DATE: Day 9 Month 5 Year 2025

SUMMARY of
FY2024 RESEARCH RESULTS REPORT
For International Collaborative Research with IPR, Osaka University

Research Title		Structural study of Cell penetrating peptides
Applicant	**Name**	Soo Jae Lee
	Affiliation	College of Pharmacy, Chungbuk National University
	Present Title	Professor
Research Collaborator (Host PI)		Atsushi Nakagawa (Professor)

Summary

Cell penetrating peptides (CPPs) are peptides characterized by their small molecular size and ability to effectively penetrate cell membranes, enabling entry into the cells. CPPs are considered highly valuable tools for delivering various molecules into cells and for diverse applications. The research on CPPs emerged due to the challenge posed by the low cellular permeability of most drugs and biological molecules, which hinders their effective delivery into cells. This limitation poses obstacles in drug development and targeted delivery of specific proteins into cells. CPPs have garnered attention as a solution to overcome these challenges

In the study in FY2023, it was discovered through a crystal structural study that a peptide dimer consisting of 14 amino acids with cell-penetrating properties forms a trimer structure. In FY 2024 study, based on the previous trimer peptide structure, the peptide sequence was adjusted to find new structure. As a result, it was found that a specific sequence structure with 23 amino acids (23mer_3C) forms a tetramer structure, which is different from the previous structure. As a future plan, we aim to deepen our understanding of CPPs and explore novel applications for delivering drugs into cells and treating various diseases.

***Deadline: May 9, 2025**
***Please submit it to E-mail: tanpakuken-kyoten@office.osaka-u.ac.jp.**
***Please describe this summary within 1 sheet. Please DON'T add some sheets.**
***This summary will be published on the web.**