UNIVERSITY OF WARSAW | CeNT CENTRE OF NEW TECHNOLOGIES

invites to a seminar by

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# *Presymptomatic AD: development of novel biomarkers and therapies*

**22nd of March 2018 at 12 p.m.**

Venue: Centre of New Technologies, Banacha 2C,
Lecture Hall 0142 (Ground floor)

Host: Marta B. Wiśniewska

Alzheimer's disease (AD) is the most common cause of age-related dementia and a socioeconomic burden in the aging society. Molecular changes in AD precede by decades the onset of clinical dementia symptoms. The disease progresses gradually from presymptomatic and prodromal stage to mild, moderate and severe dementia. The major challenge is deciphering complex molecular mechanisms underlying presymtomatic stage for identification of early drug targets and biomarkers. Recently demonstrated molecular alterations in AD blood became the rationale for search for non-invasive blood-based presymptomatic AD biomarkers. One of the most promising approaches concentrates on circulating microRNAs (miRNAs). MiRNAs are a class of short non-coding RNAs involved in epigenetic regulation of over 60% of mRNAs in human. Our recent study led to identification of 6 differential miRNAs which showed a consistently changed expression in blood plasma of patients with prodromal AD, as compared to non-demented age-matched subjects (patent application PCT/IB2016/052440). For the differential miRNAs, the TargetScan, MirTarBase and KEGG database analysis indicated putative protein targets among such AD hallmarks as tau protein and proteins involved in amyloidogenic proteolysis, and also proteins related to oxidative stress. The results highlight reflection of complex AD pathomechanisms in miRNA blood profiles and indicate the biomarker potential of miRNA panels for individualized early AD diagnostics. The potential test would be non-invasive and more available than any existing biomarker assay for AD. Moreover, this study indicates novel therapeutic targets in AD. The results will be discussed in light of combined analysis of all so far published data on differentially expressed miRNAs in AD.

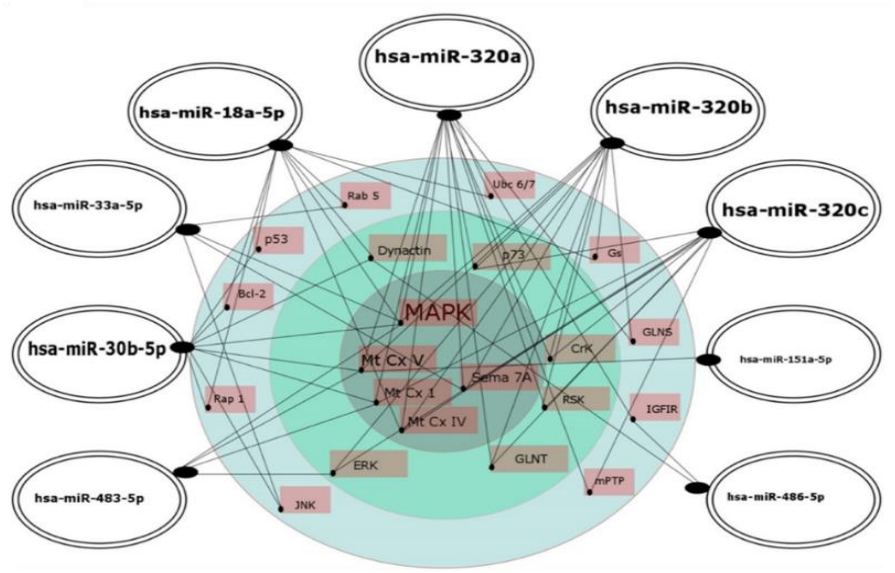


Fig. 1. Regulatory network of the differential miRs in early AD blood plasma and their putative cellular effectors.