Andreas Meyer-Lindenberg - Narrative academic profile

Motivation: The main aim of my research is to understand brain circuits mediating risk and resilience related to serious mental illness and to develop personalized and targeted prevention and (early) intervention strategies from that understanding. To achieve this goal my group uses combination of neuroimaging, ecological assessment, genetics and epidemiological work in longitudinal cohorts underpinned by a growing emphasis on artificial intelligence-based analyses. My discoveries form a basis for current biomarkers and experimental treatment targets, and prevention approaches[1].

Contributions: A first contribution to psychiatric neuroscience was my demonstration that increased dopamine activation predicts reductions in prefrontal activity[2,3]. This was followed by the identification of a specific genetic effect on a circuit mediating affect involved in gene-environment interactions[4,5]. This work on circuit abnormalities was expanded and has been relevant in establishing abnormal connectivity as a hallmark of schizophrenia[6,7]. A fundamental discovery was the first identification of a neural risk mechanism associated with a genome wide significant genetic risk variant[8] related to psychosis. I have also provided the first neuroimaging data showing neural mechanisms for genome-wide significant rare high risk CNV[9]. In recent work we have applied a similar approach towards the identification of neural mechanisms for epidemiologically established social risk[10-12] and resilience[13] factors for severe mental illness and have identified risk convergence with (epi)genetic factors[14]. As such, this work has also underpinned a move from categorical disorder-oriented to transdiagnostic models of mental illness. We have developed these circuit-level findings into potential biomarkers for antipsychotic medication[15]. My group was the first one to define brain mechanisms, in humans, of the prosocial neuropeptides oxytocin[16,17] and vasopressin[18], helping to start an active areas of research in mechanistically novel treatments for mental disorders[19].

Scientific service: As the director of CIMH, I have final responsibility for creating, maintaining and enhancing the scientific and clinical infrastructure supporting the translational work of the institute. I am lead applicant for the ZIPP translational medicine facility and the CIMH application (with Heidelberg and Ulm) as a partner site of the German Center for Mental Health, where I serve as one of the inaugural speakers. I am engaged in national and international scientific service for translational psychiatry, including as president of the German Society for Psychiatry, Psychotherapy and Psychosomatics (DGPPN), board member of the European College of Neuropsychopharmacology

(ECNP), member of the board of the Brain Prize, twice elected member of the Neuroscience review board of the DFG, and others. I have been active in scientific dissemination as member of multiple journal boards and current editor-in-chief of *Neuroscience Applied*.

Impact: I have been identified as a highly cited researcher by Thompson Scientific every year since this metric was reinstated in 2014, indicating that I belong to the top 1% of researchers worldwide by citation in my field. Across all fields (Baas et al., doi: 10.17632/btchxktzyw.3), my rank corresponds to the top 0,06%.

Recognition: My work has been recognized by the community by election into national and international scientific societies (Heidelberg Academy of Sciences and Humanities, Leopoldina – German National Academy of Science, Academia Europea) and several awards, such as the Robert Sommer Award, the CINP Neuroscience Clinical Research Award, the Prix ROGER DE SPOELBERCH, the Neuropsychopharmacology Award of the ECNP, the Hans-Jörg Weitbrecht Award, the Kurt-Schneider Award, the A. E. Bennett Research Award of the Society of Biological Psychiatry, the Joel Elkes International Award for Clinical Research of the ACNP and the Roche/Nature Medicine Award for Translational Neuroscience.

References

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