-PAGE analysis of patient serum

Analysis of complement binding HLA antibodies before and after imlifidase



C1q analysis of patient serum

Protocol



Jordan SC, *et al.* (2017) NEJM Aug 3;377(5):442-453.

Study 04
Phase 2

The 04 study results

Study proved safety and efficacy with Cedar Sinai's standard protocol (rituximab and IVIg)

CLINICALTRIALS.GOV ID

NCT024226684

SUBJECTS

17 Patients (US)

DOSES/FOLLOW UP TIME

0.24 mg/kg 180 days

MAIN OBJECTTIVES

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

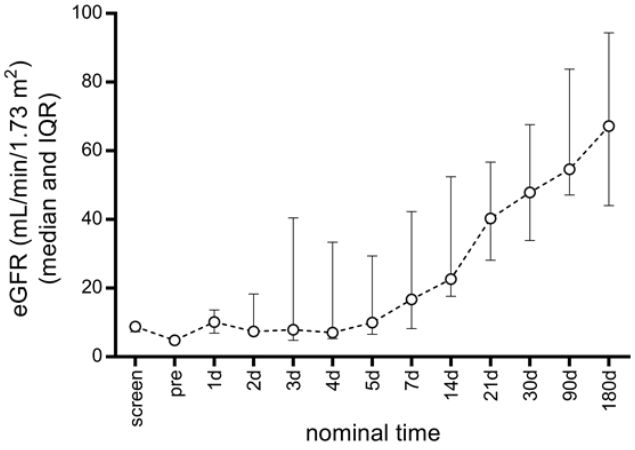
STUDY DESIGN

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

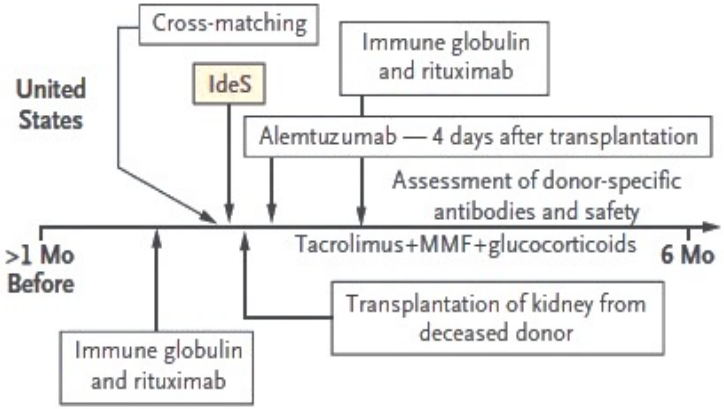
STATUS

Completed

Graft function (eGFR) post six months



Cedar's desensitization protocol in combination with imlifidase



Jordan SC, *et al.* (2017) NEJM Aug 3;377(5):442-453.
Huang E, *et al.,* (2019). Three-year outcomes of highly-sensitized kidney transplant recipient desensitized with imlifidase (IdeS). Abstract at ATC.

HANSA BIOPHARMA

The 06 study results

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

Study 06
Phase 2

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 OBJECTTIVES

- Efficacy in creating a negative crossmatch test

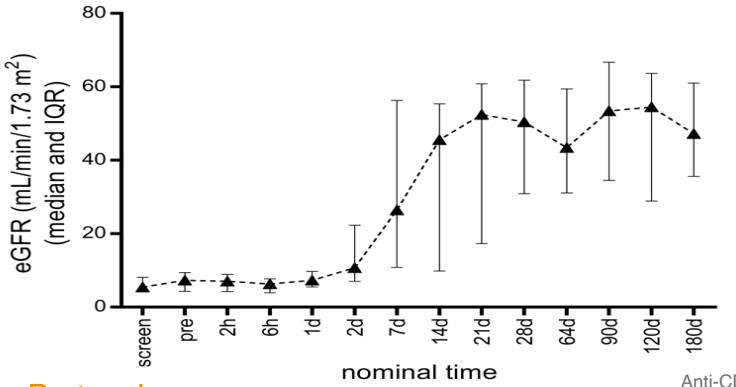
STUDY DESGIN

- 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

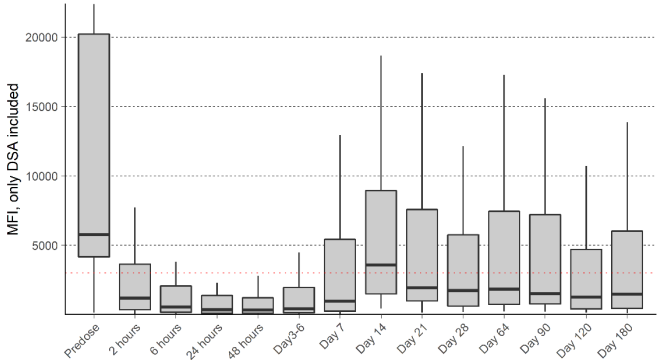
STATUS

Completed

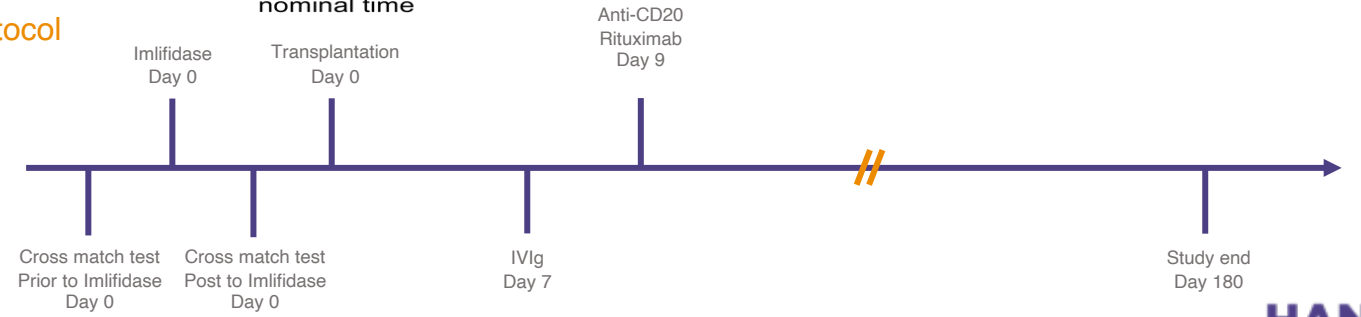
Graft function (eGFR) post imlifidase



DSA level pre-dose and post imlifidase



Protocol



Jordan SC, *et al.* (2019).
Results from the international phase II study on the safety and efficacy of imlifidase in highly-sensitized kidney transplant patients. Abstract presented at ATC.

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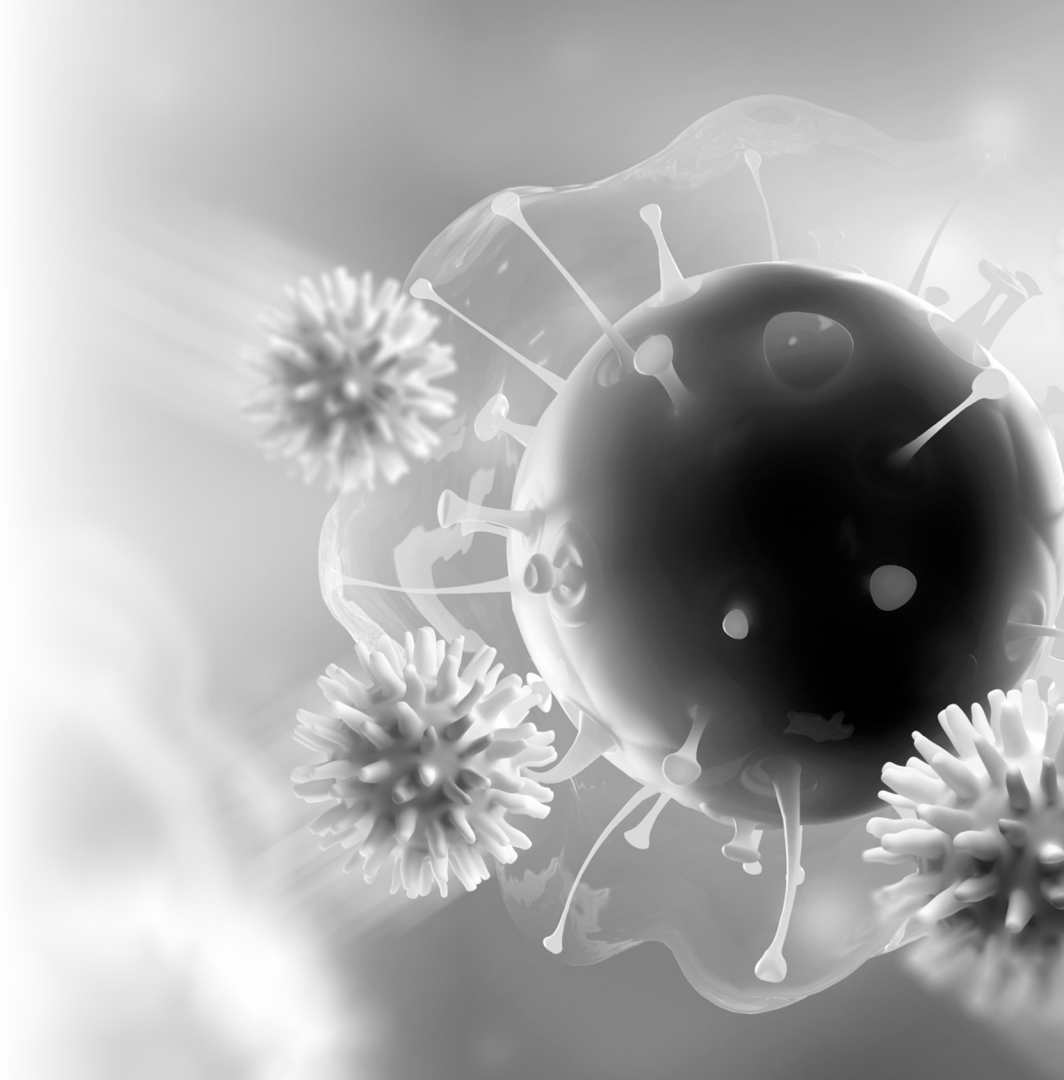
Completed studies with imlifidase in transplantation

STUDY	SUBJECTS/ COUNTRY	STUDY DESIGN	PRIMARY ENDPOINT	SECONDARY ENDPOINTS	STATUS/ PUBLICATION
Study 01 Phase 1	29 subjects	• Randomized placebo-controlled dose-escalation study with 29 (20 active plus 9 placebo) healthy subjects	• Safety and tolerability	• Efficacy in IgG cleavage, the pharmacokinetics (PK) and immunogenicity of imlifidase	**Complete** PLOS ONE (2015)[1]
Study 02 Phase 2	8 subjects	• Single-center, single-arm, open-label	• Dosing resulting in HLA-antibody reduction (MFI<1100)	• 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	• Single-center, single-arm, open-label • No prior desensitization	• Safety: AEs, clinical laboratory tests, vital signs, ECGs	• 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	• Investigator initiated study, Single-center, single-arm, open-label • All patients had prior desensitization with IVIG and/or plasmapheresis	• Assessment of efficacy in eliminating DSAs in DSA and flow cytometry positive, highly sensitized patients • Assessment of safety • Assessment of efficacy/kidney function	• 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 "Highdes" Phase 2	18 subjects	• 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	• Crossmatch conversion in DSA+ patients who have a positive XM test to their available LD or DD	• 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	• A prospective, observational long-term follow-up study of patients treated with imlifidase prior to kidney transplantation	• Long-term graft survival in patients who have undergone kidney transplantation after imlifidase administration	• 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



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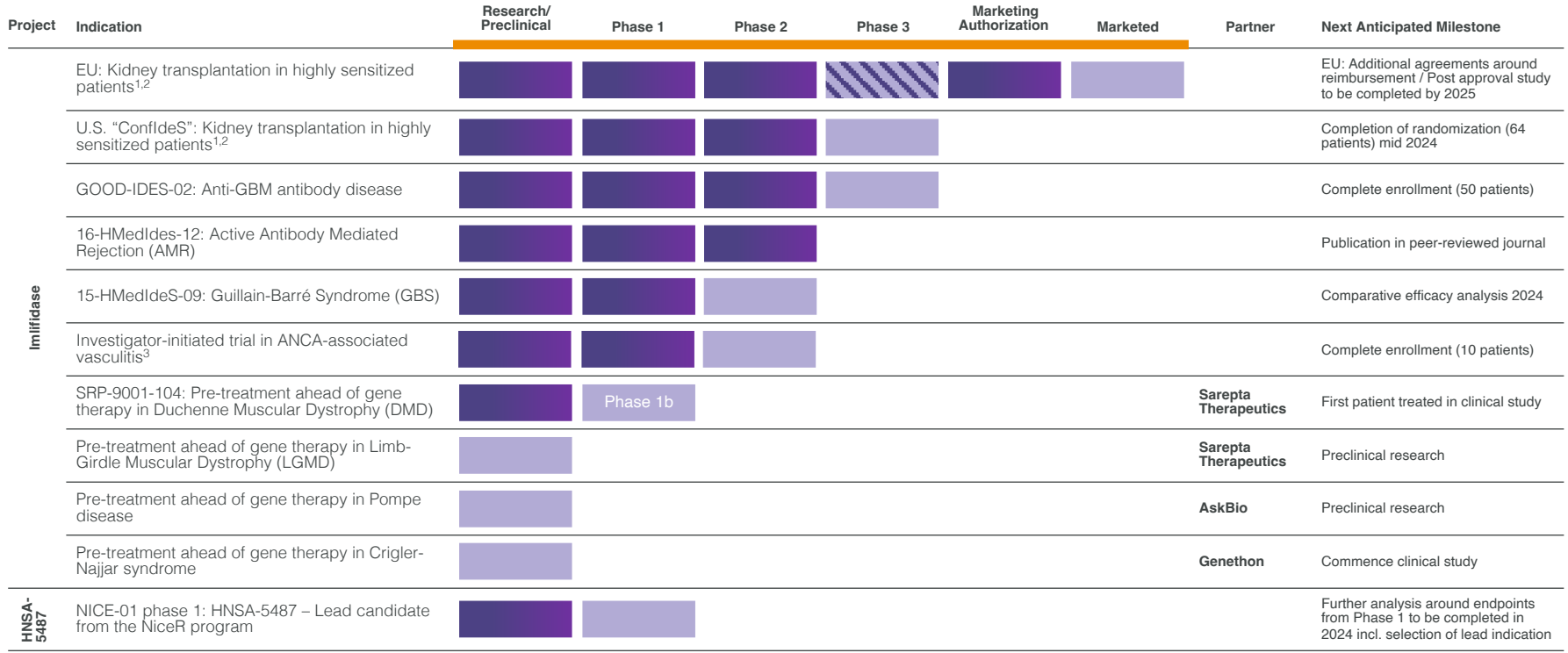
Broad clinical pipeline in transplantation, autoimmune diseases, and gene therapy

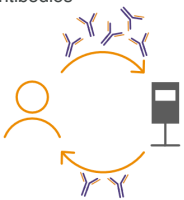


[1] Results from the Phase 1 study have been published, Winstedt et al. (2015) PLOS ONE 10(7)
[2] Lorant et al., American Journal of Transplantation and 03+04 studies (Jordan et al., New England Journal of Medicine)
[3] Investigator-initiated study by Dr. Adrian Schreiber and Dr. Philipp Enghard, at Charité Universitätsmedizin, Berlin, Germany

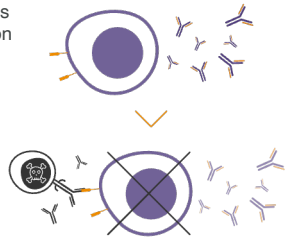
Development of IgG-modulating technologies

Mechanisms can be both complementary and competing

PLEX, plasmapheresis, immunoadsorption
Mechanically removes antibodies from circulation



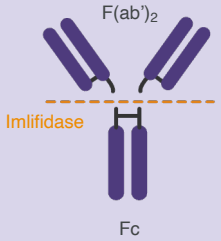
B-cell depleting mAbs
Lowering antibody levels through B-cell elimination



Imlifidase – IgG-cleaving enzyme

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

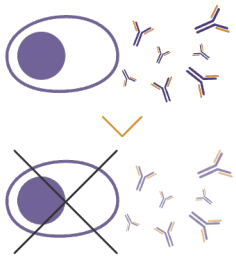
Unique mechanism-of-action is the basis for competitive advantage vs other IgG-modulating therapies



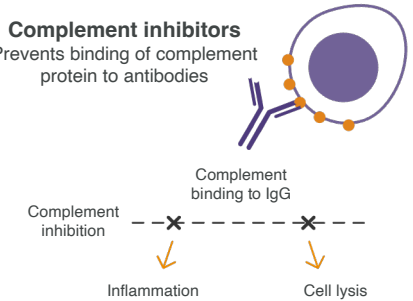
1950s | 1980s | 1990s | 2000s | 2010s | 2020s

IV/SC immunoglobulins
IVIg/SCIg contains healthy antibodies that replaces pathogenic antibodies

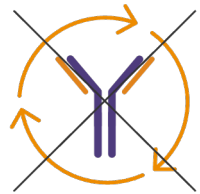
Proteasome inhibitors
Depletes antibody producing long-lived plasma cells and lowers overall immunoglobulin levels



Complement inhibitors
Prevents binding of complement protein to antibodies



FcRn-inhibitors
Lowering IgG through blocking of antibody recycling



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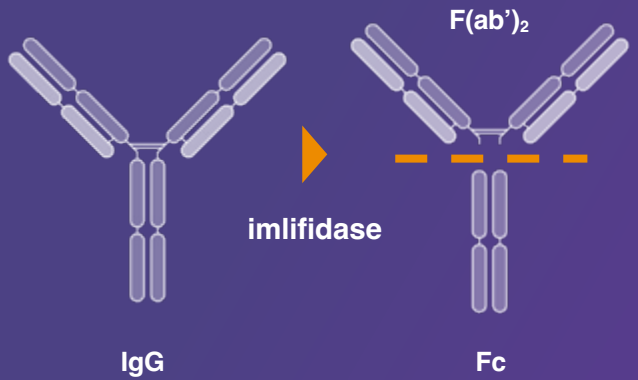
Imlifidase mode of action

Novel approach to effectively eliminate pathogenic IgG

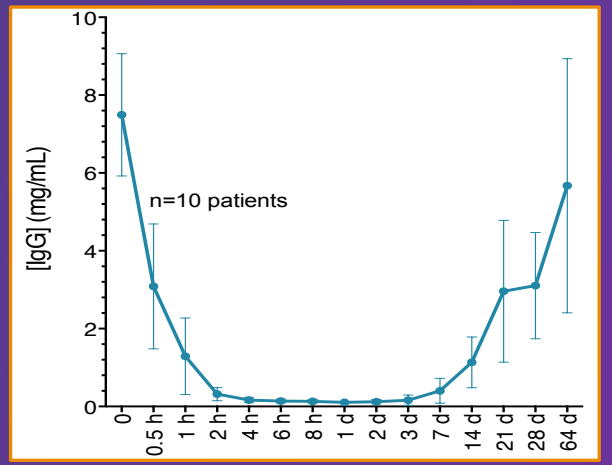
Proven mechanism of action

- 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

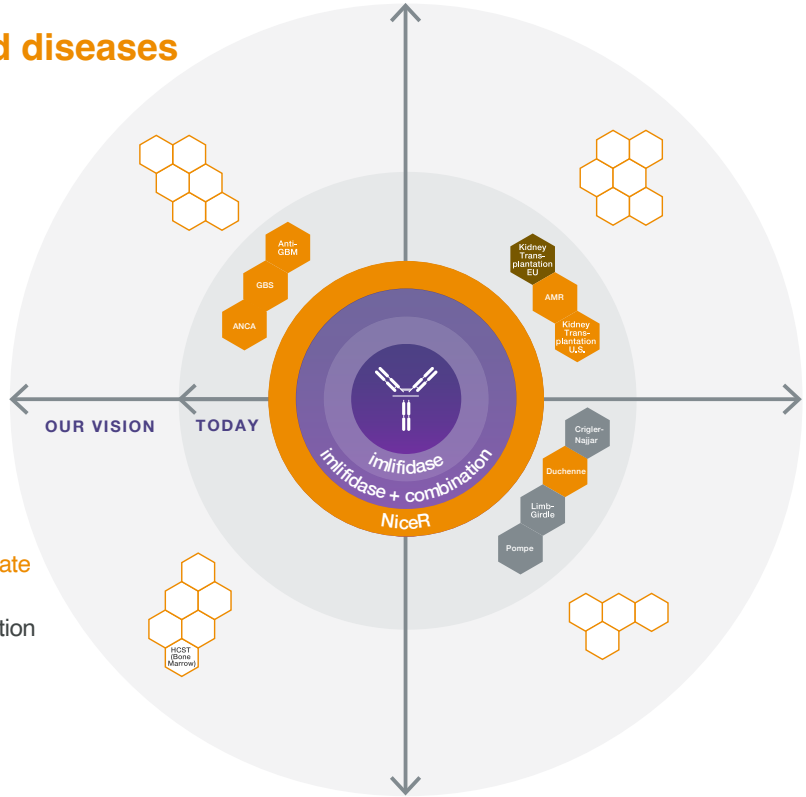
Anti-GBM disease paves the way for development in other autoimmune diseases

- 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, Genethon
- Wide indication landscape beyond

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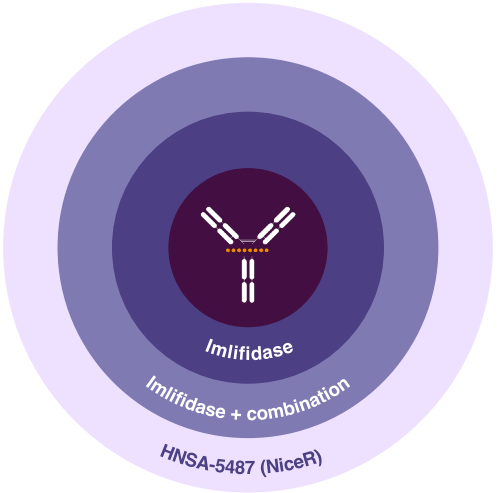
Regulatory approval (conditional) | Clinical development | Planned clinical trial | Partnership (preclinical development) | Potential indications (currently not pursued)

The technology platform is the primary basis for achieving our vision

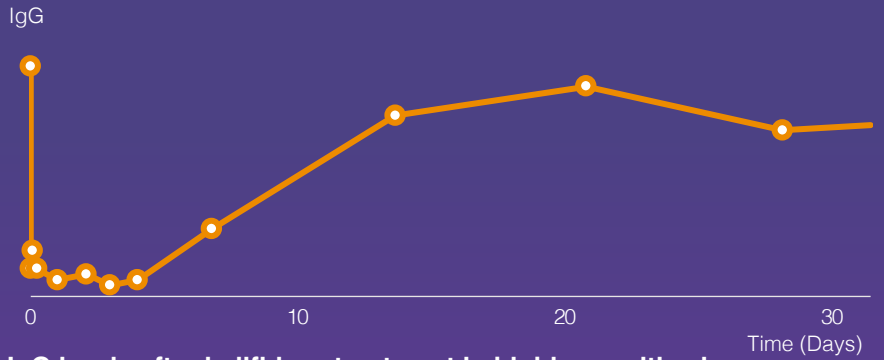
Targeting rare IgG mediated diseases and conditions

Key opportunities:

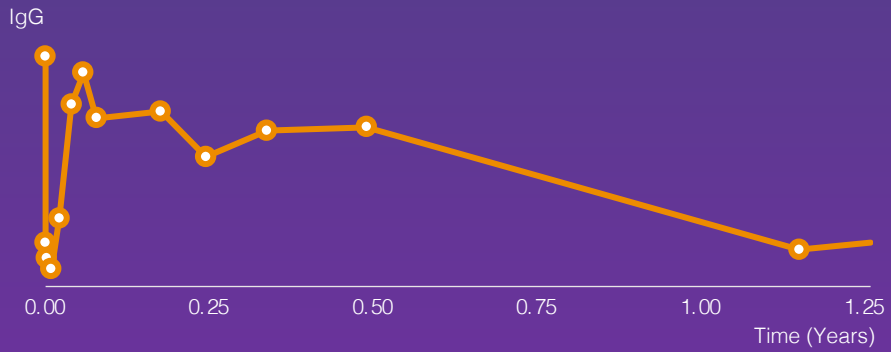
- Expanding into **new indications**
- Reduce immune response to IgG-cleaving enzyme, i.e. allow **repeated treatment**
- **Combination therapy**, i.e. induction and maintenance therapy



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



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



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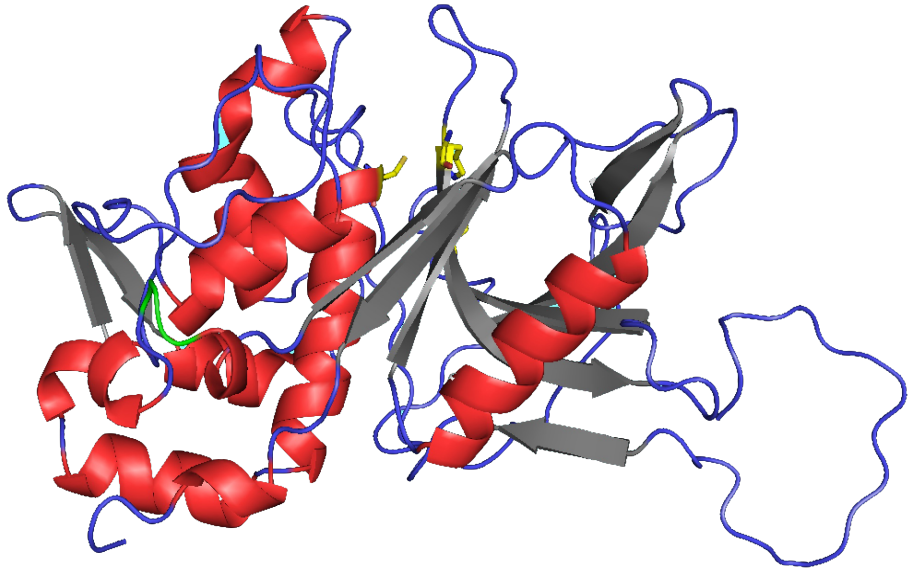
Our IgG antibody-cleaving enzyme, imlifidase

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 2-8º 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 2-8ºc 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

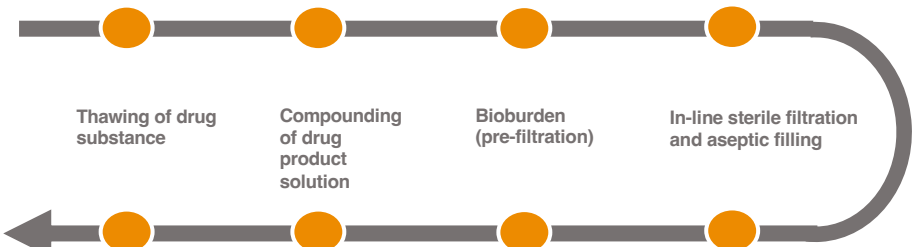
Protein purification
- Cell Disruption
- Protein Release

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

Lyophilization (14 h + 7.5 h)

Capping, outer decontamination

Packaging

Storage 2-8°C

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

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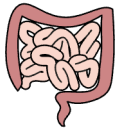
Autoimmune attacks

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

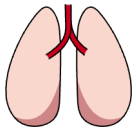
Blood
Autoimmune hemolytic anemia,
Immune thrombocytopenia

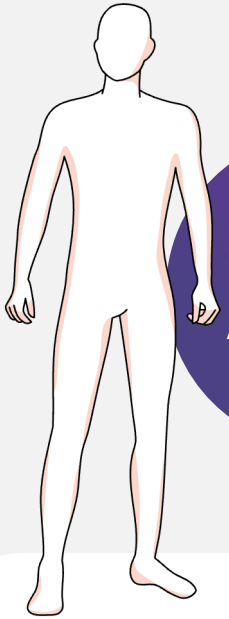
GI tract
Crohn's disease



Nerves
Guillain-Barré syndrome,
Myasthenia gravis

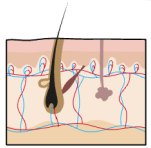
Lung
Wegner's granulomatosis





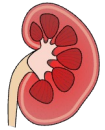
Over 100 different types of Autoimmune disorders

Skin
Psoriasis, Pemphigus

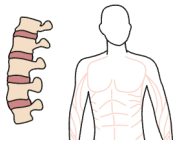


Brain
Multiple sclerosis,
Neuromyelitis optica

Thyroid
Hashimoto's disease,
Graves' disease



Kidney
Anti-GBM disease



Bone and muscle
Rheumatoid arthritis,
Dermatomyositis+ 32

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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

~1 000 patients*[1]

- Anti-GBM
- Lupus nephritis ~35 000*[2]
- ANCA-associated vasculitis ~20 000*[3]

Neurological disorders

- Myasthenia gravis ~210 000*[4]
- NMO ~20 000*[7]
- CIDP ~55 000*[6]
- GBS

~10 000 patients*[5]

Skin disorders

<1 000 patients*[8]

- EBA
- Pemphigus vulgaris ~40 000*[9]

Blood disorders

~1 000* patients[13]

- AHA
- WAHA ~95 000*[11]
- APS ~350 000*[12]
- HIT 0.1–5% of patients receiving therapeutic dose of heparin[14]
- ITP ~75 000*[10]

■ 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

[1]DeVrieze, B.W. and Hurley, J.A. *Goodpasture Syndrome*. StatPearls Publishing, Jan 2021. https://www.ncbi.nlm.nih.gov/books/NBK459291/ [accessed 2021-03-29]
[2]Patel, M et al. *The Prevalence and Incidence of Biopsy-Proven Lupus Nephritis in the UK*. Arthritis & Rheumatism, 2006.
[3]Berti 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.
[4]*Myasthenia Gravis*. National Organization for Rare Disorders, https://rarediseases.org/rare-diseases/myasthenia-gravis/ [accessed 2021-03-29]
[5]*Guillain-Barré syndrome*. Orpha.net, https://www.orpha.net/consor/cgi-bin/OC_Exp.php?Lng=GB&Expert=2103 [accessed 2021-03-29]
[6]*Chronic 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]
[7]Marrie, R.A. *The Incidence and Prevalence of Neuromyelitis Optica*. International Journal of MS Care, 2013 Fall: 113-118
[8]Mehren, C.R. and Gniadecki, R. *Epidermolysis bullosa acquisita: current diagnosis and therapy*. Dermatol Reports, 2011-10-05
[9]Wertenteil, S. et al. Prevalence *Estimates for Pemphigus in the United States*. JAMA Dermatol, May 2019: 627-629.
[10]*Immune Thrombocytopenia*. National Organization for Rare Disorders. https://rarediseases.org/rare-diseases/immune-thrombocytopenia// [accessed 2021-03-29]
[11]*Warm Autoimmune Hemolytic Anemia*. National Organization for Rare Disorders. https://rarediseases.org/rare-diseases/warm-autoimmune-hemolytic-anemia/ [accessed 2021-03-29]
[12]Litvinova, E. et al. *Prevalence and Significance of Non-conventional Antiphospholipid Antibodies in Patients With Clinical APS Criteria*. Frontiers in Immunology, 2018-12-14.
[13]NORD, Acquired Hemophilia [accessed 2022-10-17], available at https://rarediseases.org/rare-diseases/acquired-hemophilia/
[14]Hogan 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

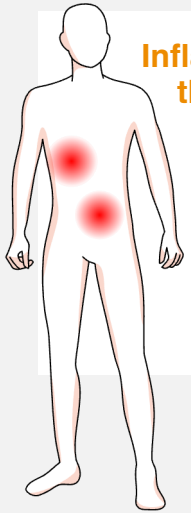
Incidence

1.6

in a million affected annually[1,2]

Standard of Care

- Plasma Exchange
- Cyclophosphamide (CYC)
- Glucocorticoids



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

CLINICAL RESEARCH www.jasn.org

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

Fredrik Uhlin,[1,2] Wladimir Szpirt,[3] Andreas Kronbichler,[4] Annette Bruchfeld,[1,5] Inga Sowerby,[6] Lionel Rostaing,[7] Eric Daugas,[8] Arnaud Lionet,[9] Nassim Kamar,[10] Cédric Rafat,[11] Marek Myslwiec,[12] Vladimir Tesar,[13] Anders Fernström,[14] Christian Kjellman,[15] Charlotte Elfving,[16] Stephen McAdoo,[17] Johan Mölne,[18] Ingeborg Bajema,[19] Elisabeth Soneson,[1,2] and Mårten Segelmark[1,2,17]

Due to the number of contributing authors, the affiliations are listed at the end of this article.

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 one-arm study (EudraCT 2016-004082-39) was performed in 17 hospitals in five European countries. A single dose of 0.25 mg/kg of imlifidase was given to 15 adults with circulating anti-GBM antibodies and an eGFR <15 ml/min per 1.73m². All patients received standard treatment with cyclophosphamide and corticosteroids, but plasma exchange only if autoantibodies rebounded. The primary outcomes were safety and dialysis independency 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 1.73m². The median age was 61 years (range 19-77), six were women, and six were also positive for anti-neutrophil cytoplasmic antibodies. Then 6 hours after imlifidase infusion, all patients had anti-GBM antibodies levels below the reference range of a prespecified assay. At 6 months 67% (ten out of 15) were dialysis independent. This is significantly higher compared with 18% (nine out of 50) in a historical control cohort (P<0.001, Fisher's exact test). 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 earlier publications, without major safety issues, but the findings need to be confirmed in a randomized controlled trial.

Clinical Trial registration number: EUDRACT 2016-004082-39 https://www.clinicaltrialsregister.eu/ctr-search/trial/2007-001377-28/results

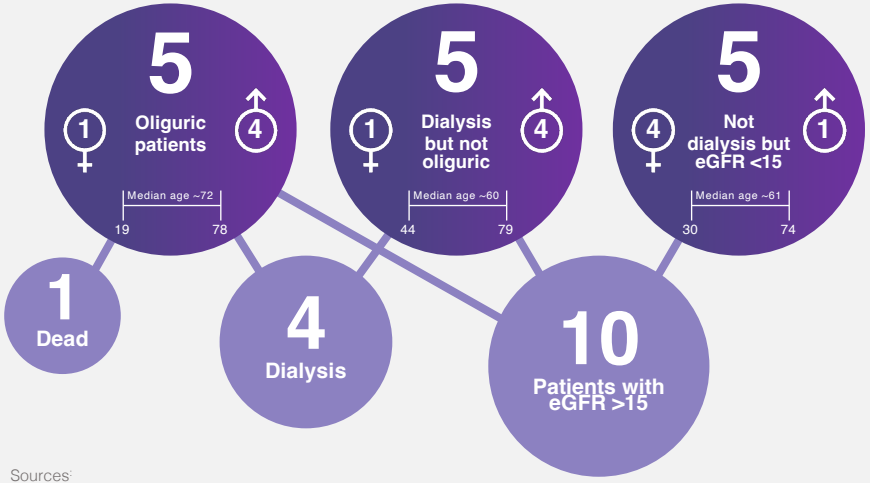
JASN 33: ••• ••, 2022. doi: https://doi.org/10.1681/ASN.2021111440

Kidney survival is poor in patients presenting with circulating anti-glomerular basement membrane (anti-GBM) antibodies and advanced kidney failure.[1,2] Most anti-GBM

Received November 12, 2021. Accepted February 1, 2022

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 cohort[4], where only 18% had functioning kidney



Sources:
[1] Wang et al., J. Intern. Med., 2015
[2] Desai et al., Front. Endocrinol., 2019
[3] Uhlin et al. JASN (2022)
[4] McAdoo 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

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

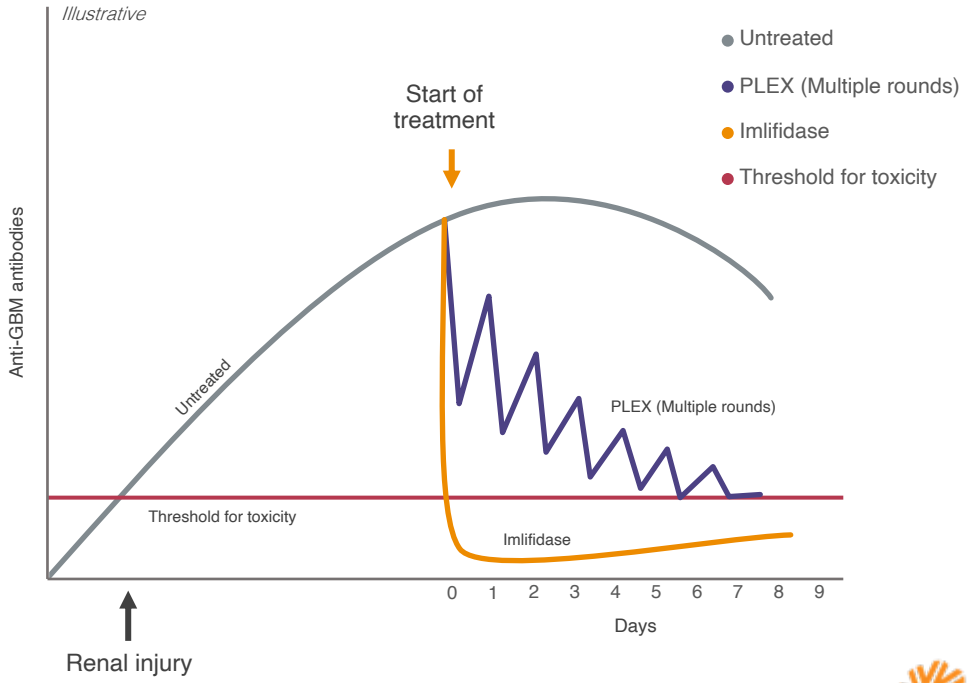
Study Design
- Open-label, controlled, randomized, multi-center phase 3 trial evaluating renal function in patients with severe anti-GBM disease imlifidase + SoC vs. SoC

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
- 18/50 patients enrolled as of Feb 2, 2024



1 Wang et al., J. Intern. Med., 2015
2 Desai et al., Front. Endocrinol., 2019

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Imlifidase demonstrated positive safety, tolerability, and early efficacy outcomes in phase 2 trial in Guillain-Barré Syndrome (GBS)

Incidence

1-2

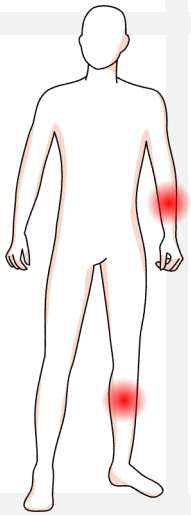
in 100,000 annually in 7 major markets[1]

Standard of Care

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

Indication

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



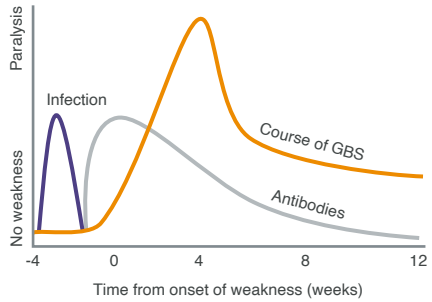
High unmet need

- 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

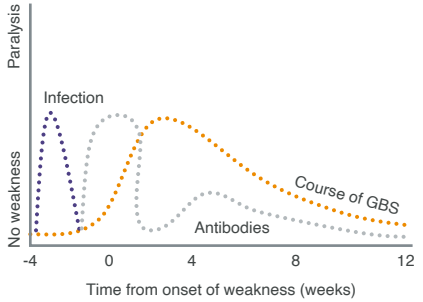
Today's standard of care, IVIg or PLEX

Illustrative



Potential with imlifidase

Illustrative



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

First high-level data: Imlifidase was safe and well tolerated, and when compared to previously published data - a rapid improvement across several efficacy outcome measures was observed in patients treated with imlifidase in combination with SoC

Path forward: Further analysis will contextualize efficacy data from the single arm study through a comparison to data from patients receiving standard of care

Sources:

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

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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

Incidence

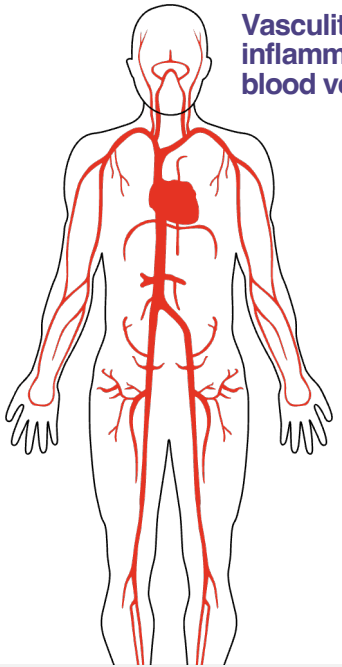
~3 in 100,000 annually across EU/US of which 8-36% are estimated to have Acute Respiratory Distress Syndrome due to pulmonary hemorrhage[1,2]

Standard of Care

- Current protocol is Immunosuppression and Intensive support care

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 patients[5]
- Most severe cases involving lungs lead to respiratory failure[4]
- Few treatment options today



Vasculitis means inflammation of blood vessels

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

CHARITÉ UNIVERSITÄTSMEDIZIN BERLIN

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 Q4'23
- Trial led by Dr. Adrian Schreiber and Dr. Philipp Enghard at Charité

1. Berti 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.

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Long term graft survival is challenged by antibody mediated rejection (AMR) episodes following kidney transplantation

Incidence

Acute AMR episodes occur in

5-7%

of annual kidney transplants[1]
(2,500-3,500 patients across US/EU)

Standard of Care

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

High unmet need

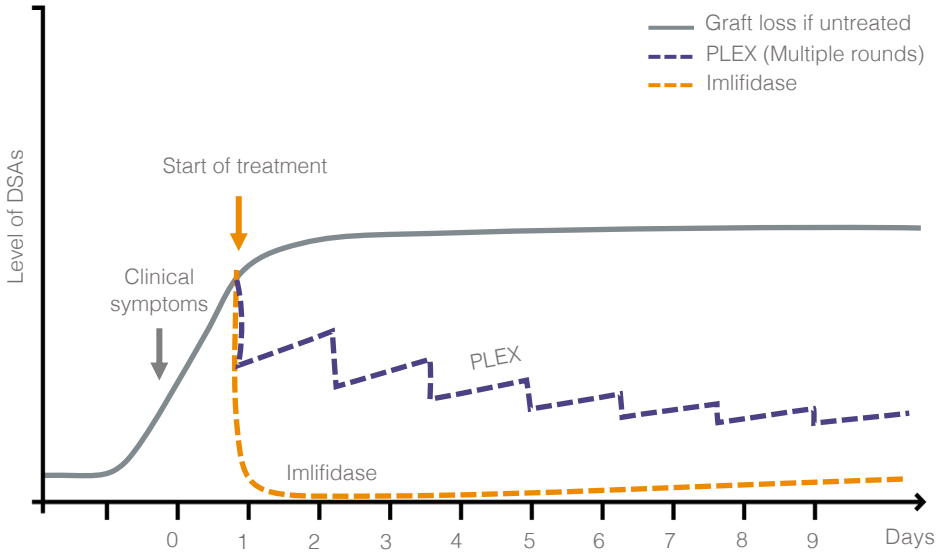
- AMR is one of the most challenging adverse events after kidney transplantation leading to graft dysfunction and loss
- There is no approved treatment for AMR

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

Potential with imlifidase vs. PLEX in AMR

Illustrative



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

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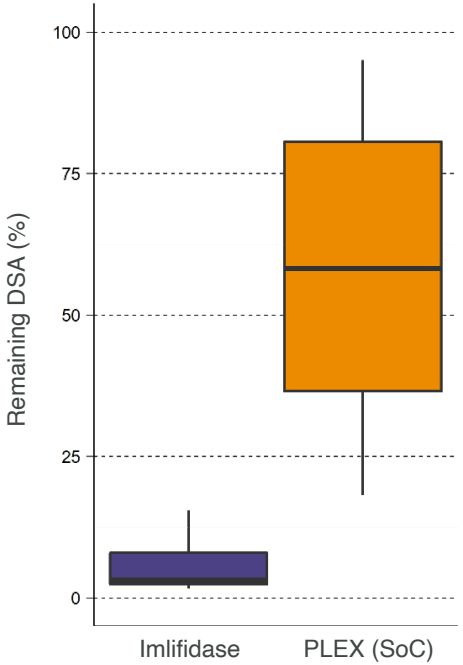
Imlifidase met primary endpoint in phase 2 trial in patients with AMR episodes following kidney transplantation

Remaining donor specific antibody levels, within 5 days



Primary endpoint was the maximum reduction in DSA level at any time point during the 5 days following the start of treatment

- Patients treated with imlifidase demonstrated a statistically significant reduction of DSAs by 94.4% compared to a 35.6% (p-value: <0.001) reduction in patients who received PLEX (SoC)
- DSA levels subsequently returned to approximately 70% of the initial level in both treatment arms
- Imlifidase demonstrated a safety profile consistent with previous clinical trials

Secondary endpoints investigated overall kidney function and graft survival

- The imlifidase arm demonstrated a 74% six-month graft survival and eGFR of 30mL/min/1.73m2. A 100% six-month graft survival and eGFR of 33mL/min/1.73m2 was observed in the PE arm
- Given the heterogeneity of the patient population, the trial was not designed nor sufficiently powered to be able show a statistically significant difference in the secondary outcome measures

Path forward

- Treatment guidance indicate reduction of DSA levels as one of the main goals of any AMR treatment *Link to Recommended Treatment for Antibody-mediated Rejection After Kidney Transplantation*
- At this stage, Hansa plans to submit a paper for publication in a peer-reviewed journal

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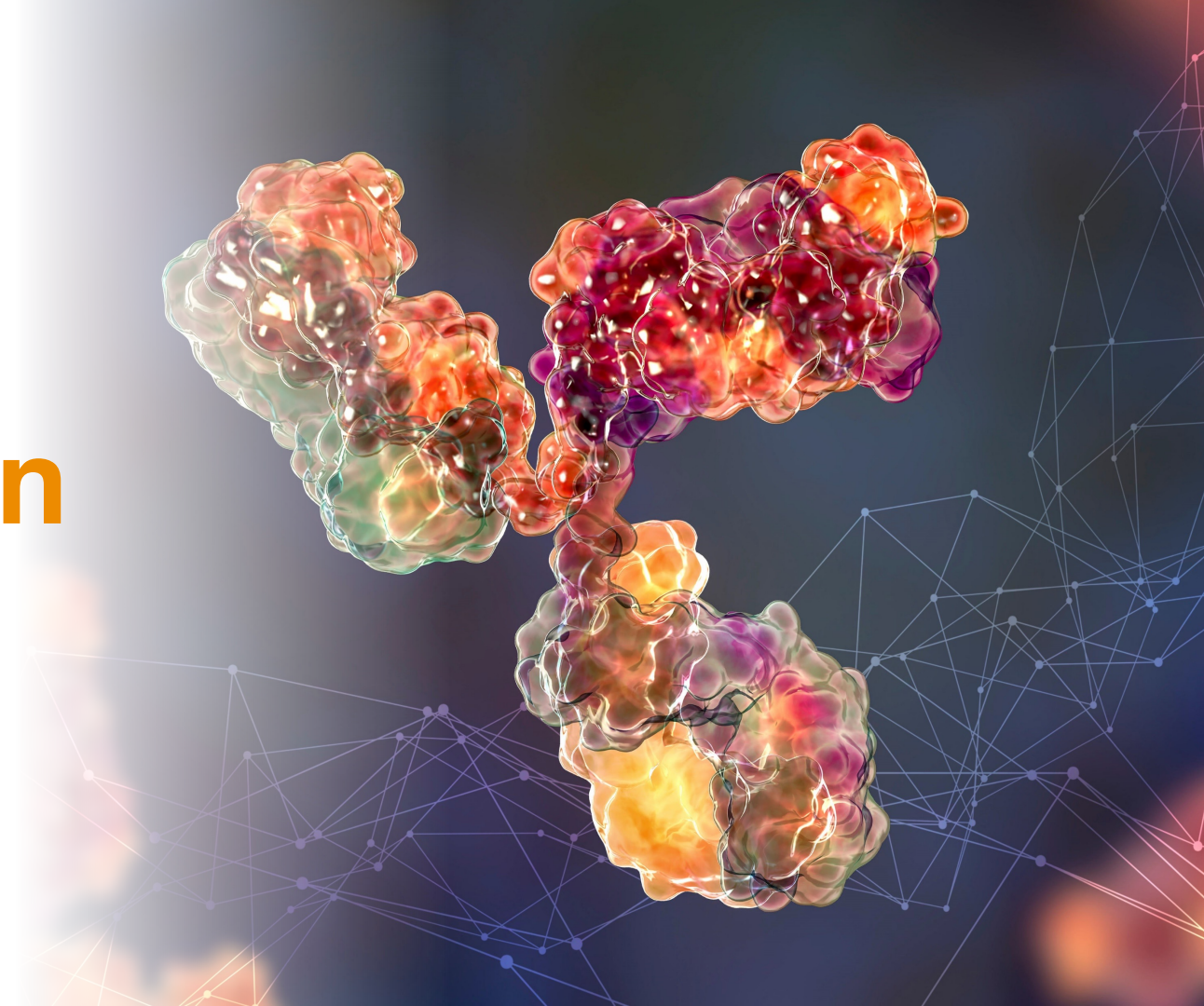
Next generation enzymes



Encouraging data from the first-in-human trial of HNSA-5487 as we continue to explore the potential of our next-gen enzyme for repeat dosing

An enzyme with lower immunogenicity could potentially enable repeat dosing for innovative treatment approaches in a broad range of indications benefiting patients with diseases where a prolonged or intermittent IgG-free window is needed

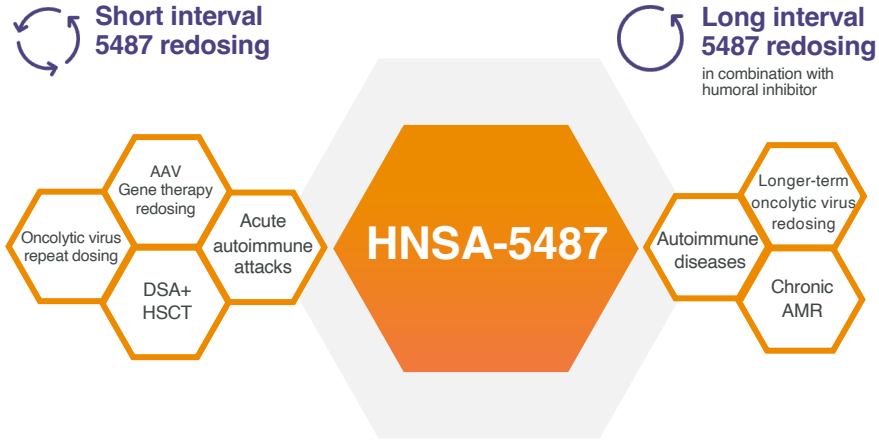
Encouraging high-level results of HNSA-5487

Single ascending dose study in 36 healthy volunteers

1. Administration was safe and well tolerated
2. PD showed a fast and complete cleavage of IgG to F(ab')$_2$ and Fc-fragments with ascending doses; PK in line with expectations
3. Further analysis around endpoints and immunogenicity to be completed in 2024 incl. selection of lead indication

Potential indication landscape for HNSA-5487

through two different redosing regimens



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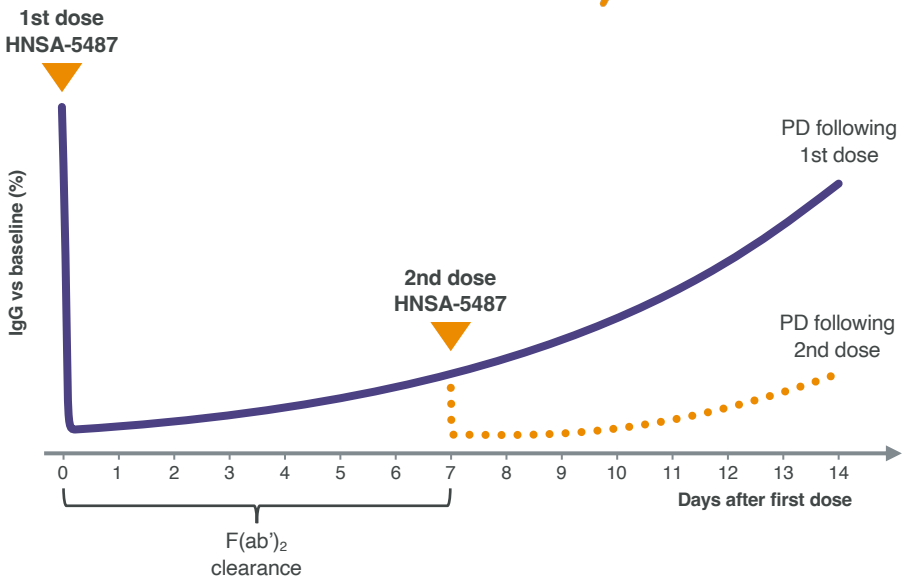
Short interval redosing with HNSA-5487 could potentially prolong the IgG-low period

Short interval 5487 redosing

Hypothetical model



Enabling treatments through IgG-low period

Repeat dosing of HNSA-5487 can potentially create a longer IgG-low period, enabling treatments such as:

- Short-term treatment in autoimmune diseases
- AAV gene therapy redosing
- HSCT in DSA+ patients
- Repeat dosing of systemic oncolytic virus therapy

Short-term treatment in autoimmune diseases

HNSA-5487 has potential to more rapidly than any other treatment reverse an autoimmune attack, potentially leading to:

- Faster recovery to baseline
- Shorter hospital stay and easier management of patients in the hospital
- Less risk for lasting damage from acute antibody-attacks

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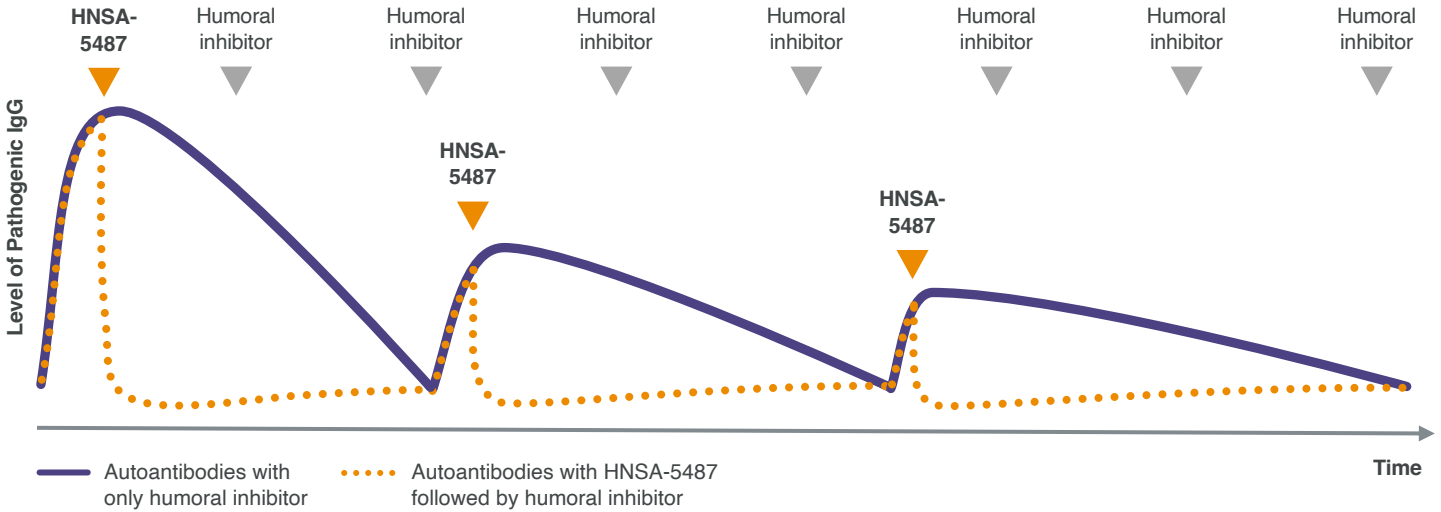
Long interval redosing with HNSA-5487 in combination with humoral inhibitor in relapsing autoimmune diseases and chronic AMR

Long interval 5487 repeat dosing

Hypothetical model



HNSA-5487 rapidly cleaves IgG - chronic humoral inhibition adds duration of effect

- HNSA-5487 rapidly cleaves IgG, and chronic humoral inhibition can keep the IgG at a low level, potentially leading to greater efficacy vs monotherapy
- HNSA-5487 can be used when other humoral inhibitors/modulators are either too slow or not sufficient
- Humoral inhibition can also mitigate anti-5487 antibodies, thereby further improving the potential redosability of HNSA-5487

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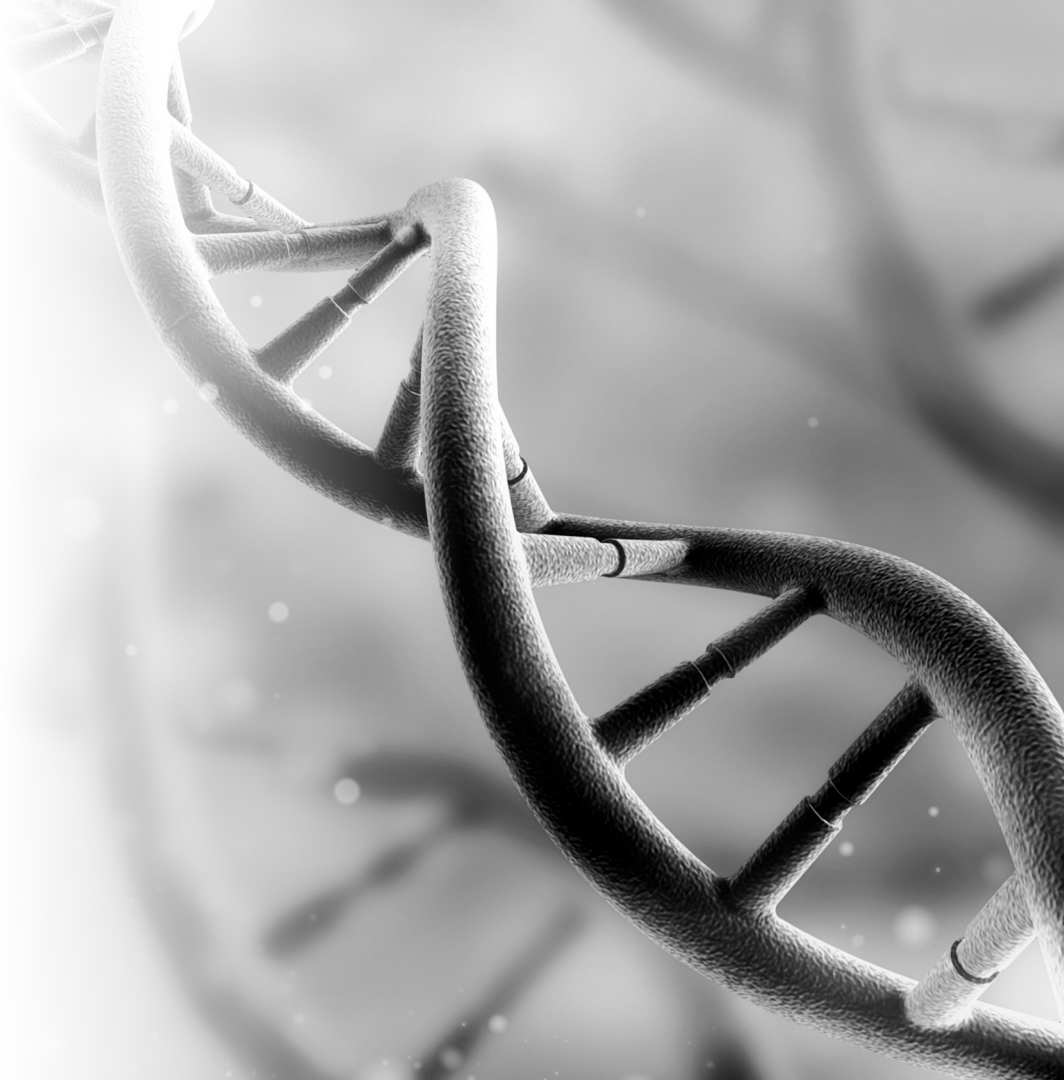
Gene Therapy



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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

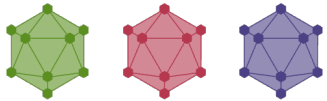
Stock images

Tropism and target tissue

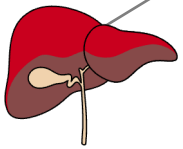
AAV subtypes targets different tissues

AAV 1, 2 & 5

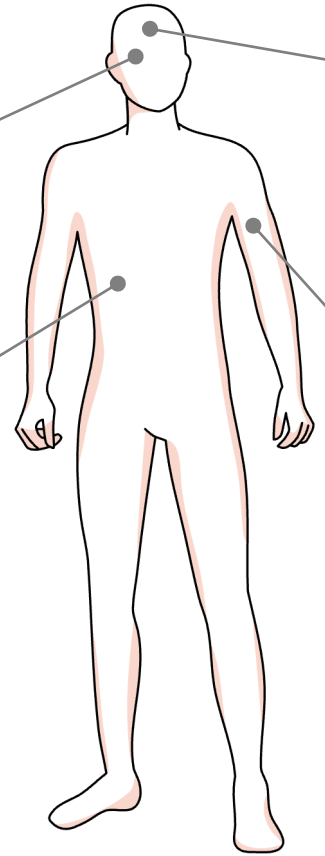
Eye (local target)
~1x10^{11} vg



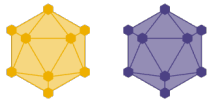
AAV 3, 7 & 8



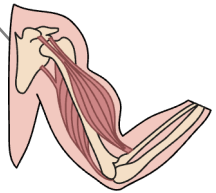
Liver (systemic)
~1x10^{14} vg



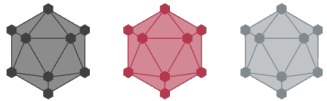
Brain (local target)
~1x10^{12} vg



AAV 4 & 8



Muscle (systemic)
~1x10^{15} vg



AAV 6, 7, rh74

Target tissues
Dose of gene therapy (vg)

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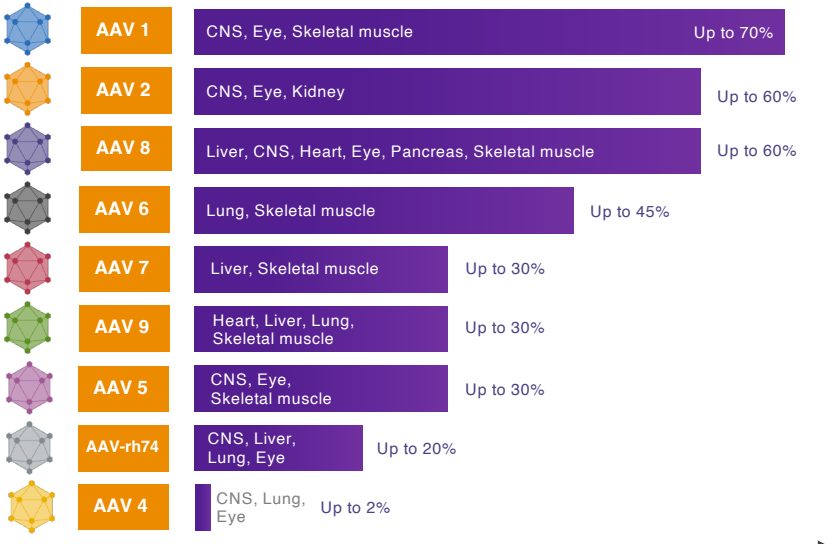
Pre-existing antibodies towards AAVs are a limiting factor in Gene Therapy and excludes patients from clinical trials

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

Prevalence of NAbs in AAVs



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), Klamroth et al. (2022)

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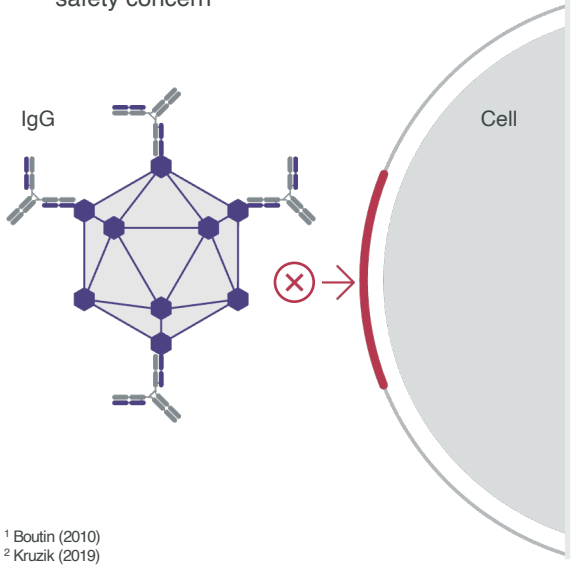
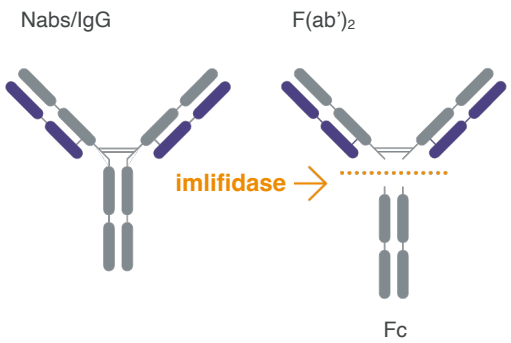
Neutralizing antibodies (Nabs) are immunological barriers in gene therapy; imlifidase may potentially eliminate Nabs

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

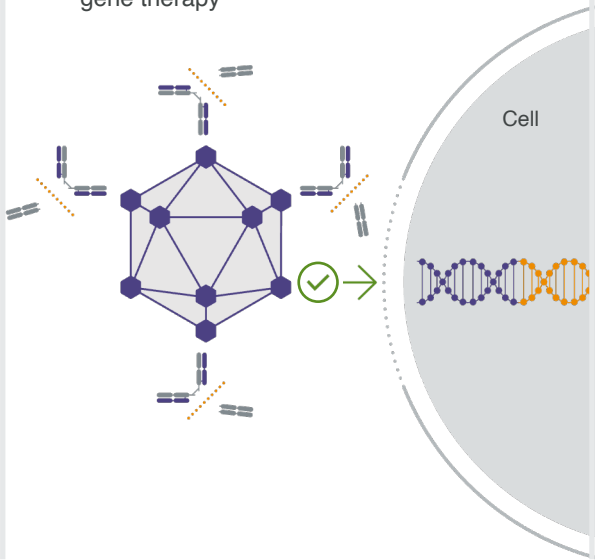
1 Antibodies prevent effective transfer of healthy gene sequence and can be a safety concern



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)

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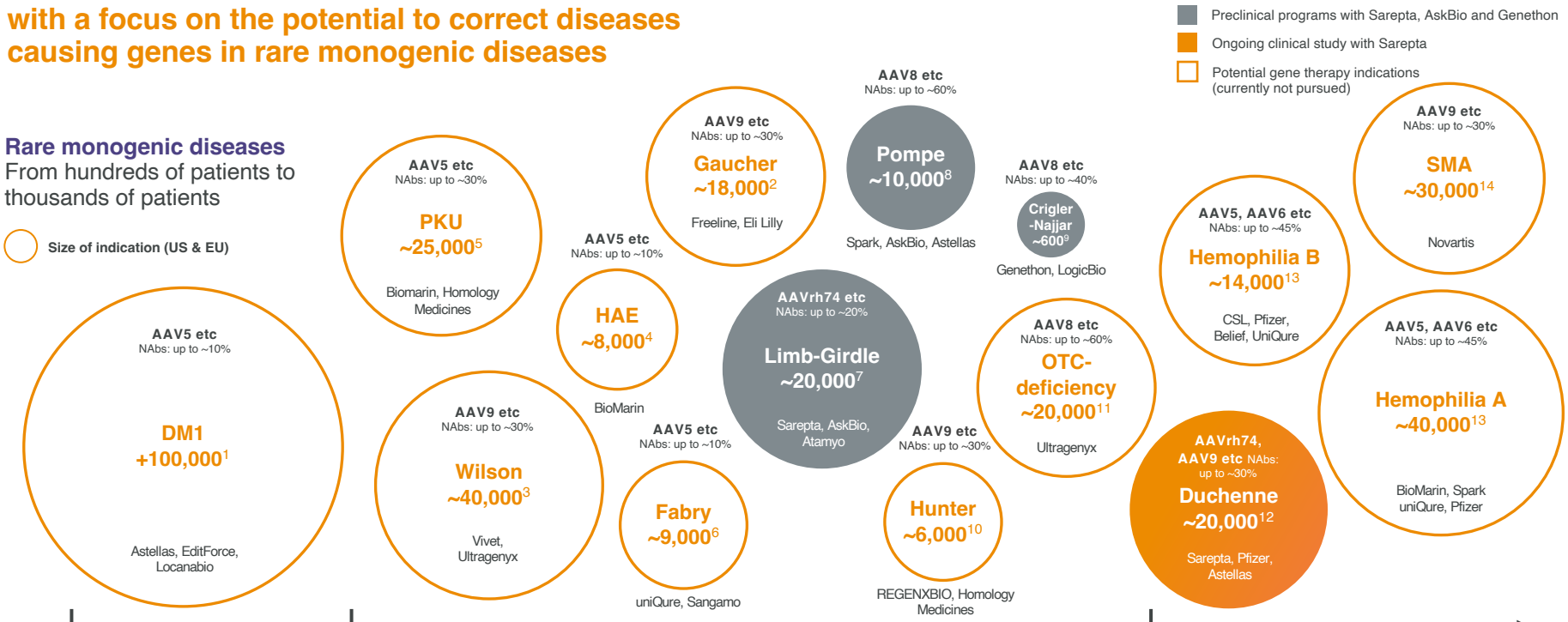
Systemic gene therapy is an emerging opportunity

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



Numbers are estimated based on population and prevalence

1. Rarediseases.org. https://rarediseases.org/rare-diseases/dystrophy-myotonic/ [Accessed 2023-06-26]
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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
SAREPTA THERAPEUTICS	▪ 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	**Duchenne Muscular Dystrophy (DMD)** 1/3,500 to 5,000 male births worldwide	Antibody cleaving enzyme technology ✓ → Preclinical Development ✓ → Initiated Clinical Development → Regulatory Approvals → Commercialization
		Limb-Girdle Muscular Dystrophy Global prevalence of ~1.6 per 100k individuals	Antibody cleaving enzyme technology ✓ → Preclinical Development → Clinical Development → Regulatory Approvals → Commercialization
AskBio	▪ Early innovator in gene therapy ▪ Conducts pre-clinical and clinical trials (Phase 1/2)	**Pompe disease** Approximate incidence is 1 per 40,000 births, or ~200 per year in the US + EU	Antibody cleaving enzyme technology ✓ → Preclinical Development → Clinical Development Phase 1/2 study (feasibility)
GENETHON CURE THROUGH INNOVATION	▪ A pioneer in the discovery and development of gene therapies ▪ Conducts pre-clinical and clinical trials (Phase 1/2)	**Crigler-Najjar syndrome** Approximately incidence is 0.6-1 case per one million people or 600 patients in Europe and the U.S	Antibody cleaving enzyme technology ✓ → Preclinical Development → Clinical Development Phase 1/2 study (feasibility)

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

The initial agreement is focused on research and development

The companies will consider a subsequent agreement for commercialization at a later stage

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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

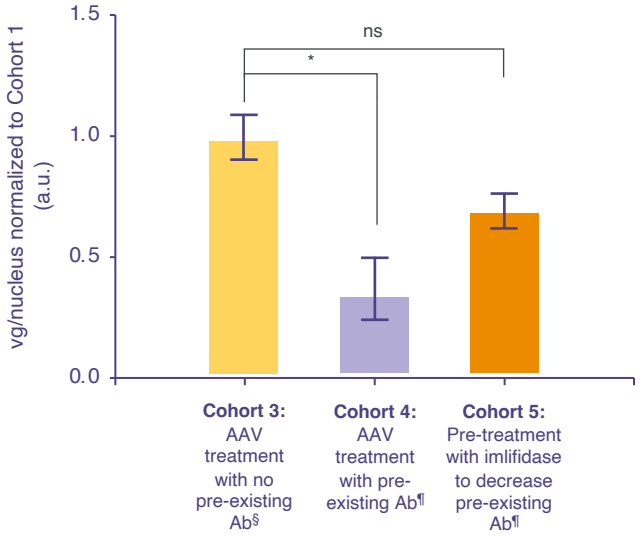
Upfront payment
USD 10 million upfront

Milestones
Hansa is eligible for up to USD 397.5 million in development, regulatory and sales milestones

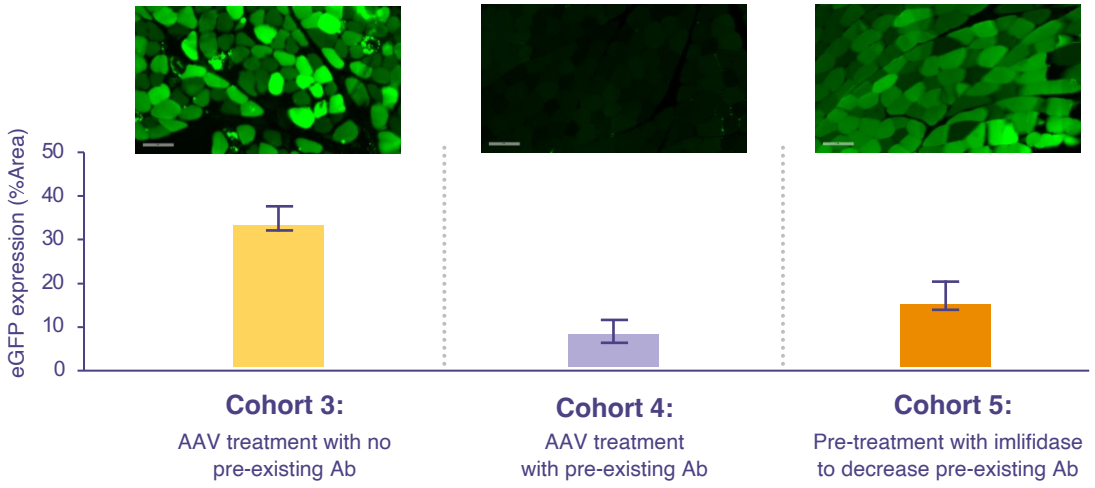
Royalties & Sales
Hansa to receive high single-digit to mid-teens royalties on Sarepta's gene therapy sales enabled with imlifidase in Nabs positive patients and also book all sales of imlifidase

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

Transduction†



Expression in Skeletal Muscle‡



*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.

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

Incidences

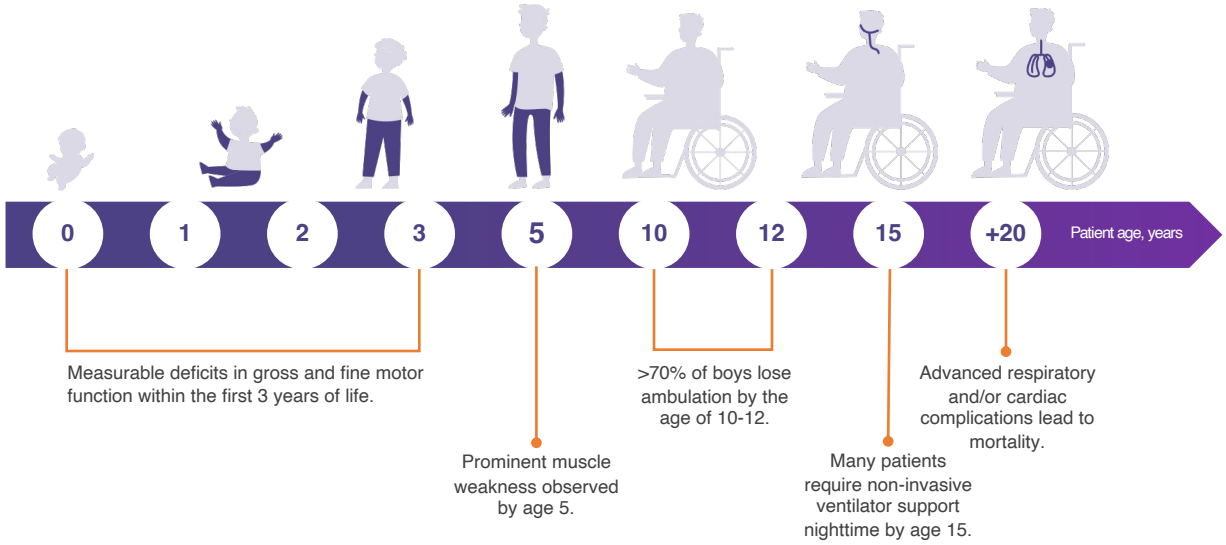
1 in **3,500** to **5,000**
male births worldwide

~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



Source:
Sarepta Therapeutics, https://www.sarepta.com/ [Accessed 2023-06-13]

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Sarepta's EMBARK (SRP-9001-301) data fails on meeting primary endpoint, but secondary endpoints favors ELEVIDYS

Data from EMBARK will be used to file for extended label beyond 4–5-year-olds

Study design

Phase 3, multinational double-blind, randomized, placebo-controlled study evaluating efficacy of ELEVIDYS (SRP-9001) compared to placebo in boys with DMD aged 4-7 years old

Primary endpoint:

× Change in NSAA total score from Baseline to Week 52

Important secondary endpoints:

✓ Change in time to rise (TTR) from floor to Baseline to Week 52 (p=0.0025)

✓ Change in 10-meter walk/run (10MWR) from Baseline to Week 52 (p=0.0048)

Sarepta believes data support label expansion following results and discussions with FDA

- No new safety signals were observed
- Positive discussions with the FDA following topline results
- NSAA may not have been sufficiently sensitive to show a treatment effect at the 52-week timepoint
- Natural history study of DMD indicate that a time to rise score greater than 5 seconds is highly predictive of loss of ambulation.
  - ✓ EMBARK showed that treatment with ELEVIDYS reduced the odds of progressing to a rise time of greater than 5 seconds by 91% across all patients and age groups.

Clinical study initiated with imlifidase as pre-treatment to ELEVIDYS in Q4'23

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

Incidences

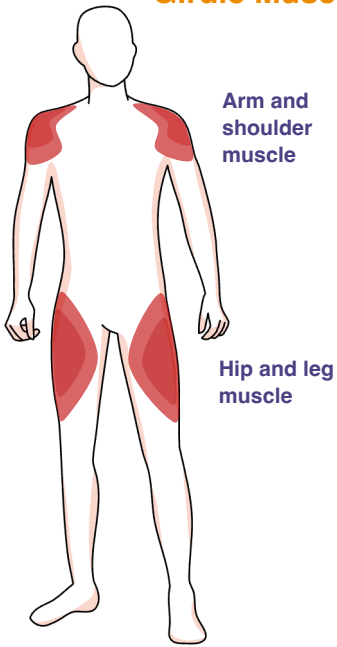
1.63 per **100,000** individuals; over 30 subtypes exist, and both genders are affected equally.

~14% 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.

Girdle Muscles



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://genesislgmd.com/study/voyagene

Source:
Sarepta Therapeutics, https://www.sarepta.com/ [Accessed 2023-06-13]

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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

AskBio™

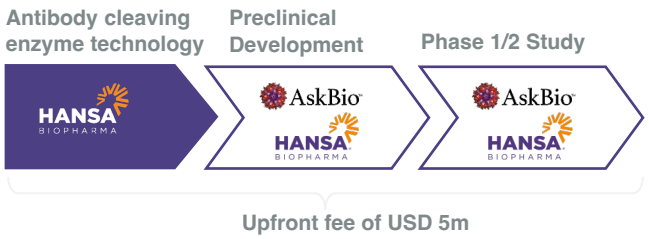
Fully owned subsidiary of Bayer AG

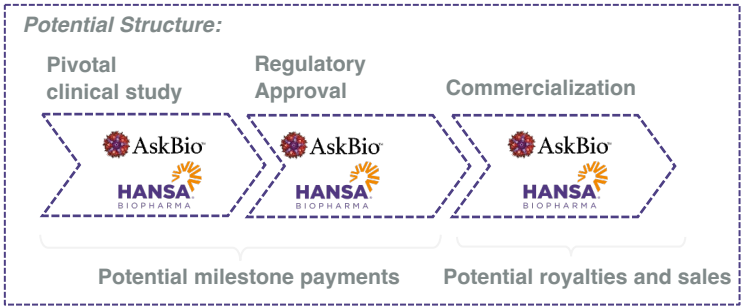
AskBio's key resources and deliverables

- 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

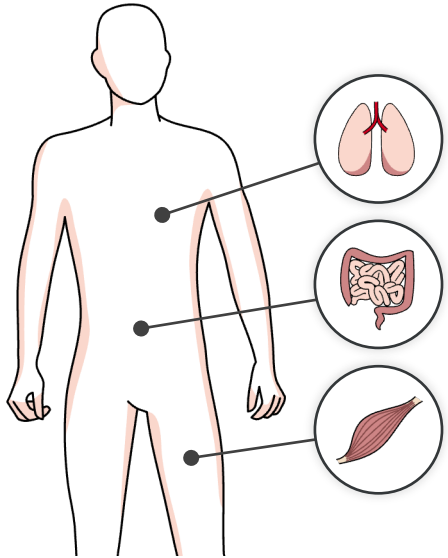
1 in **40,000** births or **~200** cases per year across US and Europe

~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:

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

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

[3]ESGCT 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

[4]Boutin et al. Prevalence 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/

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

HANSA BIOPHARMA

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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
CURE THROUGH INNOVATION

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)

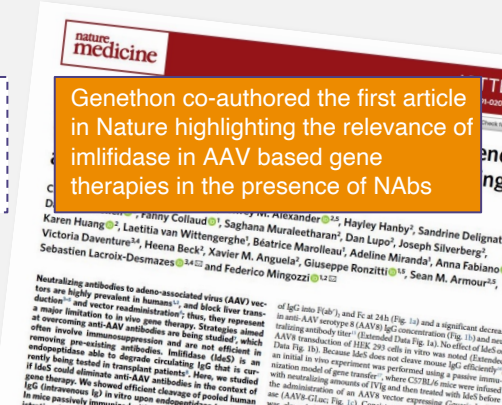
Initial agreement focused on research and development

HANSA BIOPHARMA
Antibody cleaving enzyme technology

GENETHON CURE THROUGH INNOVATION
HANSA BIOPHARMA
Preclinical Development

GENETHON CURE THROUGH INNOVATION
HANSA BIOPHARMA
Clinical Development
Phase 1/2 study (feasibility)

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


nature medicine

Genethon co-authored the first article in Nature highlighting the relevance of imlifidase in AAV based gene therapies in the presence of NAbs

Karen Huang, Laetitia van Wittenberghe, Béatrice Marolleau, Adeline Miranda, Anna Fabiano, Sebastien Lacroix-Desmazes and Federico Mingozzi

Neutralizing antibodies to adeno-associated virus (AAV) vectors are highly prevalent in humans, and block liver transduction and vector readministration; thus, they represent a major limitation to in vivo gene therapy. Strategies aimed at overcoming anti-AAV antibodies are being studied, which often involve immunosuppression and are not efficient in removing pre-existing antibodies. Imlifidase (IdeS) is an endopeptidase able to degrade circulating IgG that is currently being tested in transplant patients. Here, we studied if IdeS could eliminate anti-AAV antibodies in the context of gene therapy. We showed efficient cleavage of pooled human IgG (intravenous Ig) in vitro upon endopeptidase

of IgG into F(ab'), and Fc at 24h (Fig. 1a) and a significant decrea in anti-AAV serotype 8 (AAV8) IgG concentration (Fig. 1b) and ne tralizing antibody titer (Extended Data Fig. 1b) and ne AAV8 transduction of HEK 293 cells in vitro was noted (Extende Data Fig. 1b). Because IdeS does not cleave mouse IgG efficiently an initial in vivo experiment was performed using a passive immu nization model of gene transfer, where C57BL/6 mice were infused with neutralizing amounts of IVIg and then treated with IdeS before the administration of an AAV8 vector expressing

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

Incidences

An ultra-rare indication impacting

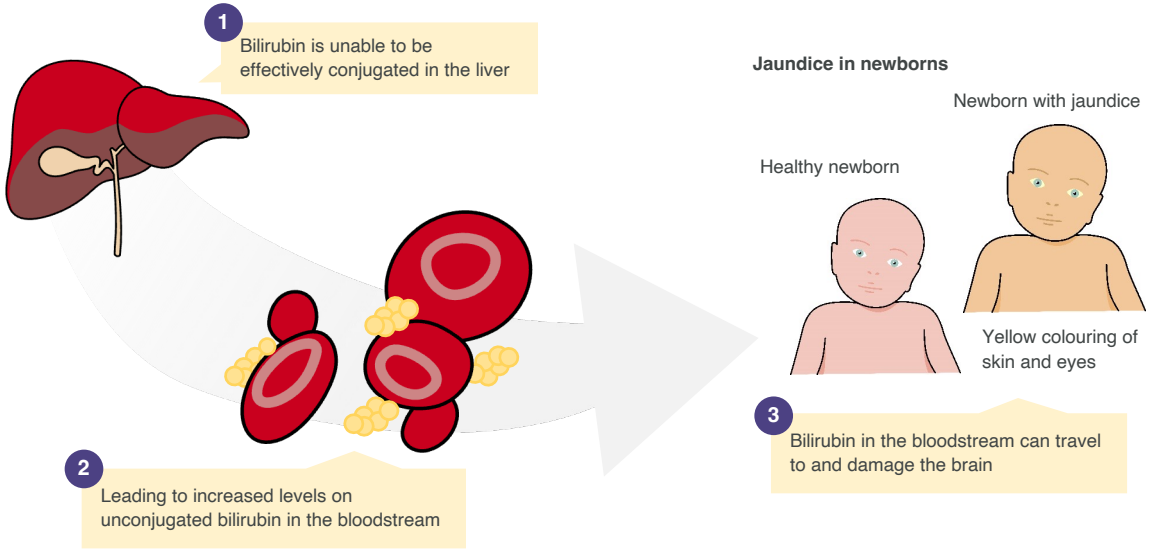
0.6-1 per **1,000,000** newborns around the world[1,2]

~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 brain[3]
- 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:

[1] Collaud 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, Mingozzi 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.

[2] Ebrahimi 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.

[3] American Liver Foundation. https://liverfoundation.org/liver-diseases/pediatric-liver-information-center/pediatric-liver-disease/crigler-najjar-syndrome/ [Accessed 2023-06-13]

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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

January 2023
Genethon launches pivotal clinical trial of Gene Therapy for Crigler-Najjar Syndrome

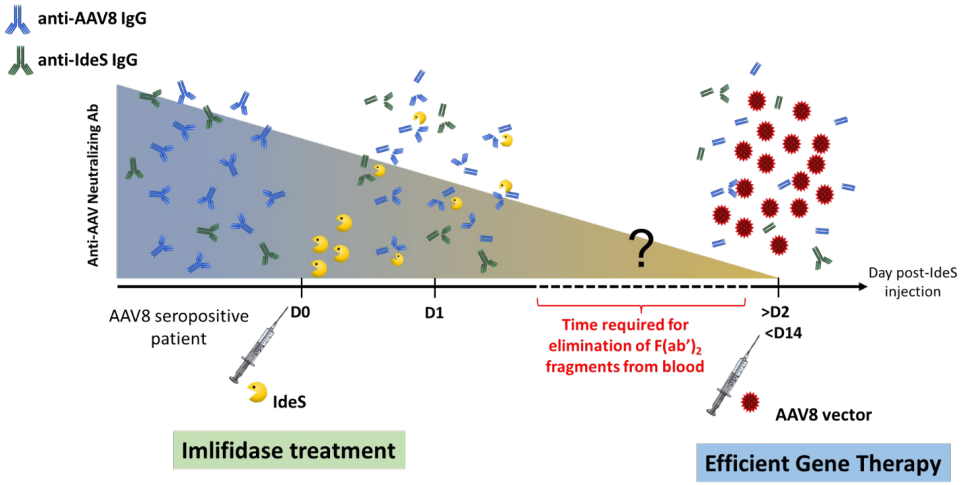
April 2023
Hansa and Genethon signs collaboration

Initiation of pre-clinical study with imlifidase as pre-treatment to GNT0003

2024
Initiate clinical study with imlifidase as pre-treatment to GNT0003

Source: https://www.genethon.com/

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



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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

96

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.

HANSA BIOPHARMA

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.

HANSA BIOPHARMA

Capital Markets

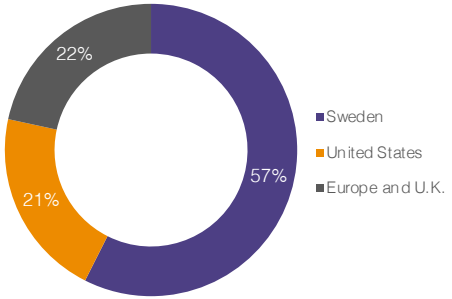
Ownership in Hansa Biopharma

Top 10 shareholders as per December 31, 2023

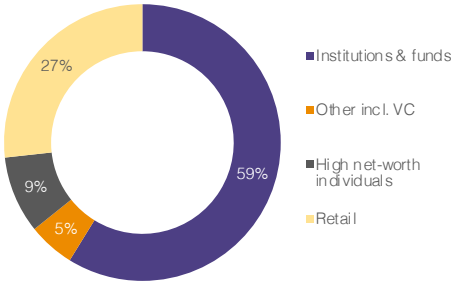
Name	No. of shares	Ownership
Redmile Group, LLC	9,653,214	18.3%
Nexttobe AB	2,155,379	4.1%
Jeansson, Theodor	2,100,000	3.7%
Olausson, Thomas	1,917,000	3.6%
Försäkrings AB Avanza Pension	1,765,506	3.4%
Fjärde AP-Fonden (AP 4)	1,700,000	3.2%
Tredje AP-Fonden (AP 3)	1,389,650	2.6%
Max Mitteregger Kapitalförvaltning AB	725,000	1.4%
VOB & T Trading AB	644,800	1.2%
BWG Invest SARL	600,000	1.1%
Other	30,021,247	57.0%
Total	**52,671,796**	**100.0%**

Classification of ownership as per June 30, 2023

Ownership by region



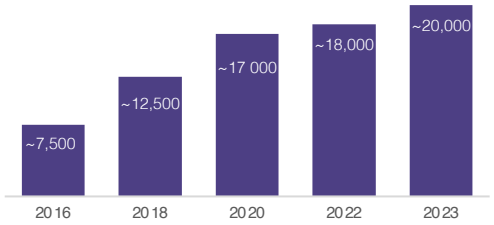
Ownership by type



Capital Raises

Capital raised:
SEK ~4bn
since 2007

No. of shareholders



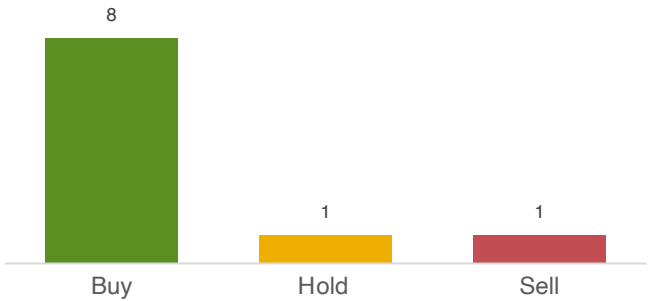
Company collected consensus

Consensus is based on a collection of analyst estimates pre-Q4 2023 report (Dec 2023)

	Price Target, SEK	WACC	Patient uptake, EU				Revenue, SEKm			
			Q4'23e	FY'23e	FY'24e	FY'25e	Q4'23e	FY'23e	FY'24e	FY'25e
Average	80	12%	14	38	74	124	44	134	229	381
Median	90	13%	12	37	65	106	39	126	214	313
High	173	14%	27	48	116	255	75	171	371	928
Low	16	8%	8	29	59	85	32	115	130	254
Number of contributions	*9*	*9*	*5*	*7*	*7*	*7*	*7*	*10*	*10*	*10*

	EBIT, SEKm				Operating Cash Flow, SEKm				Cash position, SEKm			
	Q4'23e	FY'23e	FY'24e	FY'25e	Q4'23e	FY'23e	FY'24e	FY'25e	Q4'23e	FY'23e	FY'24e	FY'25e
Average	-174	-772	-630	-508	-146	-783	-651	-538	784	720	375	179
Median	-177	-784	-650	-575	-146	-774	-720	-610	784	716	370	295
High	-111	-682	-462	41	-99	-664	-412	-66	851	894	850	547
Low	-205	-815	-749	-747	-192	-931	-828	-756	716	562	-62	-837
Number of contributions	*7*	*10*	*9*	*9*	*2*	*9*	*9*	*9*	*2*	*9*	*8*	*7*

Analyst recommendations



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Calendar and events

Feb 6, 2024 Aktiespararna, Falkenberg

Feb 8, 2024 Frankfurt MidCap Seminar, Frankfurt

Feb 14, 2024 Redeye Cell Therapy & Growth Day, Stockholm

Feb 28, 2024 Ökonomisk Ugebrev Life Science Event, Copenhagen

March 4-5, 2024 TD Cowen Healthcare Conference, Boston

March 6, 2024 Life Sciencedagen, Sahlgrenska Universitetssjukhuset Gothenburg

Mar 20, 2024 Annual Report 2023

April 8-11, 2024 Needham Healthcare Conference (virtual)

April 16-17, 2024 Van Lanschot Kempen Life Science Conference, Amsterdam

Apr 18, 2024 Interim Report for January-March 2024

June 27, 2024 2024 Annual General Meeting

July 18, 2024 Half-year Report January-June 2024

Oct 24, 2024 Interim Report for January-September 2024


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