NEWS RELEASE

Gigahertz-class NMR Opens New Scientific Windows on Functional Structural Biology in Neurodegenerative Disease and Aging Research

3/29/2021

BILLERICA, Mass.--(BUSINESS WIRE)-- At the Experimental Nuclear Magnetic Resonance Conference 2021 (**ENC**), **Bruker Corporation** (Nasdaq: BRKR) announces that the **Forschungszentrum Juelich** (FZJ), Germany has expanded its research into functional structural biology in neurodegenerative diseases with the addition of a **1.2 GHz Avance™** nuclear magnetic resonance (NMR) spectrometer. Novel GHz-class NMR technology at FZ Juelich now enables advanced research into the structural basis for affinity and specificity of protein-ligand interactions, including a better understanding of structural features of cell membrane proteins, and the molecular mechanisms involved in protein folding and aggregation.

This press release features multimedia. View the full release here:
https://www.businesswire.com/news/home/20210329005138/en/

1.2 GHz NMR functional structural biology research of amyloid fibrils for the study Alzheimer's disease (AD) (Photo: Business Wire)

The increased spectral resolution and sensitivity of the 1.2 GHz NMR at the Institute of Biological Information Processing (IBI-7) at the FZJ, within a few weeks after its successful installation, has already enabled the FZJ research teams to look more deeply at proteins for the development of new antibiotics, the understanding of autophagy, and for the elucidation of initial steps of amyloid-type protein aggregation in Alzheimer's research.

Professor Dieter Willbold, Director of the Institute of Physical Biology at Heinrich Heine University (HHU) in Duesseldorf, Germany, and Director of the IBI-7 at FZJ explained: "The new 1.2 GHz system will be an important component of the **Juelich Center for Structural Biology (JuStruct)**, contributing to translational research in aging and age-related neurodegenerative diseases. Our research has already contributed to the development of a drug

candidate for Alzheimer's disease (AD) that is just about to enter a phase II clinical study."

Dr. Matthias Stoldt, manager of the Biomolecular NMR center, jointly run by FZJ and HHU, is pleased with the progress: "Even now, shortly after the acceptance of the 1.2 GHz NMR, we have obtained initial spectra of valuable disease research samples."

"The ultra-high field NMR will also boost our collaboration projects with anti-infectives biopharma company AiCuris AG to develop new classes of antibiotics," said Professor Andrew Dingley, a group leader at IBI-7.

He continued: "We anticipate obtaining higher levels of structural details in increasingly complex samples and in increasingly native environments, providing more realistic insights into fundamental aspects of life."

The addition of the new 1.2 GHz NMR will also allow scientists at Juelich to advance their research with solid-state NMR for functional structural biology, which is valuable for the structural determination of proteins that are neither crystallizable nor soluble, e.g., membrane proteins embedded in lipid bilayers, or protein aggregates.

"Our research in solid-state NMR will benefit significantly from higher spectral resolution and sensitivity at ultra-high fields," commented Professor Henrike Heise, Head of the Department of Biomolecular Solid-State NMR Spectroscopy at HHU and FZJ.

Dr Nils-Alexander Lakomek, a Heisenberg group leader at HHU, added "GHz-Class NMR will allow us to record highly resolved spectra on intrinsically disordered proteins interacting with lipid membranes, both by solution NMR, and by fast magic angle spinning solid-state NMR using the Bruker 0.7 mm MAS probe."

Dr. Falko Busse, President of the Bruker BioSpin Group, stated: "This installation of a 1.2 GHz system at FZ Juelich marks our fourth worldwide. We are excited to see what advances in functional structural biology and biochemistry will be achieved by researchers at FZJ and HHU."

About Bruker Corporation (Nasdaq: BRKR)

Bruker is enabling scientists to make breakthrough discoveries and develop new applications that improve the quality of human life. Bruker's high performance scientific instruments and high value analytical and diagnostic solutions enable scientists to explore life and materials at molecular, cellular and microscopic levels. In close cooperation with our customers, Bruker is enabling innovation, improved productivity and customer success in life science molecular and cell biology research, in applied and pharma applications, in microscopy and nanoanalysis, as well as in industrial applications. Bruker offers differentiated, high-value life science and diagnostics systems and solutions in preclinical imaging, clinical phenomics research, proteomics and multiomics, spatial and single-cell

biology, functional structural and condensate biology, as well as in clinical microbiology and molecular diagnostics. For more information, please visit: **www.bruker.com**.

View source version on **businesswire.com**: **https://www.businesswire.com/news/home/20210329005138/en/**

Investors:

Miroslava Minkova
Director of Investor Relations &
Corporate Development
T: +1 (978) 663-3660, ext. 1479
E: **Investor.Relations@bruker.com**

Media:

Thorsten Thiel, Ph.D.
VP of Group Marketing
Bruker BioSpin
T: +49 (721) 5161–6500
E: **thorsten.thiel@bruker.com**

Source: Bruker Corporation