

## **Abstract**

**Alzheimer's disease is a neuronal system disorder disease with insidious attack and progressive impairment of behavioral and cognitive functions including memory, comprehension, language, attention, reasoning, and judgment. In 2017, official death certificates recorded 121,404 deaths from Alzheimer's disease, making Alzheimer's disease the sixth leading cause of death in the United States and the fifth leading cause of death among Americans over the age of 65. Indonesia is predicted to have 1.2 million people with Alzheimer's disease in 2016, the prediction will continue to increase to 2 million in 2030 and 4 million people are predicted to have Alzheimer's disease in 2050. One of the therapeutic approaches to design drug development for Alzheimer's disease is the inhibition of -site APP cleaving enzyme-1 (BACE1). In this study, the authors aim to develop a predictive model of BACE-1 inhibitors as Alzheimer's therapeutic agents using the fingerprint feature-based Neural Network method optimized with the Firefly Algorithm. It is hoped that the resulting prediction output can be used wisely in decision making to design the development of Alzheimer's disease drugs.**

**Kata kunci : *Neural Network, BACE-1, Fingerprint, Firefly Algorithm.***