BRAVECTO Research

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Chair, Wildlife Disease Association — Australasia

Contact welcome after 6th October

Document with more detailed information available from Scott after 6th Oct or from Jude (glk4@bigpond.com) before then

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Safety and pharmacokinetic trials

Two 90-day trials demonstrated Bravecto spot-on to be widely safe to administer to healthy wombats

Efficacy trials

What's next?

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In collaboration with Cedar Creek — two wombats treated so far, rapid recovery

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Field population trials in 2020
APVMA minor-use permit application

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Bravecto Research Update from Scott Carver — 30 August 2019

Scott Carver is researching how the Bravecto spot-on product for dogs and cats may be used to treat mange in wombats. The active ingredient in Bravecto is fluralaner.

Safety and Pharmacokinetic Trials

My lab at UTAS has conducted safety and pharmacokinetic trials on captive healthy wombats to assess whether Bravecto causes deleterious health impacts to wombats, and to determine the duration over which Bravecto can potentially protect wombats against *Sarcoptes scabiei*. It's important to run these trials on healthy wombats so that the results are not confounded by other factors such as ill health from mange.

Two safety and pharmacokinetic trials were undertaken, each over a 90-day period:

1. **Recommended dose trial** on five wombats using 25mg/kg fluralaner. This dose is the equivalent of 1 x 1.79ml tube of Bravecto spot-on per 10kg of wombat[1].
2. **Higher dose trial** on two wombats using 85mg/kg fluralaner.

[1] The 1.79ml tubes are currently sold as the Large Cat (>6.25 to 12.5kg) product or the Medium Dog (>10 to 20kg) product which are identical. In practice it will probably be easier to use the Large Dog (>20 to 40kg) product (1x3.57ml tube) for adult wombats weighing over 20kg.

Preliminary results:

- Both trials demonstrated Bravecto spot-on to be widely safe to administer to healthy wombats, based on a panel of haematology and blood biochemistry markers as well as assessment of changes in weight and behaviour.
- Both trials showed that circulating levels of fluralaner in blood were low but persisted across the trial period. This indicates that a single dose of Bravecto may protect wombats against mange for three months and possibly more. This result is preliminary and yet to be fully analysed. The low concentrations of fluralaner documented may be due to the lipophilic nature of the drug (i.e. it attaches itself to fatty tissue).

Efficacy Trials

Efficacy trials commenced in July 2019 in collaboration with Roz Holme at Cedar Creek Wombat Rescue and Hospital. These trials are on wombats with mange who are brought into captivity for treatment and monitoring so we can accurately and consistently monitor the effect of treatment and intervene if treatment is unsuccessful. So far two wombats have been treated once with 25mg/kg fluralaner. One wombat had early signs of mange and the other had moderate symptoms including moderate crusted scabs on the abdomen. No supplementary therapies (e.g. antibiotics) have been given; just routine nutrition and captive housing care.

Both wombats exhibited rapid recovery from mange-associated symptoms, losing crusted skin within a week and showing new fur growth within two weeks. After six weeks there are no signs of re-infection and both wombats appear to be doing very well. They will continue to be monitored and additional wombats will be enrolled in the trials. These results suggest that a single 25mg/kg dose of Bravecto may be sufficient to break the life-cycle of *S. scabiei* on the wombat.

Future Work

We have recently been awarded an Australian Research Council grant to fund this research for the next few years, including field population trials beginning in 2020 and the development of science-based guidelines for treatment in captive and field settings.

MSD Animal Health (the manufacturer of Bravecto) is looking to apply to the APVMA for a minor-use permit for Bravecto spot-on for wombats, and I will continue to communicate the outcomes of this.

Further Information

Scott is happy to discuss this research after 6th October 2019. He's overseas until mid-September and then running a conference into early October.