



CONTACT: ipm@innovatecalgary.com

## Treatment of Multiple Sclerosis Using a Combination of Approved Drugs

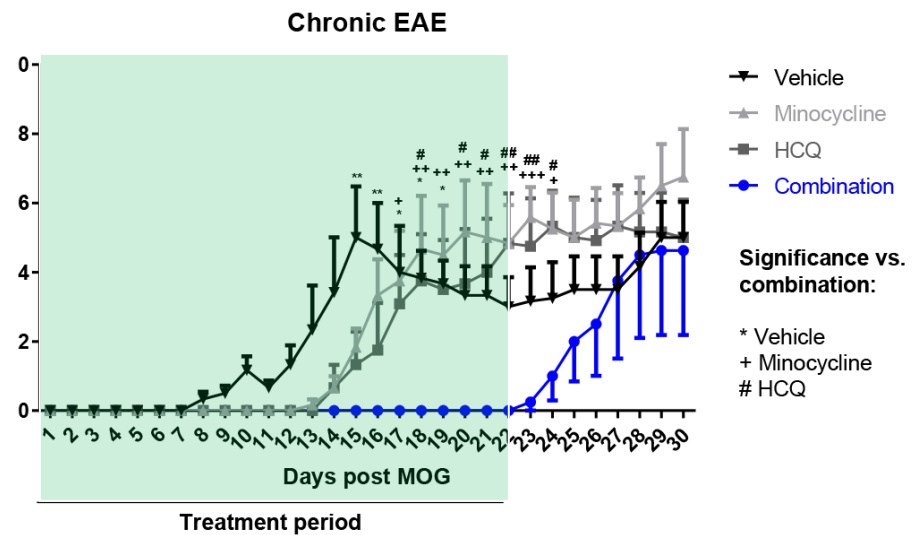
TECH ID #: 628.13

### Technology Summary

Dr. Wee Yong and collaborators at the University of Calgary have discovered that a combination of minocycline and hydroxychloroquine can prevent the onset of symptoms in an MS mouse model.

Minocycline is a broad-spectrum antibiotic prescribed to treat a variety of infections, and hydroxychloroquine is normally prescribed to treat or prevent malaria. Either of these drugs administered alone delay the onset of symptoms in a mouse model of MS, experimental autoimmune encephalomyelitis (EAE), by 5 days. Amazingly, when both drugs are administered in combination at sub-optimal doses, they are able to completely prevent the onset of clinical symptoms during the entire duration of treatment (22 days). When treatment was stopped after the 22<sup>nd</sup> day, the mice developed clinical symptoms (Figure).

**Figure:** Mice were treated with minocycline (25 mg/kg) or hydroxychloroquine (50 mg/kg) from the day of induction of myelin oligodendrocyte glycoprotein (MOG) EAE (day 0). Whereas minocycline or hydroxychloroquine delayed onset of clinical disease by 5 days, **the combination therapy suppressed EAE completely until day 22**. Significant changes in the post-hoc analysis against the combination group are presented as \* for the vehicle group, + for the minocycline group and # for the hydroxychloroquine group. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; \*\*\*\*p<0.0001.





TECH TO BUSINESS

## Competitive Advantages

- Completely suppresses clinical symptoms during periods studied
- Combination of approved pharmaceuticals
- Sub-optimal doses of each drug should prevent any side-effects
- Oral availability

## Stage of Development

- Extensive *in vitro* work completed to characterize the mechanism of action
- Ongoing *in vivo* experiments in mouse models
- Seeking support to initiate a clinical trial

## Intellectual Property Status

Provisional patent application

## Publications

Under review