



Press release

Valby, December 22, 2014

## **Lundbeck to research link between immune system and brain diseases**

**Lundbeck is involved in a new groundbreaking public-private partnership that may lead the way to significantly improved treatment of brain diseases. The partnership involves seven universities and has already received a strategic award of approximately DKK 50m from the Wellcome Trust - one of the world's largest private funders in the field of medical research.**

H. Lundbeck A/S (Lundbeck) is involved in new research that will investigate a novel link that could show a relationship between the immune system and mood disorders, such as depression, and neurodegenerative diseases, such as Alzheimer's disease. This project, a public-private partnership also involving The Wellcome Trust, Cambridge University and pharmaceutical company Janssen, may be the first step towards a new and significantly improved treatment for a broad range of brain diseases.

The main theory that the project will investigate is that the immune system can worsen brain diseases like depression and Alzheimer's disease. An imbalance in the immune system of the brain can drive a permanent and unhealthy neuro-inflammation - or inflammation in the brain - that can contribute to or cause brain diseases. Another sub-theory for investigation is that the immune system can improve brain diseases if it is triggered in the right way.

The initial link between the immune system and brain diseases has been established by a number of studies, which show that for some sub-groups of patients anti-inflammatory drugs have a positive effect. Some research indicates the presence of increased inflammatory cells and substances in brains of patients, and that anti-inflammatory drugs could decrease depressive symptoms without increasing the risks of adverse effects. This is interesting because a large number of patients today are still not receiving adequate treatment with the existing drugs. However, why and how some patients seem to benefit from receiving certain anti-inflammatory drugs is unclear and that is part of what this project will investigate.

*"Neuroinflammation has been increasingly implicated as a key player in a wide range of brain disorders including depression and Alzheimer's disease. This partnership is an exciting opportunity for us to increase our understanding of the important role of emerging immune and neuronal interactions in these disorders. We believe it can point us toward new avenues to develop breakthrough treatments for the patients,"* says Dr. Stevin Zorn, EVP Lundbeck Research USA.

### **The Wellcome Trust supports Lundbeck**

This new project is a public-private partnership between Lundbeck and Janssen, and seven universities. The project has received a strategic award valued at approximately DKK 50m from the Wellcome Trust – one of the world's largest private funders in the field of medical research.

*“We greatly appreciate both the support and the recognition from The Wellcome Trust,” says Dr. Stevin Zorn, EVP Lundbeck Research USA. “Brain diseases are a huge health challenge in society. Unfortunately, despite the unmet need, we see a lot of companies abandoning this area of research because of the large costs and the small chances of success. This new collaboration reinforces Lundbeck’s longstanding commitment to research and development of treatments for brain diseases. The only way to truly meet the huge and steadily growing challenge of finding effective treatments for complex neurological and psychiatric disorders is to build strong and long-term partnerships across the research ecosystem, including academia, industry and government.”*

A recent white paper published in the international scientific journal *Nature Reviews Drug Discovery* highlights the ‘disturbing’ lack of new drugs for the 10% of the global population affected by brain diseases. The white paper estimates that the global economic cost of mental health disorders in 2010 was approximately USD 2.5 trillion, with a projected cost for 2030 of USD 6 trillion<sup>1</sup>.

Dr John Isaacs, Head of Neuroscience and Mental Health at the Wellcome Trust says: *“It has proved incredibly hard to develop drugs to treat depression and Alzheimer’s, and our existing drugs are often not very effective. This project is taking a new approach by looking at the immune system, which we already have an advanced understanding of and we know affects the brain, and seeing whether we can use that knowledge to indirectly treat mental illness.”*

### **Investigating treatment-resistant patients**

The project consists of two parts. The team will begin by investigating the immune systems of people with treatment-resistant depression and Alzheimer’s disease. In this phase, researchers will seek to more precisely establish the relationship between immune-related biomarkers found in blood and brain including cytokines, which are small proteins that play an important role in the regulation of the immune responses.

The second part of the research program, which is reliant on the success of the first, will focus on small experimental medicine trials, using re-purposed anti-inflammatory drugs in patients who have been identified according to their specific immunological profile or ‘phenotype’.

*“This project will be taking us in a whole new direction because the hypothesis is very new. But Lundbeck has been ahead of the curve in this area for a long time. We were among the first to set up a neuroinflammation team. We are blazing a trail that we hope will enable us to develop much more precise and effective treatments,”* says Dr. Stevin Zorn, EVP Lundbeck Research USA.

---

<sup>1</sup> “International College of Neuropsychopharmacology (CINP) calls on governments to reverse ‘disturbing’ trend of lack of new drugs for the 10% of the global population affected by brain diseases.” (Nature Reviews Drug Discovery. December 1, 2014).



## Contacts

Mads Kronborg, Director, Media Relations  
Telephone (direct): +45 36 43 28 51

Lars Otto Andersen-Lange, Media Relations  
Telephone (direct): +45 30 83 26 57

## About Lundbeck

H. Lundbeck A/S (LUN.CO, LUN DC, HLUYY) is a global pharmaceutical company specialized in brain diseases. For more than 50 years, we have been at the forefront of research within neuroscience. Our key areas of focus are alcohol dependence, Alzheimer's disease, bipolar disorder, depression/anxiety, epilepsy, Huntington's disease, Parkinson's disease, schizophrenia, stroke and symptomatic neurogenic orthostatic hypotension (NOH).

An estimated 700 million people worldwide are living with brain disease and far too many suffer due to inadequate treatment, discrimination, a reduced number of working days, early retirement and other unnecessary consequences. Every day, we strive for improved treatment and a better life for people living with brain disease – we call this Progress in Mind.

Read more at [www.lundbeck.com/global/about-us/progress-in-mind](http://www.lundbeck.com/global/about-us/progress-in-mind).

Our approximately 6,000 employees in 57 countries are engaged in the entire value chain throughout research, development, production, marketing and sales. Our pipeline consists of several late-stage development programmes and our products are available in more 100 countries. We have research centres in China, Denmark and the United States and production facilities in China, Denmark, France and Italy. Lundbeck generated revenue of approximately DKK15.3 billion in 2013 (EUR2.1 billion; USD2.7 billion).

For additional information, we encourage you to visit our corporate site [www.lundbeck.com](http://www.lundbeck.com).