

Neuroscience Colloquium

Winter-Semester 2019/2020

Lectures are held Thursdays, **5 p.m.**

Venue: Paul-Ehrlich Lecturehall, Virchowweg 4, next to CCO

Sabine Bahn

CAMBRIDGE CENTRE FOR NEUROPSYCHIATRIC RESEARCH, UNIVERSITY OF CAMBRIDGE (UK)

Disease Biomarkers for Bipolar Disorder - from laboratory to patient bedside -

Currently the diagnosis of Bipolar Disorder (BD) and Major Depression (MDD) is based on the subjective reporting of symptoms which are evaluated through clinical interviews.

Unfortunately, around 40% of BD patients are misdiagnosed as MDD and the average time until a correct diagnosis is achieved is 7.5 – 12 years. Misdiagnosis has been associated with a 3-fold increase in the rate of suicide attempts, an increased risk of anti-depressant induced mania and rapid cycling, and significantly greater healthcare costs due to higher rates of hospitalisation. It is therefore clear that there is a significant unmet need for diagnostics utilising objective biomarkers to assist Psychiatrists and GPs in the differential diagnosis of BD and MDD.

We have previously carried out extensive protein biomarker discovery studies in serum and have identified a panel of 20 protein biomarkers capable of differentiating between BD and MDD patients using a multiplex ELISA platform. However, multiplexed ELISA on serum is costly and antibody batch variation is associated with problems in reproducibility.

To overcome these limitations, we are now developing a two-stage diagnostic approach combining a highly scalable digital clinical app, which assesses symptoms and demographic patient characteristics, in conjunction with a biomarker test using mass spectrometry (MS) on self-collected dried blood spots.

We employed a multiplex multiple reaction monitoring (MRM) MS screening approach to quantify ~100 proteins in dried blood spots collected from low mood, MDD and BD patients in a large-scale clinical study and have obtained promising initial results. If our results can be validated in further clinical studies, our diagnostic approach would represent a cost-effective solution which can be easily incorporated into the current clinical care pathway and has the potential to dramatically reduce misdiagnosis rates, improving outcomes for patients by ensuring they receive the right diagnosis and treatment.

Location: Paul Ehrlich-Hörsaal,
Charité – Universitätsmedizin Berlin, Campus Mitte
Virchowweg 4, next to CCO

Date: Thursday, **November 21st**, 5 p.m.

Host: Karen Gertz, Matthias Endres

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DZNE e.V. German Center for Neurodegenerative Diseases;
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Organized by NeuroCure: Christian Rosenmund; contact: heidi.pretorius@charite.de