

DATE: 2nd May 2024

SUMMARY of
FY2023 RESEARCH RESULTS REPORT
For International Collaborative Research with IPR, Osaka University

Research Title		A systems biology approach to targeting the cell cycle and senescence in B-cell malignancies
Applicant	Name	Simon Mitchell
	Affiliation	Brighton and Sussex Medical School, University of Sussex, UK
	Present Title	Reader in Cancer Research
Research Collaborator (Host PI)		Mariko Okada
<p>Summary</p> <p>The collaboration between the Okada and Mitchell groups in Osaka University and the University of Sussex is investigating the extent to which personalized computational models can predict prognosis and response to treatments in cancer. Both groups have recently published work showing that, in both breast cancer and blood cancer, personalized models can stratify patients using molecular scale data to predict how patients will respond over much longer timescales. The results are demonstrating that molecular signaling controls distinct cell fates that control how cells proliferate and respond to targeted therapies. They have revealed an important role for cellular senescence, controlled by the molecular dynamics of both cRel and NF-kB, which presents a novel point of control in cancer. They have also demonstrated that when generic simulations are personalized to represent individual patients, using either molecular signalling dynamics or mutational profiles of each patient, they can provide valuable clinical tools. Using the data they have generated during this research visit they have secured substantial ongoing research funding (approximate value £150,000). The first award is a PhD studentship awarded with co-supervision between the two institutions to investigate how to combine experimental and computational biology to move towards personalized medicine in breast cancer. The second award is joint funding from JSPS and the Royal Society to enable the groups to work together on achieving their shared goals. Their results, ongoing funding, and future publications combine to pave the way for personalized treatment in multiple cancers.</p>		

***Deadline: May 10, 2024**

***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.**