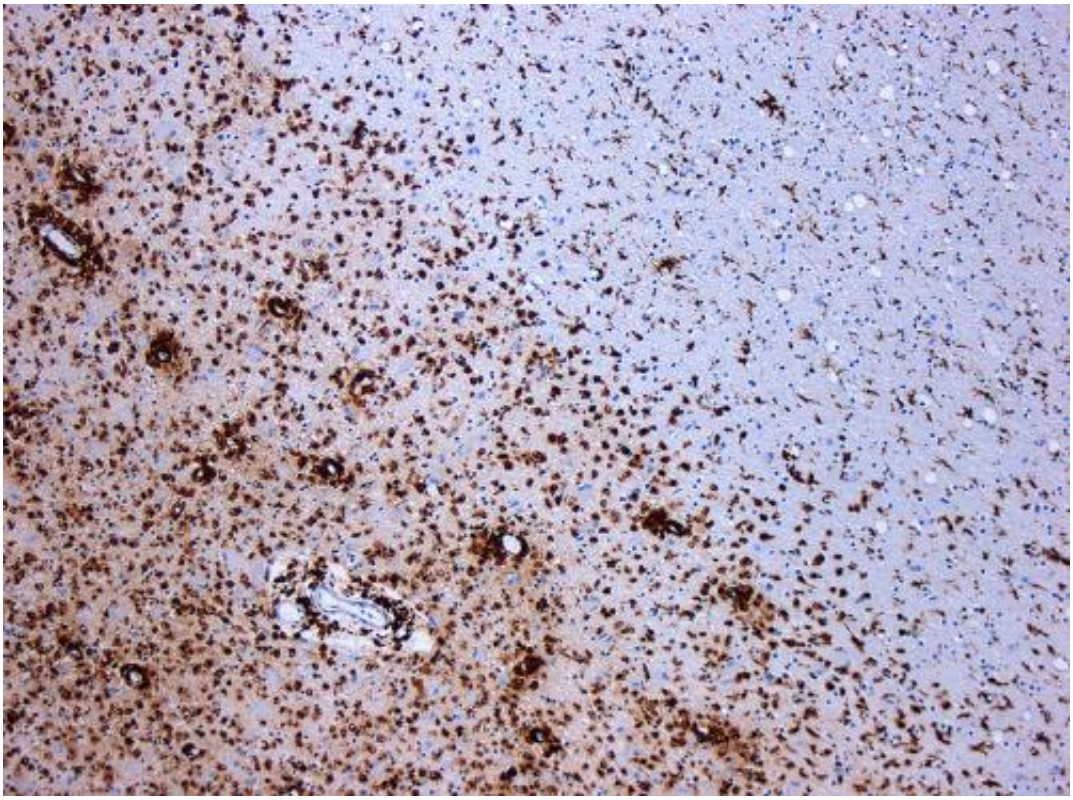
Ozanimod successful in clinical trials for multiple sclerosis

November 10 2017



Demyelination by MS. The CD68 colored tissue shows several macrophages in the area of the lesion. Original scale 1:100. Credit: CC BY-SA 3.0 Marvin 101/Wikipedia

Celgene Corporation recently announced results from two phase 3 trials evaluating the efficacy and safety of the drug ozanimod. Ozanimod was invented by scientists at The Scripps Research Institute (TSRI).

Ozanimod is a novel, oral, selective sphingosine 1-phosphate 1 (S1PR1) and 5 (S1PR5) receptor modulator, and was compared to the first-line treatment, Avonex (interferon beta-1a) (IFN), in patients with relapsing multiple sclerosis (RMS). The findings from the two pivotal phase 3 (SUNBEAM and RADIANCE Part B) trials pave the way for ozanimod to enter the New Drug Approval process with the U.S. Food and Drug Administration (FDA).

RMS is the most common type of multiple sclerosis. Treating inflammation in RMS patients is key to reducing their disease relapses—or "flare ups." Ozanimod blocks sources of inflammation in RMS by acting as a sphingosine 1-phosphate 1 (S1PR1) receptor agonist.

The RADIANCE Part B study evaluated two doses (1 mg and 0.5 mg) of oral ozanimod compared with IFN in 1,320 patients with RMS in 21 countries treated for two years. The SUNBEAM study evaluated two doses (1 mg and 0.5 mg) of oral ozanimod in 1,346 patients with RMS in 20 countries treated for at least one year.

Ozanimod demonstrated a significant reduction in new or enlarging T2 lesions over one year for 1 mg (48 percent, p

"Ozanimod's ability to inhibit brain atrophy promises patients a long and productive life, living with relapsing, remitting multiple sclerosis without disability," said TSRI Professor of Molecular Medicine Hugh Rosen, Ph.D., M.D., co-inventor of ozanimod. "This is truly disease-modifying."

The design and development of ozanimod stems from basic research pursued in the TSRI laboratories of Rosen, Professor Edward Roberts, Ph.D., and Professor Michael B.A. Oldstone, M.D. The TSRI scientists discovered the fundamental mechanism of the S1PR1 receptor, developed the chemical tools to synthesize both agonists and antagonists of the receptor, discovered the role of the receptor in the immune

system's "cytokine storm" in pandemic influenza, and investigated the role of the receptor in type 1 diabetes.

TSRI owns several composition-of-matter patents that cover S1P agonist compounds including key patents that cover ozanimod. TSRI licensed these patents to Receptos, which was bought by Celgene in 2015. Celgene has announced that it expects to launch the compound by the end of 2018, following FDA approval.

The new data from Celgene also make ozanimod the first compound originating from the National Institutes of Health's (NIH) Molecular Library Initiative to successfully complete phase 3 clinical trials for safety and efficacy with data to support an FDA new drug application.

"The success of ozanimod shows that academia and the NIH can make transforming discoveries that benefit patients and those that care for them," said Rosen.

Ozanimod is also being studied by Celgene for treating forms of inflammatory bowel disease. The drug is currently in phase 3 trials for ulcerative colitis, and Celgene recently released promising phase 2 data in a trial for Crohn's disease. A phase 3 trial to test ozanimod in Crohn's disease patients is expected to begin in early 2018. Celgene next plans to test potential uses for other autoimmune -based dermatological and rheumatological indications.

Provided by The Scripps Research Institute