

# SMALL MOLECULES FOR PREVENTION AND TREATMENT OF ALZHEIMER'S DISEASE

## KEYWORDS

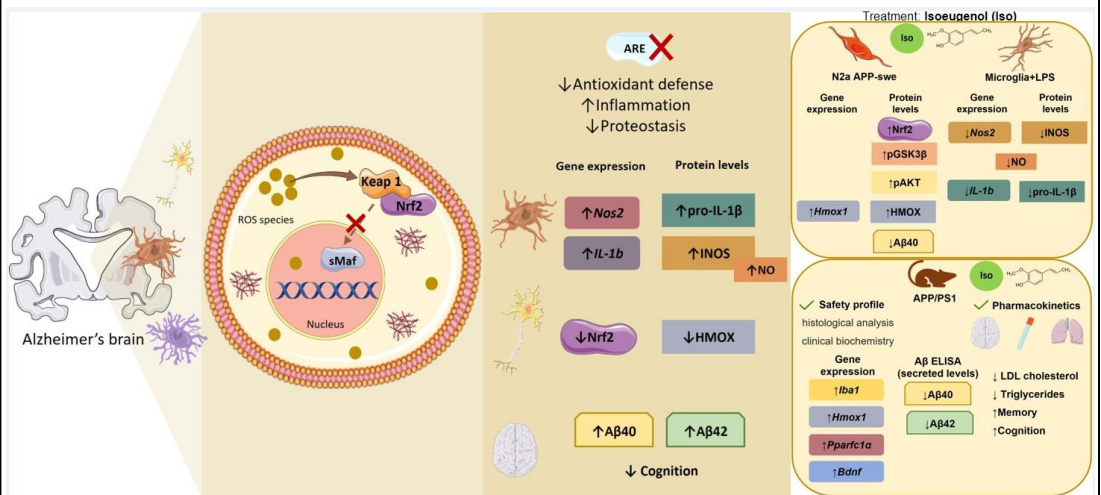
Isoeugenol, Nrf2 pathway, neurodegenerative diseases, Alzheimer's Disease, treatment

## TECHNOLOGY DESCRIPTION

Isoeugenol exhibits extreme or strong capacity in **neuroprotection by targeting the Nrf2 signalling pathway** for the treatment and prevention of neurodegenerative diseases, namely **Alzheimer's Disease (AD)**.

### Improvements:

- Electrophilic properties that activate Nrf2, inducing the transcription of several protective genes
- Good safety, pharmacodynamic and pharmacokinetic profiles
- No pain
- Intranasal administration
- Ability to cross the blood-brain barrier
- Increases antioxidant genes and decreases pro-inflammatory genes
- Induces the translocation of the Nrf2 transcription factor into the nucleus and its activation
- Decreases the gene and the protein levels of iNOS and IL-1 $\beta$
- Induces a decrease in NO levels, an anti-inflammatory role
- Low levels of A $\beta$  peptides
- Improves cognition in a transgenic mouse model of AD



**Application of small molecules for activating the Nrf2 signalling pathway for treatment and prevention of Alzheimer's Disease**

## ADVANTAGES OVER ALTERNATIVE TECHNOLOGIES

- There are no drugs for the treatment of Alzheimer's disease
- Aducanumab and Lequemi can be competitors approved recently by FDA. However, they have modest clinical results and were not approved by EMA

## APPLICATIONS

Treatment and prevention of Alzheimer's Disease and other neurodegenerative diseases

## PATENT SPECIFICATIONS

Reference: PCT/IB2022/052060

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