Abstract Submitted
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Synchrotron x-ray diffraction study on the size distribution and mechanical stability of microtubules by microtubule-associated-protein (MAP) tau M.C. CHOI, U. RAVIV, H. MILLER, M. GAYLORD, E. KIRIS, D. VENTIMIGLIA, L. WILSON, M.W. KIM, S. FEINSTEIN, C.R. SAFINYA, UNIV. OF CALIFORNIA AT SANTA BARBARA TEAM, KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY TEAM, HEBREW UNIV OF JERUSALEM TEAM — In neurons, microtubules (MTs), 25nm protein nanotubes, are used extensively as tracks for transporting nutrients and cellular components between the cell body and axons. MAP tau regulates microtubule assembly and, in a poorly understood manner, inter-MT interactions. Altered tau-MT interactions leads to MT depolymerization and tau tangles, which is implicated in a large number of neurodegenerative diseases. We will show that the size distribution and the enhanced mechanical stability of MTs by tau bindings are dependent on tau isoforms. Supported by DOE DE-FG02-06ER46314, NSF DMR-0503347, and NIH GM-59288, NIHI RO1-NS35010.

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