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Microbial Synthetic Biology using Neuroimaging Techniques

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Description

One of the most prevalent methods for manipulating gene expression in biological systems is chemical induction. Chemical induction, on the other hand, can be hazardous or costly, posing a financial barrier to industrial-scale synthetic biology applications. These issues have prompted the development of superior induction systems. The optogenetics technology may be a viable option since it allows for dynamic control with unparalleled spatiotemporal accuracy while also being less costly and environmentally friendly. Natural light-sensing modules that are genetically encoded and reprogrammable in multiple hosts are used in the optogenetic approach. Gene expression and protein activity may be carefully regulated using light irradiation if these modules are further engineered to interface with the microbial regulatory machinery.

Recent research on the use of optogenetics in microbial synthetic biology has achieved impressive results. More optogenetic instruments with higher mobility and compatibility with various microbial hosts are needed to increase the usefulness of optogenetics even more. This study focuses on non-opsin optogenetic systems and the present status of optogenetic breakthroughs in microorganisms, highlighting the many designs and functionalities of optogenetic tools, as well as an overview of optogenetic methodologies used to overcome synthetic biology obstacles. 20% of patients had the full triad of headache, fever, and localised neurological impairment. Before starting any antimicrobials, brain imaging with contrast—preferably magnetic resonance imaging—is the gold standard for diagnosis, and it should be followed by stereotactic aspiration of at least one lesion. For accurate microbiological documentation, efforts should be undertaken to optimise the handling of brain abscess samples. Oral streptococci (including the milleri group), methicillin-susceptible staphylococci, anaerobes, and Enterobacteriaceae should all be treated empirically. Because brain abscesses are often polymicrobial, de-escalation based on microbiological data is only safe when aspiration samples have been properly processed or when the main diagnosis is endocarditis. The field of neurotheranostics was founded in order to better the diagnosis and treatment of neurological illnesses. The development of pharmacologically effective multimodal pharmaceutical formulations aided research significantly. Neurotheranostic drugs might alter staging and enhance treatment results for nervous system diseases. However, there are still issues with formulation design, medication loading, and payload delivery. Multidisciplinary fundamental research and clinical teams with pharmacology, nanotechnology, neurology, and pharmaceutic skills will undoubtedly benefit these efforts. The ultimate product, if successful, will be "optimal" therapeutic delivery platforms. Until recently, the typical strategy to addressing medical problems was to make a diagnosis first, then prescribe a treatment. Medical research has generally concentrated on describing disorders, followed by creating a therapeutic drug that is successful in treating disease, in accordance with this method. However, it is obvious that this two-pronged approach is not always helpful in combating the most deadly illnesses. Clinical appearance and underlying pathophysiology are frequently different. As a result, many of the so-called best therapies are only effective in select afflicted subpopulations. Furthermore, illness development is complicated, making it challenging to find therapies that are effective at all phases of the disease. Indeed, the more we learn about complicated illnesses like cancer and the human immunodeficiency virus, the better [1-5].

Conflict of Interest

None.

References

1. Yarnes, Shawn C., Hamid Ashrafi, Sebastian Reyes-Chin-Wo and Theresa A. Hill, et al. "Identifcation of qtls for capsaicinoids, fruit quality, and plant architecture-related traits in an interspecifc Capsicum RIL population." *Genome* 56 (2012): 61-74.
2. Chaim, Arnon Ben, Yelena Borovsky, GU Rao and Bahattin Tanyolac. "fs3. 1: A major fruit shape QTL conserved in Capsicum." *Genome* 46(2003):1-9.
3. Rodríguez, Gustavo R., Stéphane Muños, Claire Anderson and Sung-Chur Sim, et al. "Distribution of SUN, OVATE, LC, and FAS in the Tomato Germplasm and the Relationship to Fruit Shape Diversity." *Plant Physiol* 156 (2011): 275-285.
4. Brewer, Marin Talbot, Lixin Lang, Kikuo Fujimura and Nancy Dujmovic, et al. "Development of a controlled vocabulary and sofware application to analyze fruit shape variation in tomato and other plant species." *Plant Physiol* 141 (2006):15-25.
5. Han, Koeun, Hee-Jin Jeong, Hee-Bum Yang and Sung-Min Kang, et al. "An ultra-high-density bin map facilitates high-throughput qtl mapping of horticultural traits in pepper *(Capsicum annuum)*." *DNA Res* 23 (2016): 81-91.

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