

DEPARTMENT SEMINAR



日時：1月29日（火）13:30-14:30

場所：工学部3号館8B04

演者：中條 岳志 博士

(Associate Professor, Department of Molecular Physiology, Faculty of Life Sciences, Kumamoto University)

Mammalian tRNA modifications: their biochemical and physiological functions

tRNA molecules are post-transcriptionally modified by specific enzymes. The tRNA modifications play pivotal roles in protein synthesis by regulating tRNA stability and decoding. In humans, pathogenic mutations and disease-associated expressional changes have been identified in over 50 tRNA modification writers, which emphasizes the physiological importance of tRNA modifications. Most of such 'tRNA modopathies' manifest as neurological disorders, diabetes, kidney disorders, mitochondrial diseases, or cancer. However, the pathogenic mechanisms of such tRNA modopathies have remained largely unidentified. Thus, our team has been working extensively to elucidate the mechanisms of how tRNA modifications are implicated in intellectual disability^{1,2}, mitochondrial disease³, HIV-1 infection⁴ and cancer⁵, and also identified human tRNA modification enzymes^{5,6}.

In this talk, I would like to first introduce our recent work on the pathogenesis of intellectual disability caused by dysfunction of tRNA methyltransferase 10A (TRMT10A)¹. I will then introduce our unpublished work on pathogenesis of a kidney disorder promoted by a SNP in a tRNA modification enzyme gene.

¹Tresky, ..., Wei, Tomizawa* & Chujo*. **Nucl Acids Res.** (2024).

²Nagayoshi**, Chujo**, ..., Suzuki, Tomizawa* & Wei*. **Science Adv.** (2021).

³Murakami, Wei, ..., Tomizawa* & Chujo*. **Commun Biol.** (2023).

⁴Fukuda, Chujo*, Wei, ... & Tomizawa*. **Nucl Acids Res.** (2021).

⁵Matsuura, Akichika, Wei, Suzuki, ..., Tomizawa* & Chujo*. **Commun Biol.** (2024).

⁶Chujo & Suzuki. **RNA.** (2012).

このセミナーに関する連絡先

鈴木 勉 (ts@chembio.t.u-tokyo.ac.jp)

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