

## Protection of disease/conditions induced memory impairment by novel pharmaceutical agents

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**Introduction:** Memory impairment or dementia can be devastating and can lead to several complications. It can be precipitated as a result of various diseases or conditions including Alzheimer's disease, hypothyroidism, post-traumatic stress disorder, vascular dementia, chronic stress, obesity, aging, sleep deprivation and consumption of high-fat high-carbohydrates diet, whereas it can possibly be treated, various agents.

**Objectives:** The long-term goal of my studies is to explore novel pharmaceutical agents and interventions that prevent or restores memory impairment induced by various diseases or conditions. In this presentation, I will be discussing my latest results in a group of drugs including nicotine, L-thyroxin, pentoxifylline (PTX), caffeine, vitamin E and C, tempol, etazolate, etc. These agents showed protective properties against memory impairment induced by chronic stress, hypothyroidism, sleep deprivation, Alzheimer's disease, post-traumatic stress disorder and obesity-induced by consumption high-fat high-carbohydrates diet.

**Results:** Results presented are based on pre-clinical studies using standard or innovative animal models of the above diseases or conditions superimposed with chronic drug treatment. Thereafter, behavioral studies were conducted to test the spatial learning and memory using the Radial Arm Water Maze. Additionally, brain regions were usually dissected; and levels/activities of important signaling molecules or biomarkers related to oxidative stress and inflammation will be presented as possible molecular targets for the tested medications

### Conclusions

Conclusions: Collectively, presented results will show the possibility of treating or preventing cognitive impairment in various diseases and conditions via the chronic use of novel pharmaceutical agents, which is probably achieved through normalizing the levels or activities of important signaling and biological biomarkers within the hippocampus