

Accepted Manuscript

Title: Microtubules in health and degenerative disease of the nervous system

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PII: S0361-9230(16)30140-X

DOI: <http://dx.doi.org/doi:10.1016/j.brainresbull.2016.06.016>

Reference: BRB 9048

To appear in: *Brain Research Bulletin*

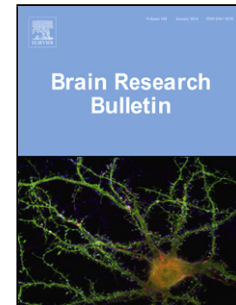
Received date: 2-5-2016

Revised date: 22-6-2016

Accepted date: 27-6-2016

Please cite this article as: Andrew J. Matamoros, Peter W. Baas, Microtubules in health and degenerative disease of the nervous system, *Brain Research Bulletin* <http://dx.doi.org/10.1016/j.brainresbull.2016.06.016>

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Revised Manuscript Number BRB-D-16-00156

Microtubules in health and degenerative disease of the nervous system

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Highlights

- Microtubules are essential for development and maintenance of axons and dendrites.
- Microtubules are vulnerable in a variety of neurodegenerative diseases.
- Dysfunctional microtubules are at the center of neurodegeneration and injury.
- Microtubules undergo complex modifications and protein-protein interactions.
- Microtubule-mediated mechanisms are ripe with therapeutic targets.

Running Title: Microtubules in the nervous system

Abstract

Microtubules are essential for the development and maintenance of axons and dendrites throughout the life of the neuron, and are vulnerable to degradation and disorganization in a variety of neurodegenerative diseases. Microtubules, polymers of tubulin heterodimers, are intrinsically polar structures with a plus end favored for assembly and disassembly and a minus end less favored for these dynamics. In the axon, microtubules are nearly uniformly oriented with plus ends out, whereas in

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