

## Tentative Outline

### Special Thematic Issue for the journal Current Alzheimer Research

**Title of the Thematic Issue: “Current updates on the Role of Neuroinflammation in Neurodegenerative Disorders”**

**Sectional Editor: Dr. Mohammad Amjad Kamal**

- **Scope of the Thematic Issue:**

Neuroinflammation is an invariable hallmark of both chronic and acute neurodegenerative disorders and has long been considered a potential drug target for Alzheimer’s disease (AD) and dementia. Significant evidence of inflammatory processes as a feature of AD is provided by the presence of inflammatory markers in plasma, CSF and postmortem brain tissue of AD patients, and also is found across AD animal models. Neuroinflammation has also been shown across different phases of AD pathology. Indeed, from preclinical to late clinical stages inflammatory markers, including activated microglial cells, activated astrocytes, elevated levels of pro-inflammatory cytokines, chemokines, caspases and other inflammatory protein markers, have been identified both in cellular and animal preclinical studies, in addition to AD subjects. The wide use of anti-inflammatory agents, particularly non-steroidal anti-inflammatory drugs (NSAIDs) that inhibit cyclooxygenase (COX) enzymes and subsequent prostanoid production, has spawned epidemiological investigations into the potential therapeutic effects of anti-inflammatories in AD, with numerous but not all suggesting a reduced risk of AD development. Despite this, the use of currently available anti-inflammatory agents has failed to demonstrate efficacy in randomized, double-blind, placebo-controlled AD clinical trials. This scenario raises the question as to whether or not neuroinflammation is a primary contributor to disease progression or is a secondary bystander. If a key contributor, what inflammatory target might best mitigate the excessive proinflammatory signal that drives disease pathology without adversely impacting the known physiological beneficial roles of inflammatory signaling.

The current CAR special issue is seeking primary reviews articles that aid defines the role of systemic and/or neuroinflammation in neurodegenerative disorders, including AD and associated dementias but, additionally, Parkinson’s disease (PD) and acute conditions, such as traumatic brain injury and ischemic stroke that may provide a conduit to AD and PD. Likewise, articles on the changing role of microglia and astrocytes in a healthy aging brain are welcomed, as are articles relating to new drug targets within the inflammatory cascade and new drug candidates with strong translational potential are also welcomed.

**Keywords:** Alzheimer’s disease; Artificial Intelligence; Brain injury; Computational studies; Deep machine learning; Drug targets; Informatics; Inflammatory signaling; Ischemic stroke; Microglial cells; Molecular Dynamics; Neuroinflammation; Neurodegenerative Disorders; Parkinson’s disease; Translational strategies

#### Sub-topics:

1. Synopsis of Neuroinflammation in Neurodegenerative Disorders
2. A comprehensive review of potential drug targets for Alzheimer’s disease
3. Computational approaches in the diagnosis of Neurodegenerative Disorders
4. Computational approaches in the management of Neurodegenerative Disorders
5. Overview of Neuroinflammation across different phases of Neurodegenerative Disorders pathology

#### Schedule:

- ✧ Thematic issue submission deadline: **30<sup>th</sup> September 2023**

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