BIOPHARM

SECURE A LEADING POSITION BY LEVERAGING FULL PORTFOLIO AND EXPANDING INTO ADJACENT AREAS
Forward-looking statements

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- 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.

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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.
Solid commercial execution is driving 4% sales growth in first nine months of 2019

Biopharm has returned to growth with 4% sales growth in first nine months of 2019

Added sales in the haemophilia product portfolio

Biopharm has returned to growth with 4% sales growth in first nine months of 2019

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<tr>
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5% growth at CER
Solid commercial execution is driving 4% sales growth in first nine months of 2019

Biopharm has returned to growth with 4% sales growth in first nine months of 2019

Norditropin® value leadership maintained despite increasing competition
Current and future growth is supported by a genuine portfolio of products and devices with an intensive launch agenda.

Well-positioned with a full haemophilia product portfolio

Evolution through product and device upgrades for GHD

Product upgrade
- Nanormon® → norditropin®

Device upgrade
- norditropin® → norditropin® flexpro®
- norditropin® nordilet® → norditropin® nordiflex®

Uninterrupted global launches and new indications

Current launches
- refixia®: 15
- esperoct®: 2
- norditropin®: 16

Towards 2022
- refixia®: 15
- esperoct®: 25
- norditropin®: 30

Noonan syndrome, EU device upgrades
Biopharm exhibits the traditional features of a strong speciality care unit

- Focused health care professional base
- Skilled scientific medical sales force and commercial unit
- Deep scientific knowledge
- Robust life-cycle management

Identify new patients in rare diseases, such as Noonan syndrome in Japan

Leveraging a deep disease understanding with NovoSeven®

Note: BTB: Breakthrough bleed; Prophyl.: Prophylaxis
Biopharm has a strategic path forward in rare blood disorders and rare endocrine disorders

**Haemophilia market value**

- **2018**
  - Haemophilia: 70 billion DKK
  - Rare Blood Disorders: 94 billion DKK
  - Value market share: 13%

- **2024**
  - Haemophilia: 95 billion DKK
  - Rare Blood Disorders: 189 billion DKK
  - Value market share: 10% (Annual growth rate +10%)

**Growth hormone disorders market value**

- **2018**
  - Growth hormone deficiency: 83 billion DKK
  - Rare Endocrine Disorders: 21 billion DKK
  - Value market share: 35%

- **2024**
  - Growth hormone deficiency: 104 billion DKK
  - Rare Endocrine Disorders: 29 billion DKK
  - Value market share: 11% (Annual growth rate +11%)

**Rare Blood Disorders**
- Haemophilia
- Growth hormone deficiency

**Rare Endocrine Disorders**
- Haemophilia
- Growth hormone deficiency
Biopharm sustained growth outlook is supported by innovation and utilisation of core capabilities

**Internal and external innovation to drive long-term growth**

- Bringing **internal innovation** to market by pipeline progression
- Ensuring future growth by leveraging **external innovation**

**Core capabilities within research and development to drive long-term growth**

- Exploring new technologies by utilising added **research platforms**
- Leveraging deep **biological understanding** for future growth
Scientific excellence ensures an innovative and competitive pipeline with therapeutic solutions for severe conditions.

More than 35 years of innovation

<table>
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<th>Current phases</th>
<th>2018</th>
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<td>Phase 2</td>
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<td>Somapacitan SGA</td>
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SCD: Sickle-cell disease; SGA: Short of gestational age
Phase 3 initiated with concizumab for HA, HB with and without inhibitors

- **High affinity, humanised monoclonal IgG4 antibody**
- **First-in-class anti-TFPI** boosting the initiation phase to restore haemostasis
- **Delivered once-daily in a convenient Flextouch® pen**
- **Safe and well-tolerated** in phase 2 and efficacy comparable to factor replacement\(^1\)

**Concizumab mode of action**

TF: Tissue factor; TFPI: Tissue factor pathway inhibitor
Phase 3 initiated with concizumab for HA, HB with and without inhibitors

Phase 3 trials with data expected first half of 2021

- **Arm 1**: No prophylaxis
- **Arm 2**: Concizumab prophylaxis
- **Arm 3**: Concizumab prophylaxis with bypassing or on-demand
- **Arm 4**: Concizumab prophylaxis with factor replacement or on-demand

**Exp7 and Exp8**:
- On-demand treatment
- Phase 2 patients on concizumab prophylaxis
- (with inhibitors): Prophylaxis with bypassing or on-demand
- (without inhibitors): Prophylaxis with factor replacement or on-demand

Main part: 24 weeks treatment
Extension: Up to 136 weeks treatment

**TF**: Tissue factor; **TFPI**: Tissue factor pathway inhibitor
Next-generation FVIII mimetic, Mim8, is a bispecific antibody for subcutaneous prophylaxis treatment in people with haemophilia A.

**Strong activity at site of bleeding**

**Minimised target binding in circulation**

**Delivered in an innovative device**

**Mim8 potently stimulates FX activation** resulting in efficacious haemostasis *in vitro* and *in vivo*

**Mim8 effectively stops severe bleeds** in mouse models

Phase 1/2 is expected to be initiated H1 2020

1 Sequence-identical-analogue (SIA) of the FVIII-mimicking bispecific antibody emicizumab

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**Thrombin generation assay**

**Thromboelastography**

**HA plasma + FVIII**

**emicizumab**

**Mim8**

**Normal control**

**HA**

**Clot time, R-time (min)**

**Antibody (nM)**

**Antibody (nM)**
Once-weekly, biodegradable somapacitan has entered phase 3 for GHD and is filed with the US and EU regulators for AGHD indication.

**Phase 2 trial in GHD with 1-year efficacy and safety**

![Graph showing mean height velocity (cm/year) for Somapacitan and Norditropin®](image)

- **Somapacitan**
  - Dose: 0.04, 0.08, 0.16 mg/kg/week
  - Mean height velocity: 7.8, 9.7, 11.5 cm/year
- **Norditropin®**
  - Dose: 0.034 mg/day
  - Mean height velocity: 10.0 cm/year

* Denotes statistical significance

**Next steps**

- **Somapacitan in children (GHD)**
  - Phase 3 trial (REAL 4) has been initiated
  - Somapacitan dose 0.16 mg/kg/week

- **Somapacitan in children (SGA)**
  - Phase 2 trial (REAL 5) has been initiated

- **Somapacitan in adults (AGHD)**
  - Has been submitted in the US and the EU
  - Japan submission planned for first half of 2020

**Growth hormone with a single amino acid substitution**

**Somapacitan**

**Albumin binding side chain** securing reversible binding to endogenous albumin.
Novo Nordisk and bluebird bio join forces in next-generation genome editing for children and adult patients with haemophilia A

Potential curative treatment in haemophilia A

- mRNA-based megaTAL™-driven gene editing
- Highly specific and efficient way to silence, edit or insert genetic components.
- Allows for gene editing in all age groups

bluebird bio/Novo Nordisk’s joint approach

- megaTAL™: Proprietary, patented technology, broad IP
- Correcting FVIII-clotting factor deficiency
- Potential life long effect
- Possibility to explore additional therapeutic targets

AAV: Adenovirus vector; BDD: B-domain deleted; hFVIII: human factor VIII; LNP: Lipid nanoparticle; mRNA: messenger ribonucleic acid; TAL: transcription activator-like.
Secure a sustained growth outlook for Biopharm by leveraging commercial competencies and ensure frequent launches.

Strengthen and progress the Biopharm pipeline.
Sources, notes and abbreviations – Biopharm

• **Slide 3:** Company reported sales; CER: Constant exchange rates
• **Slide 4:** Company reported sales, IQVIA, MAT value DKK, Sep 2019
• **Slide 5:** GHD: Growth hormone deficiency
• **Slide 6:** Company numbers for patient count
• **Slide 7:** Market size is based on EvaluatePharma, 2018. Market share for haemophilia is based on company reported sales. Market share for GHD is IQVIA, MAT, DKK, Sep 2019.
• **Slide 9:** HwI: Haemophilia A or B patients with inhibitors; SGA: small for gestational age; GHD: Growth hormone deficiency
• **Slide 12:** GHD: Growth hormone deficiency; AGHD: Adult growth hormone deficiency; SGA: Small for gestational age
• **Slide 13:** Data are mean height velocity (cm/year) ± SD at week (wk) 52. Doses are mg/kg/time. * Denotes statistical significance difference compared to once-daily Norditropin®. GHD: Growth hormone deficiency; AGHD: Adult-onset growth hormone deficiency. 1 Value was 9.8 for the full analysis set. Value of 10.0 is from a post-hoc analysis that excluded 4 visits of one patient who discontinued prematurely at week 6