

Analysis of the Interaction of Human Septins 6 and 8 With Other Septins

Nakahira, M.^{1,2}, Camargo, M.E.R.¹, Alborghetti, M.R.^{1,2}, Assmann, E.M¹ and Kobarg, J.^{1,2}

¹Centro de Biologia Molecular Estrutural, Laboratório Nacional de Luz Síncrotron Campinas SP Brazil, ² Instituto de Biologia, Universidade Estadual de Campinas, Campinas, Brasil.

The septins are a conserved family of guanosine-5'-triphosphate (GTP) – binding proteins and known to be widely expressed in eukaryotic cells, except in plants. In mammals, 14 septins have been identified. The septins studied here present molecular masses around 40-60 kDa . They are polymerizing through specific contact mediated by their GTP binding domains, but the entire protein may serve as a scaffold for interactions with different proteins. Thereby septins and their interacting partners mediate diverse cellular functions, including membrane dynamics, neuronal polarity, vesicle trafficking, apoptosis, and cytoskeletal remodeling. Furthermore, there is growing evidence that they may play important roles in some human pathologies, such as Alzheimer's disease, Parkinson's disease and cancer. It is known that many neurodegenerative diseases arise from abnormal protein interactions in the central nervous system. Protein aggregation can result from a mutation in the sequence of the disease related protein coding sequence or from altered expression levels. Despite the some advances in the understanding of the roles in septins, the specific role of the GTPase activity for their functions awaits still to be elucidated. In the present study we identified proteins that interact with the human septins 6 and 8 by using the yeast two-hybrid system. Principally the septins 7 and 9 were identified as interacting partners. Currently we are analyzing these interactions by biochemistry and spectroscopic techniques.

Keywords: Septin, interaction, GTPase

Financial support: CAPES, FAPESP, CNPq and LNLS