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Lundbeck – who are we?

- Danish based, global pharmaceutical company. Founded in 1915
- Focused on four disease categories in CNS
- Innovative treatments for patients with CNS diseases and with high unmet medical needs
- Pursuing category leadership
- Experienced management team and long history as CNS specialists
- Revised 2016 financial guidance:
  - Revenue: DKK 15.3-15.7bn
  - EBIT: DKK 2.1-2.3bn
  - Market cap: DKK ~45bn (USD ~7bn)
  - ~5,000 employees
Distribution of sales in our four key therapeutic categories

**Distribution of WW sales according to IMS Health (2015)**

- Depression: USD 23.5bn
- Anti-psychotics: USD 5.3bn
- Parkinson's: USD 4.0bn
- Alzheimer's: USD 13.2bn

**Indicative distribution of Lundbeck’s 2015 revenue**

- Depression: DKK 4.5bn
- Anti-psychotics: DKK 1.9bn
- Parkinson's: DKK 2bn
- Alzheimer's: DKK 1bn

Source: IMS Health Analytics Link 2016 (Audited sales)
Market sizes of the four key therapeutic categories

**USA**
- Depressants: $5.5bn
- Psychotics: $13.6bn
- Alzheimer’s: $2.6bn
- Parkinson’s: $1bn

**Europe**
- Depressants: $3.2bn
- Psychotics: $3.9bn
- Alzheimer’s: $0.8bn
- Parkinson’s: $1bn

**Japan**
- Depressants: $1bn
- Psychotics: $1.3bn
- Alzheimer’s: $1.1bn
- Parkinson’s: $0.6bn

**China**
- Depressants: $0.4bn
- Psychotics: $0.6bn
- Alzheimer’s: $0.07bn
- Parkinson’s: $0.08bn

Source: IMS Health Analytics Link 2016 (Audited sales)
Our chosen therapeutic categories all have large potentials

High unmet medical needs

Large market segments

Substantial growth opportunities

USD ~45bn

<50% has satisfactory treatment outcome

- Antipsychotics: USD 21.5bn
- Depression: USD 13.2bn
- Alzheimer’s: USD 5.3bn
- Parkinson’s: USD 4.0bn

Lundbeck’s revenue represents ~5% value share

1) IMS Health Analytics Link 2016 (Audited sales)
Q3 2016 highlights

All key products continue the solid momentum

- Revenue increased by 8% to DKK 3,948 billion
- Key products grew 77% to DKK 1,778 million - represents 45% of revenue

Operational efficiencies well on track

- EBIT increased to DKK 589 million from DKK (1,519) billion in Q3 2015
- EBIT margin significantly improved to 14.9%

R&D

- Carnexiv and the sNDA on Rexulti have received FDA approvals
- The first phase III study investigating the efficacy of idalopirdine in patients with Alzheimer’s disease did not meet the prespecified efficacy endpoints

2016 financial guidance raised

- Lundbeck now expects revenue of DKK 15.3-15.7 billion and EBIT of DKK 2.1-2.3 billion for 2016
The US - the driver of sales performance

- In the US, the strong uptake of key products more than mitigates the Xenazine erosion
- International markets shows decent growth, but is negatively impacted by Venezuela and Azilect handback
- Europe negatively impacted by Azilect handback and timing of market access
Revenue of DKK 11,469 million – up 6% in 9M 2016

- Revenue grew 8% in Q3 2016 reaching DKK 3,948 million
- Continued strong growth for all key products
- Growth negatively impacted by Azilect handback and Xenazine erosion
- Remaining mature portfolio relatively stable
Key product sales of DKK 4,680 million – up 90% in 9M 2016

Sales increased 77% in Q3 reaching DKK 1,778 million

Growth primarily driven by demand

Key products constitute 45% of revenue vs. 27% in Q3 2015

Solid growth momentum set to continue
Rexulti sales of DKK 555 million – up 859% in 9M 2016

- Sales reached DKK 246 million in Q3
- Average weekly volume growth since launch is around 120 TRrx
- Majority of Rx prescribed for major depression
- ~8% branded TRrx market share and ~9% branded NRrx market share

Source: Bloomberg (week ending 21/10/2016)

Lundbeck’s share of revenue
Brintellix/Trintellix sales of DKK 773 million – up 85% in 9M 2016

Sales reached DKK 291 million in Q3 – up 62%

US DTC campaign commenced mid-July 2016

42% market share amongst branded products in new to brand (NBRx) prescriptions

Average weekly US volume growth since August 2015 is around 130 TRx

Encouraging launches in Brazil, Italy and Spain

Source: Bloomberg (week ending 21/10 2016)
Abilify Maintena sales of DKK 805 million – up 76% in 9M 2016

Sales reached DKK 271 million in Q3 – up 49%

Q3 2016 impacted by quarterly fluctuations in the US and Europe

Met primary endpoint in bipolar disorder phase III trial and sNDA planned for end-2016

10-16% value market share (LAI retail) in most markets

Revenue contributors (DKKm)

Lundbeck’s share of revenue

Abilify Maintena sales (DKKm)

LAI = Long-Acting Injectable anti-psychotics
Onfi sales of DKK 1,773 million – up 43% in 9M 2016

Sales of DKK 645 million in Q3 – up 44%

Continued increased demand driven by increase in mg/Rx and higher volume (TRx)

Source: Bloomberg (week ending 21/10 2016)
Northera sales of DKK 774 million – up 174% in 9M 2016

- Launched in September 2014
- Only chronic oral therapy treating root cause of symptomatic nOH
- Available in Japan since 1989
- Good synergies with neurology franchise
- 80,000-150,000 nOH patients in the US (MSA, PAF, PD only)

Sales reached DKK 325 million in Q3 – up 142%

Growth primarily driven by demand

1) Neurogenic Orthostatic Hypotension; 2) MSA=Multiple System Atrophy; PAF=Pure Autonomic Failure; PD=Parkinson’s Disease
Q3 R&D highlights

Abilify Maintena
※ Submission of sNDA for bipolar disorder on track for end-2016

Brintellix/Trintellix
※ Feedback from FDA regulatory dialogue regarding sNDA expected during Q1 2017
※ Failed to achieve significance in separating from placebo in phase II ADHD study¹)

Carnexiv
※ FDA approved in October 2016

Rexulti
※ FDA approved labeling update for maintenance treatment of schizophrenia

Idalopirdine
※ Negative headline result from STARSHINE study²)

Lu AF35700
※ Open-label extension study initiated³)

Lundbeck’s development pipeline

<table>
<thead>
<tr>
<th>Disease areas</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Registration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alzheimer’s</td>
<td>Lu AF20513</td>
<td></td>
<td></td>
<td>Idalopirdine, Rexulti</td>
</tr>
<tr>
<td>Depression</td>
<td>Brintellix, ADHD</td>
<td></td>
<td>Rexulti (ROW)</td>
<td>Ability Maintena, BP</td>
</tr>
<tr>
<td>Parkinson’s</td>
<td>Lu AE04621</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychotic disorders</td>
<td>Lu AF35700</td>
<td></td>
<td>Rexulti (EU, ROW)</td>
<td></td>
</tr>
</tbody>
</table>

¹) NCT02327013. ²) NCT01955161. ³) NCT02892422
Our path to category leadership

<table>
<thead>
<tr>
<th>Current products</th>
<th>Pipeline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depression</strong></td>
<td></td>
</tr>
<tr>
<td>Cipralex escitalopram</td>
<td>Research projects</td>
</tr>
<tr>
<td>Brintellix vortioxetine</td>
<td></td>
</tr>
<tr>
<td>Rexulti brexpiprazole tablets</td>
<td></td>
</tr>
<tr>
<td><strong>Psychotic disorders</strong></td>
<td></td>
</tr>
<tr>
<td>Saphris asenapine</td>
<td>Lu AF35700</td>
</tr>
<tr>
<td>Rexulti brexpiprazole tablets</td>
<td>Research projects</td>
</tr>
<tr>
<td>Abilify Maintena</td>
<td></td>
</tr>
<tr>
<td><strong>Alzheimer’s</strong></td>
<td></td>
</tr>
<tr>
<td>Ebixa memantine</td>
<td>Rexulti</td>
</tr>
<tr>
<td>Lu AF20513</td>
<td>Idalopirdine</td>
</tr>
<tr>
<td></td>
<td>Research projects</td>
</tr>
<tr>
<td><strong>Parkinson’s</strong></td>
<td></td>
</tr>
<tr>
<td>Azilect rasagline</td>
<td>Research projects</td>
</tr>
<tr>
<td>Northera (dopadopa) capsules</td>
<td>Early clinical projects</td>
</tr>
</tbody>
</table>

First phase III study out of three for idalopirdine showed disappointing headline results

**Regulatory**

- Support an indication for:
  - Treatment of mild to moderate dementia of Alzheimer’s type as adjunctive therapy to donepezil
  - Inclusion of patients on other AChEIs may support indication for use as adjunctive treatment in combination with all AChEIs
  - Effect on ADAS-Cog and at least one of ADCS-ADL or ADCS-CGIC is acceptable demonstration of symptomatic efficacy in mild-to-moderate AD

**Clinical phase III programme**

- >2,500 mild to moderate Alzheimer’s patients
- Headline conclusions from the remaining pivotal studies due in Q1 2017
- In the **STARSHINE** study, idalopirdine showed a weak efficacy profile for both dosages
- In addition, the secondary endpoints also did not show separation from placebo
- The overall safety profile showed that idalopirdine was safe and well tolerated

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Abilify Maintena met primary endpoint in study for the maintenance treatment of bipolar I disorder

- One of the most common causes of relapse in bipolar disorder is poor treatment adherence
- ~50% of patients being partially adherent or non-adherent to their treatment regimens
- Bipolar I disorder affects ~1% of the population in the US

Clinical programme*

- ~730 patients in placebo-controlled phase III 52-week study
- Primary efficacy endpoint of this trial is time to recurrence of any mood episode
- An open-label safety study (ATLAS) is ongoing recruiting ~755 patients
- Expected sNDA on track for end-2016

*) NCT01567527 (Start: Aug. 2012); NCT01710709 (Start: Nov. 2012)
No drugs so far approved for agitation/aggression in Alzheimer’s which remains a high unmet need

The condition
- >20% of individuals in a community setting and >50% of nursing home residents with dementia have agitation
- >1.5 million dementia patients in the US with agitation/aggression
- Agitation in Alzheimer’s is associated with increased caregiver burden, decreased functioning and earlier nursing home placement

The studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Duration</th>
<th>enrolment</th>
<th>Dose</th>
<th>Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study #1 (12 weeks)</td>
<td>(NCT01922258)</td>
<td>~230 patients</td>
<td>0.5-2mg (flexible dose)</td>
<td>June 2013</td>
</tr>
<tr>
<td>Study #2 (12 weeks)</td>
<td>(NCT01862640)</td>
<td>~420 patients</td>
<td>1mg and 2mg</td>
<td>July 2013</td>
</tr>
</tbody>
</table>

Clinical programme
- Target population: Institutionalized or non-institutionalized setting
- Primary outcome: Change in the Cohen-Mansfield Agitation Inventory (CMAI) total score
- Headline results due end-2017
Lu AF35700 in Treatment Resistant Schizophrenia (TRS)

The condition
- Psychiatrists readily recognize the term ‘Treatment Resistant Schizophrenia’
- TRS is an inability to control symptoms of schizophrenia after a full round of two to three antipsychotics
- Around 1/3 of schizophrenia patients is treatment resistant

The molecule
- Unique mode of action. In contrast to current treatment, antipsychotic effect at low D₂ blockade
- Combined D₁/D₂ and 5-HT₆ profile gives good activity combined with a benign tolerability profile
- Very long half-life leads to significantly reduced risk of relapse

Clinical programme
- Four clinical studies have been conducted, three studies in healthy people and one in patients with schizophrenia*)
- The first study in the pivotal programme commenced in March 2016

*) Clinicaltrials.gov identifier: NCT02202226
Lu AF35700 study set-up in clinical phase III in Treatment Resistant Schizophrenia (TRS)

- Oral, once daily
- Approximately 1,000 patients
- Expected completion by 2018

**Primary endpoint**
- Change in PANSS total score

**Secondary endpoints**
- Clinical Global Impression Severity scale (CGI-S)
- Personal and Social Performance (PSP) total score

Clinicaltrials.gov ID: NCT02717195
Complete Response Letter (CRL) for Trintellix sNDA received in March 2016

- FDA recognizes the importance of cognitive dysfunction in MDD and views it as a legitimate target for drug development

- In February 2016, FDA Psychopharmacologic Drugs Advisory Committee (PDAC) voted 8 to 2 that Takeda and Lundbeck presented substantial evidence to support a claim of effectiveness for Trintellix in treating certain aspects of cognitive dysfunction in adults with MDD

- Dialogue to address CRL is ongoing and feedback expected during Q1 2017

- We remain committed to Trintellix as a treatment option for patients with MDD
The solid operational performance continues

<table>
<thead>
<tr>
<th>DKKm</th>
<th>Q3 2016</th>
<th>Q3 2015</th>
<th>Variance</th>
<th>DKK</th>
<th>Local currencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>3,948</td>
<td>3,669</td>
<td></td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>Key products</td>
<td>1,778</td>
<td>1,002</td>
<td></td>
<td>77%</td>
<td>74%</td>
</tr>
<tr>
<td>EBIT</td>
<td>589</td>
<td>(1,519)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBIT margin</td>
<td>14.9%</td>
<td>(41.4%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax</td>
<td>264</td>
<td>(285)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPS</td>
<td>1.62</td>
<td>(6.40)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Limited currency impact
- Impact from loss of Azilect in Europe and generics mitigated by growth in key products
- EBIT impacted by effects from restructuring (↑) and idalopirdine impairment loss (↓)
- Core EBIT improved from DKK 423 million to DKK 988 million (Q3)
- Core EBIT-margin improved from 11.9% to 25.0% in Q3
Continued focus on cost

Cost of sales (DKKm)
-26%

Sales and distribution (DKKm)
-19%

Administration (DKKm)
-39%

R&D (DKKm)
-69%
Solid improvement in Lundbeck’s cash flow

Cash flow drivers:

- Strong improvement in profitability
- Improved working capital
- Provisions reduced by spend on restructuring
- Net interest-bearing debt expected to be around zero at year-end

<table>
<thead>
<tr>
<th>DKKm</th>
<th>9M 2016</th>
<th>9M 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating cash flow</td>
<td>2,093</td>
<td>(1,868)</td>
</tr>
<tr>
<td>Free cash flow</td>
<td>1,889</td>
<td>(3,300)</td>
</tr>
<tr>
<td>Net cash flow</td>
<td>371</td>
<td>(2,313)</td>
</tr>
<tr>
<td>Cash</td>
<td>1,785</td>
<td>1,334</td>
</tr>
<tr>
<td>Net interest-bearing debt</td>
<td>575</td>
<td>2,918</td>
</tr>
<tr>
<td>Net debt/EBITDA</td>
<td>0.2x</td>
<td>117.2x</td>
</tr>
</tbody>
</table>
2016 financial guidance increased

Financial guidance 2016

<table>
<thead>
<tr>
<th></th>
<th>Revised 2016 guidance</th>
<th>Previous 2016 guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>DKK 15.3-15.7bn</td>
<td>DKK 14.6-15.0bn</td>
</tr>
<tr>
<td>Reported EBIT</td>
<td>DKK 2.1-2.3bn</td>
<td>DKK 1.5-1.7bn</td>
</tr>
</tbody>
</table>

Expected drivers of future revenue and profit performance

- Continued growth in key products primarily driven by demand
- Pace of erosion on products such as Xenazine and Sabril
- Continued gains from operational efficiencies
- No acquisitions, milestones or up-front payments included
## 2015 - CNS market overview

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value (USDbn)</td>
<td>Value Growth</td>
</tr>
<tr>
<td>Total pharma</td>
<td>945</td>
<td>+1%</td>
</tr>
<tr>
<td>Total CNS</td>
<td>134</td>
<td>-3%</td>
</tr>
</tbody>
</table>
| Anti-Alzheimer’s (N7D) | 5.3   | -14%       | +3%        | >7 million² | • Disease modifying treatment  
• Disease slowing agents  
• Improved symptomatic treatments  
• Longer lasting symptomatic treatments | 1. Memantine  
2. Rivastigmine  
3. Donepezil  
4. Galantamine | 50%  
23%  
21%  
6% |
| Anti-depressants (N6A) | 13.2  | -15%       | +5%        | ~40 million² | • Drugs with higher remission rates  
• Increased onset of action  
• Current therapies are relatively well-tolerated but still room for improvement especially on sexual side effects | 1. Duloxetine  
2. Escitalopram  
3. Bupropion  
4. Venlafaxine | 16%  
10%  
10%  
9% |
| Anti-Parkinson’s (N4A) | 4.0   | -10%       | +3%        | >3 million² | • Therapies that provide neuroprotection and/or neurorestoration  
• An optimal trial design for demonstrating neuroprotection and/or neurorestoration  
• Control of levodopa-induced motor response complications | 1. Rasagiline  
2. Levodopa  
3. Pramipexole  
4. Rotigotine | 16%  
14%  
14%  
10% |
| Anti-psychotics (N5A)  | 21.5  | -7%        | +3%        | Approx 1% of global population | • Improved treatment of cognitive dysfunction  
• Improved treatment of negative symptoms  
• Improved treatment of co-morbid depression and anxiety  
• Early stage, definitive diagnostics | 1. Aripiprazole  
2. Quetiapine  
3. Paliperidone Palmitate  
4. Olanzapine | 35%  
14%  
10%  
9% |

Source: IMS Health Analytics Link 2016 (Audited sales), Growth, USD % y/y
Supply operations
Brintellix (vortioxetine, Lu AA21004)
Brintellix has a distinct pharmacological profile

Brintellix (vortioxetine) has a distinct pharmacological profile with observed clinical effects:

- **Improved mood**
- **Improves cognitive dysfunction**
- **Relieves anxiety**
- **No insomnia / somnolence**
- **Low sexual effects**
- **Weight neutral**

**Direct effects**
- 5-HT₁A agonist
- 5-HT₁B partial agonist
- 5-HT₁D antagonist
- 5-HT₂ antagonist
- 5-HT₇ antagonist

**Reuptake inhibition**
- SERT inhibitor

**Indirect effects**
- ↑ serotonin neurotransmission
- ↑ dopamine neurotransmission
- ↑ noradrenaline neurotransmission
- ↑ acetylcholine neurotransmission
- ↑ histamine neurotransmission
- ↓ GABA neurotransmission
- ↑ glutamate neurotransmission

Cognitive symptoms of depression are frequent and affect work productivity

Cognitive symptoms (difficulty concentrating, planning, decision making and forgetfulness) are very prevalent and have a direct impact at the workplace

Percentage of patients with MDD experiencing work-related cognitive dysfunction

2. Adelphi Neurosis DSP VIII, 2009
Newer products

Onfi
(clobazam)
5, 10 and 20 mg tablets

Northera
(droxidopa) Capsules
100 mg, 200 mg, 300 mg

Sabril
vigabatrin
500 mg tablet, 50 mg powder for oral solution
Sabril – launched in Q3 2009 and reached DKK 936 million - up 30% in 9M 2016

**Sabril sales (DKKm)**

**Infantile spasms (IS):**
- ~2,500 patients/year in the US with IS
- Serious disease with substantial unmet medical need
  - 70-90% suffers from mental retardation, mortality of around 5%

**Refractory complex partial seizures (rCPS):**
- ~1 million patients in the US suffer from CPS
- 30-36% of patients are refractory
- Poorly controlled by current therapies
- Uncontrolled seizures has ~40x higher risk of inflicting mortality
Otsuka collaborations (Rexulti and Abilify Maintena)
Financial terms and territory structure of the Otsuka alliance

- Co-development and co-commercialization agreements with Otsuka in November 2011
- Idalopirdine added to the alliance in March 2013
- Selincro for Japan added to the alliance in October 2013

### Milestone payments

<table>
<thead>
<tr>
<th></th>
<th>Ability Maintena</th>
<th>Rexulti</th>
<th>Idalopirdine</th>
<th>Selincro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development milestones/upfront</td>
<td>USD 200m</td>
<td>USD 600m$^{2)}$</td>
<td>USD 150m</td>
<td>EUR 105m*</td>
</tr>
<tr>
<td>Approval milestones</td>
<td>USD 275m$^{1)}$</td>
<td>USD 300m$^{2)}$</td>
<td>USD 300m$^{4)}$</td>
<td>undisclosed</td>
</tr>
<tr>
<td>Sales milestones</td>
<td>Up to USD 425m depending on sales development</td>
<td>Up to USD 375m depending</td>
<td>undisclosed</td>
<td></td>
</tr>
</tbody>
</table>

1) USD 100m upon US approval, USD 75m upon EU approval in schizophrenia, and USD 50m US and EU for a second indication. 2) USD 100m (US) and USD 50m (EU) for each of the two first indications. 3) Development milestones of up to USD 600m after which shared development costs between parties. 4) USD 125m, USD 25m, and USD 50m for first indication in the US, EU, and Japan respectively. Second indication gives USD 50m, USD 25m and USD 25m, respectively.

### Lundbeck’s share of revenue and costs

<table>
<thead>
<tr>
<th></th>
<th>Ability Maintena</th>
<th>Rexulti</th>
<th>Idalopirdine</th>
<th>Selincro</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>20%</td>
<td>45%</td>
<td>55%</td>
<td>-</td>
</tr>
<tr>
<td>EU-5, Nordic and Canada</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td>-</td>
</tr>
<tr>
<td>Other Lundbeck territories</td>
<td>65%**</td>
<td>65%**</td>
<td>~50%***</td>
<td>undisclosed</td>
</tr>
</tbody>
</table>

* Includes sales milestones  
** All regions except Asia, Turkey and Egypt  
*** All regions except Thailand and Vietnam
The long-acting injectables (atypicals) in schizophrenia – 2015 vs. 2014

Sales of atypicals in schizophrenia was USD 5.9bn in 2015, ...
...of which the LAIs constituted USD 2.4bn
In volume 18.5% and 9.6% have been converted in EU and the US respectively
The LAI market grew 13% and 17% y/y in volume and value, respectively
Abilify Maintena’s value share was 13.5% in 9M 2016

LAIs share of the atypical market in schizophrenia (volume)

Size of the atypical LAI market (USDm)

Source: Decision Ressource (data is US and EU5)
LAI = Long-Acting Injectable anti-psychotics)
The balance of Rexulti - a real opportunity to differentiate from existing treatments

**ACTIVATING SIDE EFFECTS:**
- Hyper-dopaminergic state
- Akathisia, agitation, anxiety, insomnia
- Aripiprazole – 25% akathisia\(^1\)

**SEDATING SIDE EFFECTS:**
- Hypo-dopaminergic state
- Sedation, somnolence, fatigue, lethargy
- Quetiapine fumarate – 37% somnolence\(^2\)

Mechanism of action: Novel D\(_2\)/D\(_3\) receptor partial agonist; 5-HT\(_{1A}\) partial agonist; 5-HT\(_{2A}\) antagonist

In the US, two antipsychotics are approved for adjunctive therapy in MDD

1) Abilify prescribing information. 2) Seroquel XR prescribing information
Alzheimer’s and Parkinson’s disease
Lundbeck in Alzheimer’s disease (AD)

- Lundbeck launched Ebixa in 2002
- Ebixa peaked at 27% of the European market
- Idalopirdine and Rexulti to address symptoms of Alzheimer’s
- Therapeutic vaccine against beta-amyloid, Lu AF20513
- Other concepts in early development
Lundbeck is active in the investigation of various novel treatment concepts

Treatment of Alzheimer’s

**Abeta:**
Lu AF20513: Therapeutic vaccine against beta-amyloid

**BACE-1 inhibition:**
Inhibition of BACE1 enzyme to target delay of disease progression in prodromal AD/MCI and/or mild AD patients

**TAU:**
Clearance of pathological tau species through interaction with an antibody to target delay of disease progression in prodromal and mild AD

**Symptomatic treatment:**
Ebixa, Rexulti, idalopirdine
# The clinical phase III programme on idalopirdine

<table>
<thead>
<tr>
<th>Study ID</th>
<th>Design</th>
<th>Idalopirdine (mg/day)</th>
<th>Donepezil (mg/day)</th>
<th>Primary Endpoint Scale</th>
<th>No. of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCT01955161</td>
<td>Randomized, DB, PBO, parallel-group, fixed-dose adjunctive treatment to donepezil</td>
<td>30 and 60mg (QD)</td>
<td>10</td>
<td>ADAS-cog (#)</td>
<td>~930 (Study start: 10/2013)</td>
</tr>
<tr>
<td>NCT02006641</td>
<td>24 weeks</td>
<td>10 and 30mg (QD)</td>
<td>10</td>
<td>ADAS-cog (#)</td>
<td>~850 (Study start: 02/2014)</td>
</tr>
<tr>
<td>NCT02006654</td>
<td>AChEIs</td>
<td>60 (or 30mg) (QD)</td>
<td>-</td>
<td>ADAS-cog (#)</td>
<td>~720 (Study start: 03/2014)</td>
</tr>
<tr>
<td>NCT02079246*</td>
<td>Adj. to donepezil</td>
<td>60 (or 30mg) (QD)</td>
<td>10</td>
<td>AEs Withdrawals</td>
<td>1,770 (Study start: 04/2014)</td>
</tr>
<tr>
<td>NCT01019421</td>
<td>Adj. to donepezil</td>
<td>90mg (TID)</td>
<td>10</td>
<td>ADAS-cog</td>
<td>278 (Study start: 12/2009)</td>
</tr>
<tr>
<td>NCT00810667</td>
<td>Adj. to risperidone</td>
<td>120mg (BID)</td>
<td>-</td>
<td>PANSS</td>
<td>124 (schizophrenia) (Study start: 11/2008)</td>
</tr>
</tbody>
</table>

DB: double-blind; PBO: placebo-controlled

*) Patients that conclude STARSHINE or STARBEAM can be included in a long-term open label study - NCT02079246. #) Both Activities of Daily Living Inventory (ADCS-ADL23) total score and Clinical Global Impression of Change (ADCS-CGIC) score included as secondary endpoints
Lu AF20513 – getting beyond symptomatic treatment

**Wanted from study**
- Low level of ARIA-E and ARIA-H
- No meningo-encephalitis
- High antibody responder rate
- Fast antibody response (< 6 months)
- High affinity Aβ specific antibodies (for CNS clearance)

**Not wanted from study**
- Aβ specific T-cells
- High IgM over IgG ratio
- Very low responder rate

**Phase I study**
- 35 patients from centres in Europe
- Patients with mild AD (MMSE 19-26)
- Four injections of Lu AF20513
- Purpose:
  - Evaluate safety and tolerability
  - Measure Aβ-specific antibody titter
- Expected completion: mid-2017

---

1) NCT02388152
2) Amyloid Related Imaging Abnormalities (ARIA): ARIA-E refers to the MR signal alterations thought to represent vasogenic edema (VE) and related extravasated fluid phenomena. ARIA-H refers to the MR signal alterations on attributable to microhemorrhages (mH) and hemosiderosis.
BACE-1 inhibition – to stop the production of β-amyloid, aimed at slowing the disease progression

BACE\(^1\)

- BACE was identified in 1999\(^2\)
- Enzyme that initiates the production of the Alzheimer’s associated peptide Aβ

BACE-1 project

- Disease modifying treatment for AD that fits well Lundbeck’s expanding AD portfolio
- FHD in preparation

---

Increasing evidence suggests abnormal tau and amyloid work together to cause nerve cell death

**Tau protein**
- Tau, a microtubule-associated protein first discovered in 1975
- In a healthy brain, tau has an important function, acting as a form of ‘scaffolding’ to keep cells stable, but in Alzheimer’s, tau loses its normal form and breaks away from the cell

**Tau-Ab**
- Tau aggregation inhibition for the treatment of Alzheimer’s
- FHD in preparation

Source: Nature Reviews Neuroscience 17, 22–35
Broad-based Alzheimer’s pipeline

- **Idalopirdine** demonstrated positive phase II results as add-on to donepezil in moderate Alzheimer’s, but first out of three pivotal studies reported weak efficacy profile
  - Phase III commenced in October 2013

- **Rexulti** in patients with agitation associated with dementia of the Alzheimer’s type
  - Phase III commenced in July 2013

- **Lu AF20513** to be the next generation active vaccination with potential to modify disease progression
  - An active anti-Aβ vaccine candidate
  - Phase I commenced in Q1 2015

- Early-stage portfolio maturing
**Lundbeck in Parkinson’s disease (PD)**

- Lundbeck launched Azilect (ex-US) in 2005 and Northera (US) in 2014
- Movement disorder franchise further bolstered by Xenazine (US) for Huntington’s chorea
- In 2016, Azilect (EU) was handed back to Teva
Lu AE04621 might offer Parkinson’s patients a higher level of disease control

**Lu AE04621**
- Dopaminergic receptor agonist and a prodrug to the pharmacologically active catecholamine Lu AA40326
- Potential oral treatment of Parkinson’s disease
- Likely alternative to Apokyn, subcutaneous apomorphine, with the intention of delaying treatment with levodopa and consequently deferring the onset of complications

**The study**
- Phase I study started in the US in January 2016
- 24 patients

**Primary outcome measures:**
- Safety and tolerability
- Time to onset of "ON" time
- Duration of "ON" time
- Estimated completion date: 12/2016

1) NCT02649608
Alpha-synuclein – a potential therapeutic Parkinson’s vaccine

**Alpha-synuclein**

- A role for α-synuclein in PD was first suggested in 1997
- Propagation of α-synuclein misfolding and aggregation seems to be at the heart of most types of Parkinson’s
- Many preclinical studies suggest that α-synuclein can behave in a prion-like fashion, with misfolding and aggregation, and propagation from neuron to neuron
- This chain of events presents many opportunities for therapeutic intervention

**Anti-α-syn Ab**

- Collaboration with Genmab entered in 2010
- Clearance of pathological α-synuclein via antibody – objective to delay disease progression in symptomatic PD
- A treatment that could slow or stop Parkinson’s progression
- FHD in preparation

Nature Reviews Neuroscience 4, 727-738 (September 2003)
The role of leucine-rich repeat kinase 2 (LRRK2) or dardarin in Parkinson’s

**LRRK2**

- Discovered in 2004
- Inhibition of LRRK2 kinase to delay disease progression in early stage PD with focus on genetic identified patients
- LRRK2 is widely expressed in many organs and tissues including the brain
- LRRK2 might act upstream of α-synuclein and its aggregation in Lewy bodies
- Personalised medicine?

**Drug discovery collaborations**

- In December 2010, Lundbeck signed agreements with Zenobia Therapeutics and Vernalis plc
- Lundbeck utilizes Zenobia's expertise in protein expression and x-ray crystallography for the LRRK2 target
- The Vernalis agreement focused on a drug discovery collaboration utilising Vernalis' fragment and structure-based drug discovery platform

Finance & other
Lundbeck’s EBIT margin vs. long-term target

- Strong improvement in EBIT margin
- Margin benefits are coming faster than expected
- Strong margin improvement sustainable

**Continued margin improvements:**
- Effects from restructuring programme
- Growth in key products with higher margins
- Erosion of low-margin products such as Azilect and Xenazine
### Geographic distribution of revenue

#### 9M and Q3 2016

<table>
<thead>
<tr>
<th></th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abilify Maintena</td>
<td>322</td>
<td>232</td>
<td>107</td>
<td>86</td>
<td>23%</td>
<td>23%</td>
<td>324</td>
</tr>
<tr>
<td>Trintellix</td>
<td>415</td>
<td>278</td>
<td>153</td>
<td>110</td>
<td>40%</td>
<td>45%</td>
<td>403</td>
</tr>
<tr>
<td>Northera</td>
<td>774</td>
<td>283</td>
<td>325</td>
<td>135</td>
<td>142%</td>
<td>142%</td>
<td>475</td>
</tr>
<tr>
<td>Onfi</td>
<td>1,773</td>
<td>1,241</td>
<td>645</td>
<td>448</td>
<td>44%</td>
<td>37%</td>
<td>1,757</td>
</tr>
<tr>
<td>Rexulti</td>
<td>555</td>
<td>58</td>
<td>246</td>
<td>58</td>
<td>324%</td>
<td>324%</td>
<td>117</td>
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<tr>
<td>Sabril</td>
<td>936</td>
<td>720</td>
<td>332</td>
<td>249</td>
<td>33%</td>
<td>34%</td>
<td>985</td>
</tr>
<tr>
<td>Xenazine</td>
<td>1,170</td>
<td>1,643</td>
<td>355</td>
<td>530</td>
<td>(33%)</td>
<td>(38%)</td>
<td>2,182</td>
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<tr>
<td>Other pharmaceuticals</td>
<td>90</td>
<td>95</td>
<td>32</td>
<td>52</td>
<td>(39%)</td>
<td>(38%)</td>
<td>110</td>
</tr>
<tr>
<td>Total revenue</td>
<td>6,035</td>
<td>4,550</td>
<td>2,195</td>
<td>1,668</td>
<td>32%</td>
<td>27%</td>
<td>6,353</td>
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## 9M and Q3 2016 - Geographic distribution of revenue - 2

<table>
<thead>
<tr>
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<tr>
<td><strong>EUROPE:</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abilify Maintena</td>
<td>375</td>
<td>185</td>
<td></td>
<td>123</td>
<td>77</td>
<td>60%</td>
<td>64%</td>
<td>281</td>
</tr>
<tr>
<td>Brintellix</td>
<td>153</td>
<td>59</td>
<td></td>
<td>58</td>
<td>35</td>
<td>66%</td>
<td>58%</td>
<td>105</td>
</tr>
<tr>
<td>Cipralex</td>
<td>575</td>
<td>697</td>
<td></td>
<td>196</td>
<td>213</td>
<td>(8%)</td>
<td>(7%)</td>
<td>893</td>
</tr>
<tr>
<td>Other pharmaceuticals</td>
<td>1,096</td>
<td>1,983</td>
<td></td>
<td>369</td>
<td>647</td>
<td>(43%)</td>
<td>(42%)</td>
<td>2,617</td>
</tr>
<tr>
<td><strong>Total revenue</strong></td>
<td>2,199</td>
<td>2,924</td>
<td></td>
<td>746</td>
<td>972</td>
<td>(23%)</td>
<td>(23%)</td>
<td>3,896</td>
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<tr>
<td><strong>INTERNATIONAL MARKETS:</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abilify Maintena</td>
<td>108</td>
<td>41</td>
<td></td>
<td>41</td>
<td>18</td>
<td>126%</td>
<td>125%</td>
<td>64</td>
</tr>
<tr>
<td>Azilect</td>
<td>86</td>
<td>130</td>
<td></td>
<td>29</td>
<td>43</td>
<td>(33%)</td>
<td>(33%)</td>
<td>175</td>
</tr>
<tr>
<td>Brintellix</td>
<td>205</td>
<td>81</td>
<td></td>
<td>80</td>
<td>35</td>
<td>126%</td>
<td>134%</td>
<td>121</td>
</tr>
<tr>
<td>Cipralex/Lexapro</td>
<td>1,333</td>
<td>1,322</td>
<td></td>
<td>379</td>
<td>323</td>
<td>18%</td>
<td>8%</td>
<td>1,698</td>
</tr>
<tr>
<td>Ebixa</td>
<td>378</td>
<td>448</td>
<td></td>
<td>113</td>
<td>126</td>
<td>(9%)</td>
<td>(4%)</td>
<td>576</td>
</tr>
<tr>
<td>Other pharmaceuticals</td>
<td>878</td>
<td>951</td>
<td></td>
<td>313</td>
<td>287</td>
<td>8%</td>
<td>10%</td>
<td>1,193</td>
</tr>
<tr>
<td><strong>Total revenue</strong></td>
<td>2,988</td>
<td>2,973</td>
<td></td>
<td>955</td>
<td>832</td>
<td>15%</td>
<td>13%</td>
<td>3,827</td>
</tr>
</tbody>
</table>
Q3 2016 - Cash generation

<table>
<thead>
<tr>
<th>DKKm</th>
<th>Q3 2016</th>
<th>Q3 2015</th>
<th>FY 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash flows from operating activities</td>
<td>1,301</td>
<td>(102)</td>
<td>197</td>
</tr>
<tr>
<td>Cash flows from investing activities</td>
<td>(108)</td>
<td>(1,396)</td>
<td>(2,842)</td>
</tr>
<tr>
<td><strong>Cash flows from operating and investing activities</strong></td>
<td><strong>1,193</strong></td>
<td><strong>(1,498)</strong></td>
<td><strong>(2,645)</strong></td>
</tr>
<tr>
<td>Cash flows from financing activities</td>
<td>(844)</td>
<td>1,063</td>
<td>501</td>
</tr>
<tr>
<td><strong>Net cash flow for the period</strong></td>
<td>349</td>
<td>(435)</td>
<td>(2,144)</td>
</tr>
</tbody>
</table>

Cash and bank balances, end of period  
Cash and bank balances, end of period  
Securities  
Interest-bearing debt  
**Interest-bearing debt, cash, bank balances and securities, net end of period**  
(575)  
(2,918)  
(2,249)
### Q3 2016 - Balance sheet

<table>
<thead>
<tr>
<th></th>
<th>30.09.16</th>
<th>31.12.15</th>
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</thead>
<tbody>
<tr>
<td><strong>Intangible assets</strong></td>
<td>8,719</td>
<td>9,794</td>
</tr>
<tr>
<td><strong>Other non-current assets</strong></td>
<td>3,854</td>
<td>3,871</td>
</tr>
<tr>
<td><strong>Current assets</strong></td>
<td>7,459</td>
<td>7,660</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>20,032</td>
<td>21,325</td>
</tr>
<tr>
<td><strong>Equity</strong></td>
<td>9,159</td>
<td>8,785</td>
</tr>
<tr>
<td><strong>Non-current liabilities</strong></td>
<td>3,287</td>
<td>4,792</td>
</tr>
<tr>
<td><strong>Current liabilities</strong></td>
<td>7,586</td>
<td>7,748</td>
</tr>
<tr>
<td><strong>Total Equity &amp; liabilities</strong></td>
<td>20,032</td>
<td>21,325</td>
</tr>
<tr>
<td><strong>Cash and bank balances</strong></td>
<td>1,785</td>
<td>1,504</td>
</tr>
<tr>
<td><strong>Securities</strong></td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td><strong>Interest-bearing debt</strong></td>
<td>(2,377)</td>
<td>(3,770)</td>
</tr>
<tr>
<td><strong>Net interest-bearing debt, cash, bank balances and securities, net end of period</strong></td>
<td>(575)</td>
<td>(2,249)</td>
</tr>
</tbody>
</table>
# Costs - annual figures

<table>
<thead>
<tr>
<th>DKKm</th>
<th>2015</th>
<th>2014</th>
<th>2013</th>
<th>Growth, Y/Y, %</th>
<th>2015</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td>14,594</td>
<td>13,468</td>
<td>15,258</td>
<td>8%</td>
<td>(12%)</td>
<td></td>
</tr>
<tr>
<td><strong>Cost of sales</strong></td>
<td>5,395</td>
<td>4,160</td>
<td>4,038</td>
<td>30%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td><strong>Sales and distribution costs</strong></td>
<td>6,706</td>
<td>5,164</td>
<td>4,530</td>
<td>30%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td><strong>Administrative expenses</strong></td>
<td>1,160</td>
<td>1,134</td>
<td>2,140</td>
<td>2%</td>
<td>(47%)</td>
<td></td>
</tr>
<tr>
<td><strong>R&amp;D</strong></td>
<td>8,149</td>
<td>2,911</td>
<td>2,951</td>
<td>180%</td>
<td>(1%)</td>
<td></td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td>21,410</td>
<td>13,369</td>
<td>13,659</td>
<td>60%</td>
<td>(2%)</td>
<td></td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
<td>(6,816)</td>
<td>99</td>
<td>1,599</td>
<td>-</td>
<td>(94%)</td>
<td></td>
</tr>
<tr>
<td><strong>Core EBIT</strong></td>
<td>847</td>
<td>1,228</td>
<td>2,282</td>
<td>(31%)</td>
<td>(46%)</td>
<td></td>
</tr>
</tbody>
</table>

**Costs of sales**
- 37% 31% 26%

**Sales and distribution costs**
- 46% 38% 31%

**Administrative expenses**
- 8% 8% 14%

**R&D**
- 56% 22% 19%

**EBIT-margin**
- (47%) 1% 10%

---

Included are 1) Restructuring costs of DKK 7bn. 2) writedown of desmoteplase of DKK 309m; 3) writedown of Sycrest of DKK 210m; 4) EU fine of DKK 700m and restructuring charge of DKK 200m
Ownership and the Lundbeck Foundation

Composition of free float ownership (end 2015)

- Lundbeck (70%): DKK 32,333m
- ALK-Abello (42%/69%): DKK 3,574m
- Falck (57%): DKK 3,422m
- LundbeckFond Invest: DKK 13,937m
- Ventures & Emerge: DKK 2,173m

- Free float is 30%
- Free float of approximately 60m shares is traded approximately once over annually

Commercial foundation established in 1954 by Grete Lundbeck, widow of the founder

The main objective is to

- Maintain and expand the activities of the Lundbeck Group
- Provide financial support for research of the highest quality in biomedical and natural sciences

Ownership and value (2015):
For more information please contact Investor Relations

**Share information**

Lundbeck’s shares are listed on the stock exchange in Copenhagen under the symbol "LUN".

Lundbeck has a sponsored Level 1 ADR programme listed in the US (OTC) under the symbol "HLUYY".

For additional company information, please visit Lundbeck at: [www.lundbeck.com](http://www.lundbeck.com)

**Contact information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palle Holm Olesen</td>
<td><a href="mailto:palo@lundbeck.com">palo@lundbeck.com</a>, <a href="mailto:polesen3@bloomberg.net">polesen3@bloomberg.net</a></td>
</tr>
</tbody>
</table>

**Financial calendar**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4 2016 and Annual Report 2016</td>
<td>8 February 2017</td>
</tr>
<tr>
<td>Annual General Meeting</td>
<td>30 March 2017</td>
</tr>
<tr>
<td>Q1 2017</td>
<td>10 May 2017</td>
</tr>
<tr>
<td>Q2 2017</td>
<td>9 August 2017</td>
</tr>
<tr>
<td>Q3 2017</td>
<td>8 November 2017</td>
</tr>
</tbody>
</table>
Thank you!