



# INVESTOR & ANALYST PRESENTATION

*August 2013*

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# Company disclaimer

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This presentation contains forward-looking statements that provide our expectations or forecasts of future events such as new product introductions, product approvals and financial performance.

Such forward-looking statements are subject to risks, uncertainties and inaccurate assumptions. This may cause actual results to differ materially from expectations and it may cause any or all of our forward-looking statements here or in other publications to be wrong. Factors that may affect future results include interest rate and currency exchange rate fluctuations, delay or failure of development projects, production problems, unexpected contract breaches or terminations, government-mandated or market-driven price decreases for Lundbeck's products, introduction of competing products, Lundbeck's ability to successfully market both new and existing products, exposure to product liability and other lawsuits, changes in reimbursement rules and governmental laws and related interpretation thereof, and unexpected growth in costs and expenses.

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Certain assumptions made by Lundbeck are required by Danish Securities Law for full disclosure of material corporate information. Some assumptions, including assumptions relating to sales associated with product that is prescribed for unapproved uses, are made taking into account past performances of other similar drugs for similar disease states or past performance of the same drug in other regions where the product is currently marketed. It is important to note that although physicians may, as part of their freedom to practice medicine in the US, prescribe approved drugs for any use they deem appropriate, including unapproved uses, at Lundbeck, promotion of unapproved uses is strictly prohibited.

## Q2 highlights

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### Sales development

- New products\* up 59%
- Continuous operations up 6%
- US product portfolio; Onfi, Sabril, Xenazine and Abilify Maintena up 51%

### R&D

- Brintellix phase III data presented at various conferences
- Lu AE58054 phase II data presented at AAIC in Boston
- IV carbamazepine received FDA orphan drug status

### Financial performance

- The operating performance is exceeding expectations
- 2013 guidance raised and includes impairment of Sycrest product rights

# Continued robust momentum in new markets in Q2



## USA

- Sales growth of 28% y/y in the quarter, excluding Lexapro
- Onfi generated DKK 114 million in the quarter, a growth of 111%
- Abilify Maintena in line with expectations



## International Markets

- International Markets grew 10% in the quarter
- Canada continues its solid performance growing 18% y/y in the quarter



## Japan

- Sales increased by 79% y/y in the quarter in local currency
- Lexapro has a market share of 11.9% in June



## Europe

- Azilect sales reached DKK 314 million with a growth of 17%
- Ebixa sales impacted by generic competition during the quarter

# Abilify Maintena and Selincro so far

## Abilify Maintena

- ★ ...is within expected sales range in the US
- ★ ...is set to expand the long-acting market in schizophrenia
- ★ ...initial feedback is encouraging
- ★ ...is expected to reach peak sales of DKK 2-2.5 billion (in total for Lundbeck)



NEW **Abilify Maintena**  
400mg ONCE-MONTHLY  
(aripiprazole) for extended release injectable suspension



## Selincro

- ★ ...launched in 12 European countries
- ★ ...to be launched in up to 10 additional countries during second half of 2013
- ★ ...initial feedback is encouraging
- ★ ...is expected to reach peak sales of DKK 2-2.5 billion



**Selincro**  
nalmefene



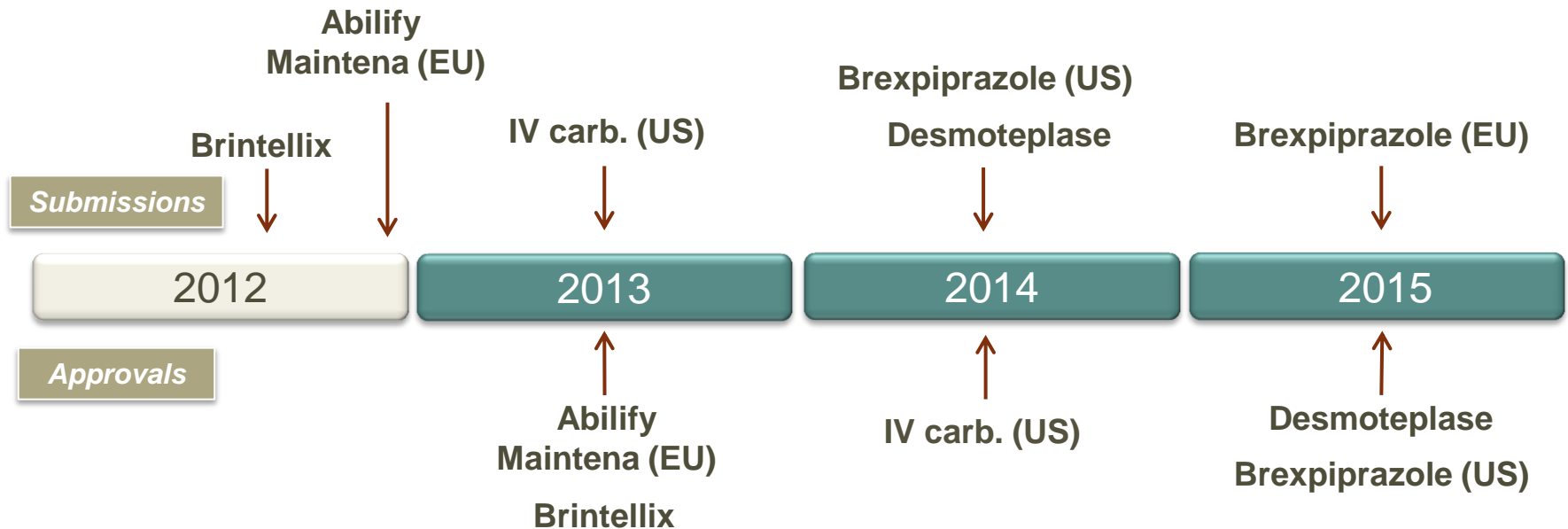
# Lundbeck invests to grow – a solid late-stage development portfolio



		Phase II	Phase III	Registration app.
BRAIN DISEASES	PSYCHIATRY	MOOD DISORDERS	Tedatioxetine* (Lu AA24530)	Brintellix (Vortioxetine)
		PSYCHOSIS	Zicronapine*	Abilify Maintena (EU)
		ALCOHOL DEPENDENCE		
		DEPRESSION/SCHIZOPHRENIA	Brexipiprazole (OPC-34712)	
	NEUROLOGY	ALZHEIMER'S DISEASE	Lu AE58054 → Lu AE58054	
		EPILEPSY	IV carbamazepine	
		OTHER	Desmoteplase (stroke)	

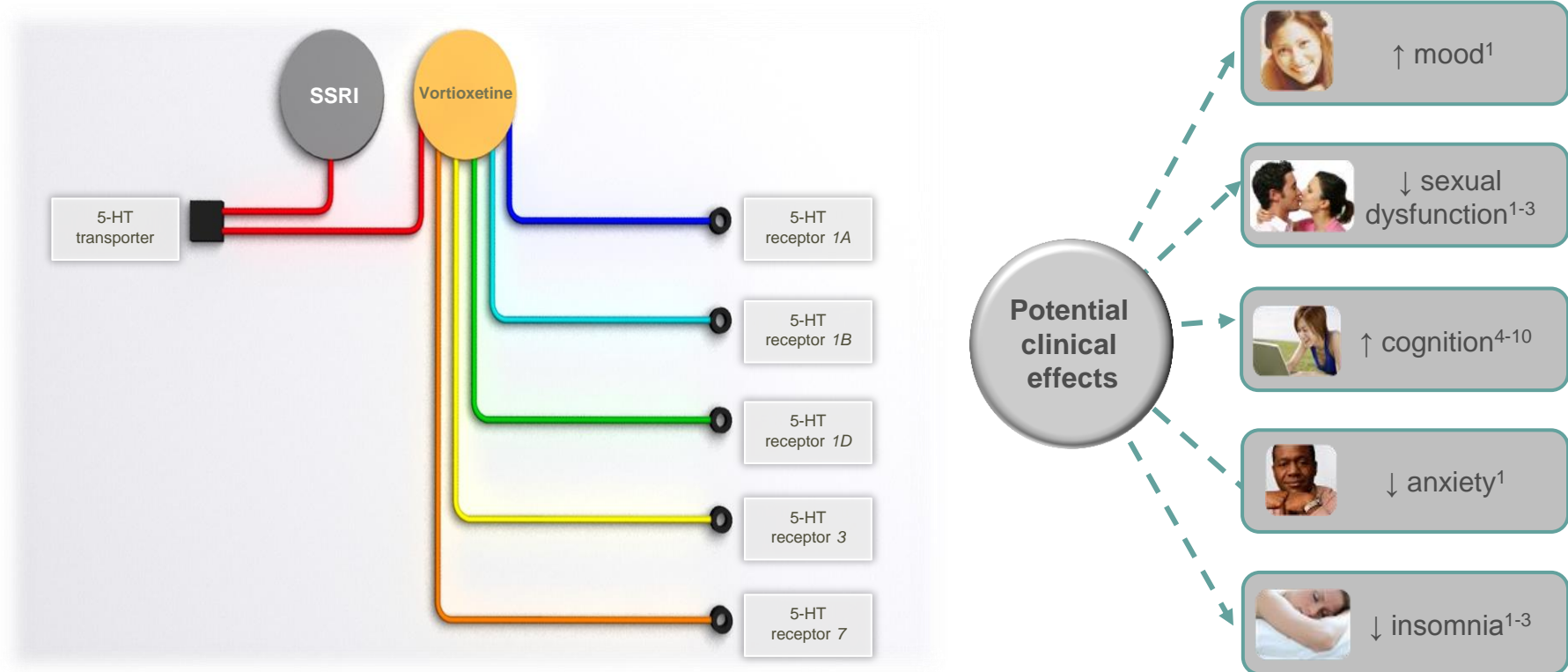
\*No active clinical programme ongoing

# Submissions and expected approvals





# Brintellix: unique multimodal MoA profile that combines receptor activity and uptake inhibition



1. Mørk A et al. *Eur Neuropsychopharmacol* 2011;21(Suppl 3):S407;
2. Mørk A et al. Poster 616 presented at the Society of Biological Psychiatry 66th Annual Meeting, San Francisco, CA, USA, 12-14 May 2011;
3. Cremers T et al. Poster E004528 presented at the American Psychiatric Association 164th Annual Meeting, Honolulu, HI, USA, 14-18 May 2011;
4. Garnock-Jones KP, McCormack PL. *CNS Drugs* 2010;24:769-796



## Paving the way for Brintellix

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- ★ Filed for regulatory approval in USA, Europe, Canada, Australia, Brazil
- ★ Over the last year we have continued to **strengthen differentiation** with supporting clinical and non-clinical data
  - *REVIVE study vs. agomelatine in patients with inadequate response to SSRI/SNRI treatment*
  - *2 ongoing cognition studies in patients with major depression*
- ★ In the **absence of a major competitor in the near future** we can invest in **building the Brintellix brand**
- ★ Opportunity to fully leverage our psychiatry presence in the **growing international markets**



# Brintellix – what do we have?



A solid efficacy profile

5mg	10mg	15mg	20mg
Several positive studies	Several positive studies	One positive study	Several positive studies

**Data not yet challenged and final label not yet discussed**

## Safety/tolerability: Tolerability better or equal to SSRIs and SNRIs

- ★ Nausea: lower or similar level as SNRI active reference
- ★ Withdrawal rate slightly above placebo level
- ★ At placebo level/neutral effect
- ★ Insomnia, body weight, heart rate and blood pressure, ECG, QTc, Hepatic and renal assessments, sexual side effects are similar to placebo level
- ★ Discontinuation symptoms are at or slightly above placebo level

# Co-development and co-commercialization agreement with Otsuka on Lu AE58054

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- ★ Positive phase II conclusions reported in May 2012
- ★ Lundbeck receives USD 150 million from Otsuka upon signing of agreement
- ★ Clinical phase III program in Alzheimer's is expected to be initiated in H2 2013
  - ★ Three trials of more than 3000 patients
  - ★ Add-on to donepezil
  - ★ Several active dose of Lu AE58054
- ★ Clinical phase II study results presented at AAIC in Boston on 16 July 2013



# Financial expectations raised for 2013 following better operational performance

## 2013 financial guidance\*

DKK	Guidance 2013	New Guidance 2013	Expectations 2014
Revenue	14.4-15.0bn	14.6-15.0bn	~14bn
EBIT	1.2-1.7bn	1.3-1.7bn	0.5-1.0bn
(Excluding EU fine)	(1.9-2.4bn)	(2.0-2.4bn)	-

\*The new financial guidance for 2013 includes; Impairment of Sycrest product rights of DKK 210 million and DKK 284 million upfront payment related to the extension of the partnership agreement with Otsuka for Lu AE58054 and USD 100 million gain related to divestment of US products and USD 30 million in milestone payment related to Brintellix

# Expected main events in 2013

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## H1 2013

- Approval of Abilify Maintena in US ✓
- Final approval of Selincro by the European Commission ✓
- Presentation of Brintellix data at APA 2013 in San Francisco, in May ✓

## H2 2013

- Presentation of Lu AE58054 data at AAIC 2013 in Boston, in July ✓
- Start of pivotal programme on Lu AE58054 in Alzheimer's
- Approval of Brintellix in Europe (CHMP recommendation) and the US
- Recommendation of Abilify Maintena from CHMP in Europe

# Summary

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- **More than 50 years of experience** improving lives among patients suffering from CNS–related conditions
  - Huge **unmet medical needs** prevail in CNS
- We are built on **research and innovation**
  - We are **partner of choice** within our field
- We are **among the leaders** in our field in most parts of the world
  - Lexapro is **fast growing** in Japan
  - Xenazine is **only approved drug** in the US for Huntington's
- **Our people** are passionate, committed and experts in our field
  - **Confident** in our long-term growth prospects

# Thank you...

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# Appendix

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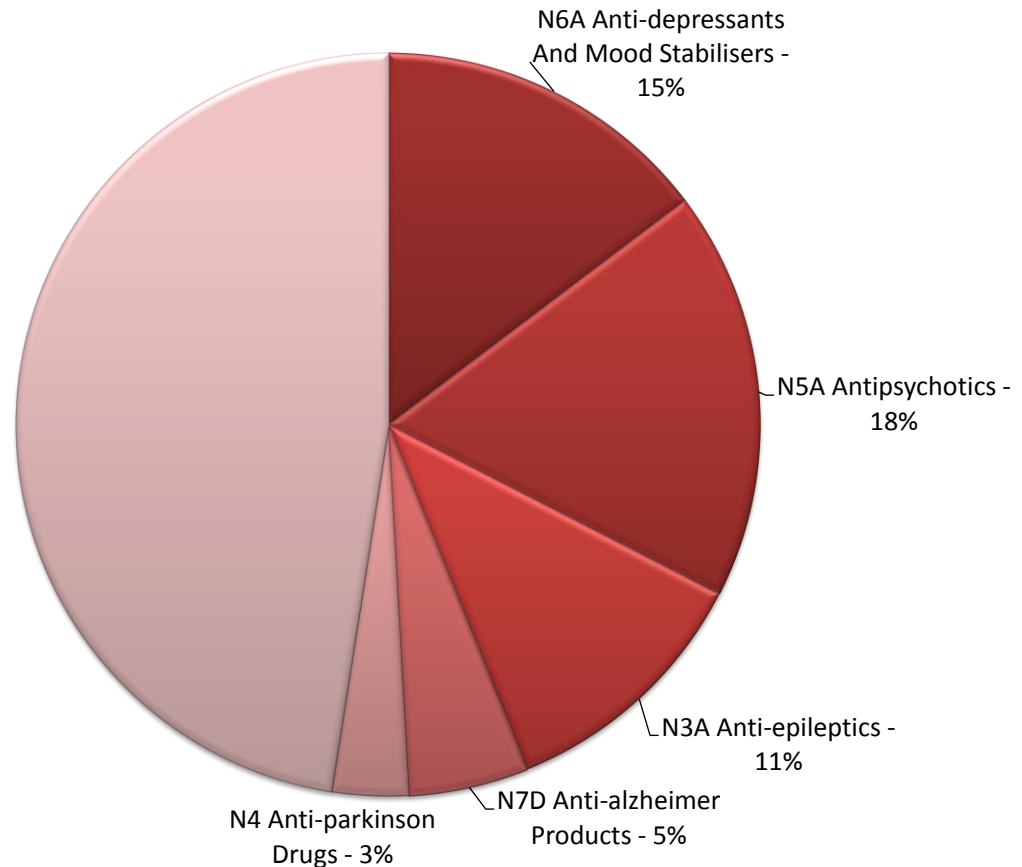
- ★ **Lundbeck overview**
- ★ Commercial operations
- ★ Pipeline
- ★ Financials
- ★ The CNS market
- ★ The Lundbeck share

# The CNS market 2012 – USD 128 billion (-5% y/y)

## The largest pharmaceutical category

### Lundbeck's current focus areas (Share of total CNS market and growth)

- ★ The CNS market represents 15% of the total pharmaceutical market
- ★ Lundbeck is also present within Huntington's disease with Xenazine...
- ★ ... and has one compound in clinical development in ischaemic stroke



# Our mission

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To improve the quality of life for those suffering from psychiatric and neurological disorders



# Our vision – To become a world leader in CNS

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**PROVEN TRACK  
RECORD MEETS  
BREAKTHROUGH  
INNOVATION**



- ★ Committed to making an impact for people suffering from CNS-related conditions
- ★ Sustainable leadership in CNS
- ★ Exciting new product portfolio
- ★ Focus on efficient operations and prudent financial control
- ★ Robust operational cash flow facilitate investments in launches, R&D and dividend
- ★ Experienced and with proven execution

# Lundbeck's transition

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**From ...**

European  
"One product"  
Company

**To the new Lundbeck**



**Global growth platform**

- Expand in new geographic markets



**A multiple product company**

- Deliver on late-stage pipeline
- Execute new product launches
- Drive growth of diversified portfolio

# The journey started in 2009



# Our priorities are clear...

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## Execute on product launches

- Diversify product portfolio
- Ensure more balanced geographical diversification



## R&D

- Focus on research based innovation



## Drive profitability

- Use partnerships to broaden our reach
- Organisational efficiencies and high-performance culture



# ...and Lundbeck delivers on the priorities

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## Product launches

- Six products launched the last five years
- New Products increases >70% in sales in 2012
- Additional launches expected in the next 12 months

## R&D

- Selincro receives EU approval
- Abilify Maintena approved in the US and under regulatory review in EU
- Regulatory process on Brintellix initiated

## Profitability

- *Decisions Now*
- Restructuring of European infrastructure

# More opportunities than ever and in several therapeutic categories

Product	Peak estimate	Comments
Brintellix	DKK 5-10bn	Mood disorders
Cipralext	DKK >5.5bn	Mood disorders
Selincro, Abilify Maintena	DKK 2-2.5bn each	Alcohol dependency, schizophrenia
Ebixa	DKK >2.5bn	Alzheimer's
Azilect, Xenazine	DKK >1.5bn each	Parkinson's, Huntington's
Lexapro Japan	DKK 0.8-1bn (royalty)	Mood disorders
Onfi, Sabril, Saphris/Sycrest	DKK 0.5-1bn each	Epilepsy, schizophrenia, bipolar
Treanda, Canada	DKK ~0.5bn	Oncology
<b>Other late stage projects:</b>		
Desmoteplase (stroke), brexpiprazole (MDD + Schizophrenia) , Lu AE58054 (Alzheimer's), ziconapine (psychosis), tedatioxetine (MDD)		

# Business development activity strengthen product offerings

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- ★ Licensing partner of choice in CNS
- ★ Strong history and experience with all forms of licensing
- ★ Using partnerships to ensure critical mass and innovation
- ★ Business development remains a priority



# Appendix

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- ★ Lundbeck overview
- ★ **Commercial operations**
- ★ Pipeline
- ★ Financials
- ★ The CNS market
- ★ The Lundbeck share

# Improving product and geographical diversification

## North America:

- + New platform for growth
- + Sabril, Xenazine and Onfi
- + Brintellix
- + Saphris (Canada)
- + Treanda (Canada)
- + Abilify Maintena
- + Brexpiprazole

## Europe:

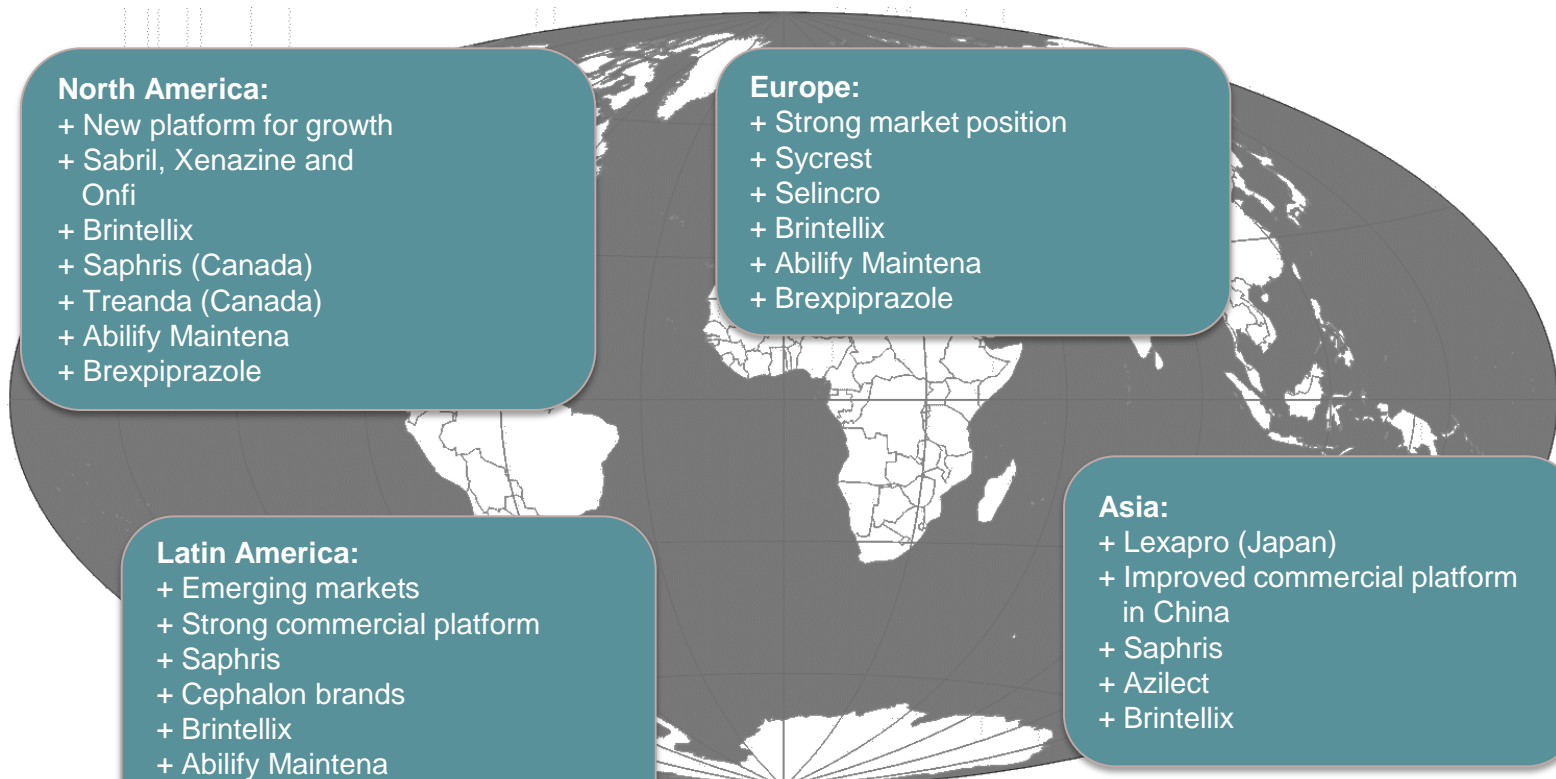
- + Strong market position
- + Sycrest
- + Selincro
- + Brintellix
- + Abilify Maintena
- + Brexpiprazole

## Latin America:

- + Emerging markets
- + Strong commercial platform
- + Saphris
- + Cephalon brands
- + Brintellix
- + Abilify Maintena
- + Brexpiprazole

## Asia:

- + Lexapro (Japan)
- + Improved commercial platform in China
- + Saphris
- + Azilect
- + Brintellix



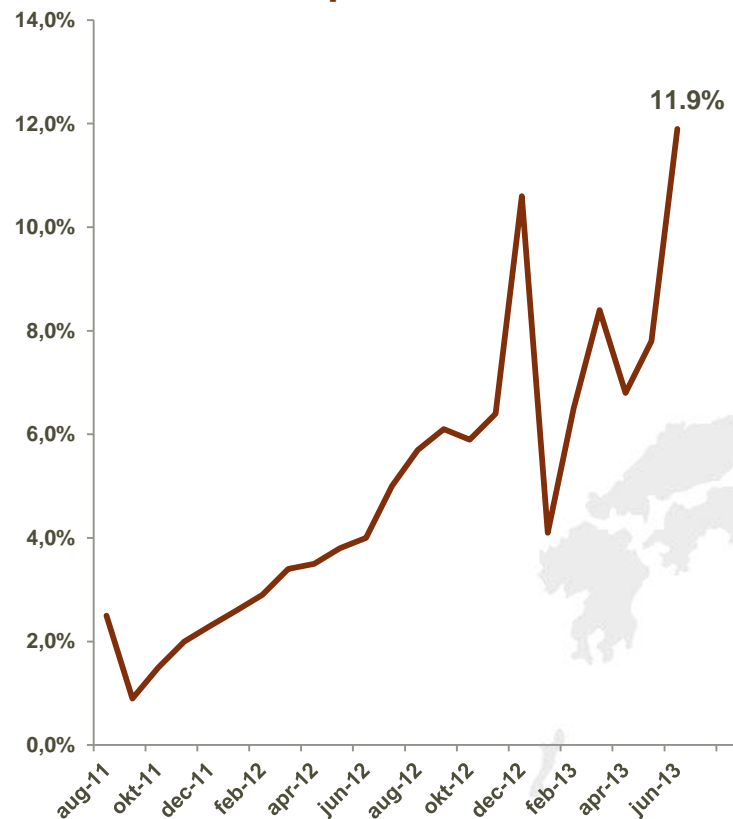
# China represents a major opportunity for Lundbeck

- ★ Increased presence in China
- ★ Local partnerships with Xian-Janssen and China Medical Systems (CMS)
- ★ The Chinese pharmaceutical market is fast evolving
  - ★ CNS market increased 26% in 2012
- ★ Lundbeck products has close to 25% of the depression market and Ebixa has ~30% of the Alzheimer's market
- ★ Launch of Azilect in a couple of years pending approval



# Solid uptake of Lexapro in Japan

**Lexapro market share  
Japan, value**



Source: IMS Health, Aug-13, Retail and Hospital sales (ATC N06A as defined by WHO)

- ★ Lexapro in Japan generated revenue of DKK 195 million in 2012 and DKK 116 million in the first half of 2013
- ★ Strong underlying market share development
- ★ Phase III studies in social anxiety disorder (SAD) on-going in Japan (555 pts)
- ★ Market share figure are influenced by stocking/de-stocking



## Newer products



# Xenazine – only drug approved for Huntington's chorea in the US



**Xenazine®**  
(tetrabenazine)  
12.5 and 25 mg Tablets

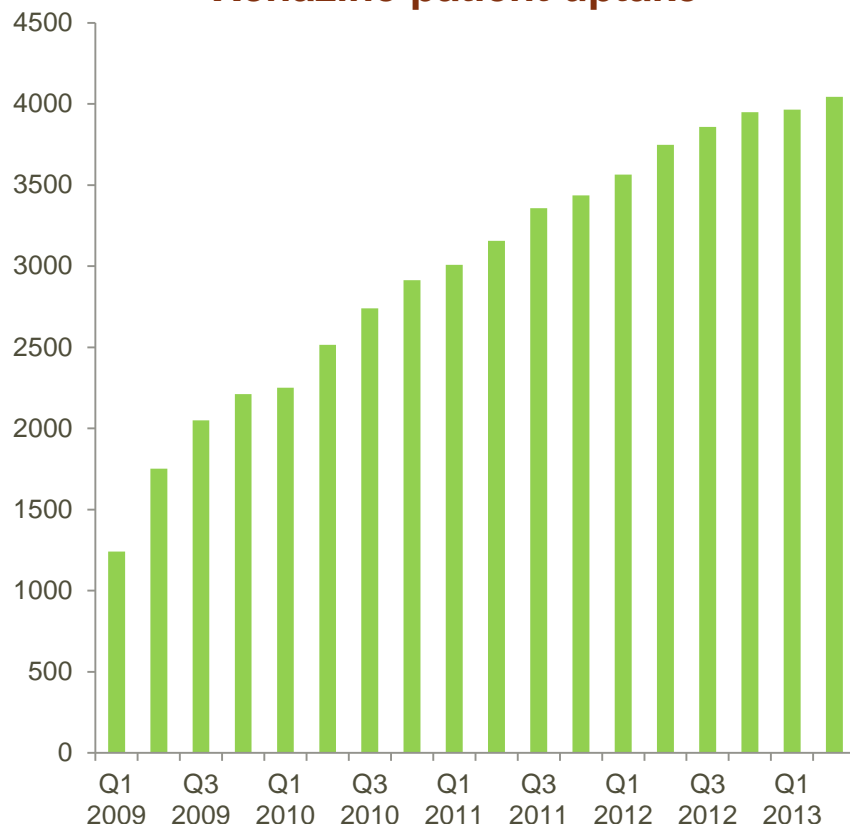
## Chorea associated with Huntington's disease (HD)

- ★ ~ 20,000 people in the US suffer from HD
  - ★ Chorea, the most common symptom of HD (~90%), is characterized by involuntary movements.
- ★ Life expectancy is 15-20 years after onset and death often caused by pneumonia or choking
- ★ Depression is a common co-morbid condition of the disease.

- ★ Selectively inhibiting vesicular monoamine transporter enzyme (VMAT)-2, thereby depleting pre-synaptic dopamine
- ★ Approved for chorea associated with Huntington's disease
- ★ Addresses high unmet medical needs and has shown strong efficacy
- ★ Granted orphan drug exclusivity
- ★ Data exclusivity to expire in 2015

# Xenazine patient uptake

## Xenazine patient uptake\*



\*Patients that are persistent active

- ★ Xenazine revenue for 2012 in the US was DKK 1,154 million, an increase of 41% 2011
- ★ The encouraging progress now indicates peak sales exceeding DKK 1,500 million
- ★ Xenazine continues to experience a steady uptake of patients
  - ★ At the end of Q2 2013 more than 4,000 patients were enrolled
- ★ Continued focus on helping more physicians to fully understand treatment regimen

# Sabril (vigabatrin) – addressing highly unmet needs



## Sabril

- ★ Unique method of action as a selective and irreversible inhibitor of GABA-transaminase
- ★ Aside from risk of critical vision damage (~30% of patients), Sabril is generally well tolerated
- ★ Rapid efficacy - within 2 - 3 weeks
- ★ Data exclusivity to expire in the US in 2014 (rCPS) and 2016 (IS – orphan drug status)

## 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

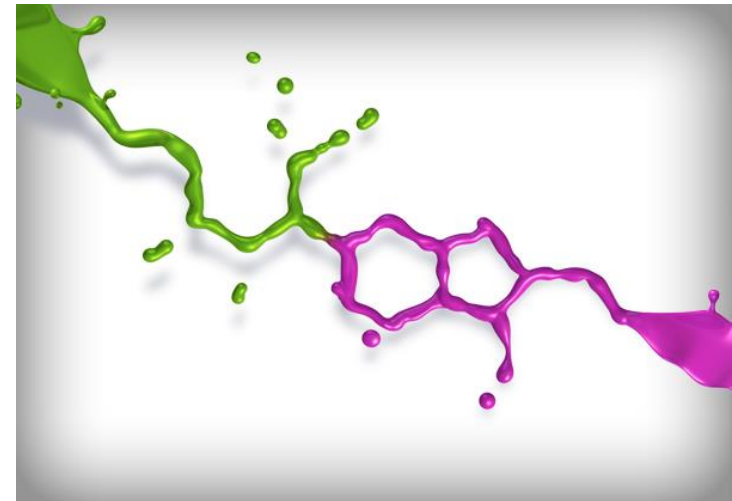
# Onfi launch meets expectations

- ★ Onfi close to DKK 100 million on a quarterly basis
- ★ Launched in January 2012
- ★ Orphan drug status
- ★ Onfi approved for adjunctive treatment of seizures related to Lennox-Gastaut Syndrome (LGS)
- ★ LGS is one of the most severe forms of epilepsy and there is a clear need for new treatment options
- ★ Only 10% experience full seizure remission with current therapies
- ★ Most patients experience ongoing cognitive impairment and refractory epilepsy
- ★ Before age 11, the mortality rate is 4-7%
- ★ Around 25,000-75,000 patients



# Launch of Treanda substantially improves the growth outlook in International markets

- ★ Treanda launched in Canada indicated for two types of cancer
  - ★ Chronic lymphocytic leukaemia (CLL)
  - ★ Indolent non-Hodgkin's lymphoma (iNHL)
- ★ Lundbeck has Canadian rights to Treanda
- ★ Treanda generated revenue of USD 608 million (+127%) in 2012 in the US



[www.treanda.com](http://www.treanda.com)

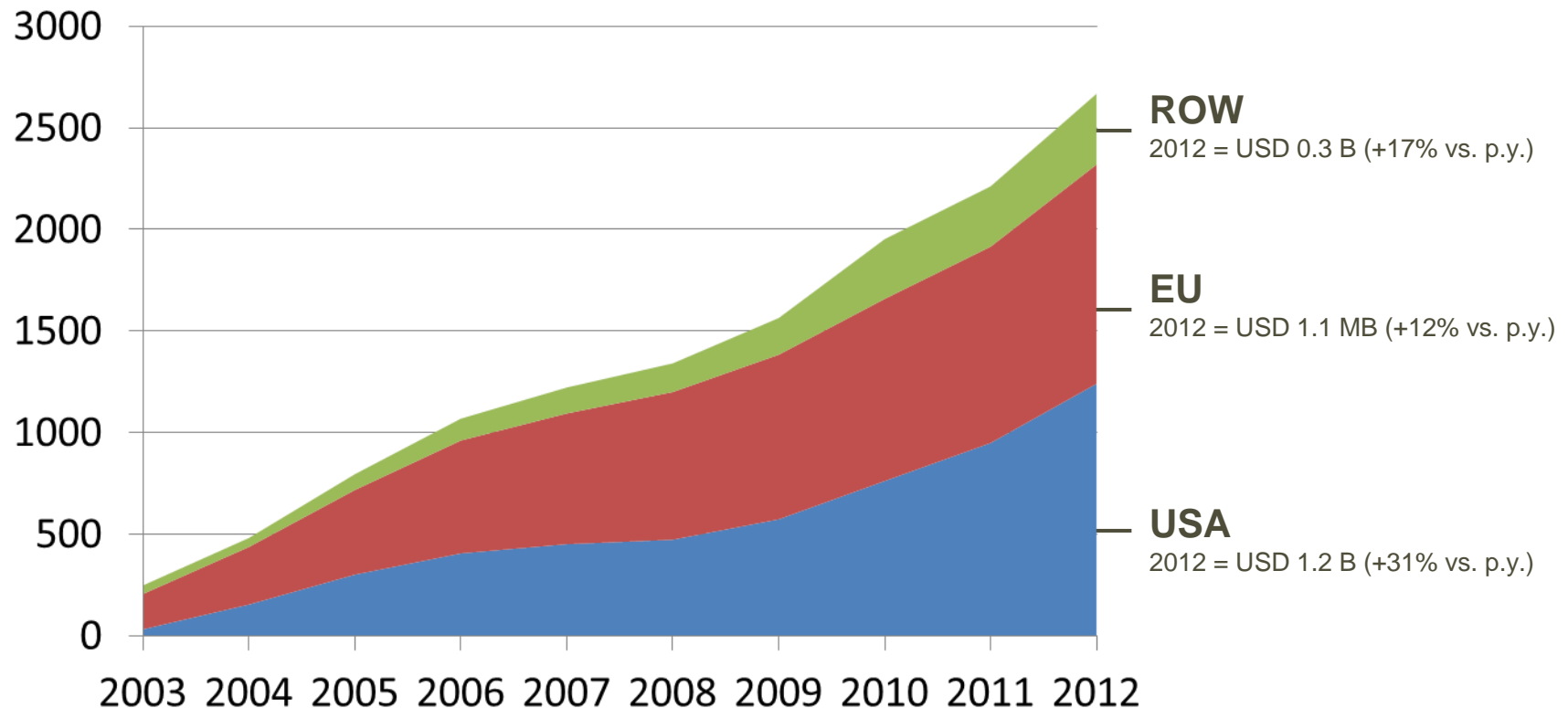
 **TREANDA<sup>®</sup>**  
 (bendamustine HCl)  
 for Injection  
**Built for Action<sup>®</sup>**

## Once-Monthly Abilify Maintena (aripiprazole)



# Abilify Maintena is launched into a high-growth market approaching USD 3 billion in global value

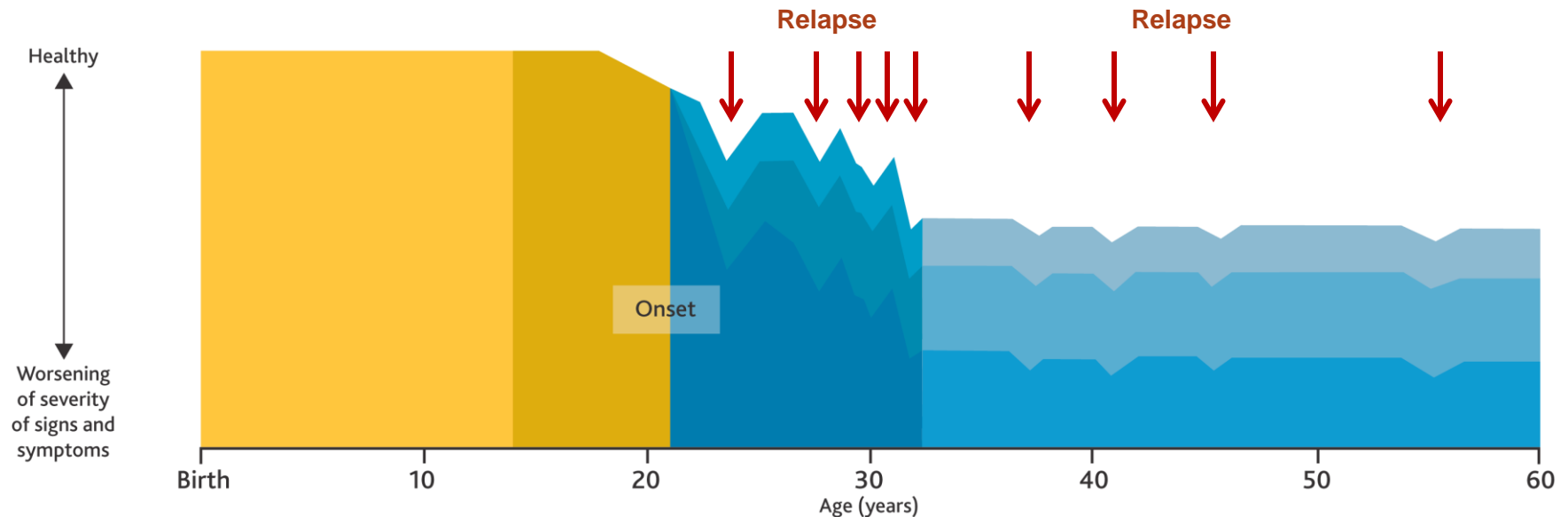
*Global market for antipsychotic long-acting injectables*  
[USD millions]





# Relapse has significant negative impact on patients with schizophrenia

## *Clinical and pathophysiological course of schizophrenia*

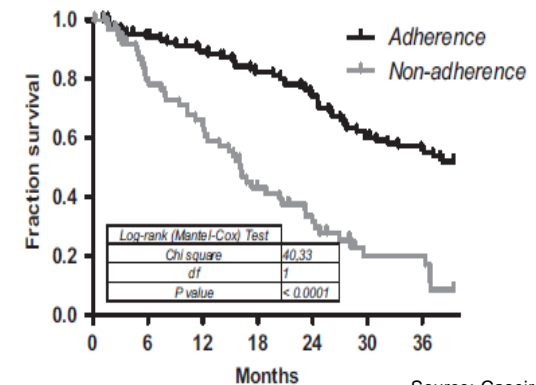


**Relapses result in functional decline and substantial, lasting neurological damage over the disease course**

# Worsening of symptoms in schizophrenia is driven by relapses

- ★ **Approximately half of patients** experience relapses and a worsening of their symptoms
- ★ This fluctuating course of the disease is devastating for a person with schizophrenia and the people around them
- ★ With each relapse, it becomes **less likely** that people with schizophrenia will return to the level of **functioning** and the life they had before their relapse

Time to relapse in adherent and non-adherent patients

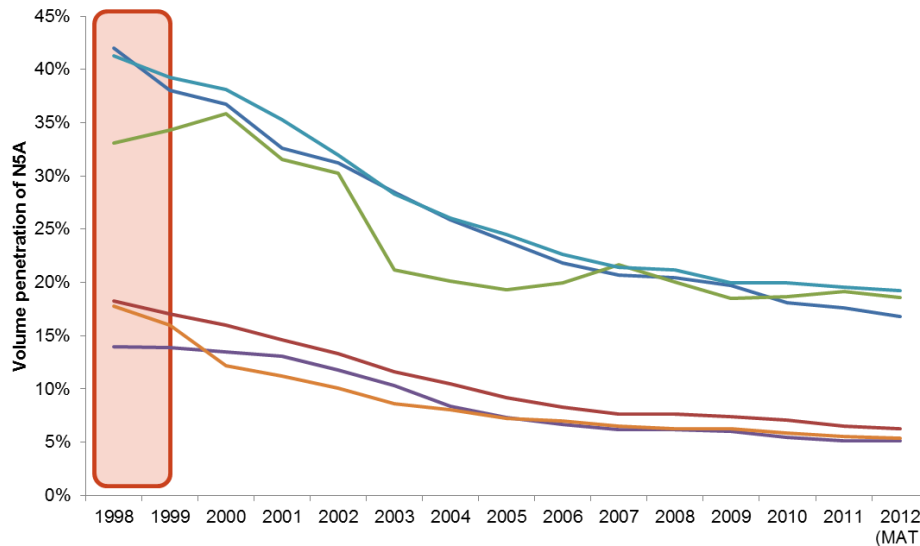


Therefore, one of the key long-term therapy goals is to **prevent relapses**

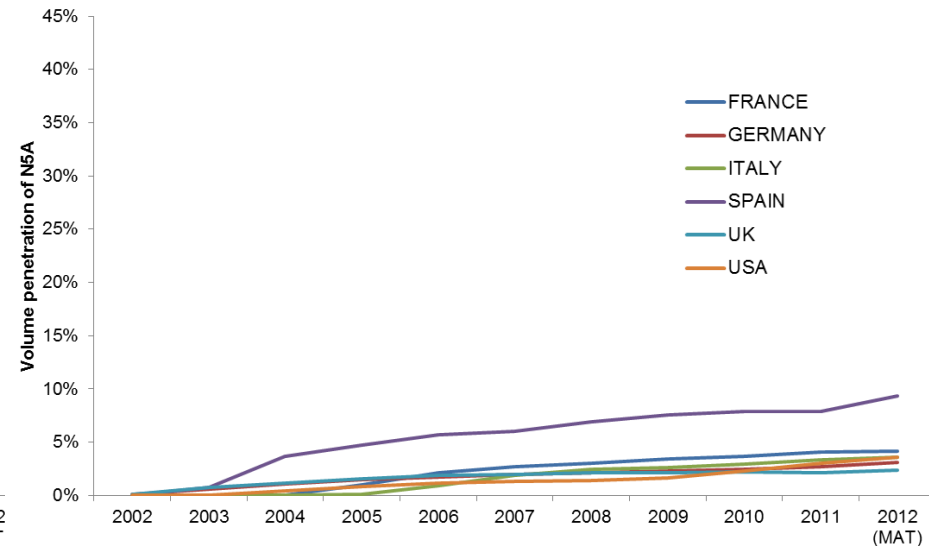
NEW  400mg ONCE-MONTHLY  
**Abilify Maintenance**

# Only 15 years ago, long-acting therapies were considered “*standard of care*” in several key markets

*Typical LAI penetration of N5A*



*Atypical LAI penetration of N5A*



**With only limited product options the atypical LAI market remains underdeveloped.**

LAI = long acting injectable

# The prescriber's mindset is a barrier to the adoption of long-acting therapies

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## CURRENT STATE

- Punishment for non-compliance
- Last resort therapy
- Assume patients won't like needles
- Avoid “difficult” conversation about long-acting options



# Clinical programme with Abilify Maintena



Clinicaltrials.gov identifier	Estimated enrolment	Study start	Indication
NCT01663532 (phase III)	310 (US)	Oct 2012	Acute treatment of schizophrenia 12 wks. Abilify Maintena; placebo, endpoint: PANSS score
NCT01567527 (phase III)	600 (global)	Aug 2012	Maintenance treatment of bipolar I disorder 52 wks. Abilify Maintena; placebo, endpoint: relapse
NCT00705783 (phase III)*	1,025 (global)	Jul 2008	Maintenance treatment in schizophrenia (ASPIRE) 52 wks. Abilify Maintena; placebo, endpoint: relapse
NCT00731549 (phase III)	1,224 (global)	Dec 2008	Maintenance treatment in schizophrenia (ASPIRE) 52 wks. Abilify Maintena, endpoint: stability in treatment; 52 wks.
NCT00706654 (phase III)	1,148 (global)	Sep 2008	Maintenance treatment in schizophrenia (ASPIRE) 38 wks. Abilify Maintena; Abilify oral, endpoint: relapse
NCT01432444 (phase III)**	500 (US)	Sep 2011	Hospitalization rates of schizophrenic patients treated with oral antipsychotics vs. Abilify Maintena (ARRIVE US)
NCT01795547 (phase III)	286 (US)	Feb 2013	Maintenance treatment in Schizophrenia 28 wks, Randomised, Open-label Study , Abilify Maintena vs. Paliperidone Palmitate

\* Presented at APA 2012

\*\* Interim data presented at APA 2013

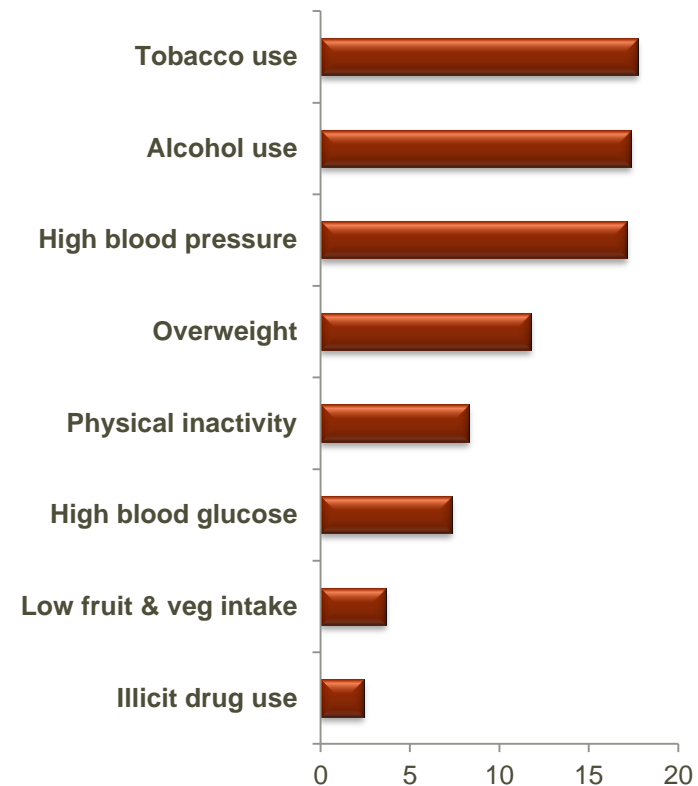
# Selincro (nalmefene)

**Selincro**   
nalmefene

# Current treatment of alcohol dependence – time for a treatment paradigm shift?

- ★ The tangible costs for alcohol dependency in the EU is estimated to be EUR 125 billion<sup>1</sup>
- ★ Major-market average diagnosis rate of alcohol abuse and dependence is 17%<sup>2</sup>
- ★ Less than 10% of patients receive treatment<sup>3</sup>
- ★ Alcohol dependence remains a highly stigmatized and undertreated disease
- ★ Market is significantly under-treated and under-commercialized
- ★ Currently therapies target abstinence as the only treatment goal, which for most patients is an unacceptable goal

## Leading risk factors for burden of ill-health in Europe, 2004<sup>4</sup>



DALYs<sup>5</sup> in Europe (millions)

**Selincro**   
nalmefene

1) WHO – European status report on alcohol and health 2010, 2010; 2) Cognos, Addiction Disorders, 2007; 3) Alonso J et al. Acta Psychiatr Scand 2004; 109 (Suppl. 420): 47–54; 4) WHO Global Health Risk Report, 2009; 5) Disability adjusted life-years

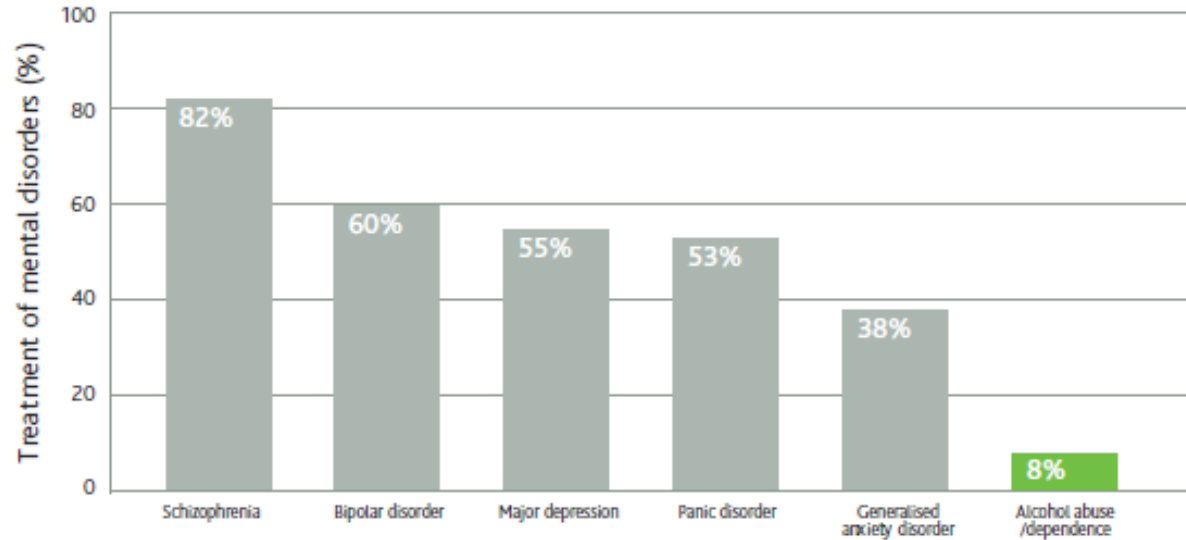
# Less than 10% of alcohol dependent patients receive treatment

**14,600,000**  
EUROPEANS ARE  
ALCOHOL DEPENDENT<sup>2</sup>



**92%**  
ARE NOT TREATED<sup>3,4</sup>

Alcohol abuse and dependence have the widest treatment gap among all mental disorders<sup>4</sup>



1. Rehm et al. Alcohol consumption, alcohol dependence, and attributable burden of disease. Centre for Addiction and Mental Health, Toronto, ON

2. Wittchen et al. Eur Neuropsychopharmacol 2011; 21(9):655–679

3. Alonso et al. Acta Psychiatr. Scand. 2004; 109: 47–54

4. Kohn et al. Bull World Health Organ 2004;82:858–866

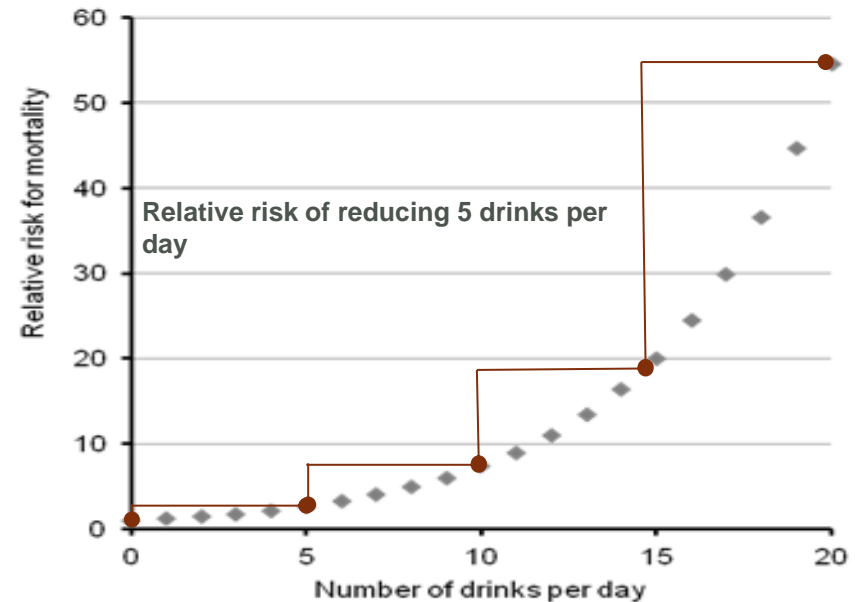


# Reducing harm by reducing high alcohol consumption



- ★ Alcohol is a causal factor in more than 60 diseases
- ★ From 10 to 4.5 drinks per day after 6 months
- ★ From 6 to 3 heavy drinking days per week
- ★ Expected to be launched in selected European countries from mid-2013

**Typical risk curve for alcohol  
(e.g., liver cirrhosis mortality)**



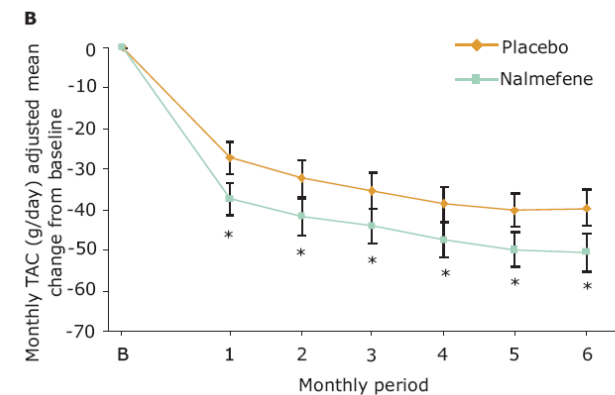
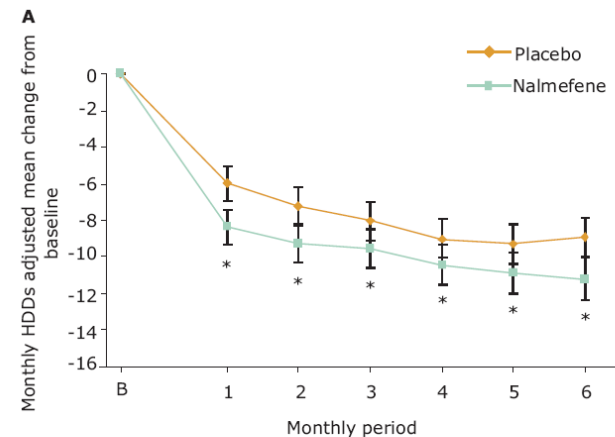
# Selincro will be the first treatment approved for the reduction of alcohol consumption

- ★ EU approval in February 2013
- ★ Selincro breaks the cycle of continuous drinking and reduced alcohol consumption by 57%



## THE SELINCRO PATIENT

- Alcohol dependent
- High drinking risk level\*\*
- No physical withdrawal symptoms/  
no need for immediate detoxification



# In clinical trials, Selincro demonstrated a significant reduction in alcohol consumption



Baseline



Equivalent to 10 bottles of wine per week

Selincro   
nalmefene

After 1 month



6 bottles

**40%**  
reduction

Selincro   
nalmefene

After 6 months



4 bottles

**60%**  
reduction

Selincro   
nalmefene

After 12 months



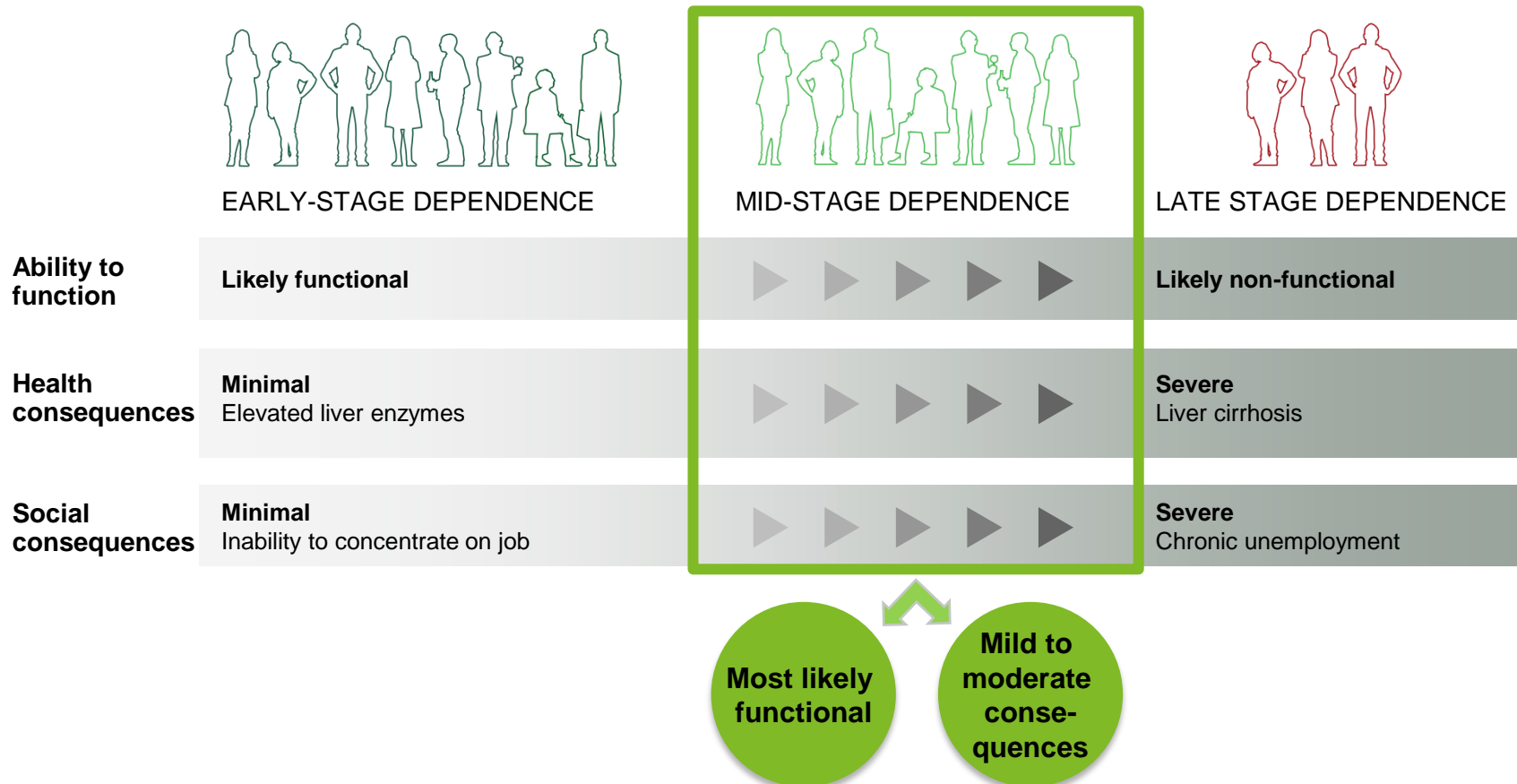
3 bottles

**67%**  
reduction

# Physicians recognize the “functional” patient with alcohol dependence as the most suitable candidate for Selincro.



## *Alcohol Dependence: A Progressive Disease*



# Selincro creates TV stories and headlines

## Example: Germany



# Appendix

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- ★ Lundbeck overview
- ★ Commercial operations
- ★ **Pipeline**
- ★ Financials
- ★ The CNS market
- ★ The Lundbeck share

# Lundbeck is involved in indications costly to society and with high unmet medical needs

## DALY\* ranking (non communicable conditions)

Rank	Disease
1	Cancer diseases
2	Unipolar depressive disorder and anxiety
3	Ischaemic heart disease
4	Cerebrovascular disease
5	Chronic obstructive pulmonary disease
6	Refractive errors
7	Hearing loss, adult onset
8	Congenital anomalies
9	Alcohol use disorders
10	Diabetes mellitus
11	Cataracts
12	Schizophrenia
.....	.....
15	Bipolar disorder
.....	.....
17	Alzheimer and other dementias
...	...
23	Epilepsy
...	...
40	Parkinson's disease

\*) Disability adjusted life years, Source: Lundbeck based on Global Burden of Disease 2004, WHO

- ★ Lundbeck's focus areas rank high in terms of burden to society
- ★ These conditions are often of a serious nature and devastating for patients and family...
- ★ ... and are characterised by high unmet needs
- ★ CNS disorders are difficult to treat because of...
  - ★ the complexity of the brain
  - ★ high level of adverse effects
  - ★ the blood/brain barrier

# CNS comprises many disease areas and diseases

## Psychiatry



### Multiple sub-classifications

#### Mood Disorders

- MDD
- TRD
- Seasonal Affective Dis.
- Melancholic Depression
- Stress-related

#### Anxiety Disorders

- GAD
- Panic Disorder
- Social Anxiety
- OCD
- PTSD

#### Psychotic Disorders

- Schizophrenia
- Bipolar disorder
- Schizoaffective disorder
- Delusional disorders

#### Personality Dis.

- Paranoid PD
- Borderline PD
- Schizoid PD
- Schizotypal PD
- others

#### Addiction

- Alcohol Dependence
- Nicotine addiction
- Drug addiction
- Compulsive shopping
- Pathological gambling

#### Development Dis.

- Autism
- ADHD
- Asperger's
- Fragile-X
- Down's Syndrome

#### Eating Disorders

- Anorexia nervosa
- Bulimia nervosa
- Binge eating disorder

## Neurology



### Multiple sub-classifications

#### Movement Disorders

- Parkinson's Disease
- Huntington's Disease
- Friedreich's Ataxia
- Restless legs syndrome
- Tourette's syndrome

#### Dementias

- Alzheimer's Disease
- Vascular Dementia
- Frontotemporal Dementia
- Dementia with Lewy bodies
- Creutzfeldt-Jakob disease

#### Cerebrovascular

- Ischaemic Stroke
- Haemorrhagic Stroke
- Subarachnoid haemorrhage

#### Demyelinating Dis.

- Multiple sclerosis
- Optic neuritis
- Guillain-Barré
- Charcot-Marie-Tooth

#### Sleep disorders

- Primary insomnia
- Narcolepsy
- Sleep apnoea

#### Traumatic Injuries

- Traumatic brain injury
- Spinal cord injury

#### Pain

- Acute pain
- Migraine
- Other headaches
- Diabetic polyneuropathy
- Post-herpetic neuralgia

#### Epilepsies

- Simple partial seizures
- Complex partial seizures
- Infantile spasms
- Lennox-Gastaut
- Temporal lobe epilepsy

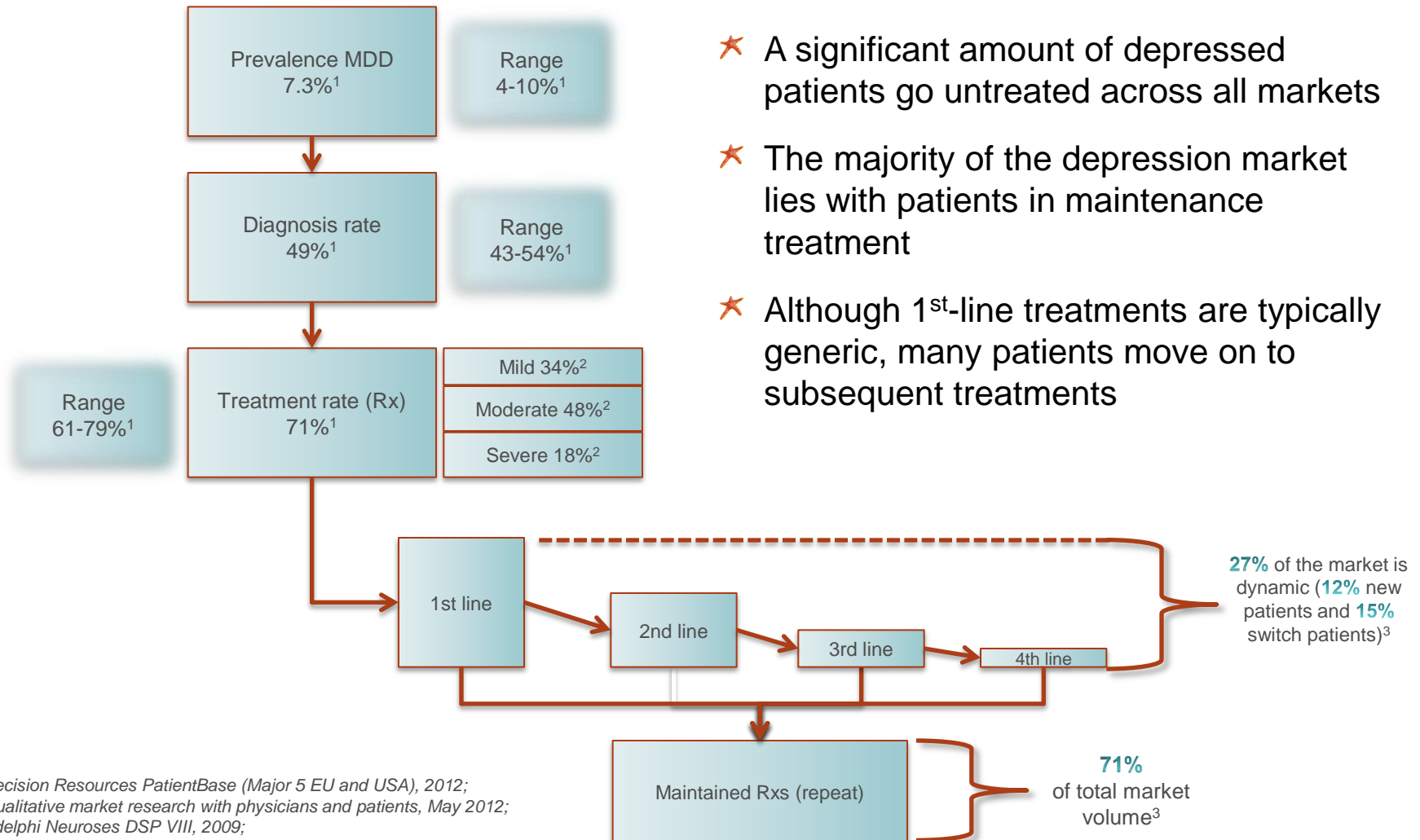
 = Lundbeck presence



# Brintellix (vortioxetine, Lu AA21004)



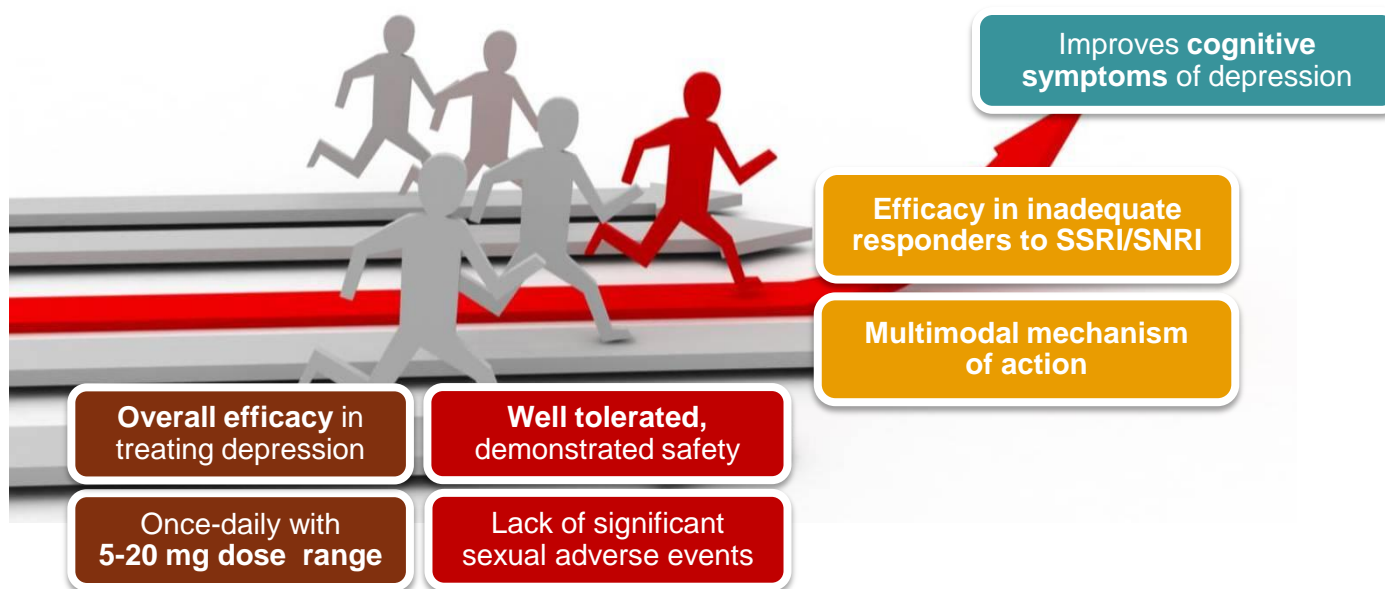
# Depressed patient flow (merged EU and USA)



1. Decision Resources PatientBase (Major 5 EU and USA), 2012;  
 2. Qualitative market research with physicians and patients, May 2012;  
 3. Adelphi Neuroses DSP VIII, 2009;  
 4. Rush AJ et al. Am J Psychiatry 2006;163:1905-1917;  
 5. Rush AJ et al. N Engl J Med 2006;354:1231-1242

# Brintellix: What do we have?

*Effective antidepressant with differentiation in MoA, tolerability and cognition*



Comprehensive data package with over 7,500 individuals in studies  
70% phase III success rate vs. 48% US average for antidepressants<sup>1)</sup>

Note: Forward-looking and aspirational

1) Proportion of Failed Trials of Antidepressants in the FDA Data Sets (total). Khan A et al. J Clin Psychopharmacology 2002; 22:40-45

NOT FOR PROMOTIONAL USE

# Brintellix – thoughts on the study design



- ★ The Brintellix program was designed in line with EMA guidelines<sup>1)</sup>
- ★ Six of the 9 short-term studies included an active reference (venlafaxine or duloxetine)

## Potential consequences:

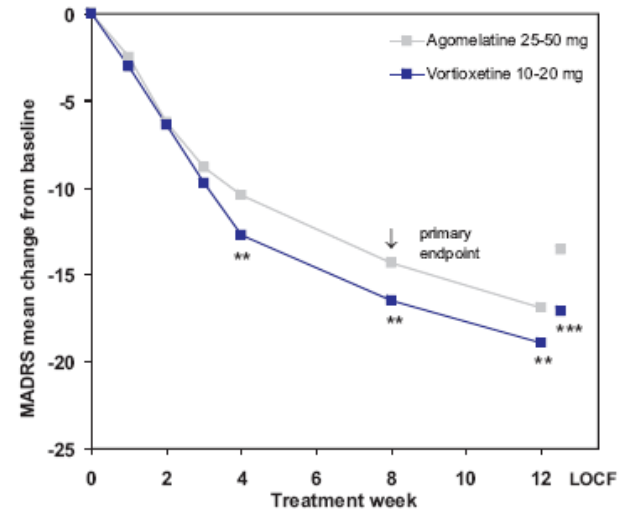
- ★ Exclusion of patients...
  - ★ If the had a history of lack of response to previous treatment with the active reference
  - ★ Known hypersensitivity to the active reference
- ★ Exclusion of non-responders and consequently inclusion of previous responders to the active reference introduces a potential bias

1) Note for guidance on clinical investigation of medical products in the treatment of depression

# First data from “high-dose” program on Brintellix presented at EPA in March



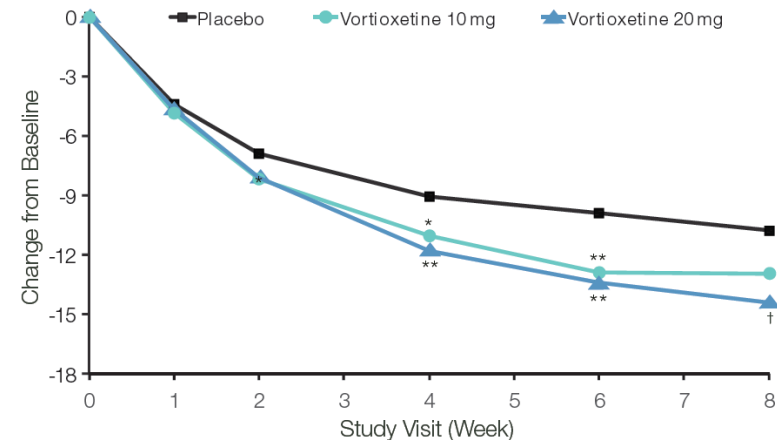
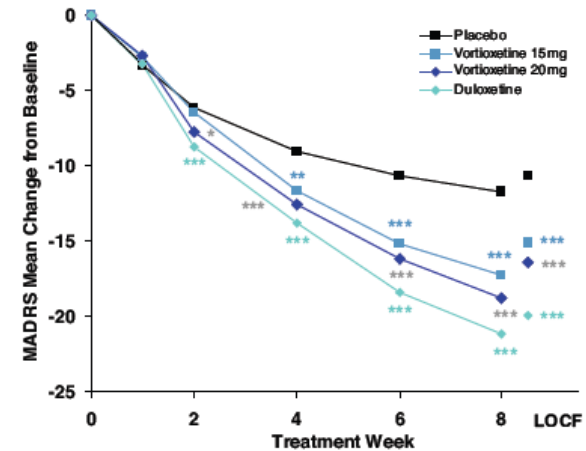
- ★ ...is a uniquely designed multimodal antidepressant that may provide unique clinical benefits
- ★ ...is significantly better versus agomelatine in patients who switched antidepressant treatment after an inadequate response to SSRI/SNRI treatment
- ★ ...showed consistent results over all endpoints
- ★ ~10 posters to be presented at APA on 18-22 May 2013



# Brintellix is a new multimodal anti-depressant with robust and broad efficacy



- ★ Efficacious in the treatment of depression in adults, elderly and when used as maintenance treatment to prevent relapse
- ★ Is efficacious in the treatment of depressive symptoms in patients with an inadequate response to SSRI/SNRI
- ★ It leads to improvement in the overall depressive syndrome, including the items of the MADRS, response and remission rates and global clinical impression as measured by the CGI-I
- ★ Improves cognitive function in depressed patients, assessed as performance on the neuropsychological tests DSST and RAVLT
- ★ Improves health-related quality-of-life outcomes (SF-36 MCS), overall health rating (EQ-5D) and overall functioning (SDS)



# Brintellix has a favorable tolerability and safety profile



- ★ Placebo-level insomnia
- ★ Low incidence of sexual dysfunction
- ★ No weight gain
- ★ No QTc prolongation, and placebo-level effects on blood pressure, heart rate and renal and hepatic assessments
- ★ In clinical studies, the incidence of nausea was low, and nausea was generally mild to moderate and transient
- ★ Brintellix treatment can be stopped abruptly without discontinuation symptoms

**Adverse Events (AEs) with an Incidence of  $\geq 5\%$  in Any Treatment Group in the 8-Week Treatment Period (APTS)**

Preferred term	Placebo	Brintellix 15mg	Brintellix 20mg	Duloxetine 60mg
Pts w. TEAEs	50.6%	57.0%	66.2%	65.3%
Nausea	10.1%	26.5%	31.8%	30.6%
Headache	7.6%	10.6%	12.6%	10.9%
Diarrhoea	3.8%	4.0%	7.3%	6.1%
Dry mouth	3.2%	3.3%	6.0%	9.5%
Dizziness	6.4%	4.6%	5.3%	10.2%
Fatigue	2.5%	4.0%	3.3%	5.4%
Hyperhidrosis	3.8%	3.3%	0.0%	7.5%

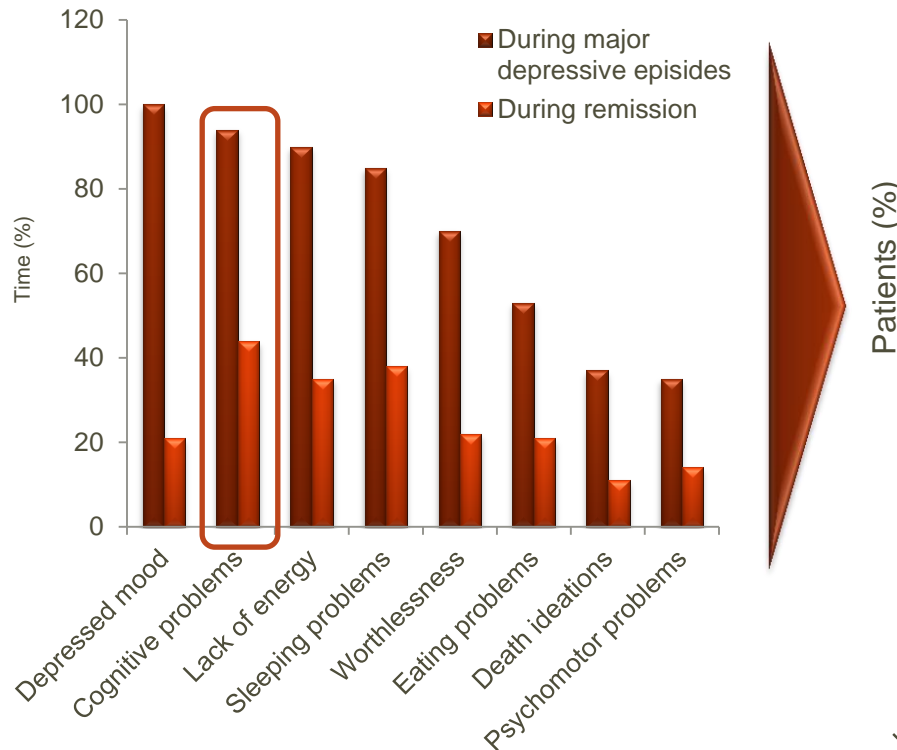
Source: J.P.Boulenger, APA2013 (Poster NR3-055)

Variable	Placebo	Brintellix 15mg	Brintellix 20mg	Duloxetine 60mg
Number of subjects without sexual dysfunction at baseline				
$\Delta$ from PBO	-	-0.7%	-0.7%	17%
Number of subjects with sexual dysfunction at baseline				
$\Delta$ from PBO	-	-8.7%	6.3%	1.5%

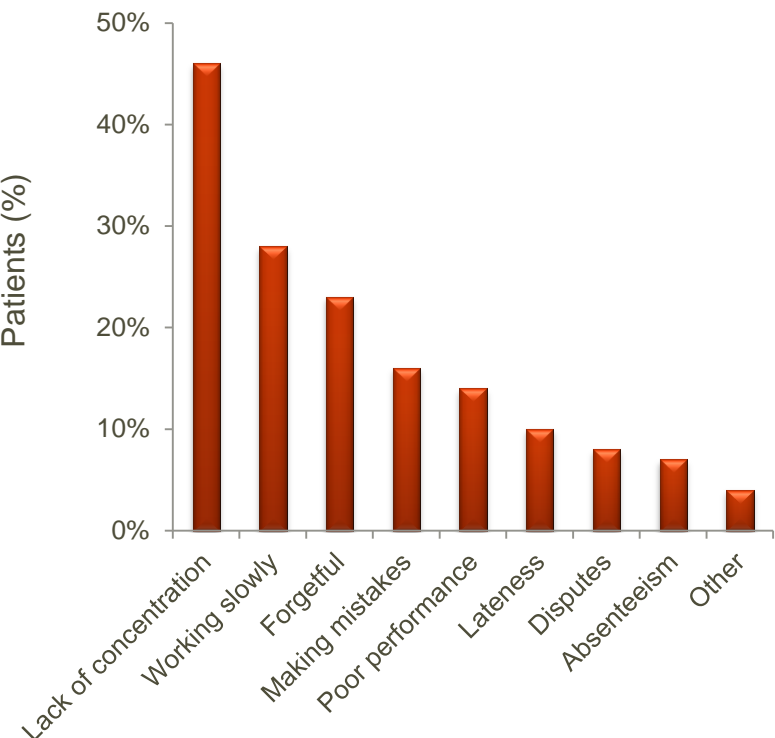
Source: A.R. Mahableshwarkar, APA2013 (Poster NR9-01)

# 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<sup>1)</sup>**



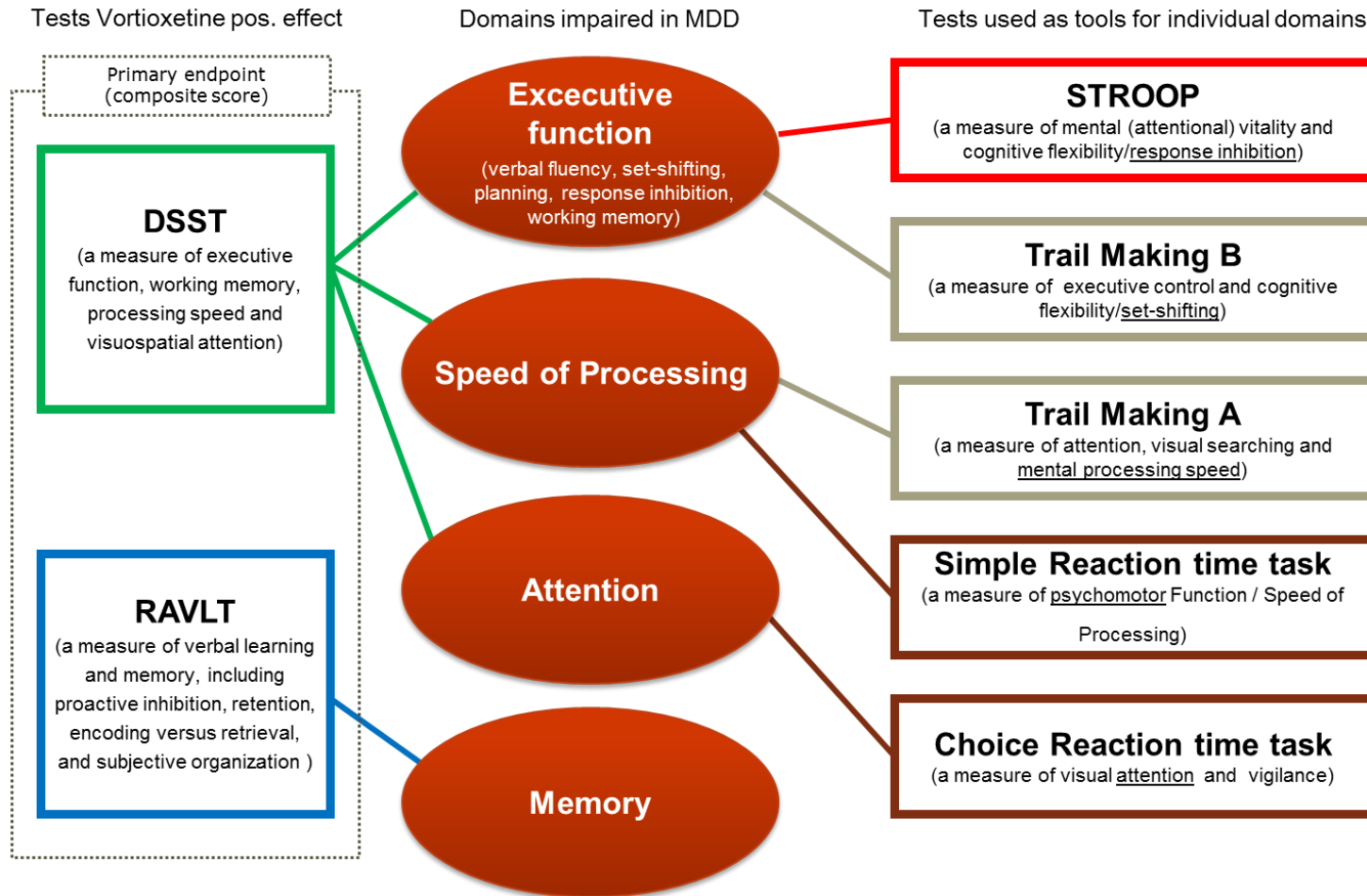
**Percentage of patients with MDD experiencing work-related cognitive dysfunction<sup>2)</sup>**



1. Conradi HJ et al. Psychol Med 2011;41:1165-1174;  
2. Adelphi Neurosis DSP VIII, 2009



# Test Selection Strategy for evaluate cognitive performance



# DSST and RAVLT were used to evaluate cognitive performance in the elderly study

## DSST<sup>3</sup>

- Measure of executive function, working memory, processing speed and visuospatial attention



*Digit Symbol Substitution Test (DSST)*

(Date of issue: 20-Aug-2008)

Reference: Wechsler D. Wechsler Adult Intelligence Scale - third edition. San Antonio, TX: Psychological Corporation, 1997.

1	2	3	4	5	6	7	8	9
—	⊥	⊐	└	┘	○	△	×	=

2	1	3	7	2	4	8	2	1	3	2	1	4	2	3	5	2	3	1	4

5	6	3	1	4	1	5	4	2	7	6	3	5	7	2	8	5	4	6	3

## RAVLT<sup>4,5</sup>

- Test of verbal learning, including recall and recognition



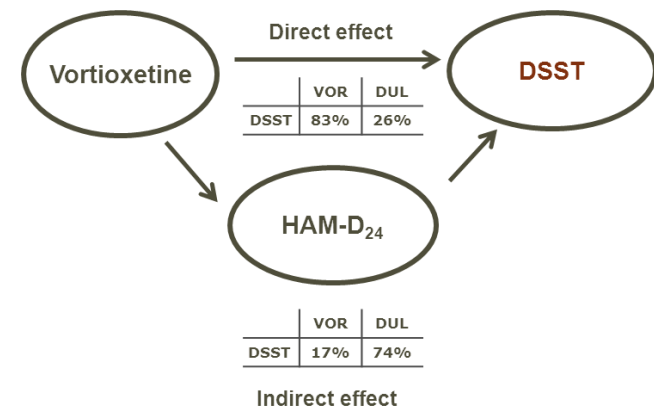
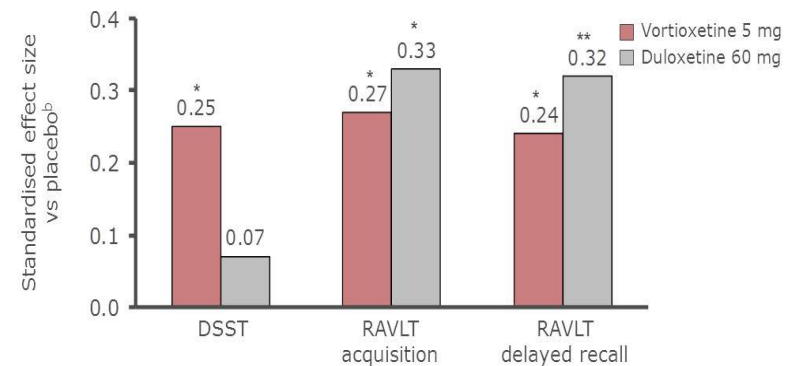
➤ Acquisition – Learning

➤ Delayed recall  
(20–30 min) - Memory

# Brintellix - cognition data in elderly patients with MDD

- ★ Significant improvement in cognitive functioning vs. placebo on DSST scale
- ★ Significant improvement in cognitive functioning vs. placebo on RAVLT scale<sup>1</sup>
- ★ Path analysis: 83% of effect on cognitive dysfunction was direct<sup>1</sup>
  - ★ Only 17% indirect effect as result of improvement in depressive symptoms
- ★ Two ongoing clinical trials in adult MDD patients with cognition tests as primary endpoints

## Brintellix' treatment effect on cognitive performance



# Brintellix: Efficacy in patients with inadequate response to SSRI/ SNRI therapy.



**John LaMattina**, Contributor  
I cover news on drugs and R&D in the pharma industry  
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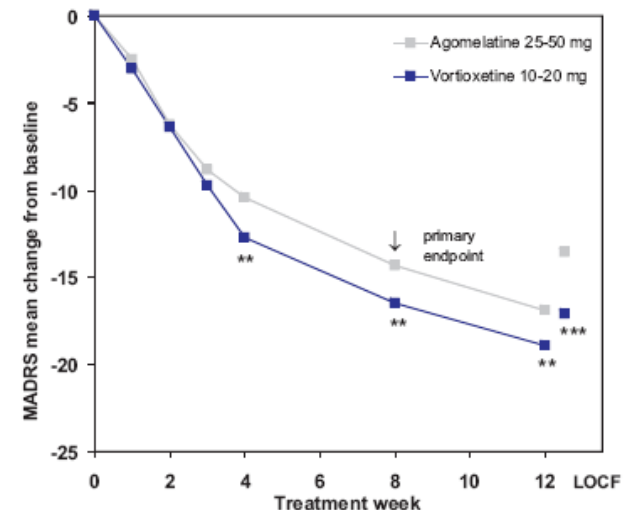
**Forbes**

PHARMA & HEALTHCARE | 4/12/2013 @ 10:18AM | 4,736 views

## New Data For Lundbeck's Antidepressant, Brintellix, Provide Insight Into Commercial Strategy

[...] What is interesting, however, is that Brintellix did help patients with MDD who had failed standard therapy. One can't help but surmise that Lundbeck will plan to develop this advantage of Brintellix in both positioning and pricing this drug. [...] This strategy differs from what would have been done 15 years ago. Back then, a company with a new antidepressant would have gotten regulatory approval for its new drug and begun marketing it against existing agents in order to compete as a first-line therapy. That strategy is no longer viable in 2013. [...] By showing that Brintellix is effective in first-line treatment failures, if it is approved, Lundbeck can have an entry into this patient population who need a treatment alternative.

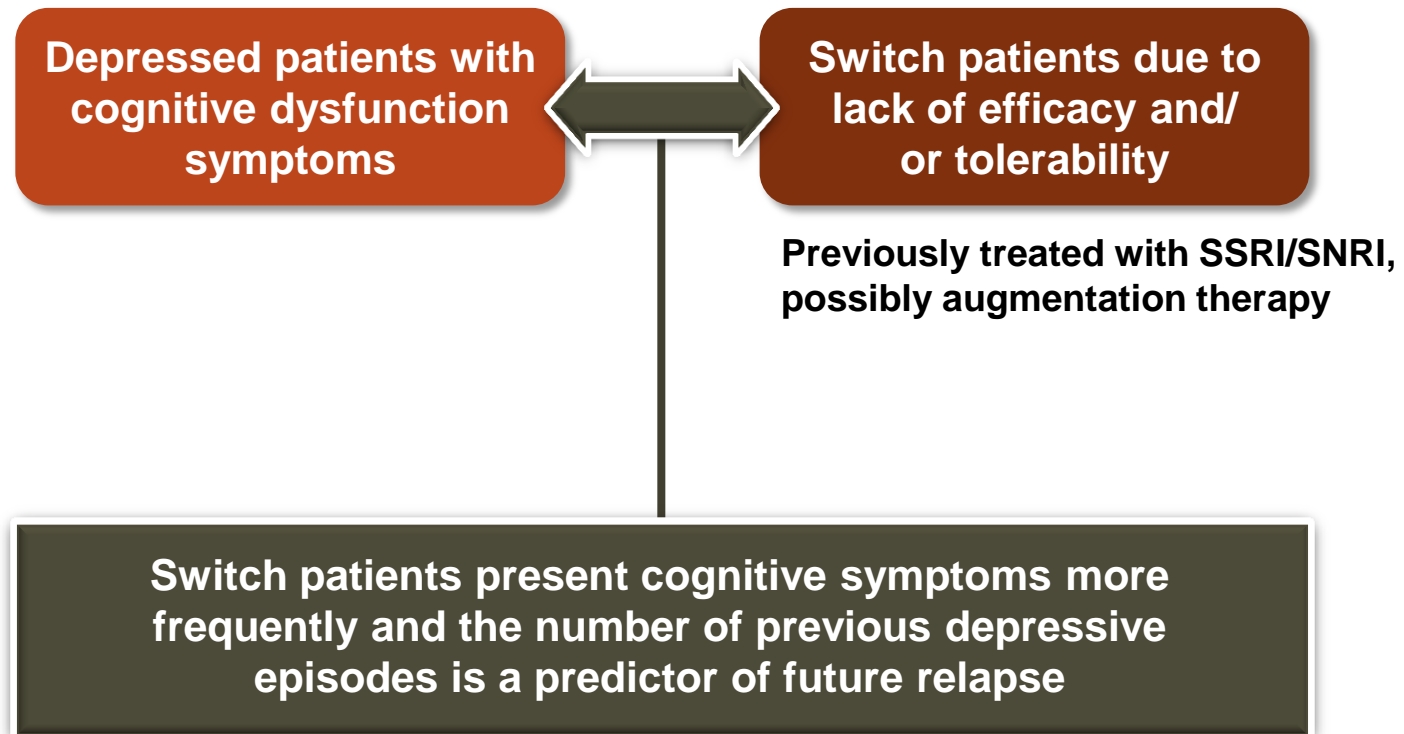
Significantly better versus agomelatine in patients who switched antidepressant treatment after an inadequate response to SSRI/SNRI treatment



Source: xxxx

## Population groups of interest for achieving market access for Brintellix

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# Brintellix: Setting the agenda for the future treatment of major depression

Evaluating depression treatments on **patient relevant outcomes**

Translating clinical benefits into **economic value**

Restoring normal functioning

Impaired functioning results in work productivity loss

→ *Absenteeism, presenteeism*

**Indirect cost savings**

Improving the cognitive symptoms associated with depression

Residual cognitive symptoms increase the risk of relapse and recurrence

**Direct cost savings**

Addressing the “basics”: efficacy, tolerability, safety

Poor tolerability results in low compliance

→ *Treatment switches*

# “High dose” clinical programme using Brintellix in MDD

## Major depressive disorder

Clinicaltrials.gov identifier	Estimated enrolment	Study start	Intervention
<b>NCT01140906* #</b>	<b>600 (non-US)</b>	<b>May 2010</b>	<b>8 wks. Brintellix (15+20mg); duloxetine (60mg); Placebo</b>
NCT01255787	615 (non-US)	November 2010	8 wks. Brintellix (5+10+20mg); placebo
NCT01323478	300 (non-US)	April 2011	52 wks extension. Brintellix (15+20mg)
<b>NCT01163266* #</b>	<b>450 (US)</b>	<b>July 2010</b>	<b>8 wks. Brintellix (10+20mg); placebo</b>
<b>NCT01153009* #</b>	<b>600 (US)</b>	<b>June 2010</b>	<b>8 wks. Brintellix (15+20mg); duloxetine (60mg); placebo</b>
<b>NCT01179516 #</b>	<b>450 (US)</b>	<b>August 2010</b>	<b>8 wks. Brintellix (10+15mg); placebo</b>
NCT01152996	1,000 (US)	September 2010	52 wks extension. Brintellix (15+20mg) –by invitation only
NCT01355081	360 (Japan)	May 2011	8 wks. Brintellix (5+10mg); placebo
NCT01395147	100 (Japan)	July 2011	52 wks extension. Brintellix (5-20mg)
NCT01571453	410 (Asia)	May 2012	8 wks. Brintellix (10mg); venlafaxine XR 150mg
<b>NCT01488071 (vs. agomelatine) @</b>	<b>500 (Non-US)</b>	<b>January 2012</b>	<b>8 wks. Brintellix (10-20mg); agomelatine (25-50mg)</b>
NCT01364649 (sexual dysfunct.)	440 (US+Canada)	June 2011	Brintellix (10-20mg); escitalopram (10-20mg)
NCT01564862 (cognition)	600 (US)	April 2012	8 wks. Brintellix (10-20mg); duloxetine (30-60mg); placebo
NCT01422213 (cognition)	600 (US)	December 2011	8 wks. Brintellix (10+20mg); placebo

\* Headline conclusions communicated in May 2012. # Data presented at APA 2013 in May. @ Data presented at EPA 2013 in April 2013

# “Low dose” clinical programme using Brintellix in MDD and GAD

## Major depressive disorder

Clinicaltrials.gov identifier	Estimated enrolment	Study start	Intervention
NCT00635219 <sup>2,5</sup>	766 (non-US)	April 2009	8 wks. Brintellix (2.5+5+10mg); duloxetine (60mg); placebo
NCT00735709 <sup>2</sup>	560 (non-US)	August 2008	8 wks. Brintellix (1+5+10mg); placebo
NCT00672620	611 (US)	April 2008	8 wks. Brintellix (2.5+5 mg), duloxetine (60mg); placebo
NCT00672958 <sup>2</sup>	600 (US)	April 2008	6 wks. Brintellix (5mg); placebo
NCT00694304 (safety)	536 (non-US)	May 2008	52 wks. Brintellix (2.5-10mg flexible dose)
NCT00596817 (relapse) <sup>2</sup>	400 (non-US)	December 2007	<76 wks. Brintellix (5+10mg); placebo
NCT00707980 <sup>3</sup>	836 (non-US)	June 2008	<52 wks. Brintellix (2.5+5+10mg)
NCT00811252 (elderly) <sup>3,6</sup>	453 (US)	January 2009	8 wks. Brintellix (5mg); duloxetine (60mg); placebo
NCT00761306 (safety)	74 (non-US)	June 2007	52 wks. Brintellix (5+10mg)
NCT00839423 (phase II) <sup>1,7</sup>	429 (non-US)	August 2006	8wks. Brintellix (5+10mg); venlafaxine XL (225mg); placebo

## General anxiety disorder

Clinicaltrials.gov identifier	Estimated enrolment	Study start	Intervention
NCT00730691	781 (US)	June 2008	8 wks. Brintellix (2.5+5+10mg); duloxetine (60mg); placebo
NCT00731120	457 (US)	June 2008	8 wks. Brintellix (2.5mg+10mg); placebo
NCT00734071 <sup>4</sup>	309 (US)	June 2008	8 wks. Brintellix (5mg); placebo
NCT00744627 <sup>4</sup>	301 (Non-US)	September 2008	8 wks. Brintellix (5mg); placebo
NCT00788034 (relapse) <sup>3,6</sup>	459 (Non-US)	October 2008	8 wks. Brintellix (5mg+10mg); placebo

Publication: 1) APA 2009, 2) APA 2011, 3) APA 2012, 4) ACNP 2011, 5) European Neuropsychopharmacology (2011), 6) Int. Clinical Psychopharmacology (2011), 7) Int. Journal of Neuropsychopharmacology (2011)



# Brintellix – for EU/US registration of MDD

Short-Term (10 studies)										Long-Term
HLu 11492	HLu 11984, DF	TAK 305	HLu 13267	TAK 315	TAK 316	TAK 317	TAK 303	TAK 304	HLu 12541, Elderly	HLu 11985, Relapse prevention
6 weeks	8 weeks	8 weeks	8 weeks	8 weeks	8 weeks	8 weeks	6 weeks	8 weeks	8 weeks	OL: 12 week DB: 24-64 w
PBO 5 mg 10 mg	PBO 2.5 mg 5 mg 10 mg	PBO 1 mg 5 mg 10 mg	PBO  15mg 20mg  60 mg Dulox.	PBO  15mg 20mg  60 mg Dulox.	PBO  10mg 20mg	PBO  10mg 15mg	PBO 5 mg	PBO 2.5 mg 5 mg  60 mg Dulox.	PBO 5 mg  60 mg Dulox.	PBO 5 mg 10 mg
EU/Asia /CA	EU/Asia /CA	EU/ZA /Asia	EU/ZA	US	US	US	US	US	EU /CA/US	EU/CA/Asia
Positive study	Failed study, but strongly supportive	Positive study	Positive study	Positive study	Positive study	Failed or negative study	Failed or negative study	Negative study	Positive study	Positive study

# Competitors' clinical package for regulatory filing - 1

Product	Market	Indication	No. of short-term studies	No. of patients	No. of positive studies	No. of long-term studies	No. of patients	No. of positive studies
Duloxetine (Cymbalta) <i>Eli Lilly/Boehringer Ingelheim</i>	EU	MDD	6	1978	4	1	278	1
		GAD	4	1908	4	1	429	1
	US	MDD	6	1586	3	1	278	1
		GAD	3	1163	3	-	-	-
Desvenlafaxine (Pristiq) <i>Wyeth/Pfizer</i>	US (same data submitted to EMA but was decided to be withdrawn)	MDD	9	3272	4 (2 other studies nominally negative but positive on alternative analyses)	1 (but FDA decided not to review this study due to higher dose-range than proposed dosage regimen)	-	-
Agomelatine (Valdoxan) <i>Servier</i>	EU	MDD	12	4678	3	2 (one of the two studies was filed in the second submission but not in the first)	706	1 (only the study included in the second submission was positive)
Quetiapine XR (Seroquel XR) <i>AstraZeneca</i>	US	MDD (monotherapy) (only filed not approved)	5	2454	4 (only positive on primary endpoint)	1	1876	1
		MDD (adjunctive therapy)	2	939	2 (only positive in primary endpoints)	-	-	-
		GAD	4	2658	4	1	432	1

# Competitors' clinical package for regulatory filing - 2

Product	Market	Indication	No. of short-term studies	No. of patients	No. of positive studies	No. of long-term studies	No. of patients	No. of positive studies
Vilazodone (Viibryd) <i>Forest</i>	US	MDD	2	869	2	-	-	-
Mirtazapine (Remeron) <i>ScheringPlough/ Organon</i>	US	MDD	5	-	5	1	-	1
Aripiprazole (Abilify) <i>BMS/Otsuka</i>	US	MDD (adjunctive therapy)	2	743	2	-	-	-
Olanzapine/ Paroxetine (Symbyax) <i>Eli Lilly</i>	US	MDD	5	1616	1	-	-	-
Bupropion SR (Wellbutrin SR) <i>GlaxoSmithKline</i>	EU	MDD	8	-	2	-	-	-
Bupropion IR (Wellbutrin IR) <i>GlaxoSmithKline</i>	EU	MDD	7	-	-	-	-	-
Bupropion XR (Wellbutrin XR) <i>GlaxoSmithKline</i>	EU	MDD	3	1564	1	1	400	1
	US	MDD	4	1401	1	-	-	-

# Competitors' clinical package for regulatory filing - 3

Product	Market	Indication	No. of short-term studies	No. of patients	No. of positive studies	No. of long-term studies	No. of patients	No. of positive studies
Sertraline (Zoloft) <i>Pfizer</i>	US	MDD	2	-	2	1	295	1
		PTSD	4	757	2	2	252 (in one of the studies – total number unknown)	2
		PD	4	686	3	1	183	1
		OCD	3	-	3	1	224	1
		OCD in children & adolescents	1	187	Study showed positive results but was found inadequate due to design for adults	-	-	-
		SAD	2	-	2	1	-	1
Levomilnacipran <i>Forest</i>	US	MDD (not yet approved)	3	>1600	3	-	-	-

## Other pipeline projects

# Brexpiprazole – a new treatment for a range of psychiatric disorders

## Brexpiprazole phase II (study no. 211)

- ★ Effective as adjunctive treatment in MDD patients with inadequate response to prior antidepressant therapy
- ★ Statistically significant reductions in MADRS total score as early as week 2 after initiation of treatment with brexpiprazole

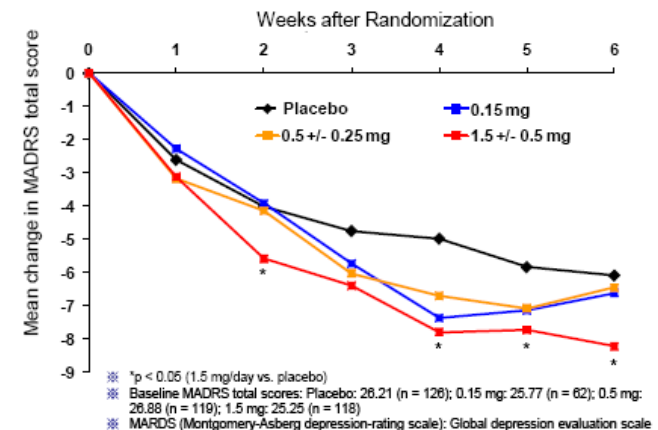
## Development status

- ★ Schizophrenia: Three phase III studies recruiting
- ★ Major depression adjunctive therapy: Five phase III studies recruiting

## Mechanism of action

- ★ Novel D<sub>2</sub>/D<sub>3</sub> receptor partial agonist
- ★ 5-HT<sub>1A</sub> partial agonist
- ★ 5-HT<sub>2A</sub> antagonist

**Phase-IIb OPC-34712 efficacy results (study no. 211):  
Change in MADRS total score**



# Clinical programme with brexpiprazole

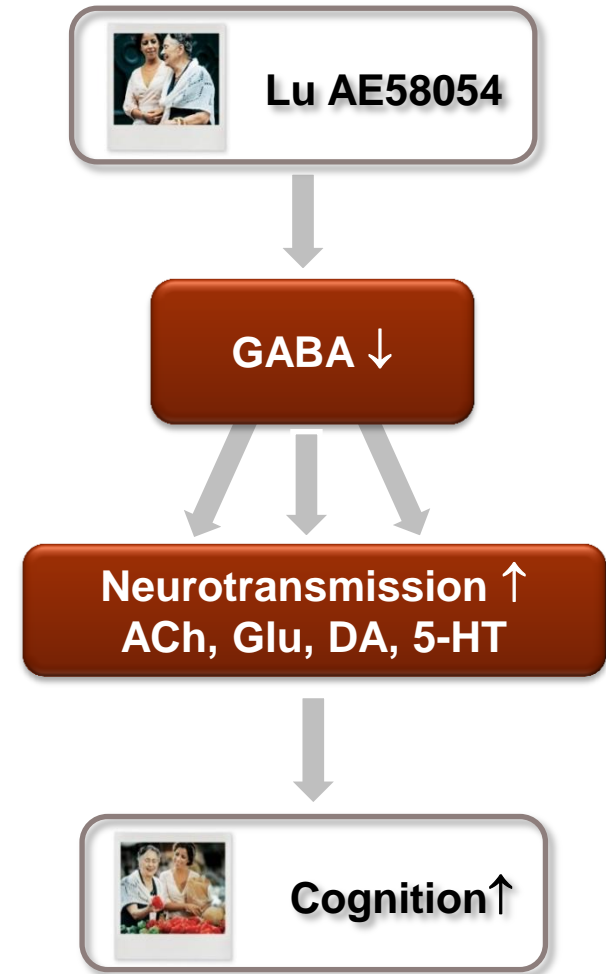
Clinicaltrials.gov identifier	Estimated enrolment	Study start	Indication
NCT01727726 (phase III)	1,340 (US)	Dec 2012	Adjunctive therapy in MDD (Delphinus) - flexible-dose. Brexpiprazole+ADT; placebo+ADT; seroquel+ADT, endpoint: MADRS score
NCT01360866 (phase III)	1,209 (US)	Oct 2011	Adjunctive therapy in MDD (Orion). 0.5-3 mg brexpiprazole+ADT, endpoint: adverse events
NCT01360645 (phase III)	925 (US)	Jul 2011	Adjunctive therapy in MDD (Pyxis). 2mg brexpiprazole+ADT; placebo+ADT, endpoint: MADRS score
NCT01360632 (phase III)	1,650 (US)	Jun 2011	Adjunctive therapy in MDD (Polaris). 1+3mg brexpiprazole+ADT; placebo+ADT, endpoint: MADRS score
NCT01838681 (phase III)	1,462 (EU)	May 2013	1-3mg. Inadequate responders in MDD; Up to 36 wks
NCT01837797 (phase III)	1,334 (elderly)	April 2013	1-3mg. Up to 20wks
NCT01810380 (phase III)	465	March 2013	To determine the efficacy and safety of brexpiprazole for the treatment of adults experiencing an acute episode of schizophrenia. Active ref: Seroquel
NCT01810783 (phase III)	140	May 2013	<4mg Safety and tolerability in schizophrenia. PANSS is secondary end-point. Up to 52 wks
NCT01668797 (phase III)	420 (US)	Oct 2012	Maintenance treatment of schizophrenia (Equator). 1-4mg brexpiprazole; placebo, endpoint: relapse
NCT01397786 (phase III)	1,000 (global)	Sep 2011	Maintenance treatment of schizophrenia (ZENITH). 1-2mg, 1-4mg brexpiprazole, Endpoint: adverse events
NCT01393613 (phase III)	660 (global)	Jul 2011	Acute schizophrenia (BEACON). brexpiprazole (low/medium/high dose), placebo, end point: PANSS score
NCT01396421 (phase III)	630 (global)	Jul 2011	Acute schizophrenia (VECTOR). brexpiprazole (low/medium/high dose), placebo, end point: PANSS score
NCT01456897 (phase III)	Na. (Japan)	Oct 2011	Long-term trial in schizophrenia.
NCT01447576 (phase II)	1,038 (US)	Sep 2009	Adjunctive therapy in MDD. 1-3mg brexpiprazole+ADT, endpoint: adverse events
NCT00797966 (phase II) <sup>1)</sup>	850 (US)	May 2009 (completed)	Adjunctive therapy in MDD. 1-4mg brexpiprazole+ADT; placebo+ADT, endpoint: depression rating scale
NCT01052077 (phase II)	773 (US)	Mar 2010 (completed)	Adjunctive therapy in MDD (STEP-D222). 1-3mg brexpiprazole+ADT; placebo+ADT, endpoint: depression rating scale
NCT01074294 (phase II)	675 (US)	Mar 2010 (completed)	Complementary treatment in ADHD. 0.25+1mg brexpiprazole+ST; placebo+ST, endpoint: efficacy/safety
NCT00905307 (phase II) <sup>2)</sup>	450 (US)	Jul 2009 (completed)	Acute schizophrenia. 4 diff. doses (0.25-6mg) of brexpiprazole (STEP 203); aripiprazole; placebo, dose establishing study
NCT01451164 (phase II/III)	N/A (Japan)	Oct 2011	Dose-finding trial in patients with schizophrenia. brexpiprazole (low/medium/high dose), placebo, end point: PANSS score
NCT0123916 (phase I)	180 (US)	Jul 2011 (completed)	Trial to Evaluate the Effects of brexpiprazole (4+12mg) on QT/QTc in Subjects With Schizophrenia or Schizoaffective Disorder
NCT01289080 (phase I)	19 (US)	Jan 2011 (completed)	Trial Evaluating 3mg brexpiprazole in Subjects With Normal Renal Function and Renally Impaired Subjects

\*ST=stimulant therapy, ADT=FDA approved antidepressant treatment

1) Published at APA 2011. 2) Published at 24th Annual US Psychiatric and Mental Health Congress, 7-11 November 2011, Las Vegas, NV, USA

# Why could Lu AE58054 be a new valuable AD treatment?

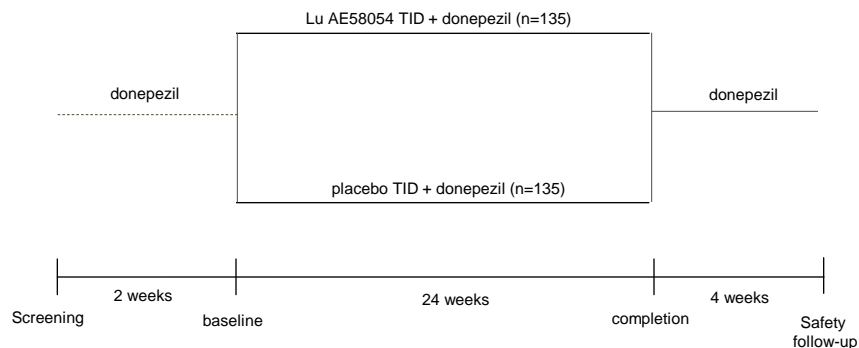
- ★ Lu AE58054 has a different mode of action compared to existing symptomatic treatments (blockade of 5-HT<sub>6</sub> receptors)
- ★ Blocking this particular kind of serotonin receptors (5-HT<sub>6</sub> receptors) has beneficial effects on several neurotransmitter systems in the brain
- ★ Lu AE58054 has been shown to have beneficial effects on cognition in animal models
- ★ Lu AE58054 has been shown to have beneficial effects on cognition in AD patients on stable donepezil treatment





# Lu AE58054 effective in AD patients

## 24 weeks study of Lu AE58054 in combination therapy with donepezil in Alzheimer's disease



## Clinical phase II

- ★ The primary objective is to explore the effect on cognitive performance after 24 weeks of treatment
  - ★ 278 patients with moderate Alzheimer's
  - ★ Add-on to donepezil
  - ★ Treatment period of 24 weeks

## Lu AE58054 – phase II outcome

- ★ Lu AE58054 (+donepezil) demonstrated significant improvements in cognitive function compared to placebo (+donepezil), as assessed by ADAS-cog
- ★ Secondary endpoints were supportive
- ★ Lu AE58054 was considered overall to be well tolerated

# Desmoteplase – significant expansion of current treatment window in stroke

## Desmoteplase profile

- ★ Up to nine hour time treatment window
- ★ Potential to decrease bleeding complications
- ★ Potential to improve neurological outcome

## Ongoing phase III clinical studies

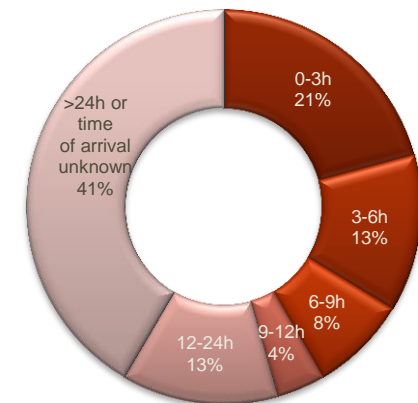
- ★ Two global phase III studies recruiting 400 and 480 patients respectively
- ★ Primary endpoint is the effect of a single dose desmoteplase (90 µg/kg) in a therapeutic window of 3-9 hours after the incidence
- ★ Filing expected in 2014

### Acute ischaemic stroke

- ★ The third most common cause of death in the industrialised world
- ★ Single most common cause of severe disability



## Arrival time among diagnosed acute ischaemic stroke patients



# Clinical phase III programme commenced with zicronapine in schizophrenia

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## Zicronapine (Lu 31-130)

- ★ Potential to treat a number of neurological and psychiatric diseases
- ★ Based on solid phase II data, a clinical phase III programme has been initiated in schizophrenia
- ★ Unique multi-receptorial profile
- ★ Affinity to monoaminergic receptors
- ★ Potent in vivo antagonistic effects at D<sub>1</sub>, D<sub>2</sub>, and 5-HT<sub>2a</sub> receptors

## The initial clinical phase III study

- ★ ~160 patient enrolled
- ★ Patients received zicronapine (7.5mg/day) or risperidone (5mg/day) in a 1:1 ratio
- ★ Further phase III studies will be initiated in due time

## The clinical phase II study\*

- ★ A total of 375 patients where recruited
- ★ Zicronapine was tested at dosages between 3-10 mg/day
- ★ Clear statistically significant separation from placebo at 7 and 10mg
- ★ Convincing efficacy and safety data when compared to olanzapine

# Tedatioxetine (Lu AA24530)

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## Tedatioxetine

- ★ A multi-modal enhancer
- ★ Reuptake inhibition at monoamine transporters
- ★ Antagonist activity at 5-HT<sub>3</sub> and 5-HT<sub>2c</sub> receptors
- ★ Increases in acetylcholine, noradrenaline, dopamine and 5-HT levels in brain regions that play a key role in the regulation of mood

## Headline phase II data\*

- ★ 652 patients
- ★ Moderate to severe depression
- ★ 6 week treatment
- ★ Several doses: 5, 10 and 20 mg
- ★ Active reference: 60 mg duloxetine
- ★ Significant improvement on the primary endpoint and key secondary endpoints compared to placebo
- ★ Tedatioxetine was well-tolerated
  - ★ Drop-out rates due to serious adverse events were low in groups treated with tedatioxetine and were similar to those of duloxetine

\*Headline conclusions communicated in July 2009

# Lundbeck has significant presence in psychiatric disorders in years to come

Compound	Status	Mood disorders	Anxiety disorders	Developmental disorders	Psychotic disorders
Cipralex	Launched	Fully responsive depression			
Brintellix	Filed	Incomplete responsive dep.			
Tedatioxetine	Phase II*				
Brexipiprazole	Phase III	non / inadequate responsive dep.			
Sycrest/Saphris	Launched				
Abilify Maintena	Launched (US) Filed (EU)				Maintenance treatment
Zicronapine	Phase III*				
Lu AF11167 (PDE <sup>1)</sup> )	Phase I**				

\*No active clinical programme ongoing

1) Phosphodiesterase enzyme \*\*March 2011

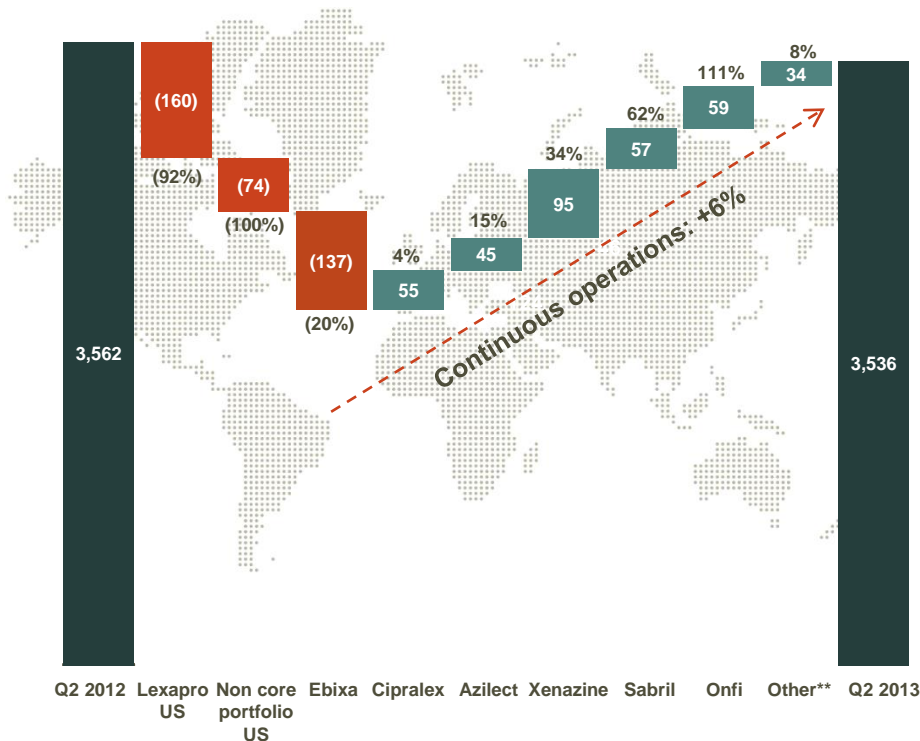
# Financials

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# Continuous Operations growth of 6%

## Revenue development Q2 2013 (DKK M)



- ★ Ebixa performs better than expected
- ★ Strong growth in International Markets of 10%
- ★ US new products\* growth of 51%
- ★ Azilect increased by 15% driven by mostly European countries and Australia

\*Onfi, Sabril, Xenazine and Abilify Maintena

\*\*Other includes Other pharmaceuticals, Other revenue

# Solid second quarter with good operational performance influenced by One-offs



DKK <b>m</b>	Q2 2013	Q2 2012	Index		FY 2012	FY 2011	Index
Revenue	3,536	3,562	99		14,802	16,007	92
- Continuous operations*	3,522	3,313	106		13,511	12,768	106
R&D costs	718	684	105		2,919	3,319	88
- R&D%	20%	19%			20%	21%	
EBIT	(506)	(118)	(429)		1,726	3,395	51
- margin	(14%)	(3%)			12%	21%	
EPS	(2.56)	(0.43)	(595)		5.94	11.64	51
Cash flows from operations	1,346	593	227		2,112	3,624	58
Interest bearing net cash	2,635	786	335		1,893	2,023	94

\*Continuous operations = revenue excl. milestones, gains from divestment of US portfolio of non-core products, former revenue from US portfolio of non-core products and Lexapro US.



# Revenue performance Q2 2013

DKK <b>m</b>	Q2 2013	Q2 2012	Index		FY 2012	FY 2011	Index
Cipralex	1,456	1,421	103		5,827	5,957	98
<i>Lexapro (Japan)</i>	55	35	156		195	68	285
Ebixa	559	696	80		2,803	2,751	102
Azilect	339	294	115		1,224	1,187	103
New products*	769	483	159		2,141	1,253	171
<i>Xenazine</i>	372	277	134		1,197	852	140
<i>Sabril</i>	147	90	162		376	309	122
<i>Onfi</i>	114	55	211		255	-	-
Revenue excl. Lexapro (US)	3,521	3,387	104		14,227	13,472	106
Total revenue	3,536	3,562	99		14,802	16,007	92

- ★ Cipralex excl. Lexapro (Japan) revenue was DKK 1,456 million for the quarter, an increase of 3% compared to Q2 2012
- ★ New Products increased by 59% and for Q2 constituted 22% of total revenue

- ★ US revenue excl. Lexapro grew 28% compared to second quarter 2012 driven by Onfi, Sabril, Xenazine and recently launched Abilify Maintena
- ★ Revenue in International Markets increased 10% primarily driven by Lexapro in Japan, and sales in Canada and China.

# Geographic distribution of revenue – Q2

DKK M	Q2 2013	Q2 2012	Growth	Growth in local currency	Value market share	
					May 2013	May 2012
<b>Europe:</b>						
Cipralex	847	864	(2%)	(3%)	16.7%	16.8%
Ebixa	446	606	(26%)	(27%)	24.1%	23.2%
Azilect	314	269	17%	16%	15.0%	13.4%
Other Pharmaceuticals	210	207	1%	1%		
<b>Total revenue</b>	<b>1,817</b>	<b>1,946</b>	<b>(7%)</b>	<b>(7%)</b>		
<b>US:</b>						
Xenazine	363	270	34%	34%		
Sabril	147	90	62%	62%		
Onfi	114	55	111%	110%		
Other pharmaceuticals	21	252	(92%)	(92%)		
<b>Total revenue</b>	<b>645</b>	<b>667</b>	<b>(3%)</b>	<b>(4%)</b>		
<b>International Markets:</b>						
Cipralex	664	592	12%	16%	11.7%	8.5%
Ebixa	113	90	26%	32%	7.5%	8.5%
Azilect	25	25	(2%)	10%	9.2%	8.3%
Other pharmaceuticals	180	184	(2%)	0%		
<b>Total revenue</b>	<b>982</b>	<b>891</b>	<b>10%</b>	<b>14%</b>		

Note: All market share data is from IMS Health, June 2013

# Q2 2013 – Continued satisfactory cash generation

DKKm	Q2 2013	Q2 2012
Cash flows from operating activities	1,346	593
Cash flows from investing activities	(711)	(771)
<b>Cash flows from operating and investing activities</b>	<b>635</b>	<b>(178)</b>
Cash flows from financing activities	2	(697)
<b>Change in cash</b>	<b>637</b>	<b>(875)</b>
Cash	3,485	1,640
Securities	1,041	1,054
Interest-bearing debt	(1,891)	(1,908)
<b>Interest-bearing net cash and cash equivalents, end of period</b>	<b>2,635</b>	<b>786</b>

# Balance sheet and dividend

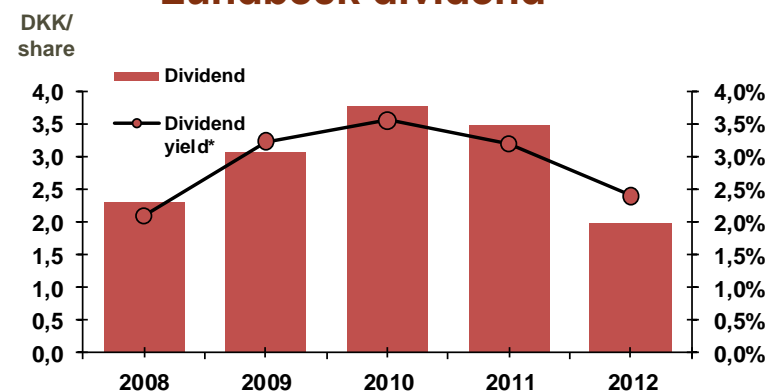
## Balance sheet

DKKm	30.06.13	30.06.12
Intangible assets	9,117	9,556
Other non-current assets	3,754	3,412
Current assets	10,510	7,725
<b>Assets</b>	<b>23,381</b>	<b>20,693</b>

Equity	13,391	12,907
Non-current liabilities	3,342	3,211
Current liabilities	6,648	4,575
<b>Equity &amp; liabilities</b>	<b>23,381</b>	<b>20,693</b>

Cash	3,485	1,640
Securities	1,041	1,054
Interest-bearing debt	(1,891)	(1,908)
<b>Interest-bearing net cash and cash equivalents</b>	<b>2,635</b>	<b>786</b>

## Lundbeck dividend



\* Dividend Yield = dividend per share/share price, year-end

- ★ Dividend of DKK 2.00 per share for 2012, corresponding to a payout ratio of 35%
- ★ A total of DKK 392 million and a yield of 2.4%\*\*
- ★ In 2013-2014 the pay-out ratio is expected to be 35%

\*\*based on the share price of DKK 82.9

# Financial expectations raised for 2013 following better operational performance

## 2013 financial guidance\*

DKK	Guidance 2013	New Guidance 2013	Expectations 2014
Revenue	14.4-15.0bn	14.6-15.0bn	~14bn
EBIT	1.2-1.7bn	1.3-1.7bn	0.5-1.0bn
(Excluding EU fine)	(1.9-2.4bn)	(2.0-2.4bn)	-

\*The new financial guidance for 2013 includes; Impairment of Sycrest product rights of DKK 210 million and DKK 284 million upfront payment related to the extension of the partnership agreement with Otsuka for Lu AE58054 and USD 100 million gain related to divestment of US products and USD 30 million in milestone payment related to Brintellix

# Revenue, yearly figures

	Revenue, DKKm					Growth, Y/Y, %			
	2012	2011	2010	2009	2008	2012	2011	2010	2009
Total revenue	14,802	16,007	14,765	13,747	11,572	(8%)	8%	7%	19%
Cipralex	5,827	5,957	5,808	5,320	4,829	(2%)	3%	9%	10%
Lexapro	575	2,535	2,443	2,451	2,464	(77%)	4%	-	(1%)
Ebixa	2,803	2,751	2,403	2,162	1,878	2%	14%	11%	15%
Azilect	1,224	1,187	1,028	769	553	3%	15%	34%	39%
Xenazine	1,197	852	610	298	-	40%	40%	105%	-
Sabril	376	309	179	-	-	22%	73%	-	-
Other pharmaceuticals	2,174	2,027	2,036	2,469	1,653	7%	-	(18%)	50%
Other revenue	626	389	258	278	195	61%	51%	(7%)	42%

# Costs, yearly figures

	DKKm					Growth, Y/Y, %			
	2012	2011	2010	2009	2008	2012	2011	2010	2009
Revenue	14,802	16,007	14,765	13,747	11,572	(8%)	8%	7%	19%
Cost of sales	3,325	3,166	2,958	2,655	2,127	5%	7%	11%	25%
Sales and distribution costs	5,274	4,526	3,952	3,608	2,799	17%	15%	10%	29%
Administrative exp.	1,641	1,602	1,453	1,430	1,302	2%	10%	2%	10%
R&D	2,915	3,320	3,045	3,196	2,990	(12%)	9%	(5%)	7%
EBIT	1,647	3,393	3,357	2,858	2,354	(51%)	1%	17%	21%
Costs, % of revenue	89%	79%	77%	79%	80%				
Cost of sales	22%	20%	20%	19%	19%				
Sales and distribution costs	36%	28%	26%	26%	24%				
Administrative exp.	11%	10%	10%	11%	11%				
R&D	20%	21%	21%	23%	26%				

# Financial terms and territory structure of the Otsuka alliance

- ★ Co-development and co-commercialization agreements with Otsuka
- ★ Potential peak sales (for the alliance):
  - ★ USD >1bn for Abilify Maintena
  - ★ USD >2.5bn for brexpiprazole
  - ★ USD >1bn for Lu AE58054
- ★ Patent expiration: Abilify Maintena (2024), brexpiprazole (>2025), Lu AE58054 (>2030)

## Milestones payments

Payment to:	 Otsuka	 Otsuka	 Lundbeck
	Abilify Maintena	Brexpiprazole	Lu AE58054
Development milestones/upfront	USD 200m	USD 600m <sup>2)</sup>	USD 150m
Approval milestones	USD 275m <sup>1)</sup>	USD 300m <sup>2)</sup>	USD 300m
Sales milestones	Up to USD 425m depending on sales development		Up to USD 375m depending

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

## Lundbeck's share of revenue and costs

	Abilify Maintena	Brexpiprazole	Lu AE58054
USA	20%	45%	55%
EU-5, Nordic and Canada	50%	50%	50%
Other Lundbeck territories	65%*	65%*	~50%**

\* All regions except Asia, Turkey and Egypt

\*\* All regions except Thailand and Vietnam



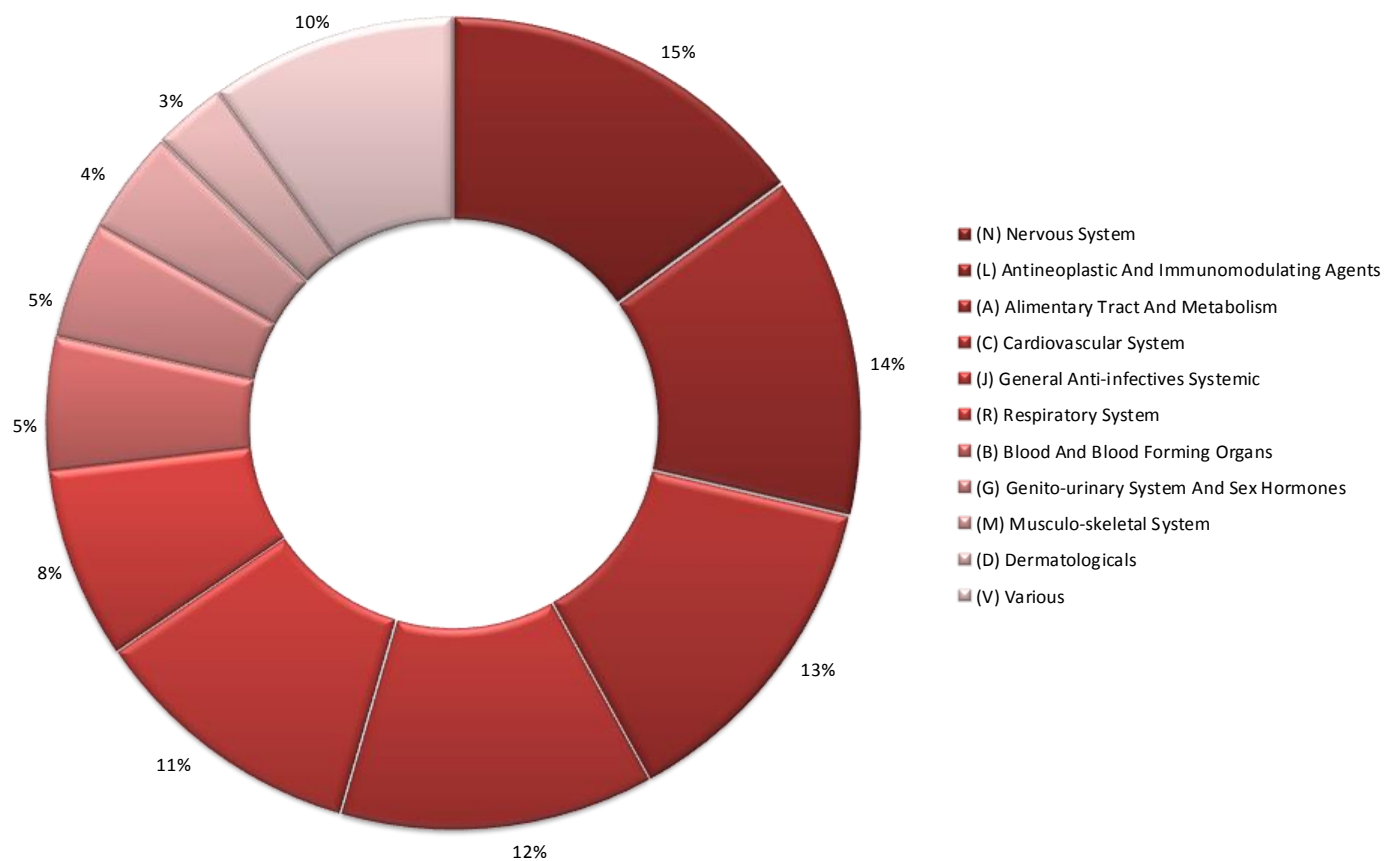
# Appendix

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- ★ Lundbeck overview
- ★ Commercial operations
- ★ Pipeline
- ★ Financials
- ★ **The CNS market**
- ★ The Lundbeck share

# Worldwide pharmaceutical market 2012

## USD 857 billion (-1%)



# CNS market overview (2012)

	Market size (2012)				Market leaders (2012)	
	Value (USDbn)	Growth	# of patients*	Unmet medical needs	Compound	Share (value)
Total pharma	857	-1%	-	-	-	-
Total CNS	128	-5%	-	-	-	-
Alcohol (N7E)	0.287	13%	5% of men and 1.4% of women in Europe	<ul style="list-style-type: none"> <li>• Greater resources – number of treatment facilities and trained physicians is inadequate</li> <li>• The integration of alcohol treatment into primary care</li> <li>• Improved effectiveness</li> <li>• Improved compliance</li> </ul>	1. Campral 2. Vivitrol 3. Antabuse	\$61m \$58m \$13m
Anti-Alzheimer's (N7D)	6.7	-12%	>7 million <sup>2</sup>	<ul style="list-style-type: none"> <li>• Disease modifying treatment</li> <li>• Disease slowing agents</li> <li>• Improved symptomatic treatments</li> <li>• Longer lasting symptomatic treatments</li> </ul>	1. Memantine 2. Donepezil 3. Rivastigmine 4. Galantamine	41% 31% 20% 7%
Antidepressants (N6A)	19	-9%	~40 million <sup>2</sup>	<ul style="list-style-type: none"> <li>• Drugs with higher remission rates</li> <li>• Increased onset of action</li> <li>• Current therapies are relatively well-tolerated but still room for improvement especially on sexual side effects</li> </ul>	1. Duloxetine 2. Escitalopram 3. Venlafaxine 4. Paroxetine	32% 18% 8% 6%
Anti-Parkinson's (N4A)	4.3	-1%	>3 million <sup>2</sup>	<ul style="list-style-type: none"> <li>• Therapies that provide neuroprotection and/or neurorestoration</li> <li>• An optimal trial design for demonstrating neuroprotection and/or neurorestoration</li> <li>• Control of levodopa-induced motor response complications</li> </ul>	1. Levodopa 2. Pramipexole 3. Rasagiline 4. Stalevo 5. Ropinirole	20% 20% 14% 12% 11%
Antipsychotics (N5A)	22.9	-20%	Approx 1% of global population	<ul style="list-style-type: none"> <li>• Improved treatment of cognitive dysfunction</li> <li>• Improved treatment of negative symptoms</li> <li>• Improved treatment of co-morbid depression and anxiety</li> <li>• Early stage, definitive diagnostics</li> </ul>	1. Aripiprazole 2. Quetiapine 3. Olanzapine 4. Risperidone	36% 24% 12% 9%

Sources: IMS Knowledge Link 2013 (Market size), IMS data 2013 (Market leaders)

\*2011 numbers

Growth, 12 months to Q4 2012/2011, \$(%)

NOT FOR PROMOTIONAL USE

# CNS market size – overview (2012)

	Total market		USA		Europe		Int. Markets	
	Value (USDbn)	Growth	Share	Growth	Share	Growth	Share	Growth
Total pharma	857	-1%	38%	-1%	26%	-7%	36%	4%
Total CNS	128	-5%	47%	-7%	25%	-10%	27%	4%
Alcohol	0.3	14%	33%	14%	32%	-6%	36%	41%
Anti-Alzheimer's	6.7	-12%	38%	-12%	26%	-21%	36%	-3%
Antidepressants	18.8	-9%	51%	-13%	22%	-11%	28%	0%
Anti-epileptics	14.6	2%	41%	3%	30%	-5%	29%	10%
Anti-Parkinson's	4.3	0%	22%	8%	45%	-6%	30%	3%
Antipsychotics	22.9	-20%	58%	-26%	22%	-19%	20%	3%
Fibrinolytics (incl. stroke)	1.1	11%	51%	16%	24%	1%	26%	10%

Source: IMS Health Knowledge Link 2013& IMS Syndicated Analytics Library 2013 (Audited sales)

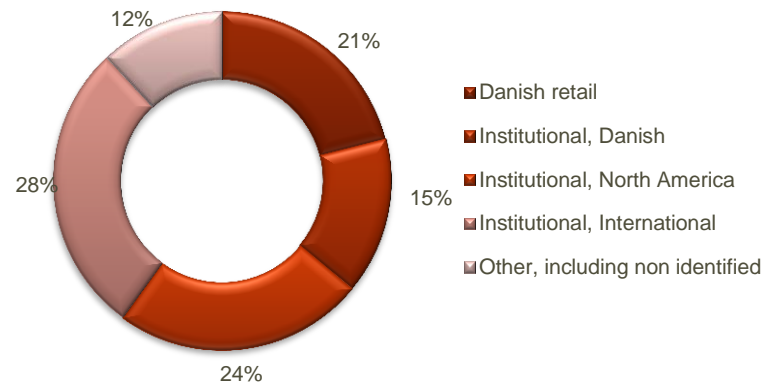
## Appendix

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# The Lundbeck share

## Composition of free float ownership (end 2012)



- ★ Free float in the Lundbeck share is 30%
  - ★ The Lundbeck Foundation holds 70% of the total share capital
- ★ Free float (approximately 60m shares) is traded approx. once over annually

## LUNDBECKFONDEN

- ★ The Lundbeck Foundation is a commercial foundation established in 1954 by Grete Lundbeck, widow of the founder of H. Lundbeck A/S
- ★ The main objective of the Lundbeck Foundation 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

# Sponsored ADR programme

- ★ Lundbeck has established a sponsored Level I ADR programme in the US. The ADRs trade on the premier tier of Over-The-Counter (“OTC”) market in the US. Details are as follows:

<b>Ticker Symbol</b>	<b>HLUYY</b>
CUSIP	40422M206
Ratio	1 ADR : 1 Ordinary Shares
ADR depositary	Deutsche Bank



**Deutsche Bank**

- ★ Please contact the Deutsche Bank’s dedicated ADR broker desks:

Jay Berman (New York)

Tel: +1 212 250 9100

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Simon Davies (London)

Tel: +44 20 7547 6500

Email: [simon.davies@db.com](mailto:simon.davies@db.com)

# For more information please contact Investor Relations

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## 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)

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