Project Title: Role of gut microbiome in epilepsy associated depression

Supervisory team: Dr. Mohd. Farooq Shaikh & Dr. Vinod Balasubramaniam

Project Description:

Epilepsy is a neurological disorder affecting 65 million people around the globe. The comorbidity link between epilepsy and depression is quite well known as a majority of epileptic patients undergo depression, but the pathological link remains unclear. In recent years, the role of gut microbiota has been explored in various neurological and non-neurological disorders. Similarly, there are reports on the role of gut microbiota in epilepsy as well as in depression, independently. To date, there is no research and report on the role of gut microbiota in epilepsy-associated depression. Thus, this project will bring therapeutic research one step closer towards helping epileptic patients with depression, who have a greater reduction in quality of life compared to patients with only depression or epilepsy disorder, and who often are unresponsive towards commonly prescribed anti-depressants and anti-epileptics. This project will hopefully be able to elucidate the importance of the gut microbiota/microbiome in treating epileptic patients with depression using alternative treatment strategies such as probiotics, thereby improving their quality of life efficiently. This project will also fund future studies in determining the anti-depressant or anti-epileptic impact on the gut microbiota that may shed light on their ineffectiveness in patients. Finally, this project may also open a new avenue for treating disease-related depression.

Required skills (preferably not necessary):

1. Biomedical Sciences/Pharmacology/Neuroscience or other equivalent Hons or Master's degree
2. Experience on experimental pharmacology, animal handling techniques
3. Strong writing and analytical skills

Reference:

Shaikh, M. F., Lee, C. Y., Chen, W. N., & Shaikh, F. A. (2020). The Gut-Brain-Axis on the Manifestation of Depressive Symptoms in Epilepsy: An Evidence-Driven Hypothesis. Frontiers in pharmacology, 11, 465. https://doi.org/10.3389/fphar.2020.00465