Seminar

Department of Biomedical Engineering
香港城市大學
City University of Hong Kong

Noninvasive Gut-to-Brain Oral Delivery Systems

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Time: 1:30-2:15pm
Venue: LT-4, YEUNG

Abstract

The communication between the gut and the brain, via the immune system, nervous system, or hormones, plays an important role in manipulating body functions. Thus, the gut may be a target, via the oral treatment, for new therapies of many diseases. Herein, we propose two noninvasive gut-to-brain oral drug delivery strategies, one through the mucosal immune system and the other via the nervous system, as new approaches for treating gliomas as well as obesity and obesity-induced metabolic disorders, respectively. The as-proposed gut-to-brain oral drug delivery systems may support novel avenues for treating other diseases, including meningitis, various cancers, sepsis, and Parkinson's diseases—cures for all of which remain to be identified.

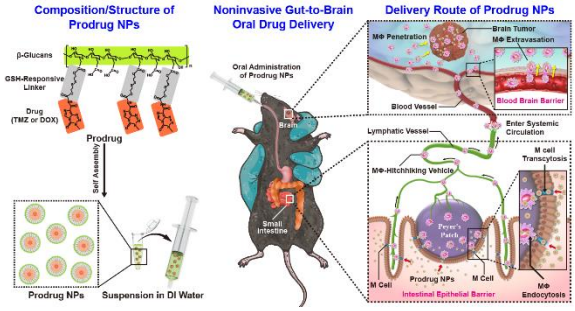

Figure 1. A noninvasive gut-to-brain oral drug delivery system and its working mechanism.

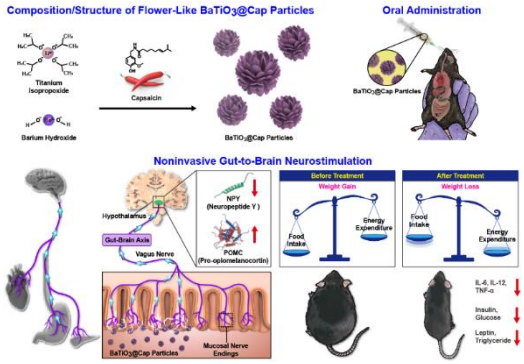

Figure 2: A noninvasive gut-to-brain neurostimulation system and its operating mechanism.

Biography

Hsing-Wen Sung is a Tsing Hua Distinguished Chair Professor, Department of Chemical Engineering, National Tsing Hua University. He received his PhD degree from the Department of Chemical Engineering/Biomedical Engineering Program, Georgia Institute of Technology in 1988. His research interests are biomaterials, tissue engineering, and drug/gene delivery. Professor Sung has received

numerous awards such as Fellow of American Institute for Medical and Biological Engineering, Fellow of International Union of Societies for Biomaterials Science and Engineering, Academician of Asia Pacific Academy of Materials, Ho Chin Tui Outstanding Research Award, National Science Council Outstanding Research Award, Professor Tsai-The Lai Award, Elsevier 2015 Biomaterials Best Paper Award, and 2016 TERMIS-AP Outstanding Scientist Award. He has been on the Editorial Boards of Journal of Controlled Release, Advanced Healthcare Materials and Advanced Materials; also, he has been serving as a Handling Editor for Biomaterials. Professor Sung has published 294 scientific papers and received 136 international patents. His published papers have over 31,861 citations with an h-index of approximately 98, according to Google Scholar.