

# Evaluating the therapeutic efficacy of a small-indole containing tetra-aza pyridinophane for treatment of Alzheimer's Disease

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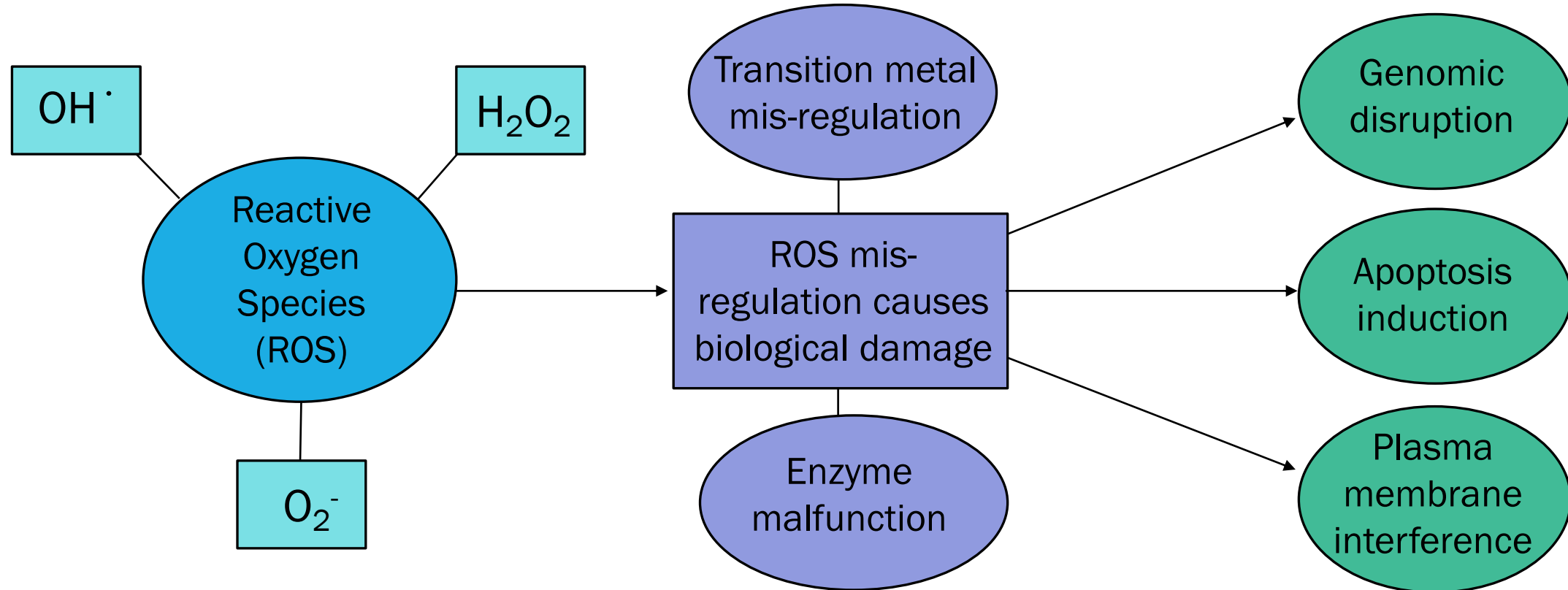
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SRS

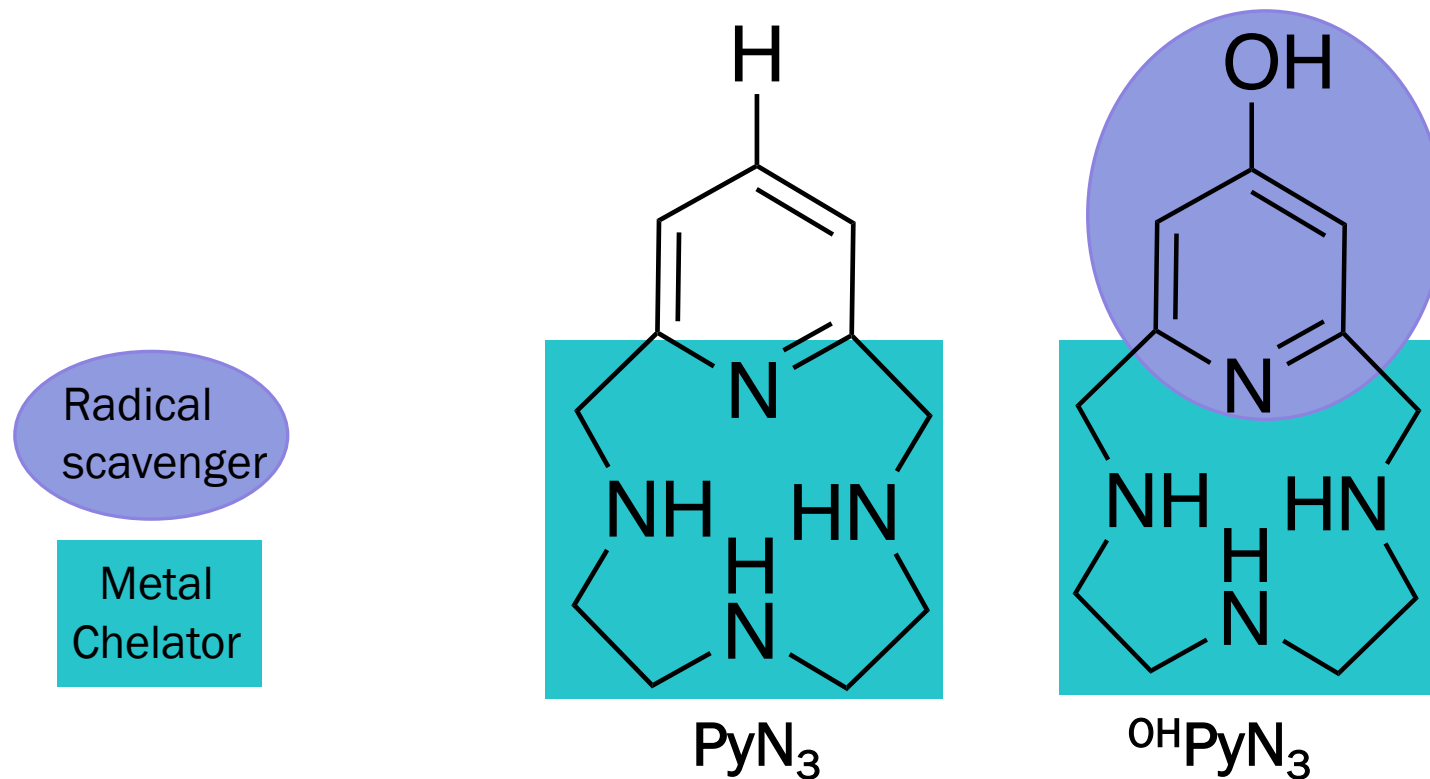
April 16<sup>th</sup> 2021

# Reactive oxygen species (ROS) exacerbate the onset and development of Alzheimer's Disease (AD)



# Green Research Group (GRG) ligands have varying therapeutic efficacy for treating AD due to differing structural motifs

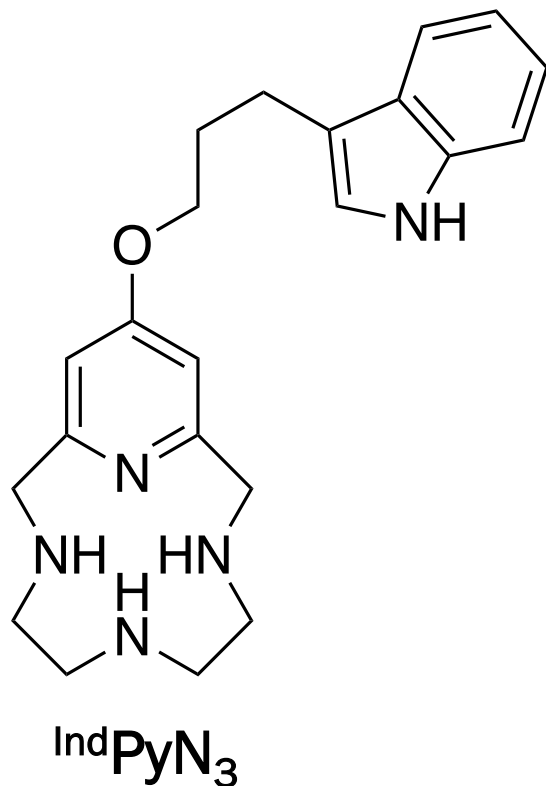
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*ACS Chem. Neurosci.*, **2012**, 3, 919–927  
*Chem. Commun.*, **2013**, 49, 2712–2714

The indole moiety is of therapeutic interest as it is a powerful antioxidant and is able to cross the blood brain barrier

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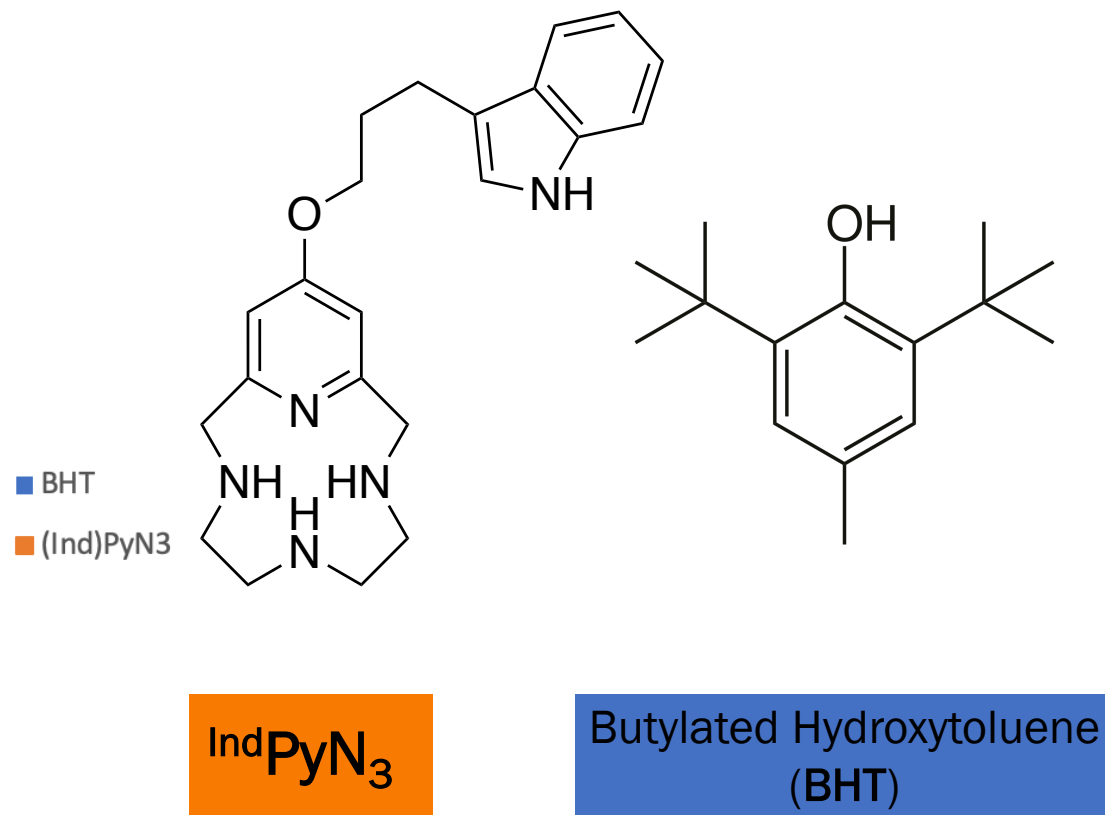
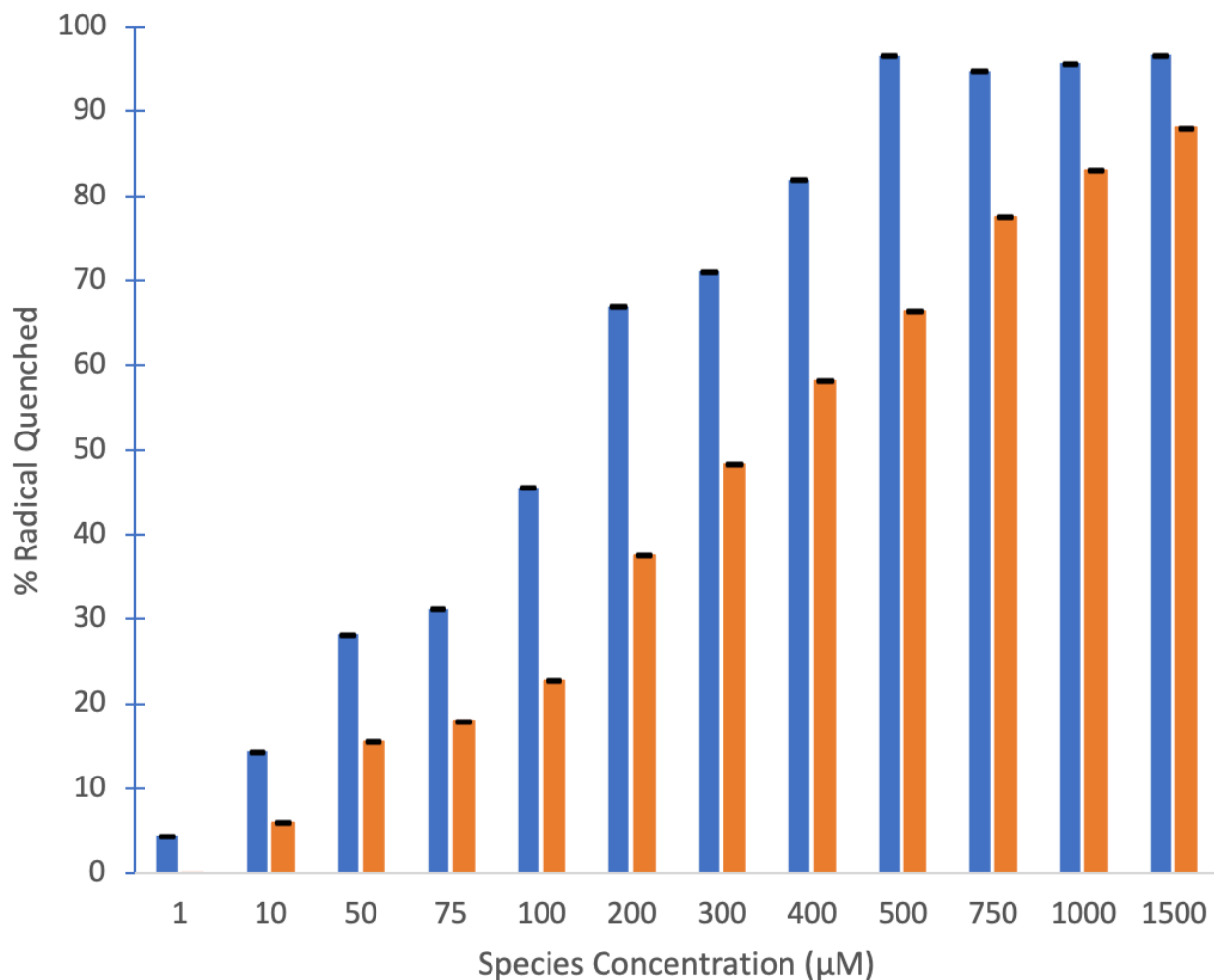
How do structural changes to GRG ligands affect therapeutic efficacy?

- Is radical scavenging reactivity preserved after attachment to the macrocycle?
- Does the indole moiety disrupt the macrocycle's ability to stabilize transition metal ions from contributing to ROS misregulation?

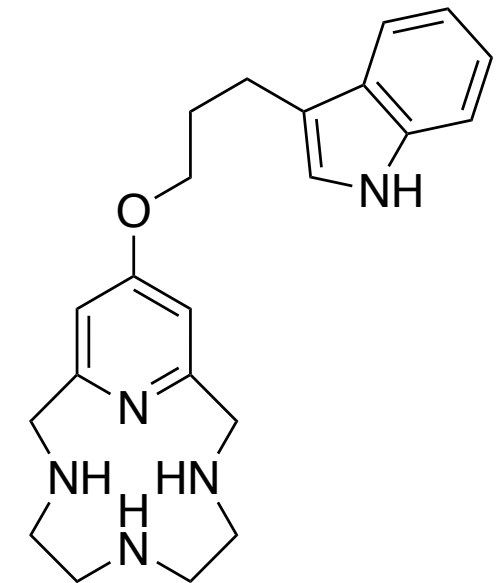
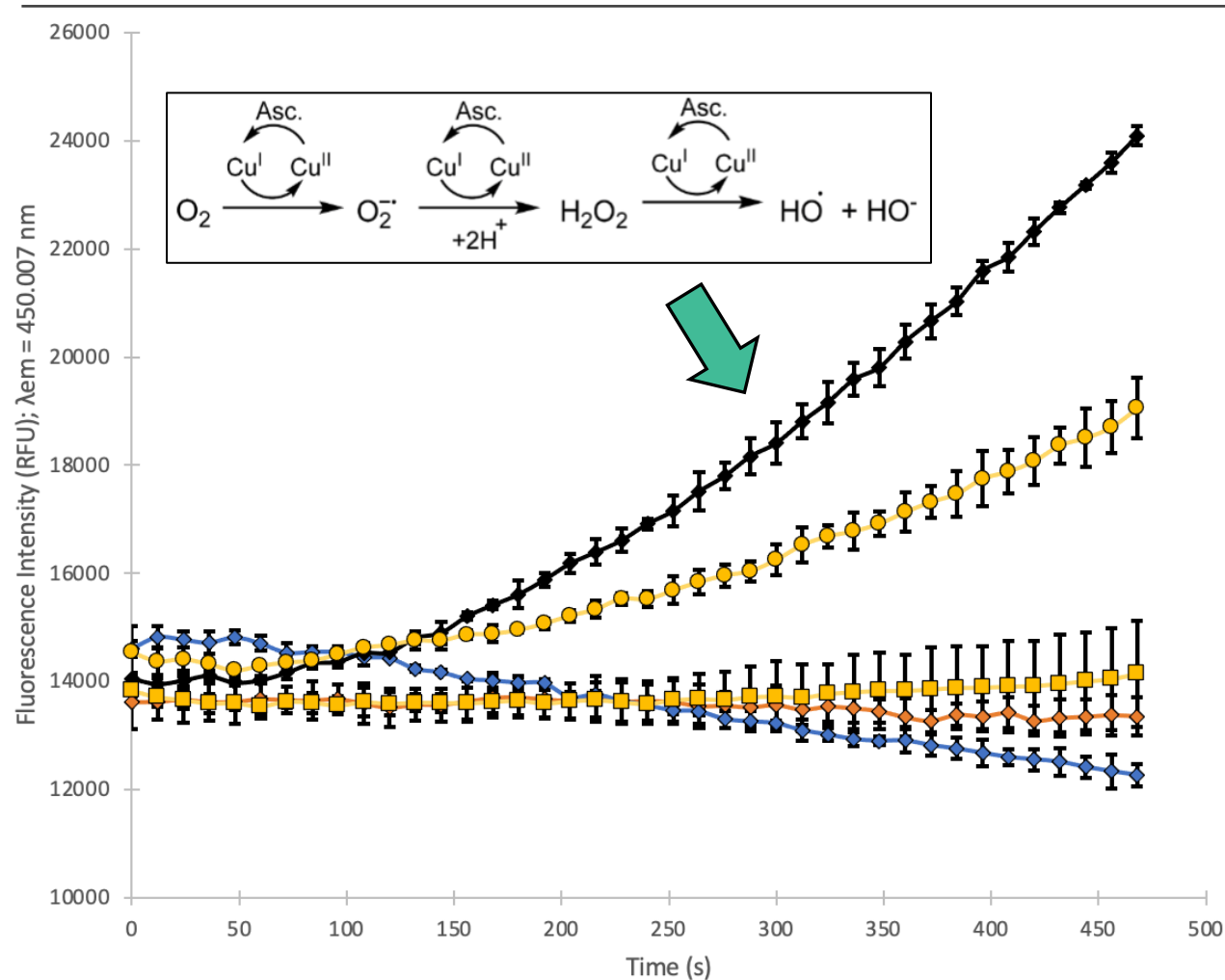
*J Pineal Res.*, **2016**, *61*, 253-278.

*Curr Neuropharmacol.*, **2010**, *8*, 161.

# The radical scavenging reactivity of the indole moiety was preserved when attached to the macrocycle



# The addition of an indole moiety did not disrupt copper (II) oxidation state stabilization by the macrocycle



IndPyN<sub>3</sub>

# Conclusions & future studies

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The addition of the indole moiety to the GRG ligand library results in a ligand capable of significant radical quenching and copper (II) oxidation state stabilization



Future studies will evaluate other components of ND therapeutic efficacy as well as other small molecules