Dopamine dysfunction in schizophrenia: Keep the ball rolling!

Schizophrenia is a major psychotic disorder whose excess mortality is in part explained by an increased frequency of suicides. However, disproportionately high rates of metabolic disorder and its cardiovascular sequelae account for an even larger share. A number of factors, seemingly unrelated to each other but well supported by evidence, increase the illness risk in a poorly understood way. And while there is general acceptance for the concept that excess dopamine signalling, experimentally replicated time and again, constitutes a final common pathway in the expression of psychotic symptoms, knowledge on the pathogenesis of schizophrenia remains fragmentary.

The MedUni Vienna Psychosis Imaging Group uses positron emission tomography (PET) and magnetic resonance (MR) based imaging techniques in combination with pharmacological interventions (e.g. amphetamine-sensitization) for coming to a more detailed understanding of the mechanisms underlying dopamine dysfunction in schizophrenia. Given that an elemental function of brain dopamine is coordinating cognitive and motor resources for successful exploitation of environmental energy sources, recent work in our group focusses on the relationship between energy homeostasis and brain dopamine signalling. Our findings support close relationships between the two systems, as for allowing anabolic and catabolic states to occur separated in time under physiological conditions. Data in patients, however, seem to reflect an imbalance in mutual control of dopamine and gluco-regulatory signals. Our findings strongly suggest that dopamine dysfunction and impaired energy homeostasis, two areas unrelated in schizophrenia research so far, share common pathophysiological grounds. Thus, intersecting elements in the signalling pathways of dopamine and insulin (and other gluco-regulatory hormones) have hot-spot potential in the search on targets for novel antipsychotic drugs.

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Lecture on Thursday Oct. 22 2020, 4 pm
Lecture Hall G, 2nd floor left wing, Liebiggasse 5, 1010 Wien

The colloquium lectures of this semester take place in a hybrid format, and in strict compliance with Covid-19 prevention measures. Spots in the lecture hall are limited. If you want to participate on site, register by email to studmit.scan@univie.ac.at (spots allocated first come, first served); please consider the hygiene and rules of conduct: https://www.univie.ac.at/en/about-us/further-information/coronavirus/#c7491. If you want to attend online, please write to studmit.scan@univie.ac.at and you will be sent an online participation link.