# Amyloid-? oligomers induce differential gene expression in adult human brain slices

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Cognitive decline in Alzheimer disease (AD) is increasingly attributed to the neuronal impact of soluble oligomers of the amyloid-? peptide (A?Os). Current knowledge on the molecular and cellular mechanisms underlying the toxicity of A?Os stems largely from rodent-derived cell/tissue culture experiments or from transgenic models of AD, which do not necessarily recapitulate the complexity of the human disease. Here, we used DNA microarray and RT-PCR to investigate changes in transcription in adult human cortical slices exposed to sublethal doses of A?Os. The results revealed a set of 27 genes that showed consistent differential expression upon exposure of slices from three different donors to A?Os. Functional classification of differentially expressed genes revealed that A?Os impact pathways important for neuronal physiology and known to be dysregulated in AD, including vesicle trafficking, cell adhesion, actin cytoskeleton dynamics, and insulin signaling. Most

genes (70%) were down-reg