

# Brain abnormalities in Spontaneously Diabetic Torii-Lepr<sup>fa</sup> (SDT fatty) rats

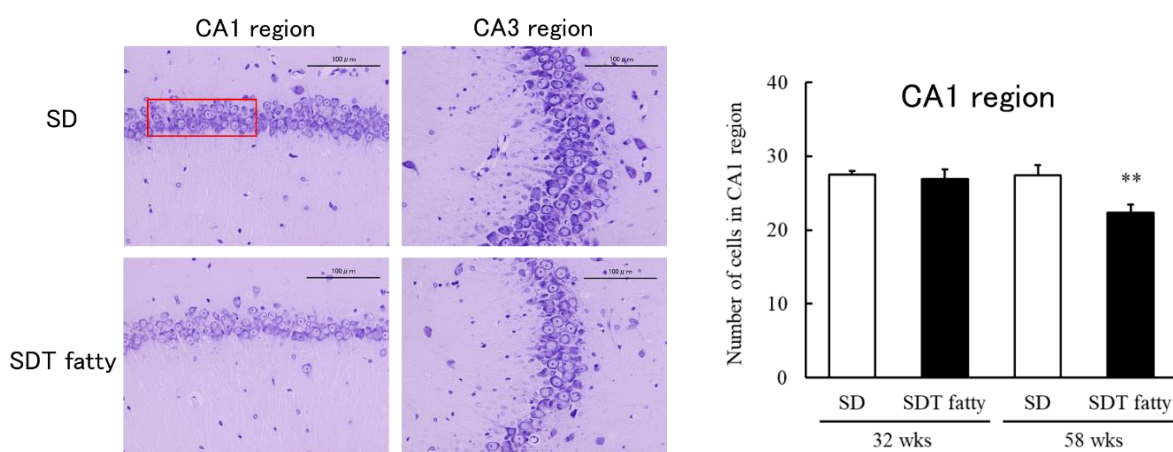
Tatsuya Maekawa<sup>1\*</sup>, Tomohiko Sasase<sup>1</sup>, Masami Shinohara<sup>2</sup>, Shinichi Kume<sup>1</sup>,  
and Takeshi Ohta<sup>1</sup>

<sup>1</sup> Laboratory of Animal Physiology and Functional Anatomy, Graduate School of Agriculture,  
Kyoto University, Kyoto, Japan

<sup>2</sup> Tokyo Animal & Diet Dept, CLEA Japan Inc.

\*Corresponding author: Tatsuya Maekawa ([tatsuya.maekawa@outlook.com](mailto:tatsuya.maekawa@outlook.com))

**INTRODUCTION.** In recent years, a relationship between diabetes and neurodegenerative diseases, such as Parkinson's disease, Alzheimer disease or depression, has been reported. In this study, pathophysiological changes in the brain of male Spontaneously Diabetic Torii Lepr<sup>fa</sup> (SDT fatty) rats with obesity and hyperglycemia were investigated. **METHODS.** Brains of SD rats and SDT fatty rats were collected at 32 and 58 weeks of age, and the parietal cortical thickness and the number of pyramidal cells in the hippocampal cornu ammonis 1 and 3 (CA1 and CA3) regions were measured. In addition, mRNA associated with the inflammation in the brains at 58 weeks of age was measured. **RESULTS AND DISCUSSION.** The parietal cortical thickness and number of pyramidal cells in the hippocampal CA1 and CA3 regions were lower in SDT fatty rats than in age-matched SD rats at 58 weeks of age. The expression of genes related to inflammatory responses was elevated in SDT fatty rats. These results suggest that the brains of male SDT fatty rats may have brain atrophy and hippocampal damage. **CONCLUSIONS.** SDT fatty rats showed the possibility of developing central nervous disorders.



## REFERENCE

[1] Maekawa T, *J Vet Med Sci.* 2018; 80(9):1385-1391. doi: 10.1292/jvms.18-0296.