

Seminar

Targeting the piriform cortex as therapeutic treatment for epilepsy

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Date: 19 March 2019 (Tuesday)
Time: 12:00 nn – 1:30 pm (Reception with light sandwiches at 11:55am, talks start at 12nn. To facilitate the order of sandwiches, please register through email chchung33@cityu.edu.hk.)
Venue: G5314, Yeung Kin Man Acad. Bldg., City University of Hong Kong (Please note the new location)

Abstract

Epilepsy is a neurological disorder that affects the global population and is characterized by recurrent seizures. Temporal lobe epilepsy (TLE) is the most common type of seizure which neural activity can spread across to other brain regions. TLE is generally thought to involve structures in the limbic system such as hippocampus, amygdala and the piriform cortex. The anterior piriform cortex (APC) is the largest primary cortical area receiving direct input from the olfactory bulb and is critical for odor learning and recognition. The APC is epileptogenic due to its recurrent connections with the endopiriform nucleus, which has one of the lowest seizure thresholds in the brain. To investigate the role of APC in epileptogenesis, we manipulated neuronal activity in APC using viruses that express DREADDs (Designer Receptors Exclusively Activated by Designer Drugs) via stereotaxic injection. We focused on manipulating excitatory and inhibitory balance in the APC by controlling the activity of parvalbumin (PV) interneurons via chemogenetic technology. Our preliminary results revealed that manipulation of activity in APC can be an effective method for treating epileptic seizures that are otherwise intractable.

Besides research presentation, there will be discussions on research collaborations for major grants.