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| **Research Theme: Structural Biology and Biochemistry** |
| **PhD Research Project Title:**  **Determining the molecular basis of Noddosome activation in human** |
| **Scholarship category (Please indicate the source of funding for this project):**  **SBS Research Student Scholarship (for SBS faculty only)** |
| **Principal Investigator/Supervisor: Wu Bin** |
| **Co-supervisor/ Collaborator(s) (if any): NA** |
| **Project Description**  **a) Background:** Noddosome complexes, composed of innate immune receptors, NOD1 or NOD2, and its downstream adaptor protein, RIP2 (also known as RIPK2, RICK, etc), are well known for their roles in various pathological conditions. High resolution atomic structures of the NOD1/2-RIP2 complex would help elucidate Noddosome’s signaling and regulatory mechanism. Based on a few Noddosome related complex structures we recently resolved, we identified a surprisingly non-canonical architecture of the Noddosome complexes, a stark contrast to all the previous predictions. Thus, we propose to further investigate these Noddosome complexes, gathering more biochemical and cellular support of our findings. A detailed and validated molecular model of Noddosome complex would provide the critical functional insights about these signaling complexes, paving ways to new methods to manage autoimmune diseases that are related to NOD1/NOD2 receptors.  **b) Proposed work:**  To expand the structural analysis to full length NOD1/2 complexes.  **c) Preferred skills: Biochemistry and mathematics.** |
| **Supervisor contact:**  **If you have questions regarding this project, please email the Principal Investigator:**  **wubin@ntu.edu.sg** |
| **SBS contact and how to apply:**  Associate Chair-Biological Sciences (Graduate Studies) : [AC-SBS-GS@ntu.edu.sg](mailto:AC-SBS-GS@ntu.edu.sg)  Please apply at the following:  **Application portal:** <https://venus.wis.ntu.edu.sg/GOAL/OnlineApplicationModule/frmOnlineApplication.ASPX> |