

# Research spinoff ReXceptor gets license for Alzheimer's treatment

April 25 2013

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Case Western Reserve's Technology Transfer Office has granted an exclusive license of a novel Alzheimer's Disease (AD) treatment strategy to spinoff company ReXceptor Inc., which plans to initiate early-stage human clinical trials of the medication within the next few months.

Gary Landreth, PhD, the Riuko and Archie G. Co Professor of Neurosciences, and his then-graduate student, Paige Cramer, PhD, co-founded ReXceptor after discovering that bexarotene (a medication trademarked as Targretin) reversed AD symptoms in mice within 72 hours of a single dose of treatment. Published last year in the journal *Science*, their results drew international interest, including stories in the [Wall Street Journal](#) and on [CNN](#).

The U.S. [Food and Drug Administration](#) originally approved bexarotene for the treatment of cutaneous T-cell lymphomas—a form of [skin cancer](#)—in 1999. But Landreth, director of the medical school's Alzheimer's Research Laboratory, Cramer and their colleagues found that the medication significantly clears amyloid beta, a protein implicated in the development of Alzheimer's disease when it accumulates in the brain.

The researchers demonstrated that a dose of bexarotene (a retinoid X receptor (RXR) agonist) clears amyloid beta build-up by 25 percent within six hours, an effect that lasted for up to three days. Cognitively impaired mice resumed normal behaviors (demonstrating a restored sense of smell and instinctive interest in nest-building) within 72 hours of receiving the drug.

More than 5.4 million Americans suffer from Alzheimer's disease today, and that figure is expected to more than triple by the year 2050.

Translating Case Western Reserve's groundbreaking research into a treatment available for patients is a complex process, but the researchers have great hope for the promise of their approach.

The first stage of testing will involve healthy volunteers, explained Michael Haag, the university's interim director of technology management and the [chief executive officer](#) for ReXceptor. Essentially, the researchers hope to prove that the medication acts on amyloid beta in the human brain in a manner similar to the one observed in animal studies. In lay terms, bexarotene functions as a kind of chaperone that escorts the problematic protein out of the cerebral area.

"This is an important proof-of-mechanism study that is a prerequisite for subsequent clinical evaluation of this drug in Alzheimer's patients," Landreth explained.

To date ReXceptor has secured \$1.4 million to advance its work. This support includes a landmark collaboration between the Alzheimer's Drug Discovery Foundation and the BrightFocus Foundation to fund early-stage research. The arrangement includes The Charles Evans Foundation/Alzheimer's Drug Discovery Award to ReXceptor of \$500,000 and a \$250,000 contribution from BrightFocus to the collaboration with ADDF. The company also received two anonymous investments totaling \$450,000, and \$200,000 from Case Western Reserve.

This new funding has allowed ReXceptor to enter into a formal partnership with C2N Diagnostics, which will assist the company with the initiation and coordination of the clinical trial. C2N Diagnostics will provide its proprietary stable isotope labeling (SILK) platform to measure the metabolism of both brain-derived amyloid beta and

apolipoprotein E in the human clinical study.

Haag credited the university's Office of Research and Technology Management, along with the medical school's chief translational officers and Council to Advance Human Health, with providing critical guidance and support in bringing the company to this stage.

Provided by Case Western Reserve University

Citation: Research spinoff ReXceptor gets license for Alzheimer's treatment (2013, April 25) retrieved 4 September 2024 from <https://medicalxpress.com/news/2013-04-spinoff-rexceptor-alzheimer-treatment.html>

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