Braizon Therapeutics announces innovative drug delivery solutions that cross the blood-brain barrier to treat central nervous systems diseases

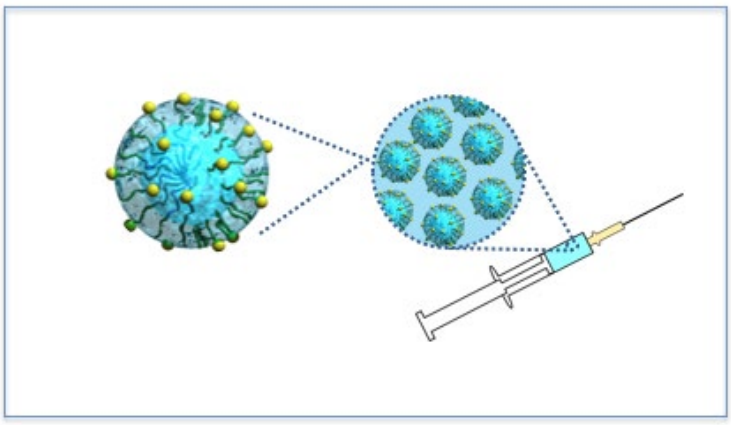
Established in 2015, Braizon Therapeutics, Inc. is a leader in innovative approaches to overcome the "blood-brain barrier" (BBB) to deliver appropriate concentrations of therapeutic drugs into the brain for the treatment of neurodegenerative diseases, chronic pain, and orphan diseases.

Braizon has announced preliminary results of their latest research on the 2nd generation of drug delivery systems into the brain known as "Brain Access®". This DDS consists of polymer micelles as delivery vehicle, transferrin receptor targeting as the route through the BBB, and an antisense oligonucleotide (ASO) delivery platform.

ASOs have several advantageous properties including a reversible mechanism of action, 14 times more therapeutic targeting options than siRNA, and extensive reference data because many clinical trials and projects being undertaken worldwide. There are, however, still challenges for applications in neurology. Currently, ASOs are delivered to the brain via intrathecal injection, which puts a heavy burden on patients during treatment. More research on conjugation technology, an expensive option because the ratio of drug to DDS ligand is 1:1, is required for development.

Braizon researchers have devised solutions to these problems with the development of Brain Access® which offers a high delivery rate, brain-specific targeting, delivery to the brain parenchyma, effective drug release, and reasonable CMC costs.

Figure of Our Brain Access®



Micelle formulation containing drug is administered intravenously.

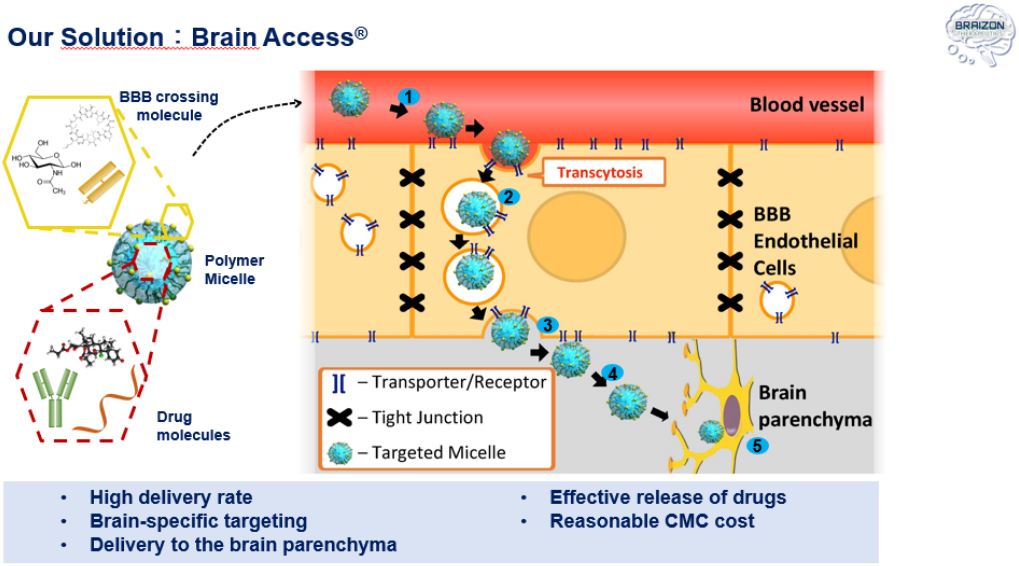
Initial experimental results

Time-course trials of brain concentration of anti-TfR Fab'-installed micelles showed that these model vehicles reached maximum concentration at 24 hours post-dose (I.V.) at ~3% injected dose/g brain, and remained almost constant until 72 hours after injection.

Case study: A time-course of test drug A concentration in brain after intravenous injection of drug A formulated within anti-TfR Fab'-installed micelles — a demonstrative application of brain targeted DDS with anti-TfR ligand-installed polymeric micelle delivery vehicles.

The area under the curve of the total drug A concentration in brain versus time after intravenous injection of the micelle formulation was 1,300-fold higher than that of drug A without the formulation at the same dose. Notably, unbound drug A was not observed in plasma, suggesting that the TfR-Fab' conjugated micelle entered into the brain microvascular endothelial cells (BBB) or brain parenchyma as a micelle through TfR mediated transcytosis after avoiding elimination and/or metabolic degradation.

Braizon is pursuing additional partnerships to commercialize this technology as well as an initial public offering (IPO) in 2025.



A ligand can be easily attached to a micelle containing a drug to cross the blood-brain barrier (BBB).

Further information

Braizon Therapeutics, Inc.

https://braizon.com/en/

KING SKYFRONT Feature video Vol.17, November 2019

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https://tonomachi-ksf.kawasaki-net.ne.jp/envideo_feature/envol-17-feature01/

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