Abstract

Name: Hardiani Alexandra

Study Program: Biomedicine (Tumor Biology)

Title: Follow-up Study of APP/PS1 Mice Treated with IL-33

Thesis Advisor & Supervisor: dr. Dina Atrasina S., M.Nsci [Adv] & Assistant Professor Rie Ryoke Ph.D.

Alzheimer's Disease (AD) is the primary cause of Dementia, a clinical syndrome that is the leading cause of death in elderly individuals. Aging societies are currently racing to find potential treatment for AD that will not only alleviate the symptoms but also slows or reverse the disease's progression as the risk of getting AD increases alongside with age. Interleukin 33 (IL-33) has been shown to be a promising potential AD treatment in a study conducted by Fu et al (2016). The purpose of this study is to follow-up the effect of long-term IL-33 treatment in APPswe/Psen1dE9 (APP/PS1) mice. Passive Avoidance task, Magnetic Resonance Imaging (MRI) analysis and Immunohistochemical staining were used in analyzing the effect of the treatment. Passive avoidance results showed that there was no improvement in memory retention in APP/PS1 mice that has been treated with IL-33. Moreover, the neuroimaging analysis showed an increase in total average grey matter volume in the APP/PS1 mice. The APP/PS1 IL-33 treated mice did have slightly lower GFAP and $Iba1^{+}$ positive cells in the brain compared to the control counterpart. In conclusion, continuous injection of IL-33 treatment might be needed to maintain its beneficial effects in subjects with AD.

Keyword: Alzheimer's Disease, Dementia, Interleukin 33, APPswe/Psen1dE9, Passive avoidance, MRI analysis, immunohistochemical staining