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Abstract

Clinical Data In Chemical Biology

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Abstract:
CNS drug discovery has many challenges and has the poorest successful rates compared with other therapeutic area. Intranasal delivery is one of the current strategies for brain drug discovery. Blood–brain barrier (BBB) and the blood–cerebrospinal fluid (CSF) barrier (BCSFB) are innate special protective barrier of central nervous system, of which is essential in brain targeted research. This presentation summarizes the related researches on brain drug delivery and focus on the intranasal administration. Discoveries about animal models for intranasal administration and drugs that using intranasal delivery system has been summarized in this presentation. Statistical analysis was used to collect data of physicochemical properties of CNS drugs and non-CNS drugs in order to find rules for developing and selecting optimal CNS agents. The physicochemical data was collected from literate review and publish researches. The conclusion was generated that CNS drugs have greater lipophilicity, fewer hydrogen bond donors, fewer positive charges, lower polar surface area, and reduced flexibility compared to the non-CNS drugs. In order to find optimal animal models intranasal administration, the nasal anatomy was discussed and characteristics of nasal cavity of different species was compared. Finally, market analysis was performed to investigate the market share, revenues of CNS drugs using intranasal administration. The result suggesting promising revenues and huge potential of intranasal administration method for brain drug delivery.

Biography:
Wen Wang has her research experience in neuroscience and pharmacology in improving the health and wellbeing. She has performed many neuroscience researches including constructed mouse brain slice cortical spreading depression (CSD) model for signaling pharmacology. She has been supervised by Dr Thomas Butts to investigate the BMP signaling in the external granule layer of developing cerebellum of chick embryo using in ovo electroporation. She has completed her mater in Drug discovery and Pharma management in UCL, and right now works in PPD as a clinical data associate. She is right now getting more involved in clinical trials and clinical data analysis.

Publication of speakers:

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2. Lu, C. T., Zhao, Y. Z., Wong, H. L., Cai, J., Peng, L., & Tian, X. Q. (2014). Current approaches to enhance CNS delivery of drugs across the brain barriers. International journal of nanomedicine, 9, 2241.
3. Musumeci, T., Bonaccorso, A. & Puglisi, G. (2019) Epilepsy disease and nose-to-brain delivery of polymeric nanoparticles: An overview. Pharmaceutics, 11(3), 118.
4. Rhea, E. M., & Banks, W. A. (2019). Role of the blood-brain barrier in central nervous system insulin resistance. Frontiers in neuroscience, 13, 521.
5. Shiraishi, K., Wang, Z., Kokuryo D. et al. (2017) A polymeric micelle magnetic resonance imaging (MRI) contrast agent reveals blood-brain barrier (BBB) permeability for macromolecules in cerebral ischemia-reperfusion injury. J Control Release, 253:165–71.

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