

# EMERGING THERAPIES

A woman with dark hair, wearing a vibrant yellow and orange floral patterned jacket over a black top and black pants, is leaning on a dark grey stone ledge. She is looking back over her shoulder towards the camera. The background features a red brick wall on the left, a white lattice trellis with yellow flowers, and a blurred street scene with green trees and a red car on the right.

NADIA SADI  
Nadia lives with NASH  
Denmark

# Forward-looking statements

Novo Nordisk's reports filed with or furnished to the US Securities and Exchange Commission (SEC), including this presentation as well as the company's statutory Annual Report 2018 and Form 20-F, which were both filed with the SEC in February 2019 in continuation of the publication of the Annual Report 2018, and written information released, or oral statements made, to the public in the future by or on behalf of Novo Nordisk, may contain forward-looking statements. Words such as 'believe', 'expect', 'may', 'will', 'plan', 'strategy', 'prospect', 'foresee', 'estimate', 'project', 'anticipate', 'can', 'intend', 'target' and other words and terms of similar meaning in connection with any discussion of future operating or financial performance identify forward-looking statements. Examples of such forward-looking statements include, but are not limited to:

- Statements of targets, plans, objectives or goals for future operations, including those related to Novo Nordisk's products, product research, product development, product introductions and product approvals as well as cooperation in relation thereto,
- Statements containing projections of or targets for revenues, costs, income (or loss), earnings per share, capital expenditures, dividends, capital structure, net financials and other financial measures,
- Statements regarding future economic performance, future actions and outcome of contingencies such as legal proceedings, and
- Statements regarding the assumptions underlying or relating to such statements.

These statements are based on current plans, estimates and projections. By their very nature, forward-looking statements involve inherent risks and uncertainties, both general and specific. Novo Nordisk cautions that a number of important factors, including those described in this presentation, could cause actual results to differ materially from those contemplated in any forward-looking statements.

Factors that may affect future results include, but are not limited to, global as well as local political and economic conditions, including interest rate and currency exchange rate fluctuations, delay or failure of projects related to research and/or development, unplanned loss of patents, interruptions of supplies and production, product recalls, unexpected contract breaches or terminations, government-mandated or market-driven price decreases for Novo Nordisk's products, introduction of competing products, reliance on information technology, Novo Nordisk's ability to successfully market current and new products, exposure to product liability and legal proceedings and investigations, changes in governmental laws and related interpretation thereof, including on reimbursement, intellectual property protection and regulatory controls on testing, approval, manufacturing and marketing, perceived or actual failure to adhere to ethical marketing practices, investments in and divestitures of domestic and foreign companies, unexpected growth in costs and expenses, failure to recruit and retain the right employees, and failure to maintain a culture of compliance.

For an overview of some, but not all, of the risks that could adversely affect Novo Nordisk's results or the accuracy of forward-looking statements in this presentation, reference is made to the overview of risk factors in 'Risk management enables better decision-making' on pp 41-43 in the Annual Report 2018.

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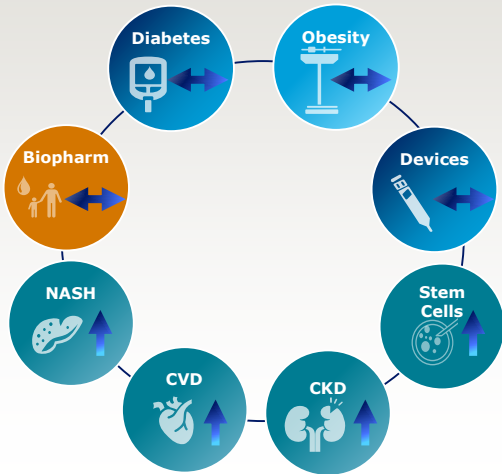
## Important drug information

- Victoza® is approved for the management of type 2 diabetes only
- Saxenda® is approved in the USA and the EU for the treatment of obesity only

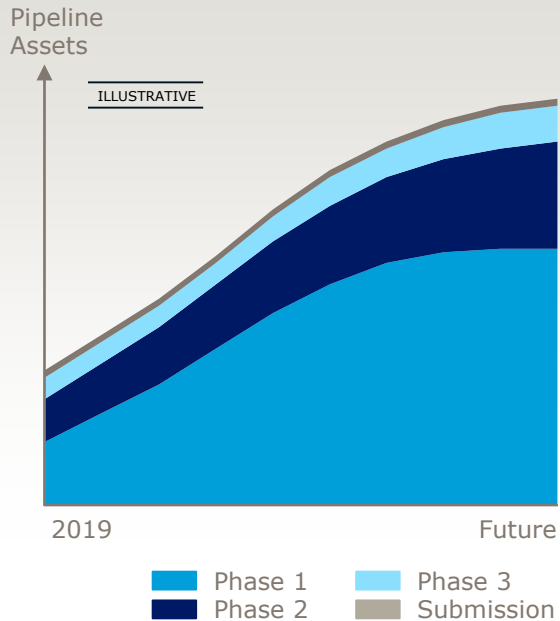
**Note: All notes, sources and abbreviations for this presentation are found in the appendix.**

# The future of R&D is to focus on increasing the number of clinical assets while maintaining industry-leading late-stage success

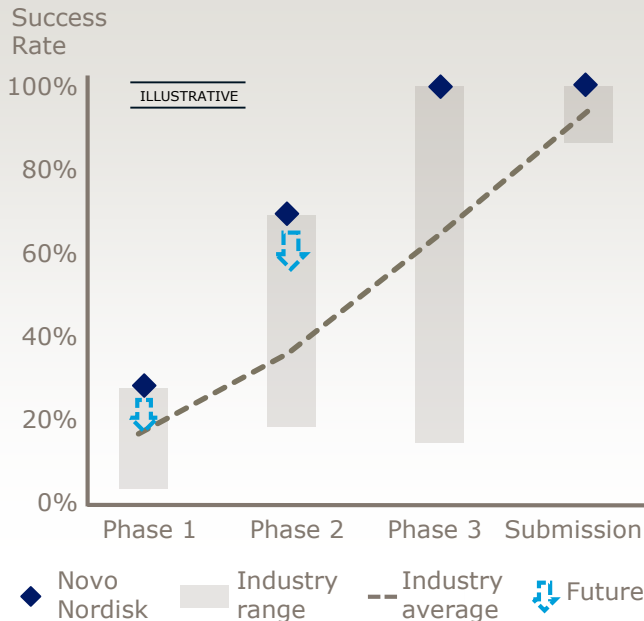
## R&D investments will expand beyond historic focus



## Increased clinical assets driving R&D investment

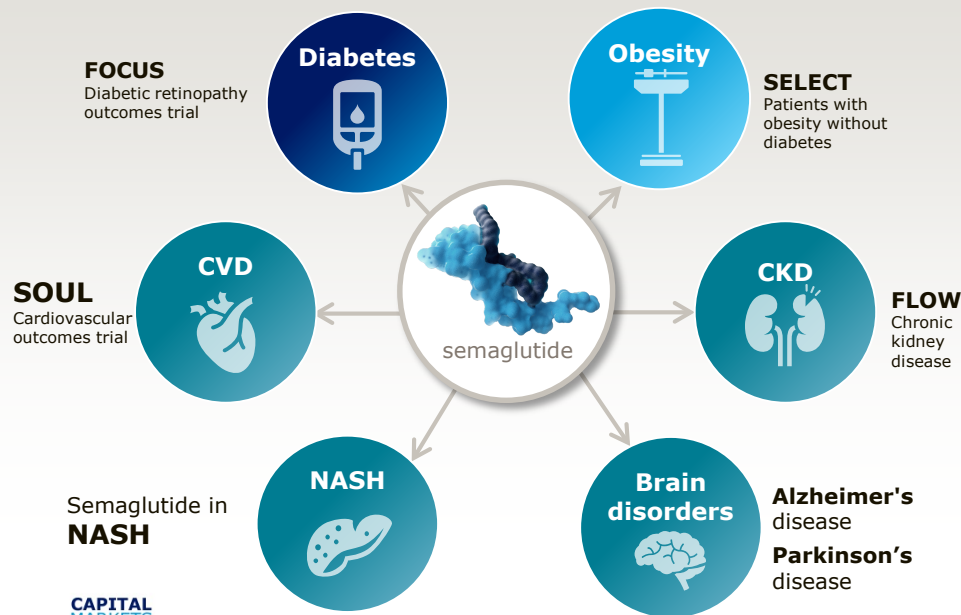


## Industry-leading success rate<sup>1</sup> from any phase to market

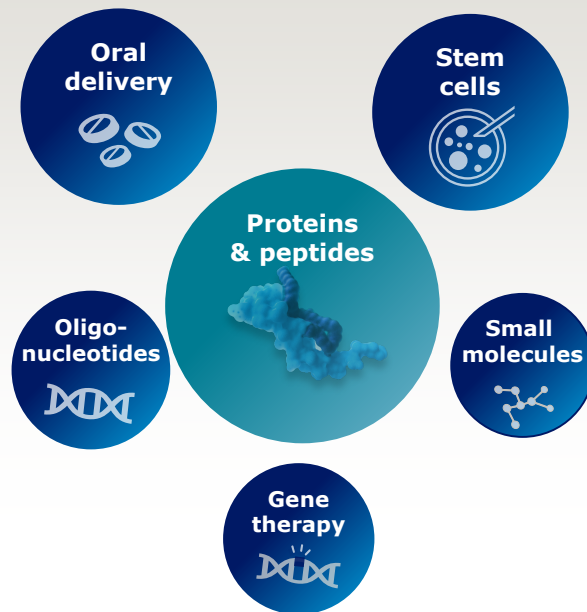


# The increase in pipeline assets is driven by semaglutide as well as internal and external innovation

## Semaglutide is the entry into adjacent therapies



## Leveraging internal capabilities and partnerships to explore new platforms



# Collaboration with partners facilitates accelerated breakthrough science

Novel treatments for metabolic disease



Oral Devices for protein and peptide drug delivery



Gene editing treatment for haemophilia



Small-molecule drug discovery and development



siRNA treatments



Combination treatments for NASH



Improving Beta Cell health



Glucose responsive insulin



Novel treatments for CVD



Sickle Cell Disease



Selected partnerships over the past 2 years

Gut-Brain-Axis target discovery for metabolic disease



Small molecule for treatment of NASH



Stem cell lines



Parkinson's disease





# Collaboration with partners facilitates accelerated breakthrough science

siRNA treatments

**Dicerna™**

Combination treatments  
for NASH

 **GILEAD**

Novel treatments for  
CVD

**STATEN**  
BIOTECHNOLOGY

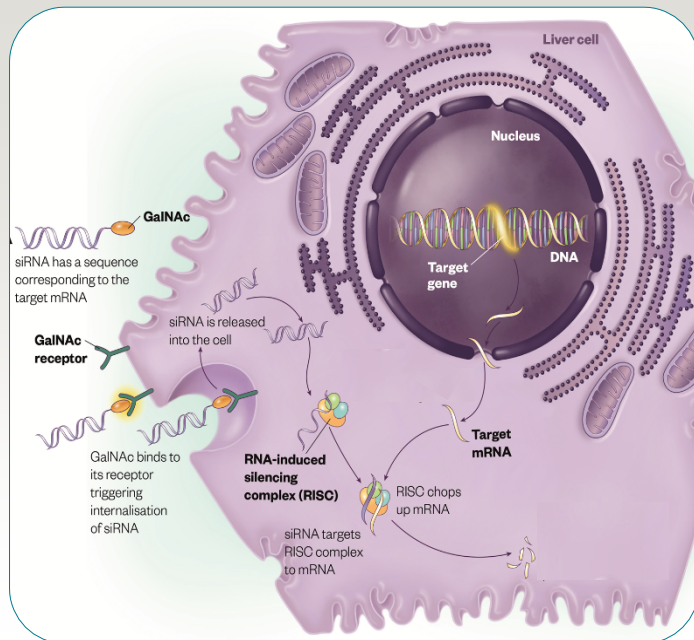
Stem cell lines

**UCSF**  
University of California  
San Francisco

# Novo Nordisk and Dicerna partner in the small interfering RNA drug modality space

Maintain competitive edge through new drug modality

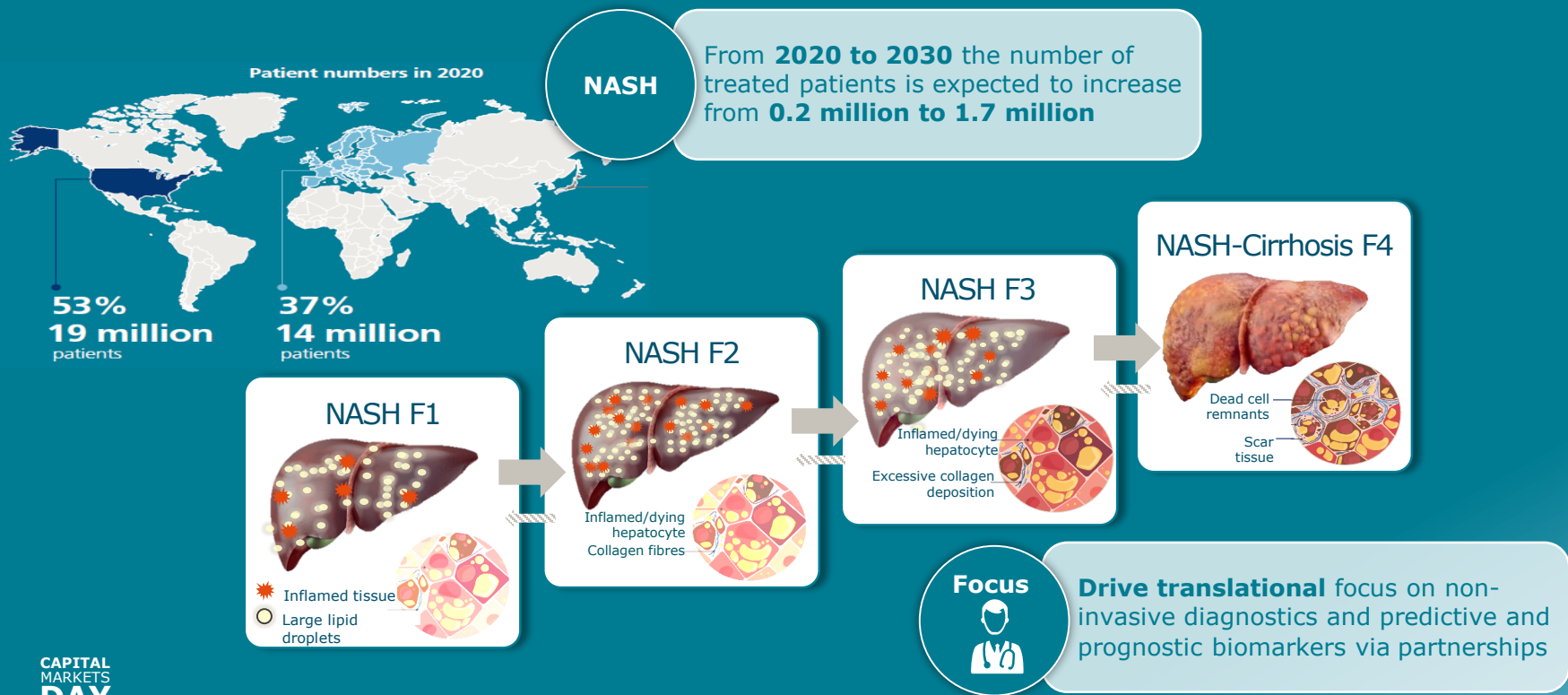
- **Current Novo Nordisk drug platform** focus on proteins and peptides with targets on the **surface of cells**
- **~90%** of molecular targets in T2D are intracellular
- **siRNA** allows for efficient and specific **gene silencing**
- **Previously inaccessible** drug targets, undruggable by small molecules, proteins and peptides



Dicerna's GalXC™ RNAi technology platform

- Proprietary, **patented** RNAi technology
- **Hepatocyte-selective** targeting
- **Subcutaneous** route of delivery
- Well tolerated and long duration of action
- High **target specificity** predictable activity
- High therapeutic index **broad applicability**

# NASH is a progressive disease with no existing treatment and low diagnosis rates today





# The collaboration with Gilead aims to bring therapies to people living with NASH

## Gilead possess complementary skillsets



**Leader in hepatology and combination therapy**



Deep understanding of liver disease treatment



Has established key opinion leader relationships in hepatology

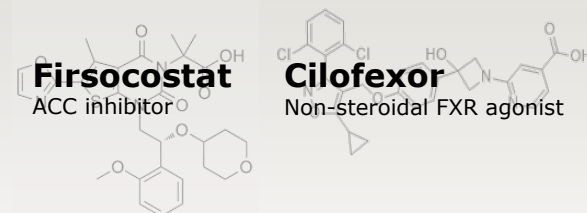
## Semaglutide in NASH



### Clinical programme – 3 trials

- Primary endpoints include:
  - NASH resolution without worsening of fibrosis
  - Mean change in liver stiffness measured by MRE
- ~450 patients enrolled
- Phase 2 results expected in H1 2020

## Novo Nordisk and Gilead clinical collaboration



### Clinical programme

- Gilead's two oral small molecule assets in loose combination with semaglutide
- Phase 2 results expected in 2020

# Cardiovascular disease is associated with increased mortality



**CVD**

~**18 million** people die each year from cardiovascular disease, an estimated 31% of all deaths globally

## Key facts

- CVD is the number one cause of death globally
- Of these CVD deaths, 85% are due to heart attacks and strokes



## HEART FAILURE

40% of patients who are hospitalised for heart failure have diabetes

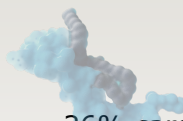


## ATHEROSCLEROSIS

70% of diabetes patients die from atherosclerotic CVD

# Novo Nordisk is addressing the significant unmet need in CVD via internal and external innovation

Semaglutide paves the way for entering CVD



## SUSTAIN 6

Semaglutide

26% cardiovascular risk reduction

## PIONEER 6

Oral semaglutide

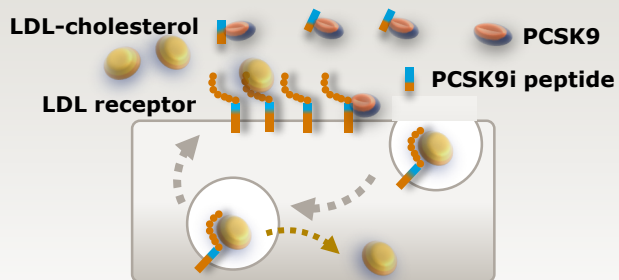
21% cardiovascular risk reduction<sup>1</sup>

## SOUL

Oral semaglutide

9,642 people with type 2 diabetes

Unique PCSK9i mimetic peptide approach

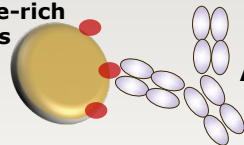


Increasing LDL receptor levels and efficiently decreasing LDL-cholesterol

Phase 1 results expected H1 2020  
Includes lipid lowering measurements

Novo Nordisk and Staten exclusive option agreement

Triglyceride-rich lipoproteins



Anti-ApoC-III antibody

Novel anti-ApoC-III antibody for dyslipidaemia management

Phase 1 initiation expected H1 2020

# The stem cell platform is expected to solve unmet needs for people with serious chronic diseases

## Parkinson's disease

Collaboration with Lund University and partnership with Biolamina



## Type 1 diabetes

Encapsulation device in collaboration with universities



## Chronic kidney disease

Partnership with Mayo Clinic



## Stem cell technology platform

## Dry age-related macular degeneration

Partnership with Biolamina

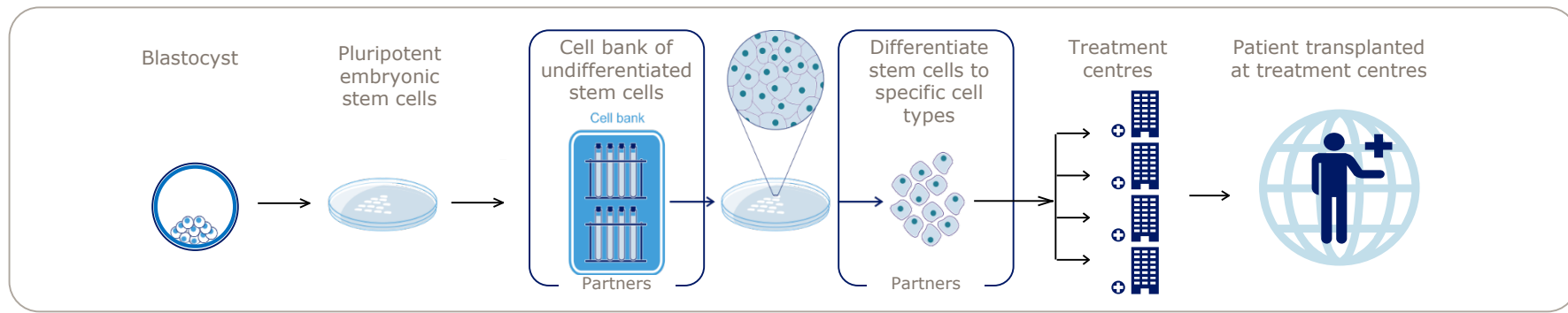


## Chronic heart failure

Partnership with Biolamina





# 20+ years of stem cell research experience facilitates entry into regenerative medicine



**Realised with Novo Nordisk's comprehensive stem cell capabilities**

 GMP-grade production capability in US facility utilising Novo Nordisk's core CMC capabilities

 IP positions on differentiation protocols

 Ethical stem cell practices

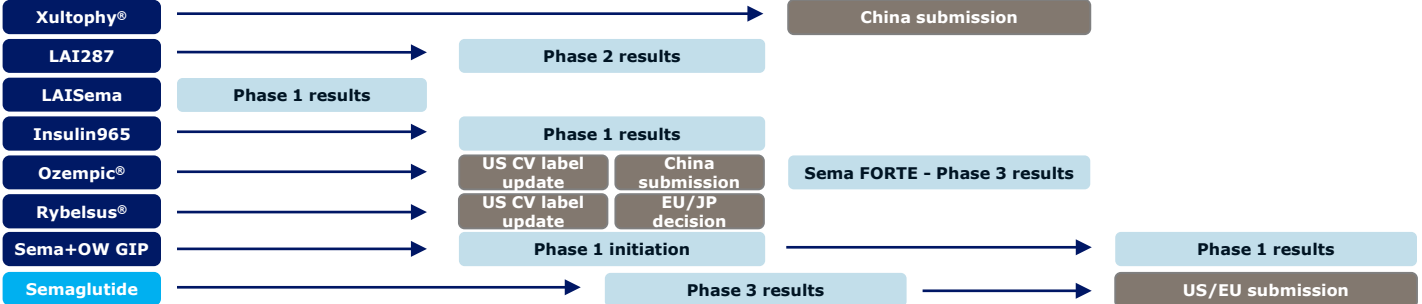
 Academic collaborations with stem cell technology experts

 Multiple programs and growing pipeline

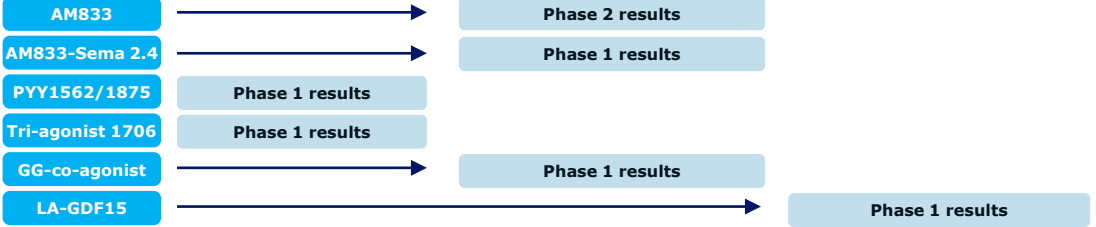


Q4 2019 H1 2020 H2 2020 H1 2021 H2 2021

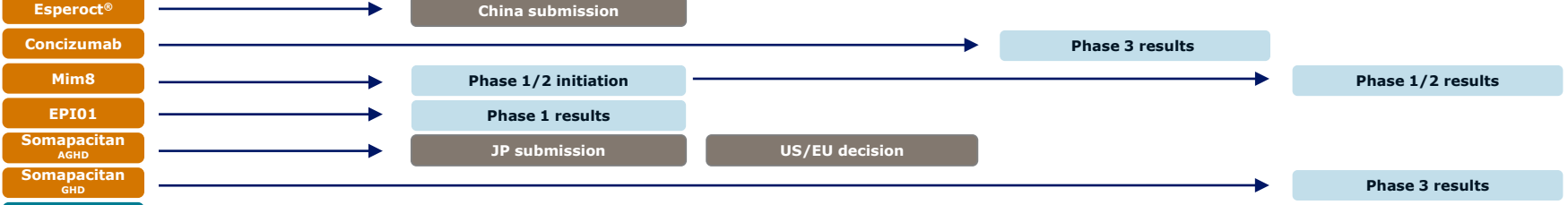
Diabetes



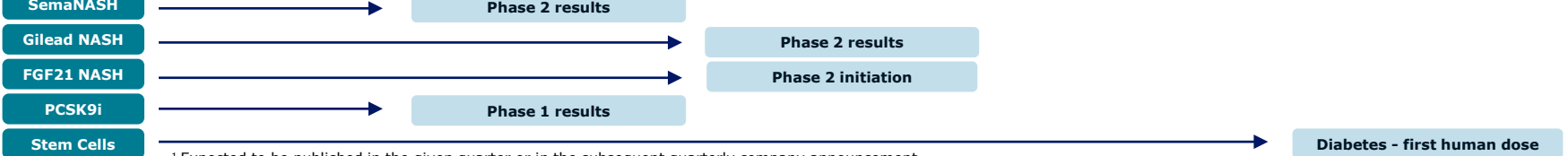
Obesity



Biopharm



Other Serious Chronic Diseases



<sup>1</sup> Expected to be published in the given quarter or in the subsequent quarterly company announcement

# Closing Remarks



Further raise the innovation bar for diabetes treatment

Develop a leading portfolio of superior treatment solutions for obesity

Strengthen and progress the Biopharm pipeline

Establish presence in other serious chronic disease focusing on NASH, CVD and CKD

# Sources, Notes and Abbreviations – Emerging Therapies

- **Slide 3:** <sup>1</sup>Probabilities of success to market were calculated using substances entering phase between 2008 and 2014 and year of assessment 2017, source: CMR International, 2017; NASH: Non-alcoholic steatohepatitis; CVD: Cardiovascular disease; CKD: Chronic kidney disease
- **Slide 6:** siRNA: silencing RNA; RNA: Ribonucleic acid
- **Slide 7:** NASH prevalence numbers are based on internal literature review
- **Slide 8:** ACC: Acetyl-CoA carboxylase; FXR: Farnesoid X receptor; GLP-1: Glucagon-like peptide-1
- **Slide 9:** Source: WHO, 2016; World heart foundation.
- **Slide 10:** <sup>1</sup>Not statistically significant; LDL: Low density lipoprotein, PCSK9i: Proprotein convertase subtilisin/kexin type 9 inhibitor
- **Slide 12:** GMP: Good manufacturing practice; IP: Intellectual property
- **Slide 13:** <sup>1</sup> Expected to be published in the given quarter or in the subsequent quarterly company announcement; HBwI: Haemophilia B with inhibitors; GHD: Growth hormone deficiency; AGHD: Adult growth hormone deficiency; CV: Cardiovascular; PoC: Proof of Concept; NASH: Non-alcoholic steatohepatitis

# Pipeline supports significant growth opportunities across all four strategic focus areas

## PHASE 1

NN1535 – LAIsema  
 NN1965 – FSI965  
 NN9747 – PYY 1562 analogue  
 NN9775 – PYY 1875 analogue  
 NN9423 – Tri-agonist 1706  
 NN9277 – GG-co-agonist  
 NN9215 – LA-GDF15  
 NN9838 – AM833 and Sema  
 NN7533 – Eclipse  
 NN9500 – FGF-21 NASH  
 NN6434 – PCSK9i  
 NN6177 – GG-co-agonist<sup>4</sup>

## PHASE 2

NN1436 – LAI287  
 NN9828 - Anti-IL-21 and lira  
 NN9838 – Amylin AM833  
 EX20020 – Macrilen, GHD  
 NN9931 - Semaglutide NASH

## PHASE 3

Semaglutide obesity  
 Somapacitan – QW GHD<sup>2</sup>  
 NN7417 - Concizumab

## SUBMITTED

Somapacitan – QW AGHD<sup>1</sup>

## APPROVED

Tresiba®  
 Xultophy®  
 Levemir®  
 Ryzodeg®  
 NovoMix®  
 Fiasp®  
 NovoRapid®  
 Victoza®  
 Ozempic®  
 Rybelsus®<sup>3</sup>  
 Saxenda®  
 NovoSeven®  
 NovoEight®  
 NovoThirteen®  
 Refixia®  
 Esperoct® (N8-GP)  
 Norditropin®

■ Diabetes  
 ■ Obesity  
 ■ Haemophilia  
 ■ Growth disorders  
 ■ Other serious chronic diseases

<sup>1</sup> Study conducted in adult growth hormone disorder; <sup>2</sup> Study conducted in growth hormone disorders; <sup>3</sup> Approved in the USA; submitted in the EU, Japan, and Canada; <sup>4</sup> Study conducted in NASH  
 LAIsema: Long-acting insulin combined with semaglutide; FSI965: A once daily insulin; PYY: Peptide YY; QW: Once-weekly; GG: Glucagon GLP-1; GDF15: Growth differentiation factor 15; QD: Once-daily; Sema: Semaglutide; PoC: Proof of Concept; FGF-21: Fibroblast growth factor 21; LAI: Long-acting insulin; AGHD: Adult growth hormone disease; GHD: Growth hormone disorder; lira: Liraglutide