Amelioration of Neuropathology by a Novel Extract of *Nerium Oleander* in APP/PSEN1dE9 transgenic mouse

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**ABSTRACT**

There have been numerous efforts for the development of the therapy for Alzheimer’s disease (AD) although effective treatment is not still available. PBI-05204, the botanical extract of *Nerium oleander*, has been shown to have neuroprotective effects in rodent models of stroke. Both Oleanolic acid and triterpenoids, the main constituent of this extract, have been shown to modulate multiple cellular pathways including oxidative stress, inflammation, proliferation and apoptosis, all of which have been shown to be pathologically linked with AD, supporting the therapeutic potential of PBI-05204 for the treatment of AD. To test the therapeutic potential, we treated APP/PSEN1dE9 mice with PBI-05204 or vehicle for 4 months (4-8 months of age) and examined its effect on AD-related neuropathology. In our analysis, we found that Aβ plaques were significantly reduced by the treatment of PBI-05204 compared to control mice. Furthermore, the treatment with PBI-05204 significantly reduced neuroinflammation which is evidenced by the reduced activation of microglia and astrocytes. Collectively, our data clearly indicates that the treatment of PBI-05204 reduces amyloid pathology and neuroinflammation in APP/PSEN1dE9 transgenic mouse model, suggesting the therapeutic potential of PBI-05204 for the treatment of AD.

**MATERIALS & METHODS**

![Diagram](image1.png) **RESULTS**

**INTRODUCTION**

There have been numerous efforts for the development of the therapy for Alzheimer’s disease (AD) although effective treatment is not still available. PBI-05204, the botanical extract of *Nerium oleander*, has been shown to have neuroprotective effects in rodent models of stroke. Both Oleanolic acid and triterpenoids, the main constituent of this extract, have been shown to modulate multiple cellular pathways including oxidative stress, inflammation, proliferation and apoptosis, all of which have been shown to be pathologically linked with AD, supporting the therapeutic potential of PBI-05204 for the treatment of AD. To test the therapeutic potential, we treated APP/PSEN1dE9 mice with PBI-05204 or vehicle for 4 months (4-8 months of age) and examined its effect on AD-related neuropathology. In our analysis, we found that Aβ plaques were significantly reduced by the treatment of PBI-05204 compared to control mice. Furthermore, the treatment with PBI-05204 significantly reduced neuroinflammation which is evidenced by the reduced activation of microglia and astrocytes. Collectively, our data clearly indicates that the treatment of PBI-05204 reduces amyloid pathology and neuroinflammation in APP/PSEN1dE9 transgenic mouse model, suggesting the therapeutic potential of PBI-05204 for the treatment of AD.

**RESULTS**

![Diagram](image2.png) **CONCLUSION**

1. PBI-05204 significantly reduces Aβ plaque formation in APP/PSEN1dE9 mice.

2. PBI-05204 significantly reduces neuroinflammation.

The significant reduction of the accumulation of Aβ and neuroinflammation by the treatment of PBI-05204 strongly supports the therapeutic potential of PBI-05204 for the treatment of AD.

**REFERENCES**


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