A protein-protein interaction connecting neuroinflammation and neurodegeneration in Alzheimer's disease

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Neuroinflammation is associated with Alzheimer's disease (AD) and it is considered a secondary response to amyloid-beta (Aβ) deposition and neuronal cell death. The neuroinflammatory response is driven by interferon-gamma (IFNγ)-mediated microglia activation but how neuroinflammation and neurodegeneration are connected is unclear and is subject of this study. We show that IFNγ can interact with Aβ and modulates its aggregation behavior by using biopysical techniques. Moreover, exposure of microglia to the formed IFN-γ-Aβ complex resulted in an enhanced pro-inflammatory response compared to the individual interaction partners. We suggest that the interaction between Aβ and IFNγ may explain the observed connection between neurodegeneration and neuroinflammation in AD.