

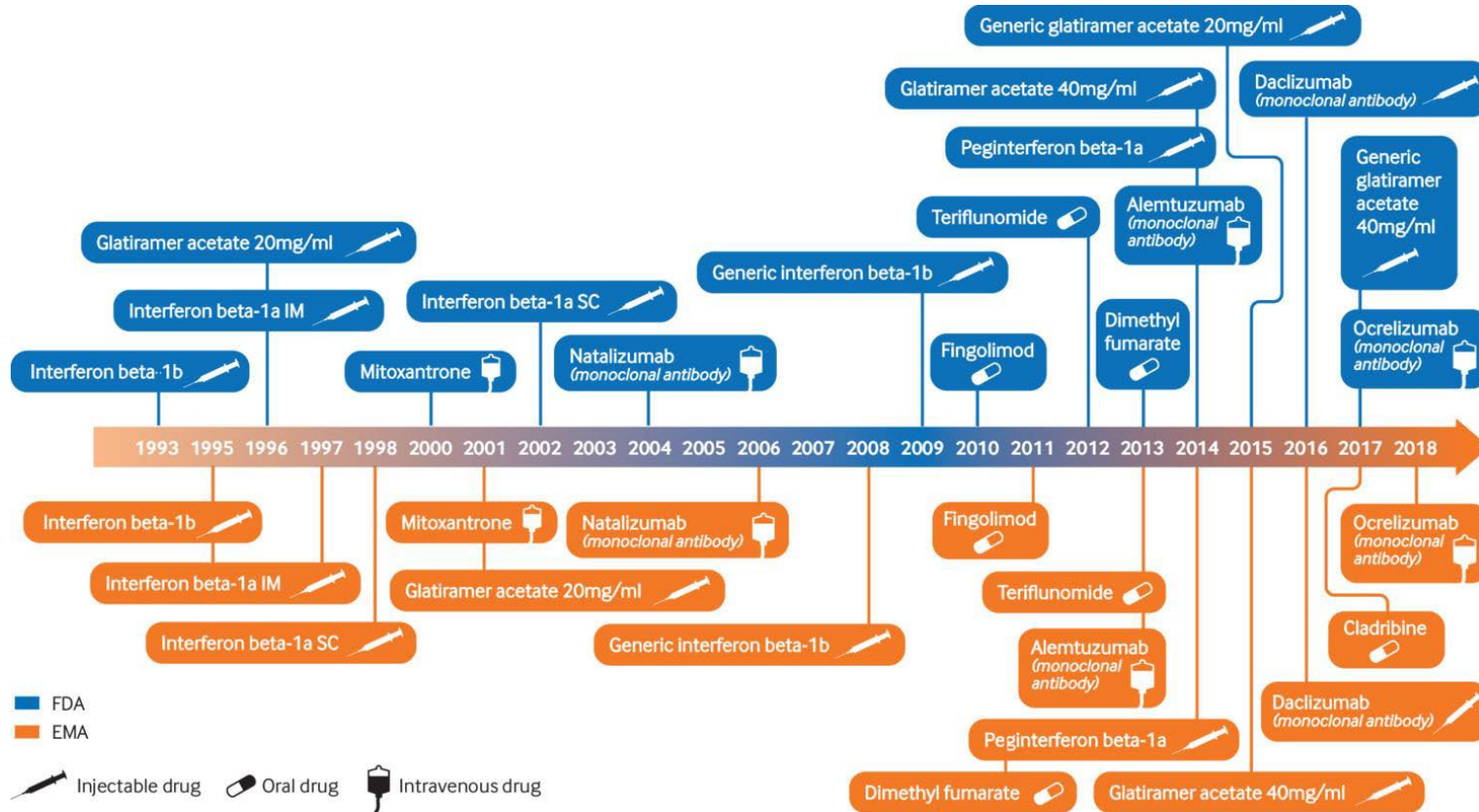
Improving delivery of MS treatments

Nadia Roberts
PhD Student
Bruestle Lab
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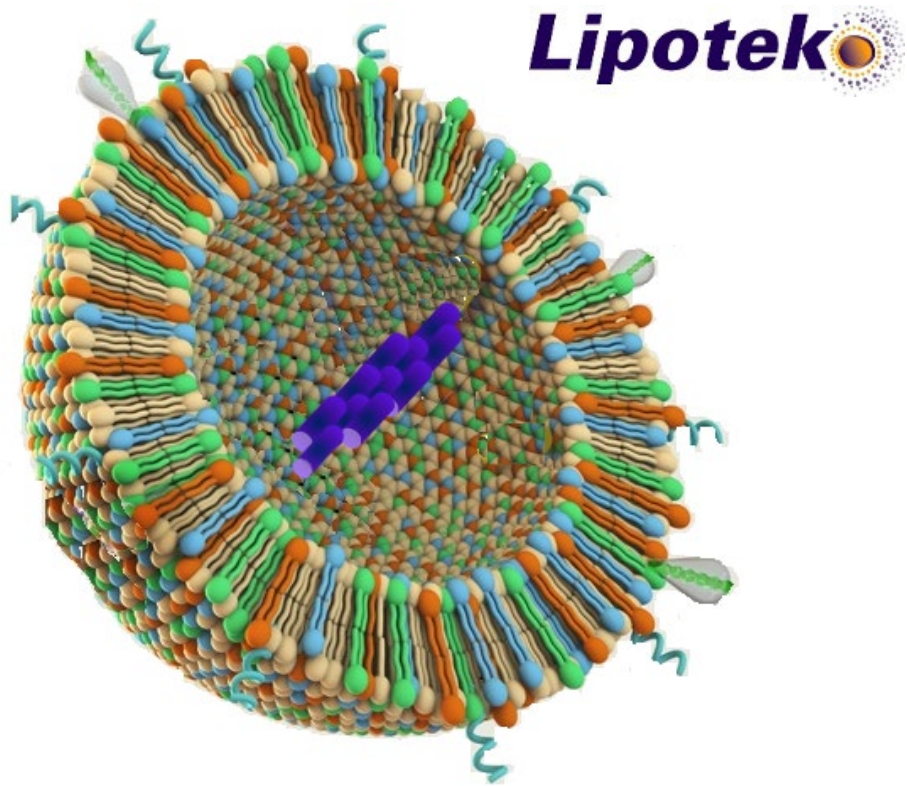


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National
University

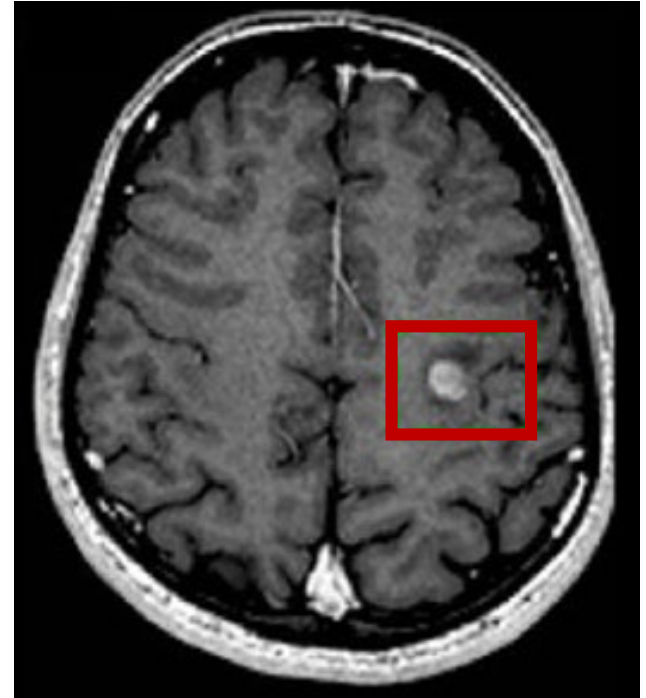
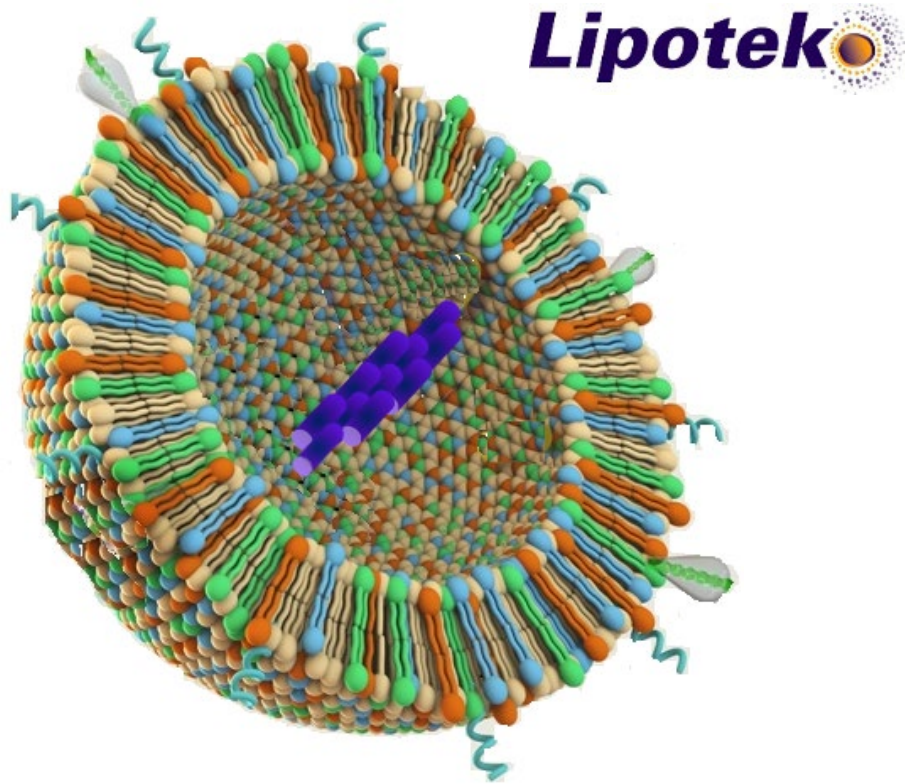
Modulating delivery for MS treatments



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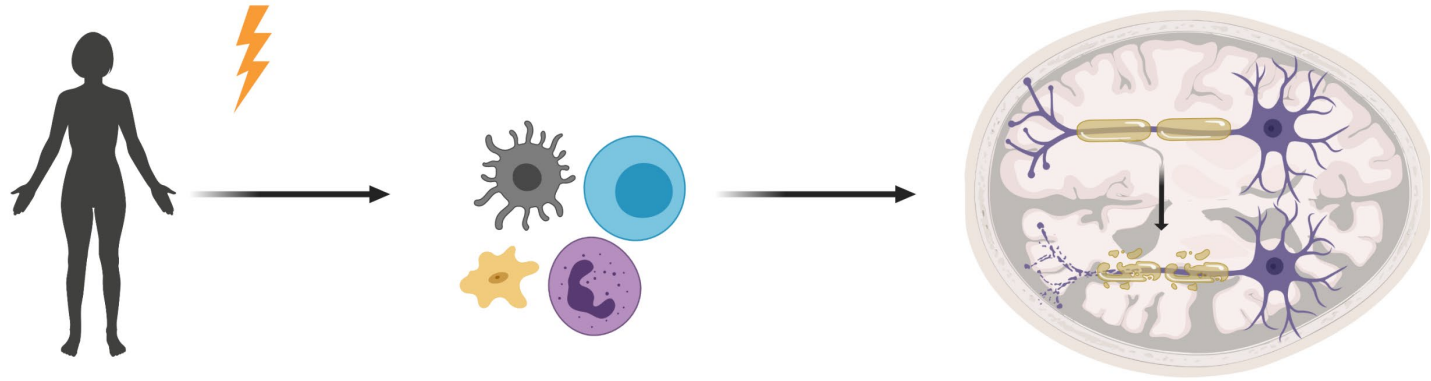


Modulating delivery for MS treatments

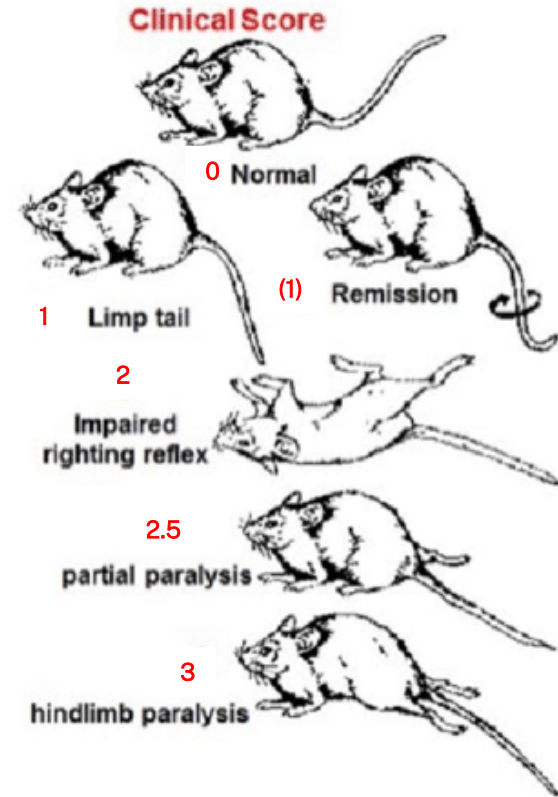
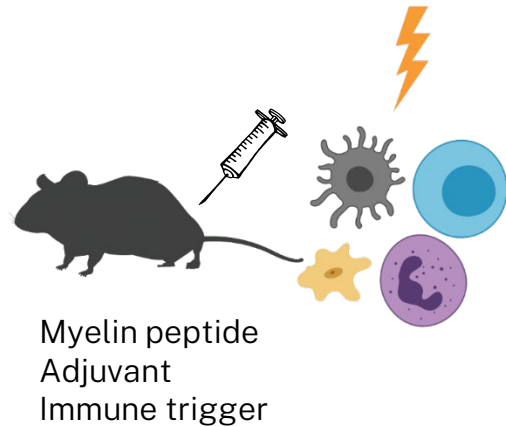


Multiple Sclerosis what we know...

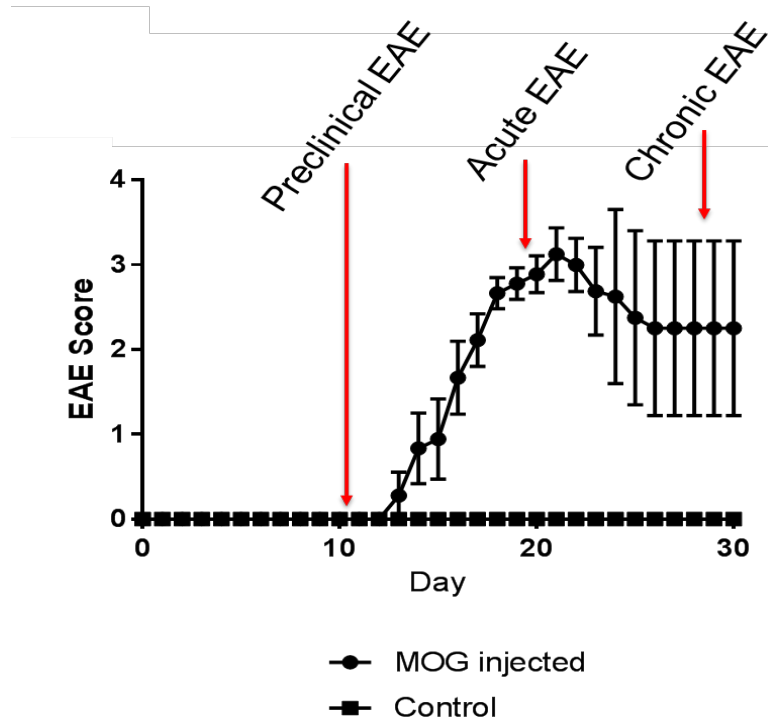
Genetics
Environmental
Modifiable risks



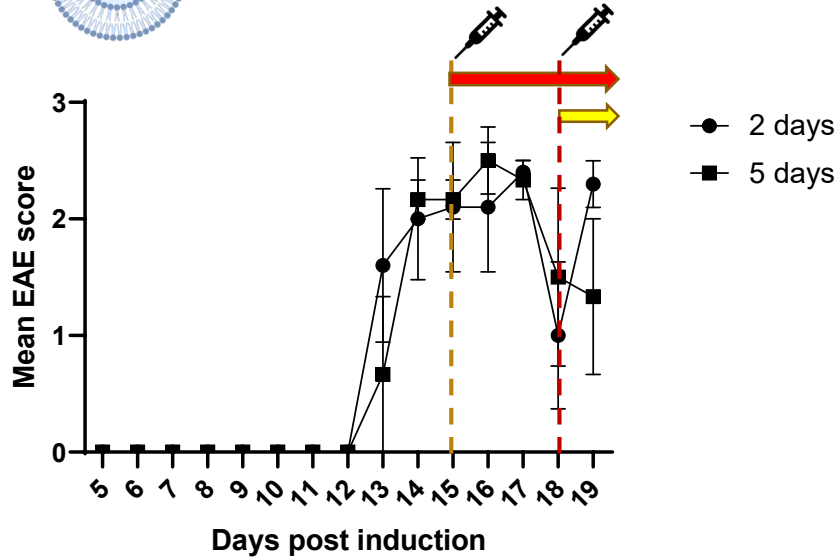
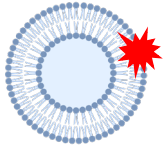
Experimental autoimmune encephalomyelitis (EAE)



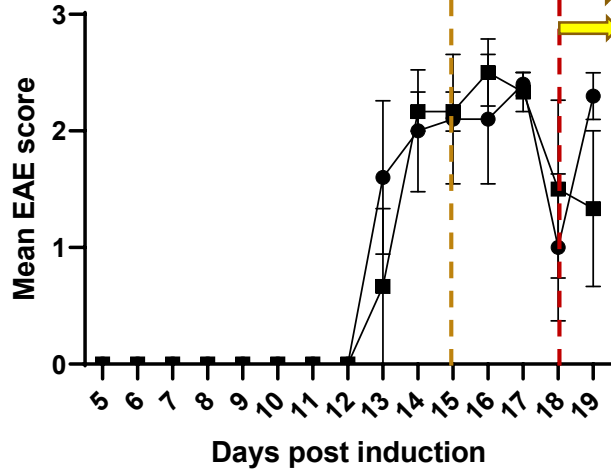
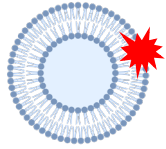
EAE model



Do Liposomes accumulate in the CNS during Neuroinflammation?

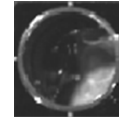


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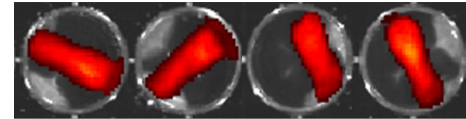


- 2 days
- 5 days

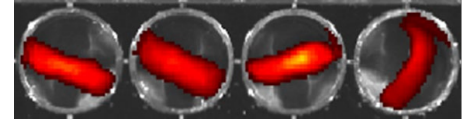
Uninjected control



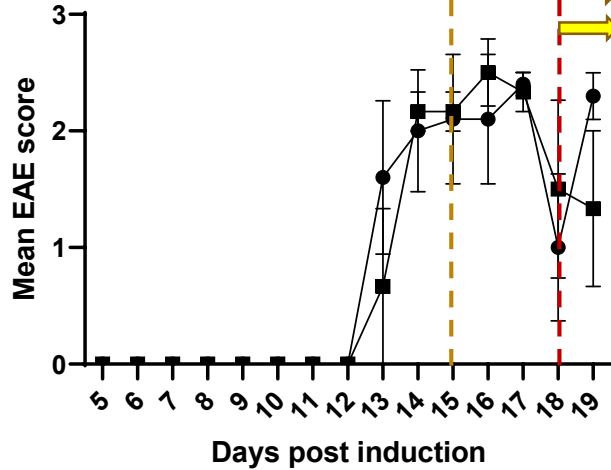
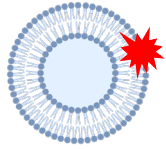
Healthy control + 2 days



Healthy control + 5 days

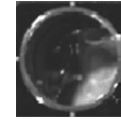


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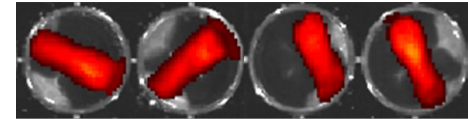


- 2 days
- 5 days

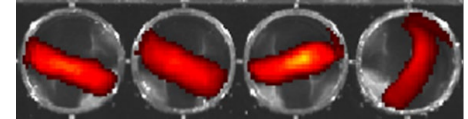
Uninjected control



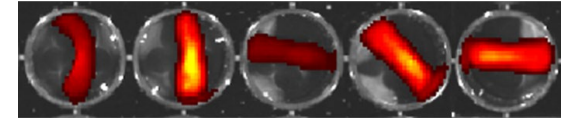
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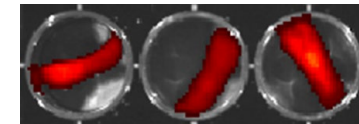
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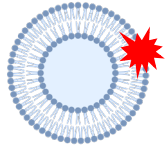
EAE + 2 days



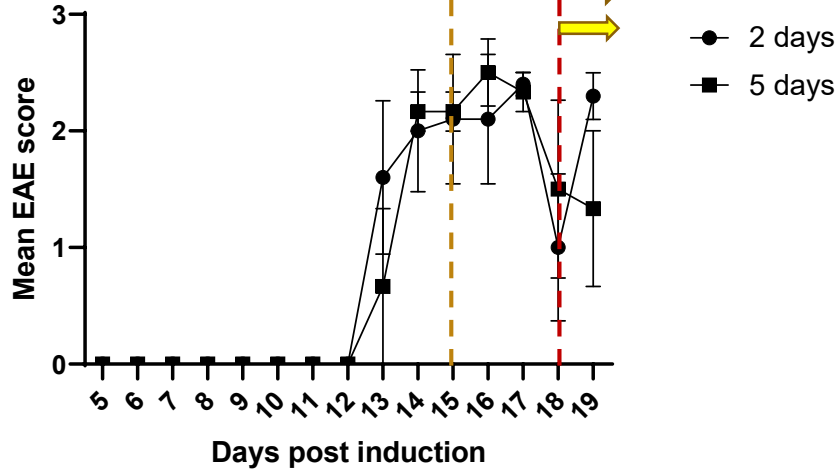
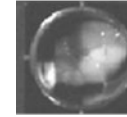
EAE + 5 days



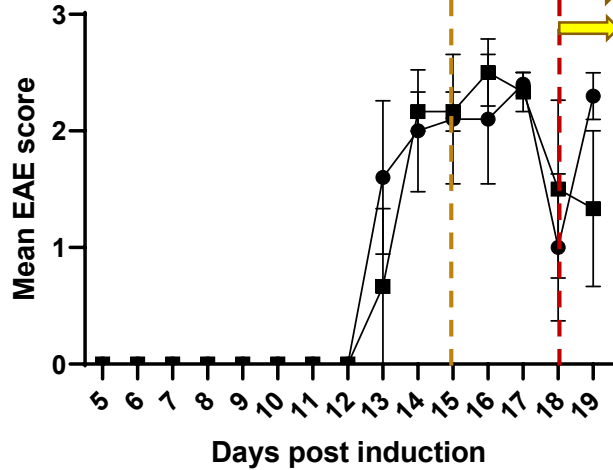
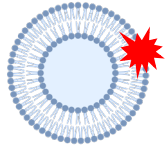
Do Liposomes accumulate in the CNS during Neuroinflammation?



Uninjected control

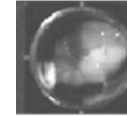


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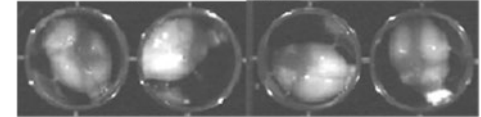


- 2 days
- 5 days

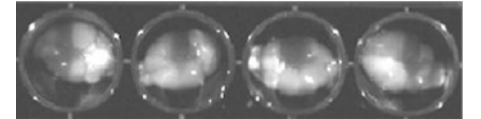
Uninjected control



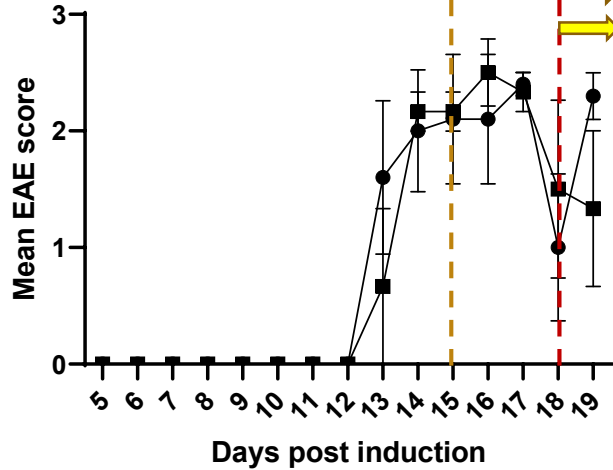
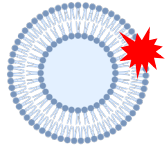
Healthy control + 2 days



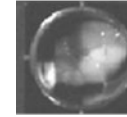
Healthy control + 5 days



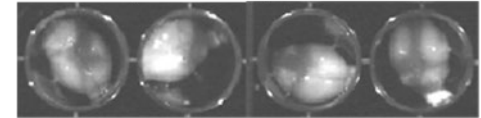
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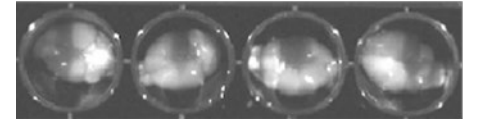
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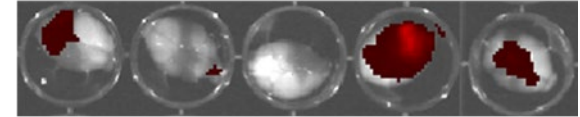
Healthy control + 2 days



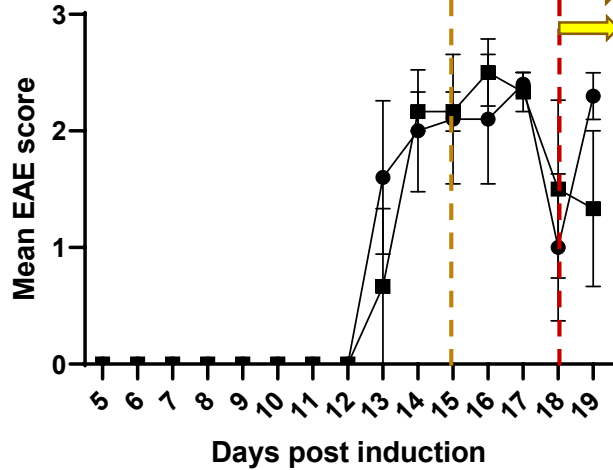
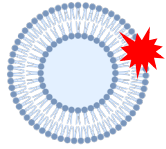
Healthy control + 5 days



EAE + 2 days



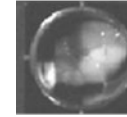
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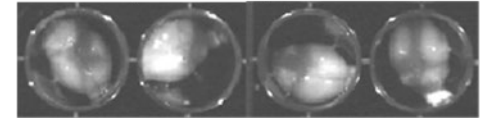
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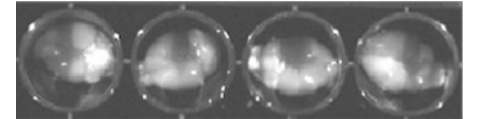
Uninjected control



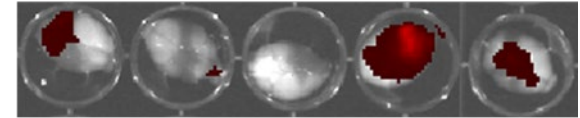
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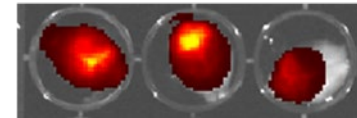
Healthy control + 5 days



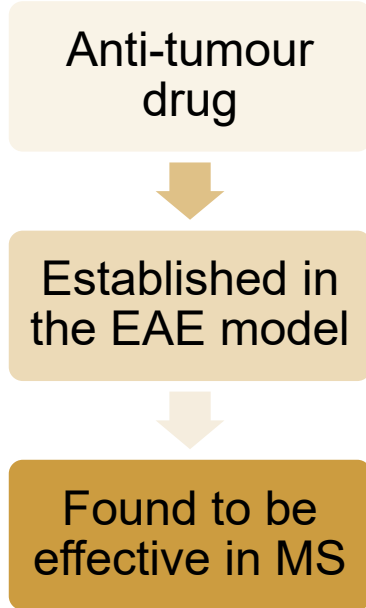
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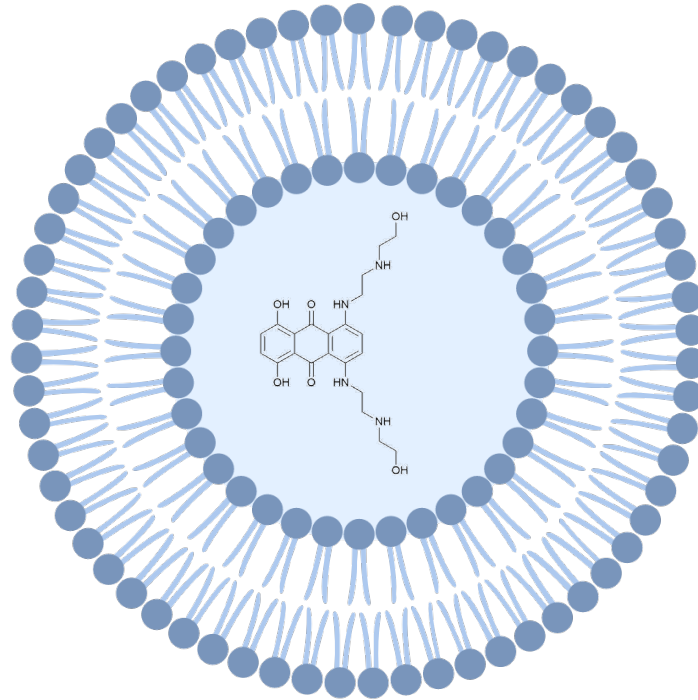
EAE + 5 days



Mitoxantrone (MTX) for MS

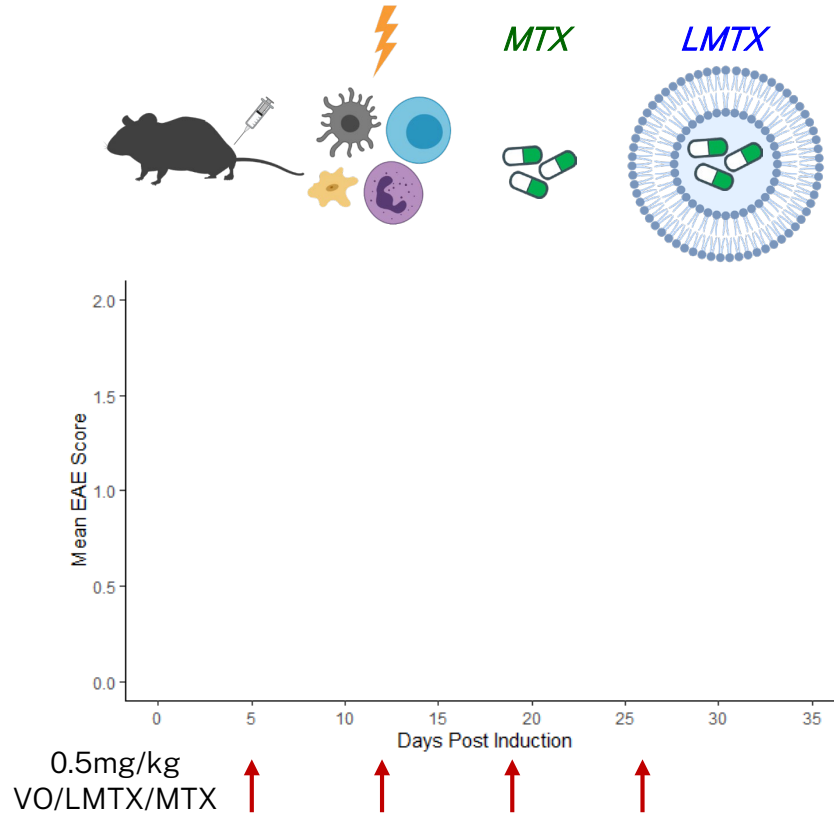


Serious limitation: dose-dependent cardiotoxicity

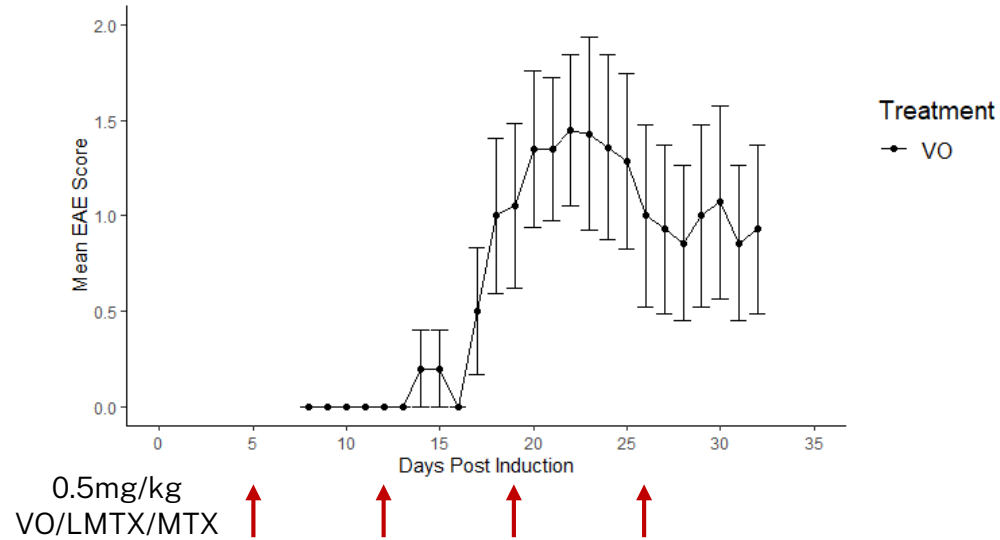
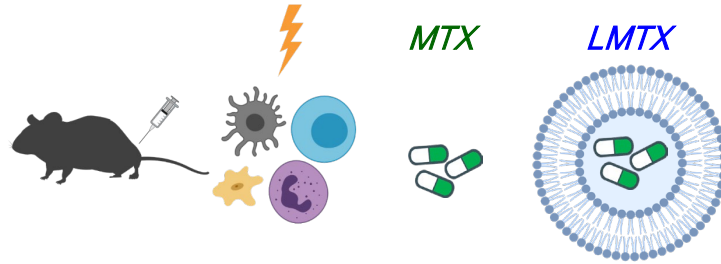


Liposomal mitoxantrone (LMTX)

Liposomal mitoxantrone (LMTX) in EAE



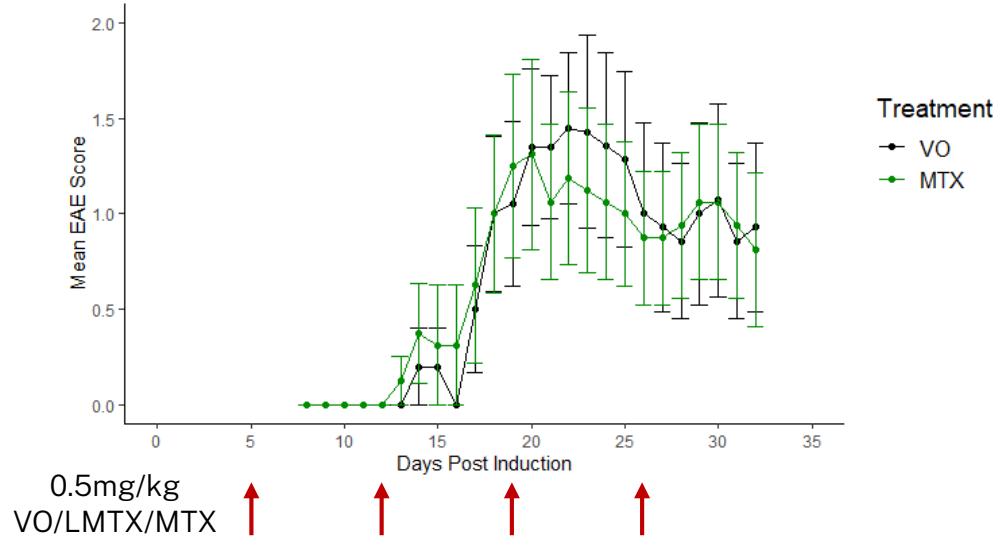
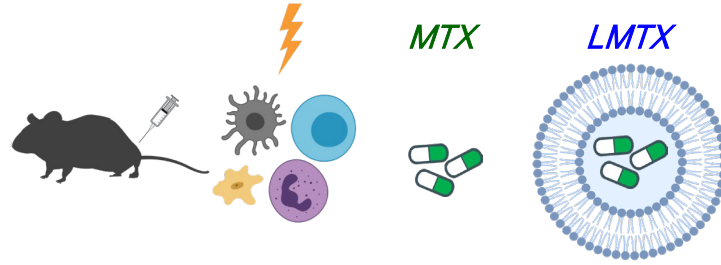
Liposomal mitoxantrone (LMTX) in EAE



VO = vehicle only



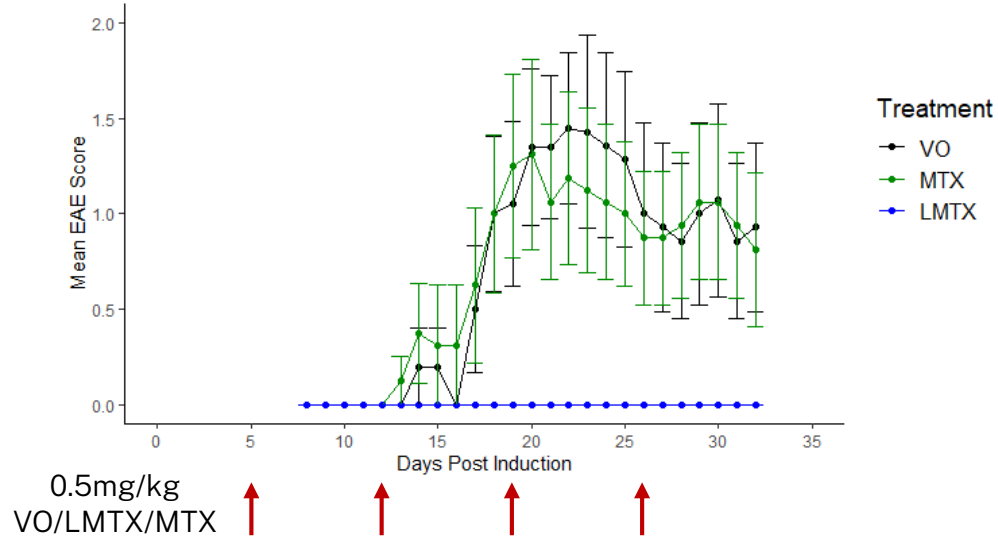
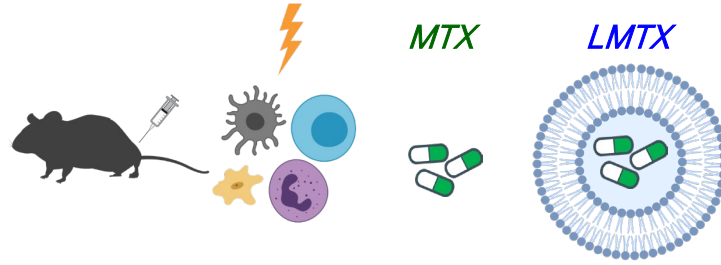
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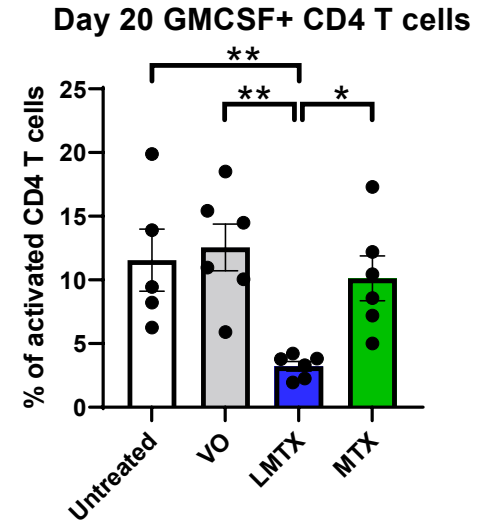
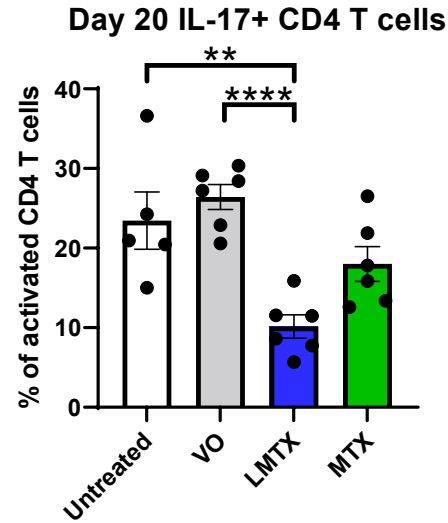
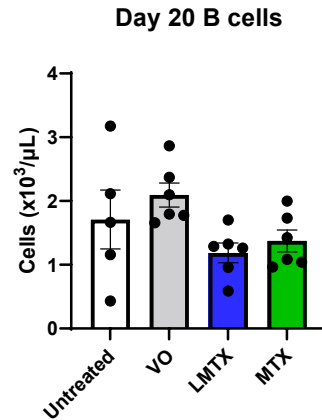
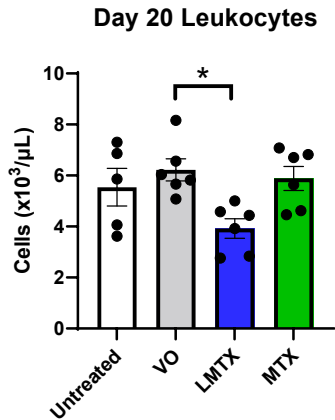
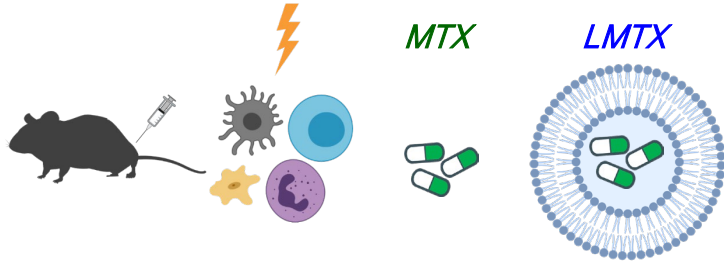
Liposomal mitoxantrone (LMTX) in EAE



VO = vehicle only



What immune cells are affected?



Summary:

- Liposomes accumulate to sites of inflammation
 - CNS
- MTX in liposomes effective at significantly lower doses

Significance:

- Potential therapeutic opportunities
 - More targeted delivery to site of inflammation
 - Much lower concentrations of drug needed
 - Reduction of side effects



Acknowledgements

Bruestle Group

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Enders Group

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Ines Atmosukarto

Jason Price

Katharine Gosling

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