

FULL TEXT LINKS



Review [Neurotox Res.](#) 2019 May;35(4):981-986. doi: 10.1007/s12640-019-00015-z.

Epub 2019 Feb 23.

The Neuroprotective Effect of Doxycycline on Neurodegenerative Diseases

Flávia Viana Santa-Cecília ¹, Caio Abner Leite ², Elaine Del-Bel ^{3 4}, Rita Raisman-Vozari ⁵

Affiliations

Affiliations

- 1 Laboratory of Pain and Signaling, Butantan Institute, Sao Paulo, Brazil.
- 2 A.C. Camargo Cancer Center, Sao Paulo, Brazil.
- 3 Department of Morphology, Physiology and Stomatology, Faculty of Odontology of Ribeirão Preto, University of São Paulo, São Paulo, Brazil.
- 4 Center of Interdisciplinary Research on Applied Neurosciences (NAPNA), University of São Paulo, São Paulo, Brazil.
- 5 Institut du Cerveau et de la Moelle épinière (ICM), Inserm U 1127, CNRS UMR 7225, Sorbonne Université, Paris, F-75013, Paris, France. ritaraisman@gmail.com.

PMID: 30798507 DOI: [10.1007/s12640-019-00015-z](https://doi.org/10.1007/s12640-019-00015-z)

Abstract

Neurodegenerative diseases (NDs) are a group of chronic, progressive disorders characterized by the gradual loss of neurons that affect specific regions of the brain, which leads to deficits in specific functions (e.g., memory, movement, cognition). The mechanism that drives chronic progression of NDs remains elusive. Among the proposed underlying pathophysiological mechanisms, aggregation and accumulation of misfolded proteins and neuroinflammation have been credited to contribute to extensive neural loss. Therapeutic agents that confer neuroprotection by downregulating these shared characteristics could therefore have beneficial effects on a wide range of NDs. In this regard, a commonly used antibiotic, doxycycline (Doxy), has been shown to reduce the progression and severity of disease in different experimental models of neurodegeneration by counteracting these common features. This review will focus on the effects reported for Doxy regarding its neuroprotective properties, the "off-target" effects, thereby supporting its evaluation as a new therapeutic approach for diseases associated with a neurodegeneration.

Keywords: Doxycycline; Less neurons; Misfolded proteins; Neurodegeneration; Neuroinflammation.

Related information

[MedGen](#)

[PubChem Compound \(MeSH Keyword\)](#)

LinkOut – more resources

Full Text Sources

[Springer](#)

Other Literature Sources

[The Lens - Patent Citations](#)

Medical

[MedlinePlus Health Information](#)