DATE: Day____Month____Year 2025

SUMMARY of

FY2024 RESEARCH RESULTS REPORT

For International Collaborative Research with IPR, Osaka University

Research Title		**Structural and functional study on the survival essential factors from bacterial pathogens for the development of novel antibiotics which induce suicide effect (phase IV)**
Applicant	**Name**	**Bong-Jin Lee**
	Affiliation	**Ajou University**
	Present Title	**Professor**
Research Collaborator (Host PI)		**Atsushi Nakagawa**

Summary

We brought the protein crystals to SPring-8 and conducted the experiments. The diffraction data were collected by our team at the Institute for Protein Research beamline using a wavelength of 1.0 Å and a detector distance appropriate for each sample. The collected data were stored on a portable hard drive without further processing.

For a set being capable of molecular replacement, we tried to solve a structure using a structural template which was prepared by AlphaFold2 with Phenix or CCP4i program suites.

Data were processed using XDS. Structural determination was tried using various programs including CCP4, CNS, and Phenix with either manual or automated method.

Experimental Results

phd-doc complex
- Diffracted successfully to ~2.4 Å.
- Phasing was successful

phd + DNA
- Diffracted successfully to ~3.1 Å.
- Phasing was successful

Cro/CI antitoxin
- Diffraction successfully to ~2.0Å
- Purified in a toxin-antitoxin complex state, but only antitoxin structure was gained

SehAB - DNA complex
- Successfully diffracted ~2.0Å
- difficult to index, further optimizations are needed

***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.**