HUMAN SEPTINS CLONING AND EXPRESSION: SEPT3 AND SEPT5

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Septins are GTP-binding protein firstly identified in *Saccharomyces cerevisae* as important regulators of the budding processes. They are present in many eukaryotes, except in plants. In *Homo sapiens*, 13 septins have been identified and they are classified into four groups based on sequence similarity. Septins present a highly conserved structure: a variable length N-terminal region, a central GTPase domain, and usually a coiled-coil domain at the C-terminal. There are several evidences that human septins are involved in cellular processes. Furthermore, their presences have been observed in citoplasmatic inclusion bodies associated with neurodegenerative disorders (Alzheimer's and Parkinson's disease). This work aimed at performing structural stability studies of two septins using Circular Dichroism and Fluorescence spectroscopies and light scattering. SEPT3 and SEPT5 cDNAs were amplified by PCR from a human fetal brain cDNA library. SEPT3 and SEPT5 full-length (NGC), GTPase domain (G), and C-terminal domain together G domain (GC) were cloned into expression vectors and the recombinant proteins were produced in *E. coli* BL21 (DE3). All the constructions for SEPT3 and SEPT5 were successfully expressed and purified by affinity and size exclusion chromatographies. Structural analyses are being carried out and the new findings shall provide insights leading to a better understanding about the roles these septins play in neurodegenerative diseases.

Keywords: GTPase, Septin, neurodegenerative diseases.

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