

Physiological functions of the APP Gene Family in the Central Nervous System

The amyloid precursor protein (APP) is a member of an evolutionary highly conserved gene family that includes in mammals the APP-like proteins APLP1 and APLP2. These proteins exhibit a high degree of sequence homology and are proteolytically processed by the same set of enzymes (termed secretases).

Despite the well established key role of APP for the pathogenesis of Alzheimer's disease (AD) the physiological functions of APP and its proteolytic fragments in the central nervous system are still poorly understood. Using interdisciplinary methodological approaches the physiological functions of APP family proteins will be studied within the CNS from the molecular level to the intact organism. Within our highly interactive research projects we will study the role of APP family proteins in synapse formation and function, plasticity, learning and memory, neuroprotection and regeneration. Insight gained into physiological APP functions will help to optimize currently developed therapies against AD that interfere with APP processing.