

# Specific macromolecular interactions between tau and the microtubule system

Farías, Gustavo A.

Vial, Clarisa

Maccioni, Ricardo B.

The microtubule-associated protein Tau, a major component of brain microtubules, shares common repeated C-terminal sequences with the high molecular-weight protein MAP-2. It has been shown that tau peptides V187-G204 and V218-G235 representing two main repeats, induced brain tubulin assembly in a concentration-dependent fashion. The specific roles of these repeats in the interaction of tau with microtubules, and its antigenic nature were investigated using synthetic tau peptides and site-directed monoclonal antibodies. Tau peptides appeared to compete with MAP-2 incorporation into assembled microtubules. The interactions of the tau fragments with  $\beta$ -tubulin peptides bearing the tau binding domain on tubulin were analyzed by fluorescence spectroscopy. The specificity of the binding was further demonstrated by the reactivity of tau and the tau peptides with a monoclonal anti-idiotypic antibody produced after immunization with the  $\beta$ -11(422-434) tubulin peptide, as assessed by enzyme-linked