Tentative Outline

Special Thematic Issue for the journal "Current Topics in Medicinal Chemistry"

Title of the Thematic Issue: Lipid peroxidation induces damage-associated neurodegeneration in ASD and other diseases such as Alzheimer's disease and Parkinson's disease.

Guest Editor: *Kunio Yui*

- **Scope of the Thematic Issue:**

1. Lipid peroxidation contributes to neurobiological mechanisms of autism spectrum disorders as follow:

1) DHA levels in plasma contribute to lipid peroxidation via fatty acid elongase 2, resulting in ASD pathophysiology (Yui et al. 2022)

2) Altered antioxidant protein metabolism increased lipid peroxidation in relation to inflammation, contributing to ASD (Thenmozhi et al, 2020).

3) valproic acid (VPA) alleviated ASD like behavioral symptoms and normalized the redox potential (Ornoy et al, 2019).

4) Genetic and environmental factors may lead to membrane lipid peroxidation and DNA damage, resulting in a pro-inflammatory microenvironment as ASD (Santos et al, 2019).

2. Lipid peroxidation may contribute to neurodegeneration as follows:

1) Protofibrils of $A\beta_{1-42}$ disturbed membrane integrity by lipid peroxidation, and decreased membrane fluidity and synaptic toxicity, preventing Alztheimer's disease (Ono and Tsuji, 2020).

2) Reactive carbonyl species (RCS) provides a missing link between ROS stimuli and cellular responses in plants (Mano et al, 2021).

3) Lipid peroxidation is implicated in the modulation of Parkinson disease via α-synuclein pathology (Hattori et al, 2020).

4) Pathological protein aggregation is a cause of various diseases duo to misfolded proteins in the response to lipid peroxidation (Iuchi et al, 2021).

Keywords: Lipid peroxidation, Autism spectrum disorders, oxidant-antioxidant balance, Parkinson's disease, Alzihaimer's disease, genetic-environ factors, Polyunsaturated fatty acids

Sub-topics:

- Lipid peroxidation
- Autism spectrum disorders
- neurodegeneration

Tentative titles of the articles:

- Contribuion of essential omega-3 PUFA α-linolenic acid to behavioral symptoms in subjects with autism spectrum disorder
- Role of oxidative stress and antioxidants in autism spectrum disorders
- S-adenosyl methionine prevents ASD like behaviors via decreased lipid peroxidation in early postnatal valproic acid exposure mice
- Copper and Neurotoxicity in Autism Spectrum Disorder
- Protofibrils of amyloid-β may contribute to a neuropathological approach for Alzheimer's disease
- Lipid peroxidation as mediators of oxidative stress and signaling in plants
- Lipid peroxidation and role of α-synuclein in Parkinson's disease
- Protein aggregation diseases based on cell death vis lipid peroxidation

Schedule:

- Thematic issue submission deadline: 30th-Sep-22

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