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The Effect of *Nerium oleander* Extract on Neuroinflammation

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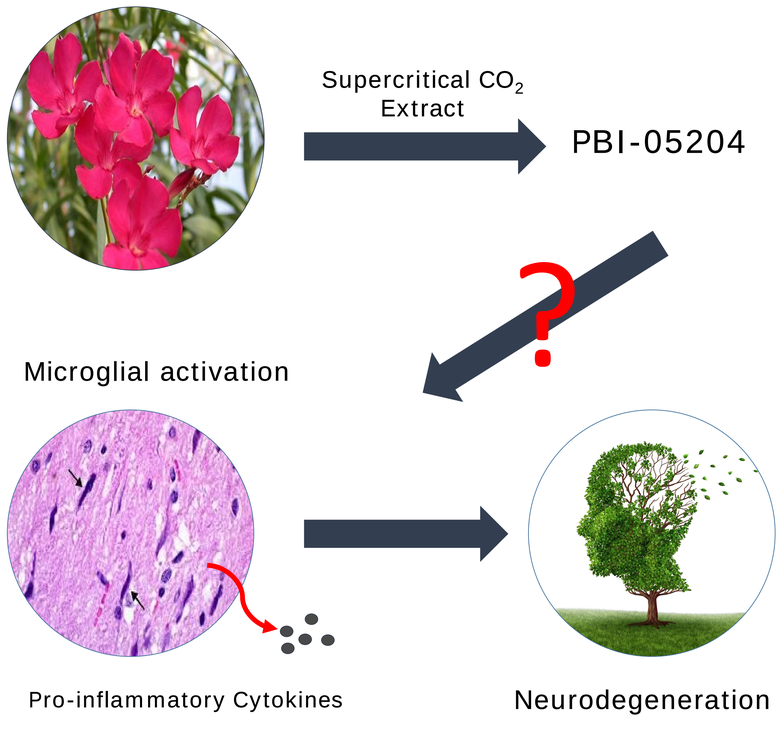
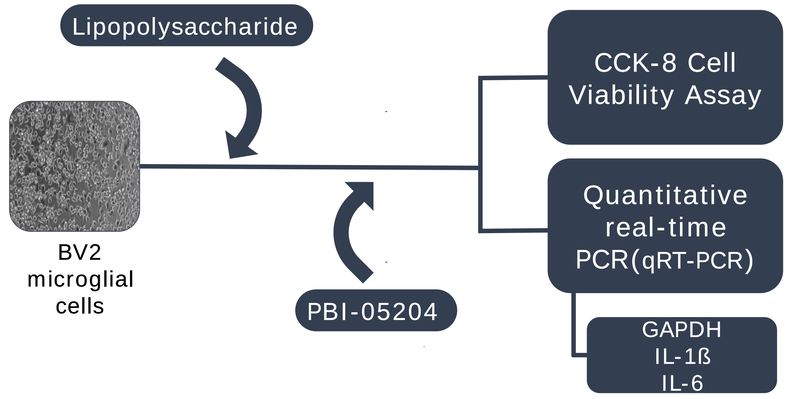
Abstract

While *Nerium oleander* extract (PBI-05204) has shown to reduce oxidative damage and neuronal cell death, its effect on neuroinflammation remains to be determined. Neuroinflammation is one of the main pathological changes in neurodegenerative diseases such as Alzheimer disease (AD). This study aims to evaluate the effect of the extract on neuroinflammation using microglial cell culture for the first time. In our study, we found that the extract reduces the expression of pro-inflammatory cytokines such as IL-1ß and IL-6 induced by lipopolysaccharide (LPS). Our data clearly show that the extract reduces neuroinflammatory reactions in microglial cells, and suggest its therapeutic potential for the treatment of AD.

Introduction



Experimental Approach



Results

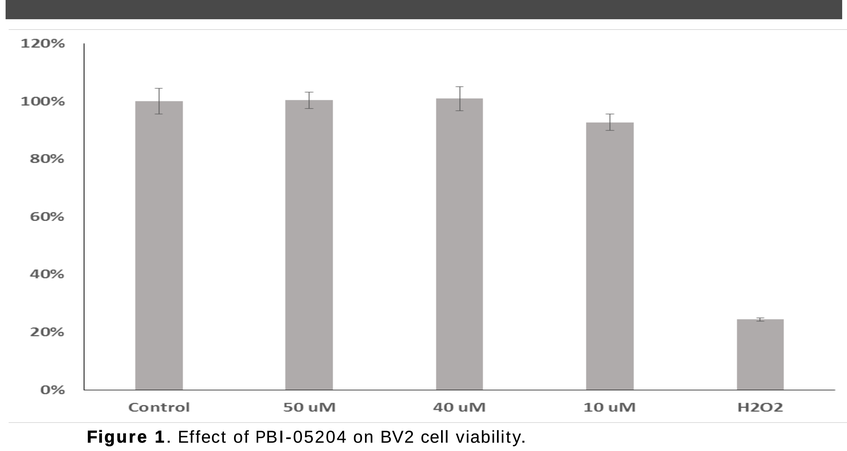


Figure 1. Effect of PBI-05204 on BV2 cell viability.

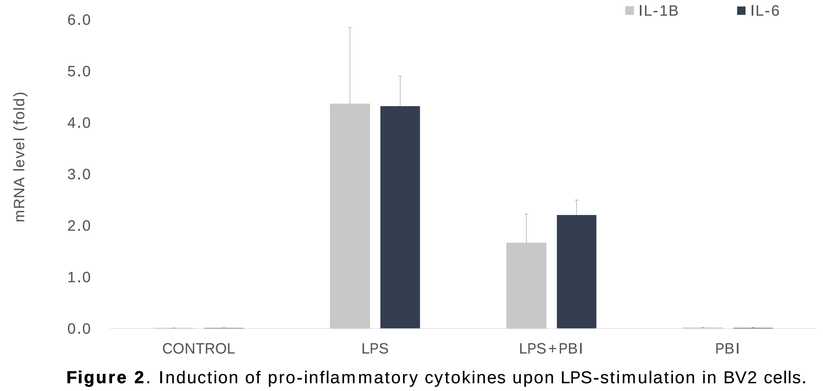


Figure 2. Induction of pro-inflammatory cytokines upon LPS-stimulation in BV2 cells. Cells were treated with 50 ng/ml LPS with or without PBI-05204 for 3 hr and mRNA levels of each gene were measured by qRT-PCR

Results – cont'd

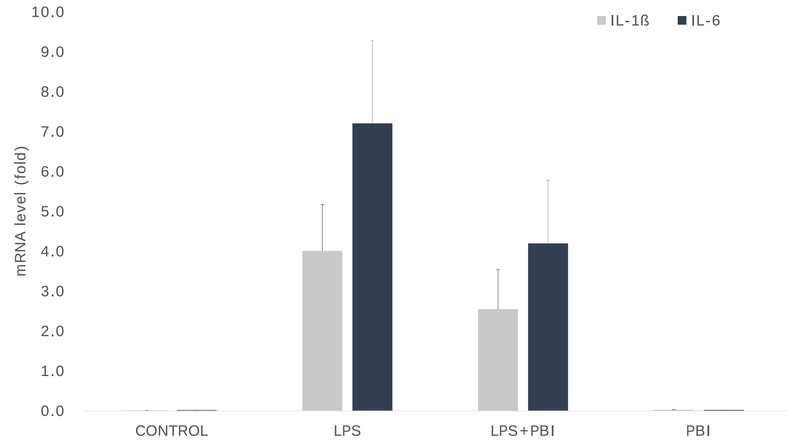


Figure 3. Induction of pro-inflammatory cytokines upon LPS-stimulation in bv2 cells. Cells were treated with 50 ng/ml LPS with or without PBI-05204 for 6 hr and mRNA levels of each gene were measured by qRT-PCR

Conclusion

- ✓ PBI-05204 reduces mRNA expression of pro-inflammatory cytokines such as IL-1ß and IL-6
- ✓ Collectively, our data strongly suggest anti-inflammatory effect potential of PBI-05204

Future Direction

PBI-05204

- ✓ Cognitive deficit
- ✓ Neuroinflammation
- ✓ AD-related pathology

References

1. Dunn DE et al., Journal of Neurochemistry 119, 805-814, 2011
2. Kanegan MJV et al., Scientific Reports 6, 25626, 2016

Acknowledgement

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