

## **DEPARTMENT OF PHARMACOLOGY**

### **Seminar Series**

*Presents*

### **“Pathways and mechanisms involved in intranasal drug delivery to the brain”**

*By*

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Adequate delivery of therapeutics to the central nervous system (CNS) is challenging due to the presence of the blood-brain and blood-cerebrospinal fluid barriers. The intranasal route of administration has been proposed as a drug delivery method which may potentially bypass these brain barriers and non-invasively target therapeutics to the CNS. The pathways and mechanisms involved in transporting substances from the nasal cavity to the CNS, however, are not well understood. Recent experiments with fluorescently labeled tracers suggest that macromolecules are able to enter the brain from the nasal lamina propria along perivascular and perineural spaces of the olfactory and trigeminal nerves. Upon brain entry, macromolecules are able to rapidly achieve widespread distribution throughout the brain by bulk flow within cerebral perivascular spaces. The use of absorption enhancers may lead to significantly higher levels of potential therapeutics to the CNS administered through the intranasal route. A better understanding of the mechanisms governing delivery of intranasally administered molecules to the CNS, as well as limitations of this route of administration, may lead to methods which increase delivery of therapeutics to the CNS that do not readily cross the restrictive brain barriers.

**Wednesday, August 24, 2016**

**1:00 pm – 2:00 pm**

**Room LSN 652**