

# CRO services for Alzheimer's disease

**Alzheimer's disease (AD)** is a neurological disorder in which the death of brain cells causes memory loss and cognitive decline, but the actual cause of the disease remains unknown. Although  $\beta$ -amyloid ( $A\beta$ ) is considered to be major pathogenesis, recent clinical results of monoclonal antibodies against  $A\beta$  proteins threaten  $A\beta$  hypothesis. Opportunity for the drug developers arises from the lack of any drug with ability to slow or stop the disease progression.

**Intracerebroventricular administration of streptozotocin (icv-STZ)** model is non-transgenic AD model and shows alterations of cerebral insulin signaling and reduced brain glucose metabolism. The icv-STZ model also induces oxidative stress and neuroinflammation states and is widely used to evaluate neuroprotective properties of various compounds in preclinical studies of AD.

**SMC**, a Tokyo-based biotech company known as the leading nonclinical CRO for nonalcoholic steatohepatitis-hepatocellular carcinoma, now provides pharmacology study service using icv-STZ AD mouse models. Our expertise achieved in diabetes and inflammation research can also be applied to AD R&D.

## icv-STZ AD Model

### Animal:

- Female C57BL/6 mice (7- to 8-week-old)

### Induction of disease:

- Intracerebroventricular administration of streptozotocin

### Characteristic features:

- Impaired working and spatial memory
- Impaired brain insulin signaling and glucose metabolism
- Cholinergic deficits
- Increased oxidative stress in the brain
- Neuroinflammation

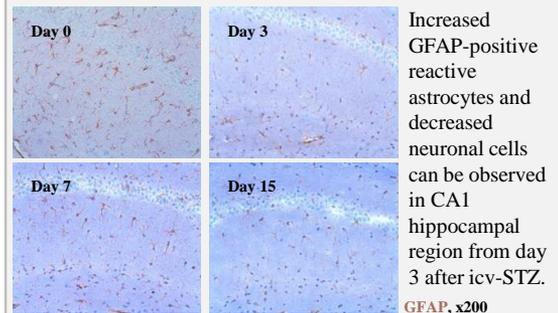
### Efficacy endpoints:

- T-maze: working-memory, spatial memory
- Immunohistochemistry for neuroinflammation
- Immunohistochemistry for gliosis
- Acetylcholine esterase activity

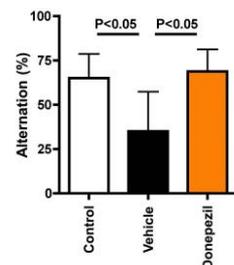
### Positive controls:

- Donepezil (recommended)

## Histological changes in the CA1 hippocampal region of icv-STZ induced AD model



## Effect of donepezil on working-memory in icv-STZ induced AD model



The impaired working-memory (as evaluated by % alternation in T-maze test) was prevented by 2-weeks-treatment with donepezil.



For more information, please contact us below.

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