



## 2020 IMPACT CIRCLE

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### **Discovering drugs that mimic the effect of protective genes against Alzheimer's dementia**

The risk of developing Alzheimer's disease (AD) is strongly correlated with the type of APOE gene variant a person has. The APOE gene has three variants: APOE2, APOE3, and APOE4. People with the APOE4 variant have a very high risk of developing AD, while people with the APOE2 variant are significantly protected against it. People with the APOE3 variant, the most common one, have an average risk of developing the disease. AD patients with APOE4 have an accelerated breakdown of the blood-brain barrier. The blood-brain barrier is composed of cells that protect the brain from harmful substances in the blood. Furthermore, the early stages of AD involve the breakdown of the blood-brain barrier.

We hypothesize that a compound able to mimic the protective effects of APOE2 in the blood-brain barrier and the brain will be able to prevent AD.