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Press Release

Nobel Prize winner Stanley Prusiner joins Priavoid's supervisory board

Düsseldorf/San Francisco, 9 December 2020 – Stanley Prusiner joins the supervisory board of Priavoid alongside Detlev Riesner and Dieter Willbold. The entire Priavoid team is looking forward to the expert advice to support the development of anti-prionic compounds against neurodegenerative diseases.

Today, it is well accepted that most neurodegenerative diseases including Alzheimer´s disease are caused by protein misfolding in the brain. While the amyloid precursor protein (APP) has a normal physiological role in its native shape (conformation), it can misfold, aggregate, and become deleterious. Such small prion aggregates are sometimes called "oligomers," which can become toxic and lead to chronic, progressive neurodegeneration. Such oligomers can form fibrils that accumulate and form plaques. Increases in the number of Abeta (Aβ) prions lead to malfunction in the brain resulting in dementia. The accumulation of misfolded proteins leading to Alzheimer's and Parkinson's diseases was proposed by Dr. Stanley Prusiner after he and other investigators discovered that the prion protein (PrP) folds into a beta-sheet–rich shape (conformation) causing scrapie in sheep, bovine spongiform encephalopathy (BSE), and the human brain disorder called Creutzfeldt-Jakob disease (CJD). "Like the PrP protein, the Aβ protein can also change its shape and accumulate into plaques within the brains of patients with Alzheimer's disease (AD)," said Prusiner. The misshapen Aβ and PrP proteins stimulate formation of more of themselves leading to AD or CJD, respectively. "The propagation of abnormally folded proteins lies at the center of prion formation and is likely to be the best target for creating new therapeutics," argues Prusiner. The optimal intervention strategy for any of the neurodegenerative diseases caused by prions requires novel anti-prion drugs.

In Alzheimer's disease, the first event is the formation of misfolded Aβ into oligomers that stimulate formation of more oligomers. Similarly, PrP forms prions that cause CJD. Many in the scientific community now think that Aβ oligomers represent the major toxic protein that stimulates tau tangle formation. Such tau tangles lead to neuronal damage and cognitive decline. There is increasing evidence that Aβ prions are not only neurotoxic but also cause the progression of Alzheimer´s disease. Using a novel class of pharmaceuticals called "all-D-peptides," Priavoid has discovered a medicine that reduces Aβ prion oligomers and slows progression of brain malfunction in mouse models. These chemicals are orally available and non-immunogenic. Priavoid's compounds also cross the blood-brain barrier and enter brain cells. "Priavoid's most advanced drug candidate, the clinical-stage all-D-peptide PRI-002, was specifically designed to interact with Aβ oligomers, independent of their size or form, and then destabilize, disassemble, and ultimately, destroy them by stabilizing its non-toxic and native

monomeric counterpart," explains Dieter Willbold, member of the supervisory board and inventor of this new and unique anti-prion mode of action. This mechanism of action (MoA), proven for PRI-002 in vitro and in numerous Alzheimer's-relevant animal models in vivo, is a highly promising direct and disease-modifying intervention for toxic Aβ prions. "It is the only anti-prion approach to neurodegeneration world-wide," declared Detlev Riesner, chair of the supervisory board and expert in biophysics as well as a very experienced business angel for start-up companies after having co-founded Qiagen, one of Germany's most successful biotech companies.

This anti-prion principle has been expanded to other compounds in Priavoid's drug pipeline and allows design of specific compounds for other prion diseases. Other compounds for Parkinson's disease and the tauopathies are in the early stages of development. The most advanced drug candidate against Alzheimer´s disease, PRI-002, has already successfully passed phase-I clinical trials. "We are really proud and happy to have Prof. Prusiner joining our supervisory board. With our dedicated focus on the truly disruptive anti-prion strategy and his pioneering role in the prion field, this is really a perfect fit," stated Philipp Bürling, CEO of Priavoid.

Further information

About the supervisory board:

Stanley Prusiner
Professor Dr. Stanley Ben Prusiner is an American neurologist and biochemist. He is the director of the Institute for Neurodegenerative Diseases at the University of California, San Francisco (UCSF). Prusiner discovered prions, a class of infectious self-reproducing pathogens composed of protein. He won the Nobel Prize in Physiology or Medicine in 1997 for his discovery of prions that cause bovine spongiform encephalopathy ("mad cow disease") and its human equivalent, Creutzfeldt–Jakob disease. In 1982, he coined the term *prion*, derived from the words "proteinaceous" and "infection," to refer to a previously undescribed form of infection due to protein misfolding.

Honors:

- Potamkin Prize for Alzheimer's Disease Research from the American Academy of Neurology (1991)
- Max-Planck-Forschungspreis (1992)
- The Richard Lounsbery Award for Extraordinary Scientific Research in Biology and Medicine from the National Academy of Sciences (1993)
- Dickson Prize (1993)
- The Gairdner Foundation International Award (1993)
- The Albert Lasker Award for Basic Medical Research (1994)
- The Paul Ehrlich and Ludwig Darmstaedter Prize from the Federal Republic of Germany (1995)
- The Wolf Prize in Medicine from the Wolf Foundation/State of Israel (1996)
- Grand Prix Charles-Leopold Mayer (1996)
- The Keio International Award for Medical Science (1996)

- Golden Plate Award of the American Academy of Achievement (1996)
- The Louisa Gross Horwitz Prize from Columbia University (1997)
- K.-J. Zülch Preis (1997)
- The Nobel Prize in Physiology or Medicine (1997)
- The Benjamin Franklin Medal from the Franklin Institute (1998)
- Honorary Doctorate from CEU Cardinal Herrera University (2005)
- The National Medal of Science (2010)

Detlev Riesner

Professor Dr. Dr. h.c. Riesner held the chair of Biophysics at Heinrich Heine University in Düsseldorf from 1980 to 2006, was dean of the Science Faculty and prorector of research. Since his retirement in 2006, he was member of the board of trustees of Heinrich Heine University until 2017. During his academic career Professor Dr. Riesner worked as a research assistant at Princeton University and as a visiting professor at the University of California, San Francisco, and Academia Sinica (China). Professor Dr. Riesner is a co-founder of Qiagen N.V., member of the Supervisory Board and held the position as Chairman of the Supervisory Board from 1999 to 2014. He was also a member of the Supervisory Boards of NewLab Bioquality AG, Erkrath, Drevo AG, Cologne, Alantos AG, Heidelberg and AC Immune, Lausanne. Furthermore, Professor Riesner was a member of the Scientific Advisory Board of the Friedrich-Löffler Institute, Isle of Riems and PrioNet and APRI, both in Canada. He received awards from the Federal Government, from the State of NRW and the Max Planck Society. Prof. Dr. Riesner works with Priavoid as chair of the supervisory board, business angel, partner, and mentor.

Honors:

- Max-Planck-Forschungspreis for international cooperation, together with Stanley Prusiner (1992)
- University award of the University Duisburg-Essen (1999)
- Federal Cross of Merit, 1st class (2005)
- University award of the Heinrich Heine University Düsseldorf (2005)
- Honorary doctorate from Math.-Nat. Faculty of the Heinrich Heine University Düsseldorf (2015)
- Order of Merit of the state of North Rhine-Westphalia (2017)
- Innovation award NRW, category honor award (2018)

Dieter Willbold

Prof. Dr. Dieter Willbold is full Professor for "Physical Biology" at the Heinrich Heine University in Düsseldorf and Director at the Institute of Complex Systems, Structural Biochemistry (IBI-7) at the Forschungszentrum Jülich, is biochemist, biophysicist, structural biologist, and a long-standing expert in the field of AD. He developed the innovative anti-prionic treatment strategy to target severe neurodegenerative disorders and is co-inventor of multiple novel drug candidates. Prof. Dr. Willbold has profound expertise in the all-D-peptide technology platform applied to develop drug candidates for the treatment of neurodegenerative disorders with high medical needs. He is the chair of the supervisory board.

Honors:

- Gerhard-Hess-Award granted by the Germany Research Foundation (DFG) (2000)
- Award of the Klaus-Felgenhauer-Stiftung „Diagnostic approaches in neuro-degenerative dementia" (2012)
- Innovation Prize of the German Biotech Regions („Innovationspreis der BioRegionen in Deutschland") for the patent underlying the novel anti-prionic mode of action for the treatment of Alzheimer's disease (2020)

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About Priavoid:
Priavoid GmbH is a clinical stage pharmaceutical company that was founded in September 2017 as a spin-off from Forschungszentrum Jülich and Heinrich Heine University Düsseldorf. The company develops novel all-D-peptide drug candidates for the treatment of neurodegenerative diseases such as Alzheimer's disease, Parkinson's, ALS (amyotrophic lateral sclerosis), tauopathies, and Huntington's disease. The most advanced of them is PRI-002 for Alzheimer's disease. All drug candidates are designed for their anti-prionic mode of action.

www.priavoid.com

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Selected publications:

1. Kutzsche J, Jürgens D, Willuweit A, Adermann K, Fuchs C, Simons S, Windisch M, Hümpel M, Rossberg W, Wolzt M, Willbold D.

   Safety and Pharmacokinetics of the Orally Available Antiprionic Compound PRI-002: A Single and Multiple Ascending Dose Phase I Study
   Alzheimers Dement (N Y), 20;6(1):e12001 (2020)
   https://pubmed.ncbi.nlm.nih.gov/32211506/

2. Dieter Willbold and Janine Kutzsche

   Do We Need Anti-Prion Compounds to Treat Alzheimer's Disease?
   Molecules 24, 2237 (2019)
   https://www.mdpi.com/1420-3049/24/12/2237