

Abstract Submitted
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Microtubule-associated-protein (MAP) Tau Regulates the Number of Protofilaments in Microtubules: A Synchrotron X-ray Scattering Study MYUNG CHUL CHOI, UCSB, URI RAVIV, Univ. Jerusalem Israel, HERBERT MILLER, MICHELLE GAYLORD, ERKAN KIRIS, DONOVAN VENTIMIGLIA, UCSB, DANIEL NEEDLEMAN, Harvard Univ., MAHN WON KIM, KAIST, LESLIE WILSON, STUART FEINSTEIN, CYRUS SAFINYA, UCSB — Microtubules (MTs), 25 nm protein nanotubes, are a major filamentous element of the cytoskeleton involved in intracellular trafficking and cell division. MAP tau regulates tubulin assembly and MT stability. Dysfunction of tau has been correlated with numerous neurodegenerative diseases. We describe our recent findings about the effects of six naturally occurring central nervous system (CNS) tau isoforms on the assembly structure of taxol-stabilized MTs, using synchrotron small angle x-ray scattering (SAXS). Most significantly, we found that tau, at low binding density, regulates the distribution of protofilament numbers in MTs. DOE DE-FG02-06ER46314, NSF DMR-0803103, NIHI RO1-NS35010 and NS13560.

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