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Polymeric Cyclodextrin Carriers as NPC Therapeutics

Novel, long-circulating, nontoxic, and biodegradable molecules are designed to significantly improve the effectiveness of experimental Niemann-Pick disease type C treatments and serve as carriers for DOTA:Gd MRI imaging agents.

At this time, there is no treatment on the market for Niemann-Pick disease type C (NPC), although a possible cure is currently undergoing clinical trials for FDA approval. This treatment shows promise, but will require multiple, prolonged, high dose infusions due to its poor pharmacokinetics.

Researchers at Purdue University have synthesized molecules that show promise in improving the efficacy of the experimental treatment for NPC. These molecules may also be used as carriers for the MRI imaging agent complex DOTA:Gd. Importantly for their effective function as carriers, this class of molecules will have a long circulation time in the blood and will be nontoxic and biodegradable.

Advantages:

-Improved efficiency for experimental treatment of Niemann-Pick disease type C

-Useful as a carrier for DOTA:Gd MRI imaging agent

-Long circulation time in blood, nontoxic, and biodegradable

TRL: 3

Intellectual Property:

Provisional-Patent, 2013-05-07, United States | DIV-Patent, 2014-05-07, European Patent | PCT-Patent, 2014-05-07, WO | NATL-Patent, 2015-11-06, United States | NATL-Patent, 2015-11-06, Canada | EP-Patent, 2015-11-11, Switzerland | EP-Patent, 2015-11-11, Italy | EP-Patent, 2015-11-11, United Kingdom | EP-Patent, 2015-11-11, Germany | EP-Patent, 2015-11-11, Belgium | EP-Patent, 2015-11-11, France | EP-Patent, 2015-11-11,

Technology ID
2013-THOM-66383

Category
Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation
Pharmaceuticals/Drug Delivery & Formulations

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View online

Netherlands | NATL-Patent, 2015-11-11, Europe | CON-Patent, 2018-05-14, United States | CON-Gov. Funding, 2020-06-15, United States

Keywords: Niemann-Pick disease type C treatment, NPC experimental therapy, MRI imaging agent carrier, DOTA:Gd delivery, drug carrier molecules, biodegradable nontoxic carriers, long circulation time compounds, improved drug efficacy, lysosomal storage disease treatment, pharmacokinetics improvement

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