Novel Estrogen Receptor ß (ERß) Drugs for the Treatment of Multiple Sclerosis (MS)

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BACKGROUND

Multiple sclerosis (MS) is an autoimmune, demyelinating, and neurodegenerative disease of the central nervous system (CNS) with no known cause or cure. Currently available therapeutic agents approved for the treatment of multiple sclerosis (MS) reduce relapse rates, but do not reverse or prevent neurodegeneration nor initiate myelin repair. There is thus a great need for effective therapies against MS.

BRIEF DESCRIPTION

Prof. Seema K. Tiwari-Woodruff from the University of California, Riverside, Prof. John Katzellenbogen and colleagues from the University of Illinois have developed novel estrogen receptor β (ERβ) drugs for the treatment of MS. These novel MS drugs are specific for ERβ and have tremendous potential for the treatment of MS as well as other neurodegenerative diseases. In general, estrogens have anti-inflammatory and neuroprotective activities and clinically reduce the severity of MS and other neurodegenerative diseases. The compounds are more superior to other estrogenic drugs due to their specificity for ERβ and lack of undesirable effects such as feminization and increased risk of cancer.

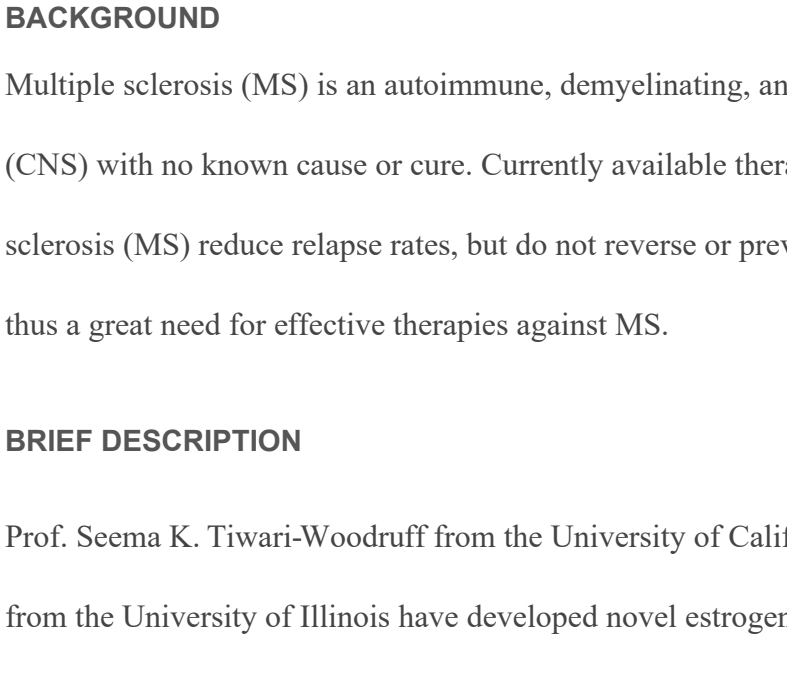

Fig 1: Therapeutic treatment with the UCR ERβ ligands began at peak disease (day 17) and was continued daily till day 36. ERβ ligands (blue, and orange) significantly attenuated clinical disease severity compared to vehicle treatment (red).

APPLICATIONS

- For the treatment of Multiple Sclerosis (MS) and other neurodegenerative diseases without undesirable side effects such as feminization and increased risk of cancer.

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OTHER INFORMATION

KEYWORDS

estrogen receptor ß,

neurodegenerative diseases, ERß,

multiple sclerosis

CATEGORIZED AS

- **Medical**
  - Disease: Autoimmune and Inflammation
  - Disease: Central Nervous System
  - Therapeutics

RELATED CASES

2018-285-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,286,407	04/29/2025	2018-285
United States Of America	Issued Patent	11,673,866	06/13/2023	2018-285

Additional Patent Pending

RELATED MATERIALS

- Karim, H., Kim, S.H., Lauderdale, K. et al. Analogues of ERß ligand chloroindazole exert immunomodulatory and remyelinating effects in a mouse model of multiple sclerosis. Sci Rep 9, 503 (2019). https://doi.org/10.1038/s41598-018-37420-x - 01/24/2019

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