

Title: **Nanomedicine to fight amyloid aggregation in neurodegenerative diseases**

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Date: June 2020

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This work is about nanomodulation in amyloid protein aggregation, which is associated with various neurodegenerative diseases, such as Alzheimer's disease. Although the exact cause why these pathologies occur is still unknown, in the latest years, nanomaterials have been studied and it was concluded that they might target protein aggregation and accumulation effectively.

Following the amyloid protein and conformational diseases relationship, this work explains a new approach to fight neurodegenerative pathologies. In order to do so, it is divided in three sections. First of all, there is a review of what is nanomedicine, its development and its current state of knowledge. Then the characteristics and properties of nanomaterials are exposed, as well as their possible interactions with proteins since they present a promising potential. At last, amyloid protein folding and its interactions are studied in more detail.

Once these sections are reviewed, it is discussed the main question of this work, which is whether amyloid aggregation can be modulated or not through synthetic chaperones based on nanoparticles.

Keywords: nanomedicine, nanotechnology, nanoparticle, protein, amyloid, interaction neurodegenerative disease, conformational, Alzheimer, nanomodulation, chaperone