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| **Research Theme: p53 and Cancer biology/Computational biology** |
| **MSc Research Project Title:**  **Understanding p53 mutants through structural biology – a computational approach** |
| **Principal Investigator/Supervisor: Prof Kanaga Sabapathy** |
| **Co-supervisor/ Collaborator(s) (if any): Prof Chandra Verma** |
| **Project Description**  **a) Background:**  p53 is the most mutated tumor suppressor gene found in human cancers. Besides losing the tumor suppressor properties, many p53 mutants acquire gain-of-novel oncogenic functions (GOF) that drive tumorigenesis. The basis of the acquisition of mutant p53 GOF is still poorly understood. Understanding the basis of the GOF functions acquisition will allow for the development of novel drugs to target the various p53 mutant’s oncogenic properties.  **b) Proposed work:**  To start exploring the basis of GOF, this proposed work will be based on the hypothesis that the degree of GOF seen across a spectrum of p53 mutants would be a function of the conformational changes seen in the p53 mutants. To test this hypothesis, this project aims to primarily utilize computational modeling methods, including the alphafold and other associated programs, to decipher the structural perturbations seen in the various p53 mutants, so as to classify them based on the degree of the alterations. This analysis will provide the basis for future experimental evaluation of the conformational changes, and how they can be targeted for therapeutic efficacy.    This project involves primarily computational methods, at the beginning, and molecular and cellular biology techniques and biochemistry techniques.  Candidates keen on exploring novel frontiers in protein structure and function and the impact on diseases such as cancers are welcomed to apply.    **c) Preferred skills:**  Preferred: Some programming and coding experience, and exposure to computational methods are preferred, although not essential. |
| **Supervisor contact:**  **If you have questions regarding this project, please email the Principal Investigator:**  [**kanaga.sabapathy@ntu.edu.sg**](mailto:kanaga.sabapathy@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> |