

Industry-in-clinic platform AIM launches its first development project

SYMPATHJA – sensor-based diagnostics system for young people with psychological disorders

(Stuttgart/Tübingen) – A new sensor-based diagnostics system is set to help improve treatment for conditions such as psychosis in young people. The SYMPATHJA project was launched at a kick-off meeting in Tübingen on 10 November. The project focuses on the use of sensors to analyse patient movement, which can be altered by psychotic disorders. This kind of analysis could give medical professionals an early insight into potential suitable treatments, for example. The diagnostic system will also be suitable for use in everyday life outside the hospital environment. Tübingen University Hospital, the Hertie Institute for Clinical Brain Research and HB Technologies AG are all participating in the pilot project. Meanwhile, BioRegio STERN Management GmbH is coordinating the establishment of the AIM (Access for Innovation in Medical technology) platform, which will simplify cooperation between industry and hospitals during development projects of this type.

Psychotic disorders are often accompanied by motor problems, which can be caused by the disease itself or occur as a side effect of antipsychotics. As a result, the clinical routine for psychotic disorders also includes examining patient movement. For instance, if a patient develops a lumbering gait, this can indicate too high a dosage. The SYMPATHJA project (SYMPATHJA is an abbreviation of the project's mission statement in German) aims to develop a system for use in everyday life that will detect motor disorders related to psychosis and antipsychotics in young people, thereby providing much earlier identification of even subtle changes in movement.

The SYMPATHJA system involves combining motion sensors with heart rate variability measurements so that the data thus obtained can be analysed and the information used to adjust ongoing treatment and reduce side effects. While doctors have previously only been able to assess momentary snapshots, the sensors will

enable them to monitor patients over a set period, without the patients having to stay in hospital.

Prof. Tobias Renner, Medical Director of the Child and Adolescent Psychiatry department at Tübingen University Hospital, and his colleagues Research Group Leader Prof. Annette Conzelmann, and Deputy Medical Director Dr. Gottfried Barth, see the SYMPATHJA diagnostics system as a major step forward in the monitoring of treatment for young people with psychosis. Prof. Renner anticipates that “this highly innovative research project will open up new opportunities for the diagnosis and treatment of psychological disorders, and even the prevention of relapses.”

Dr. Steffen Hüttner, CEO of HB Technologies AG, is the project coordinator for SYMPATHJA and shares responsibility for developing the sensors and their corresponding IT with Dr. Mirko Jaumann, CTO and COO of HB Technologies AG. As Dr. Hüttner explains, “the sensor data captured in this project as patients go about their everyday lives is highly complex and needs to be put in the appropriate context. The system needs to automatically identify which motion sequences are being performed, but that can be a real challenge due to the variability in day-to-day movements. These components of movement and developing stress situations will be identified and analysed based on multivariate sensor analysis and by utilising data science and AI. This dynamic process will result in an extensive data pool.” The Hertie Institute for Clinical Brain Research is a partner in the project and brings with it many years of experience in quantifying movement disorders caused by medical conditions and/or their treatment.

Another key question that is being examined as part of the SYMPATHJA pilot project is how to make clinical data available in a standardised manner that complies with data protection regulations. This falls under the remit of the Central Institute for Innovation in Medical Technology (Zentralstelle für Innovationen in der Medizintechnik, ZIMT), which is coordinated by BioRegio STERN. ZIMT is working to develop a platform known as AIM that is designed to be an innovative service that simplifies cooperation between industry and hospitals.

Dr. Klara Altintoprak, a project manager at BioRegio STERN Management GmbH, explains: “The task for AIM is to generate the intelligent and secure data room that is required. The planned services that can be implemented on the new industry-in-clinic platform will be developed and tested with SYMPATHJA for the first time.” The AIM platform could greatly simplify collaboration between industry and hospitals in the future. Acting as a “one-stop shop”, it offers standardised processes and a central point of contact that will support companies through clinical procedures, including with a view to enabling the secure and legally compliant provision of health data for research and innovation projects.

BioRegio STERN Management GmbH is coordinating the ZIMT project that covers the establishment of the AIM platform and testing of SYMPATHJA. Both the SYMPATHJA pilot project and the ZIMT project are being funded by the German Federal Ministry of Research, Technology and Space (BMFTR) as part of the Healthcare Industry field of action under its Health Research framework programme. The aim is to optimise industry-oriented services for collaboration with hospitals while also easing the burden on clinicians. Approaches include arranging discussions with experts in hospitals, making good use of resources and data within hospitals, and providing advice on regulatory, strategic, organisational and clinical issues.

About ZIMT:

The BMFTR-funded project ZIMT (“Zentralstelle für Innovationen in der Medizintechnik”) (FKZ: 13GW0610) is part of the German Federal Government’s Health Research framework programme. The funding initiative is part of the medical technology specialist programme through which the BMFTR is aiming to improve patient care, expand the capabilities of the health system, and reinforce the innovative strength and international competitiveness of the sector in Germany as an industrial location. The ZIMT project was launched on 1 May 2024 and will end on 30 April 2027. BioRegio STERN Management GmbH coordinates the ZIMT project, which seeks to establish the AIM (Access for Innovation in Medical technology) platform and develop innovative services. The SYMPATHJA pilot project is being used to test services provided by the AIM platform that are designed with industry and the clinical sector in mind.

About HB Technologies AG:

Based in Tübingen, HB Technologies AG is an experienced provider of software, automation, integration and AI solutions for life sciences companies. For over three decades, the company has been helping customers worldwide to digitalise and automate their processes.

About Tübingen University Hospital:

Founded in 1805, Tübingen University Hospital is one of Germany's leading centres of university medicine. As one of the 37 university hospitals in Germany, it contributes to the successful partnership between high-performance medicine, research and teaching.

Each year, well over 400,000 inpatients and outpatients from all over the world benefit from this combination of science and practical healthcare. Its clinics, institutes and centres bring experts together under one roof. These specialists work together on an interdisciplinary basis and offer every patient the best possible treatment centred around the latest research findings. Scientists at Tübingen University Hospital carry out research aimed at improving diagnoses, treatments and chances of recovery.

Many new treatment methods are clinically tested and applied here.

Research focal points in Tübingen include neuroscience, oncology and immunology, infection research, diabetes and vascular medicine. The university hospital is a dependable partner to four of the six German Centres for Health Research initiated by the German Federal Government. <https://www.medizin.uni-tuebingen.de/en-de/>

About the Hertie Institute for Clinical Brain Research (HIH)

The HIH was established in 2001 by the non-profit Hertie Foundation, the State of Baden-Württemberg, the University of Tübingen and its Medical Faculty, and Tübingen University Hospital. The HIH focuses on one of the most fascinating fields of research today – decoding the human brain. The primary focal point is determining how certain diseases affect the way this organ works, and HIH bridges the gap between fundamental research and clinical practice. The aim is to facilitate new and more effective strategies for diagnosis, treatment and prevention.

Further information can be found at: www.hih-tuebingen.de/en

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About BioRegio STERN Management GmbH:

BioRegio STERN Management GmbH promotes economic development in the life sciences industry, helping to strengthen the region as a business location by supporting innovations and start-up companies in the public interest. It is the main point of contact for company founders and entrepreneurs in the Stuttgart and Neckar-Alb regions, including the cities of Tübingen and Reutlingen.

The STERN BioRegion is one of the largest and most successful bioregions in Germany. Its unique selling points include a mix of biotech and medtech companies that is outstanding in Germany and regional clusters in the fields of automation technology and mechanical and plant engineering.

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