Special Issue

Drug Delivery to Brain Tumors

Message from the Guest Editors

Clinical outcomes following treatment of primary malignant brain tumors are far from satisfactory. One of the main obstacles to the development of effective therapies is failure to achieve therapeutically relevant concentrations in the CNS due to the presence of blood-brain and/or blood-brain-tumor barriers. Some of the approaches explored to address this challenge include blood-brain barrier disruption and drug modifications to enhance CNS permeability; unfortunately, neither approach has proven successful. Another approach is to deliver therapeutics locoregionally, directly into the tumor mass and surrounding tumor-infiltrated brain parenchyma. The most widely used method for direct brain delivery is convection-enhanced delivery (CED), whereby specially designed catheters are introduced into target tissue and the infusate is delivered slowly over a prolonged period of time. CED enables delivery of conventional, nano-, bio-, gene, and even cellular therapies. This Special Issue provides a highlight of the most recent progress made to improve the efficacy of therapeutics delivered directly to brain tumors.

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