DATE: Day 07 Month 05 Year 2018

SUMMARY of
2017 RESEARCH RESULTS REPORT
For International Collaborative Research with IPR, Osaka University

Research Title		**Structural and functional analysis of extremophilic and microgravity influenced industrially important enzymes**
Applicant	**Name**	**Raja Noor Zaliha Raja Abd Rahman**
	Affiliation	**Universiti Putra Malaysia**
	Present Title	**Prof**
Research Collaborator (Host PI)		**Prof. Dr. Atsushi Nakagawa**

Summary

The protein crystals were initially screen using vapour diffusion method to search best crystallization hit. The crystals growth were also reproduced using counter diffusion approach prior to synchrotron diffraction experiment as the crystals were hand carried to SPRing8. The general experimental procedure at the beamline firstly involved crystal observation and selection using a microscope. The selected crystals from either plates or capillaries were soaked in cryprotectant prior to diffraction experiment. Diffraction data was collected and is judged for diffraction quality for full data collection.

AMS3 lipase
- The crystal was successfully diffracted and full data was collected up to 2.7Å.

Riboflavin synthase
- The crystal was diffracted but at low resolution around 6Å. Probably due to the poor internal crystal packing.

E250L lipase
- The crystal was able to be diffracted and full data was collected

W255K lipase
- No diffraction was obtained

V361R lipase
- No diffraction was obtained

HZ lipase
- No diffraction was obtained

GDSL lipase

- No crystal was diffracted due to insufficient beamtime

Elastase K
- The crystal was damaged during travel to Japan.

Only a few crystals managed to be diffracted and potentially the structure be solved. For future planning, the crystal quality and selection will be evaluated prior to synchrotron diffraction. Our inhouse X-ray was under maintenance, therefore samples brought during the previous beamtime was not properly verified for its crystal quality.