UCB News

UCB and University of Lille anti-tau immunotherapy research highlighted in prestigious international scientific journal 'Brain'

- **Research demonstrates potential for anti-tau immunotherapy in treatment of Alzheimer's and other tau-driven diseases including progressive supranuclear palsy (PSP).**
- **Findings, combined with previous *in vitro* research, highlight important differences between tau antibodies.**
- **Expanding evidence base supports UCB's decision to progress clinical studies of its anti-tau immunotherapy candidate in humans.**

Brussels, Belgium, May 2nd, 2019, 07:00 (CEST): UCB Biopharma, and a team of scientists from *Inserm* (*Institut national de la santé et de la recherche médicale*, the French National Institute of Health and Medical Research), led by Dr. Luc Buée, CNRS research professor at the University of Lille, France, have demonstrated the beneficial effects of anti-tau immunotherapy in a murine model of Alzheimer's disease, published in the current online edition of the international scientific journal 'Brain'.[1]

The research set out to evaluate two antibodies targeting tau in an *in vivo* model to determine their effects on disease onset and progression in mice injected with extracts from Alzheimer's disease brains and a second mouse model designed to evaluate spread of disease.

The study found that the novel UCB antibody targeting a central epitope on tau effectively blocked the onset of disease in mice by preventing the formation of neurofibrillary tangles. The antibody also prevented the spread of pathologic tau protein to other parts of the brain in mice,

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which is commonly associated with disease progression in Alzheimer's disease. The other antibody evaluated, which targeted a different tau epitope, was less efficacious at blocking tau-induced pathology, highlighting the impact of the choice of tau epitope on *in vivo* efficacy.

UCB has previously studied a series of antibodies against tau that have the *in vitro* ability to block tau aggregation[2]. In murine models, where the pathology is initiated by injecting brain extracts from patients with Alzheimer's disease, some antibodies pre-selected *in vitro* block tau aggregation. In addition, these antibodies prevent the spread of neuronal degeneration within the brain of the mouse.

Describing the research, Dr. Morvane Colin from the University of Lille, France, who co-directed this research with Dr. Jean-Philippe Courade of UCB explained: "*Not all antibodies targeting tau are equally effective. Indeed, in this study and a previous in vitro study, antibodies targeting the most central part of tau protein showed potential for improved efficacy."*

Tau protein is one of the major proteins that aggregate to lead to neuronal death in many neurodegenerative diseases, including Alzheimer's disease and progressive supranuclear palsy. Immunotherapy targeting extracellular tau protein is a new and promising therapeutic approach for these pathologies.

Results from this animal study, coupled with the characterization of these antibodies by UCB, has supported the start of clinical studies in humans.

Dr. Martin Citron, Head UCB Neuroscience explained: "*These data, when considered together with previously published in vitro studies, suggest that the choice of a tau epitope could be a critical determinant of therapeutic efficacy of tau antibodies. We are excited to progress our clinical program to explore the potential benefits of our anti-tau antibody in neutralizing pathological species present in brains of people with Alzheimer's disease and PSP."*

The journal paper is available online via the following link: https://academic.oup.com/brain/article-lookup/doi/10.1093/brain/awz100.

For further information:

Corporate Communications

France Nivelle,
Global Communications, UCB
T+32.2.559.9178,
France.nivelle@ucb.com

Jim Baxter,
Neurology Communications, UCB
T+32.2.473.78.85.01,
jim.baxter@ucb.com

Laurent Schots,
Media Relations, UCB
T+32.2.559.92.64,
laurent.schots@ucb.com

Investor Relations

Antje Witte,
Investor Relations, UCB
T+32.2.559.94.14,
antje.witte@ucb.com

Isabelle Ghellynck,
Investor Relations, UCB
T +32.2.559.9588,
isabelle.ghellynck@ucb.com

About the University of Lille, CHU-Lille, Inserm, France "Alzheimer & tauopathies" Team
The Alzheimer & Tauopathies laboratory (University of Lille, CHU-Lille, Inserm, France), led by Luc Buée, is interested in the molecular, cellular and physiological aspects of Alzheimer's disease and dementia. This team is part of LabEx DISTALZ (a French consortium dedicated to Alzheimer's disease) and the LICEND: Lille Center of Excellence for neurodegenerative disorders. http://lucbuee.fr/. For more information, visit: http://crjpa.fr/en/alzheimer-and-tauopathies/team-1-presentation/

About UCB
UCB, Brussels, Belgium (www.ucb.com) is a global biopharmaceutical company focused on the discovery and development of innovative medicines and solutions to transform the lives of people living with severe diseases of the immune system or of the central nervous system. With around 7 500 people in approximately 40 countries, the company generated revenue of € 4.6 billion in 2018. UCB is listed on Euronext Brussels (symbol: UCB). Follow us on Twitter: @UCB_news

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This press release contains forward-looking statements based on current plans, estimates and beliefs of management. All statements, other than statements of historical fact, are statements that could be deemed forward-looking statements, including estimates of revenues, operating margins, capital expenditures, cash, other financial information, expected legal, political, regulatory or clinical results and other such estimates and results. By their nature, such forward-looking statements are not guarantees of future performance and are subject to risks, uncertainties and assumptions which could cause actual results to differ materially from those that may be implied by such forward-looking statements contained in this press release. Important factors that could result in such differences include: changes in general economic, business and competitive conditions, the inability to obtain necessary regulatory approvals or to obtain them on acceptable terms, costs associated with research and development, changes in the prospects for products in the pipeline or under development by UCB, effects of future judicial decisions or governmental investigations, product liability claims, challenges to patent protection for products or product candidates, changes in laws or regulations, exchange rate fluctuations, changes or uncertainties in tax laws or the administration of such laws and hiring and retention of its employees.

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new indications for existing products will be developed and approved. Products or potential products which are the subject of partnerships, joint ventures or licensing collaborations may be subject to differences between the partners. Also, UCB or others could discover safety, side effects or manufacturing problems with its products after they are marketed.

Moreover, sales may be impacted by international and domestic trends toward managed care and health care cost containment and the reimbursement policies imposed by third-party payers as well as legislation affecting biopharmaceutical pricing and reimbursement.

References

1. Albert M, Mairet-Coello G, Danis C, Lieger S, Caillierez R, Carrier S, Skrobala E, Landrieu I, Michel A, Schmitt M, Citron M, Downey P, Courade JP, Buée L, Colin M. Prevention of tau seeding and propagation by immunotherapy with a central tau epitope antibody. Brain, 2019; in press.
2. Courade JP, Angers R, Mairet-Coello G, et al. Epitope determines efficacy of therapeutic anti-Tau antibodies in a functional assay with human Alzheimer Tau. **Acta Neuropathol** 2018;136:729-745.

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