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Clomipramine as a Therapeutic for Multiple Sclerosis

TECH ID #: 628.17

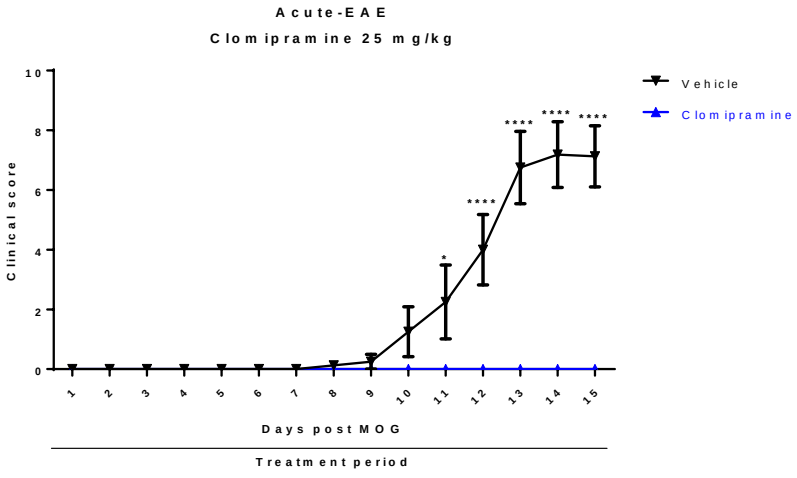
Background

Dr. Wee Yong and collaborators at the University of Calgary have identified the tricyclic antidepressant clomipramine as a potential therapeutic for MS.

Clomipramine was identified in a screen as being able to cross the blood-brain barrier, mitigate iron- and rotenone induced toxicity of neuronal cultures, act as an anti-oxidant, and reduce T- and B-cell proliferation.

Based on these *in vitro* results, clomipramine was tested in a mouse model of MS, experimental autoimmune encephalomyelitis (EAE). Amazingly, **clomipramine was able to completely suppress clinical signs of MS in treated mice** (Figure).

Figure: Mice were treated with clomipramine intraperitoneal (IP) (25 mg/kg) or PBS (vehicle) from the day of induction of myelin oligodendrocyte glycoprotein (MOG) EAE (day 0). From day 11 the clinical course differed significantly ($p<0.05$); while vehicle-treated mice accumulated progressive disability, clomipramine treated mice remained unaffected even up to the termination of the experiment when vehicle-treated mice were at peak clinical severity (paralysis or paresis of tail and hind limb functions, and paresis of forelimbs).



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Competitive Advantages

- Completely suppresses clinical symptoms *in vivo* during periods studied
- FDA approved generic compound
- Doses similar to prescriptions for other indications
- Orally available

Stage of Development

- Ongoing *in vivo* and *in vitro* experiments
- Seeking support to initiate clinical trial

Intellectual Property Status

Provisional patent application

Publications

Under review