the brain is a potential contributor to the development of Alzheimer's disease therefore the mechanism by which miR-9 increases pericyte proliferation may represent a new target for preventing or slowing this loss of pericytes.

P4-033 DEGRADATION OF AMYLOID-BETA AGGREGATES BY MICROBIAL KERATINASES

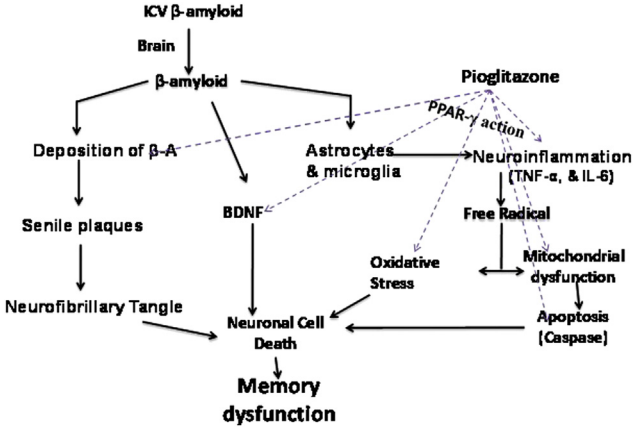
Saikat Mukherjee[1], **Debananda Singh Ningthoujam**[1], Laishram Jaya Devi,[1] Microbial Biotechnology Research Laboratory, [1]*Manipur University, Imphal, India. Contact e-mail: debananda.ningthoujam@gmail.com*

Background: Neurological disorders represent one of the leading causes of disability globally.in the world population. They are currently incurable and these diseases worsen over time. Determination of the etiological factor of most of the neurological disorders is confusing as most of these diseases have multifactorial etiology. Some common neurodegenerative disorders such as Alzheimer's and Parkinson's diseases are apparently caused by deposition of amyloid plaques. Hence dissolution of these amyloid plaques can be a promising therapeutic approach for of these debilitating disorders. The research laboratory has identified several actinomycete in the last few years and they are being tested for their therapeutic uses. One such interesting strain is *Amycolatopsis sp. MBRL 40* which is found to have promising role in amyloidogenic disorders. **Methods:** Two potent keratinases, Ker 1 and Ker 2, purified from the actinomycete *Amycolatopsis sp. MBRL 40* showed potent capacity to degrade amyloid fibrils. These enzymes were purified by subjecting the fermentation broth of the microbial culture to ammonium sulphate fractionation, dialysis and Q sepharose column chromatography. The enzymes were tested for their possible amyloid fibril degrading activity. The amyloid fibrils were induced by incubating lysozyme with 8M urea and the presence of cross beta pleated sheets in these fibrils were confirmed by Congo Red absorption spectroscopy by staining the fibrils with Congo Red and following the absorbance spectra from 400 nm to 700 nm. **Results:** Both Ker 1 and Ker 2 could degrade chicken feather, soluble keratin and casein. Both enzymes showed optimum activity at 40°C and pH 7.0. Ker 1 was found to be more potent than Ker 2. Both were found to be serine proteases. Ker 1 degraded amyloid fibrils within 24 hours at 37°C at a concentration of 125 µg/ml. Ker 2 was found to be less potent than Ker 1 in degrading amyloid fibrils. **Conclusions:** Ker I and Ker 2 have good potential to be tested on amyloid fibrils on other amyloidogenic neurodegenerative disorders to explore the biotechnological potential of these actinomycete keratinases.

P4-034 PIOGLITAZONE PROTECTS AGAINST β-AMYLOID IN AN ANIMAL MODEL OF ALZHEIMER'S DISEASE BY RESTORING BDNF-MEDIATED HIPPOCAMPAL NEUROGENESIS

Atish K. Prakash, Sr., Vasudevan Mani, Sr., Kalavathy Ramasamy, Sr., Abu Bakar Abdul Majeed, Sr., *Universiti Teknologi MARA (UiTM), Puncak Alam, Malaysia. Contact e-mail: atishkumar@puncakalam.uitm.edu.my*

Background: PPAR-γ agonists are currently being tried as a treatment strategy against various neurodegenerative disorders where chronic inflammation is suspected to be a pathogenic factor. Although preclinical and clinical studies suggest the beneficial effects of PPAR-γ agonists on AD pathology, the mechanisms mediating these effects remain to be elucidated. The study of neurogenesis during chronic inflammation is crucial in order to understand the actual mechanisms of the AD pathology, and key to designing therapeutic strategies. Therefore, the current study was carried out to investigate the effects of chronic administration of pioglitazone, a PPAR-γ agonist, on cognitive impairment in an animal model of Alzheimer's disease. **Methods:** Wistar rats received ICV β-amyloid application (3 nmol/ 3 µL), and behavioural alterations (locomotor activity and memory performance) were assessed. Animals were sacrificed immediately following the last behavioral session, their brains removed and dissected. Mitochondrial enzymes, oxidative parameters, inflammatory mediators (TNF-α, IL-6), caspase activity and BDNF levels were measured in the hippocampus. **Results:** ICV β A-treated rats showed a memory deficit and significantly decreased BDNF level, simultaneously, increase in mitochondrial oxidative damage and inflammatory mediators in the hippocampus. Memory impairment and oxidative damage was reversed by administration of pioglitazone (15 and 30 mg/kg). Pioglitazone also significantly restored the BDNF level and attenuated the actions of inflammatory markers in ICV β A-treated rats. However, pretreatment with PPAR-γ antagonist BADGE (15mg/kg) with higher dose of pioglitazone significantly reversed its protective action in memory impairment in β A-treated rats, which indicates the involvement of PPAR- γ receptors mediating neuroprotective action. **Conclusions:** These results demonstrate that pioglitazone offers protection against β-amyloid induced memory dysfunction possibly due to its antioxidant, anti-inflammatory, anti-apoptotic action, and neurogenesis like effect therefore, could have a



P4-035 CEREBROSPINAL FLUID AD BIOMARKERS PREDICT POORER COGNITIVE PERFORMANCE IN A COGNITIVELY INTACT COHORT AT RISK OF ALZHEIMER'S DEMENTIA: THE PREVENT-AD PROGRAM

Jennifer Tremblay-Mercier[1], Marie-Elyse Lafaille-Magnan[1], Melissa Savard[2], Tharick Ali Pascoal[1,2], Anne Labonté[1,2], David Fontaine[1], Pedro Rosa-Neto[1], Judes Poirier[3], John Breitner[1], [1]*Centre for Studies on Prevention of Alzheimer's Disease (StoP-AD Centre), Douglas Mental Health Institute, Montreal, QC, Canada;* [2]*Douglas Hospital Research Centre, Montreal, QC, Canada;* [3]*McGill University, Montreal, QC, Canada. Contact e-mail: jennifer.tremblay-mercier@douglas.mcgill.ca*

Background: Increasing evidence suggests that subtle cognitive difficulties may characterize the pre-symptomatic phase of Alzheimer disease (AD). In combination with pathophysiological biomarkers,