Developing Designer Antibodies

Research Theme: **Metabolism/Cancer Biology**

PhD Research Project Title: **Understanding polyamine-mediated signal transduction**

Scholarship category (Please indicate the source of funding for this project):

(a) SBS Research Student Scholarship (for SBS faculty only)

Principal Investigator/Supervisor: **Kanaga Sabapathy**

Co-supervisor/ Collaborator(s) (if any): **NA**

Project Description

a) Background:
Polyamines such as Spermidine (SPD) are essential for cellular viability across all living organisms, from bacteria and protozoa to human cells. In bacteria, SPD is crucial for cell growth and division, via protecting cellular components from oxidative damage; contribute to biofilm formation; and regulate virulence gene expression. In protozoa, SPD is vital for the synthesis of macromolecules such as DNA and RNA, playing critical roles in developmental processes and the differentiation of various life cycle stages. SPD also plays pivotal roles in human cancer, aging, stress tolerance, and infectious diseases. Although targeting polyamine homeostasis has been studied as a strategy to inhibit cancer cell growth, success has been limited, partially due to the lack of knowledge about the underlying molecular mechanisms in both normal and neoplastic cells.
We have identified specific ways in which polyamines could signal to control cellular homeostasis, using a novel approach that overcomes the current challenges in the field, which will be the basis of this project.

b) Proposed work:
The project will focus:
- validating the binding of SPD to the effectors;
- evaluating the effects of such binding on substrate biology, using disease-relevant genes as model substrates;
- demonstrating if such regulation is physiologically relevant in the context of cancer and other disease, using cellular and animal models.

c) Preferred skills:
Cell culture, biochemistry techniques, molecular cloning, mouse handling (though not all are indispensable).

Supervisor contact:

If you have questions regarding this project, please email the Principal Investigator:

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Biological Sciences
College of Science

Reg. No. 200604393R

Prof Kanaga Sabapathy
kanaga.sabapathy@ntu.edu.sg

SBS contact and how to apply:

Associate Chair-Biological Sciences (Graduate Studies) : AC-SBS-GS@ntu.edu.sg

Please apply at the following:

Application portal:

https://venus.wis.ntu.edu.sg/GOAL/OnlineApplicationModule/frmOnlineApplication.ASPX