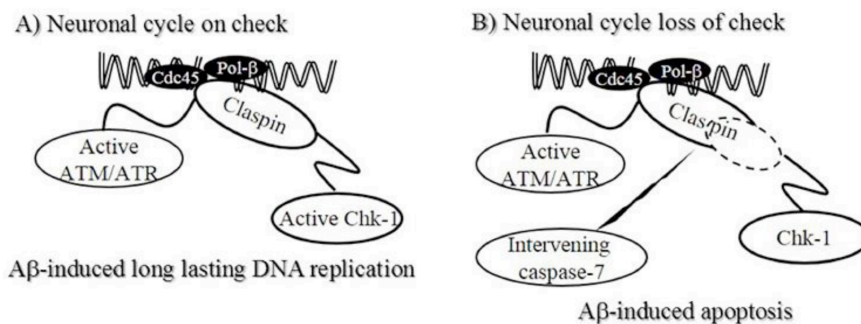


Graphical Abstract

Molecular Connections between DNA Replication and Cell Death in β -Amyloid-Treated Neurons

Filippo Caraci, Annamaria Fidilio, Rosa Santangelo, Giuseppe Caruso, Maria Laura Giuffrida, Marianna Flora Tomasello, Ferdinando Nicoletti and Agata Copani*

*Department of Drug and Health Sciences, University of Catania, Catania, Italy



Hypothesized switch mechanism from DNA replication to death in $A\beta$ -challenged neurons. A) During the neuronal cycle, DNA replication is triggered by $A\beta$ through the recruitment of DNA pol- β (Pol- β) at the replication forks (Cdc-45). The checkpoint pathway ATM-ATR/Claspin/Chk-1 is active and allows a long lasting DNA replication process preceding apoptotic death. B) The initiation of neuronal apoptosis by $A\beta$ coincides with the degradation of Claspin and the activation of its cleavage enzyme, caspase-7. (A higher resolution/colour version of this figure is available in the electronic copy of the article).