Light-activated Anti-cancer Ruthenium Componds

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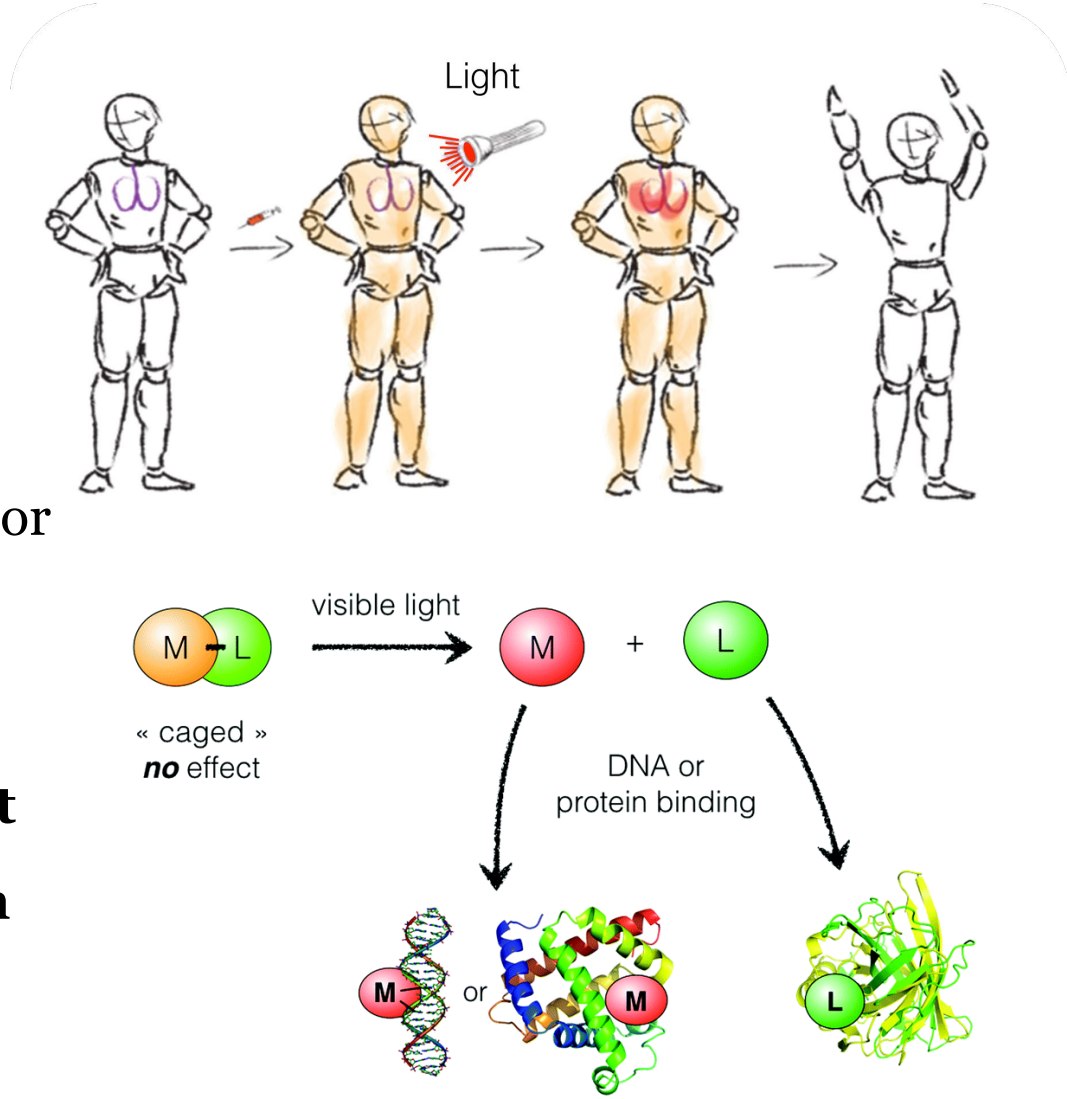
Who Am I?

- Grand Rapids, Michigan
- Chemistry at the University of Alabama
- Second year of my Bachelor's program
- EuroScholars at Leiden University
- Disc golfing, swimming, mountain biking, skiing

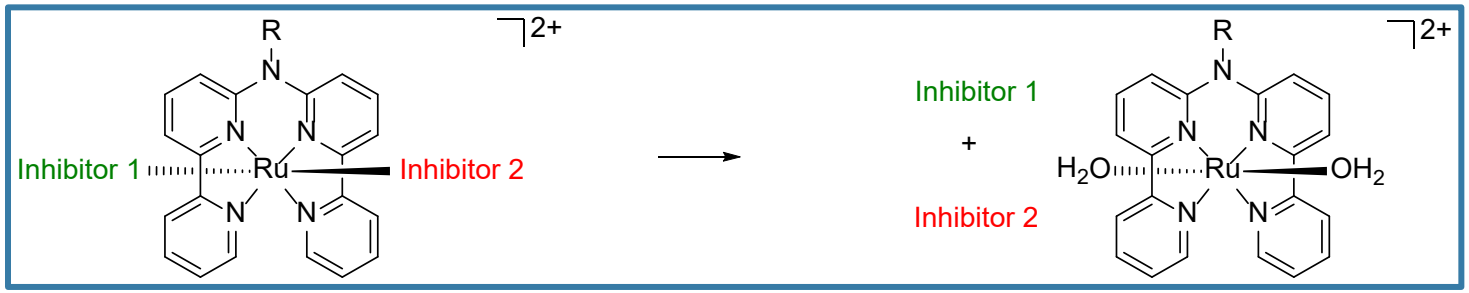
THE UNIVERSITY OF ALABAMA | College of Arts & Sciences Chemistry & Biochemistry

Photo-activated Chemotherapy

- Chemotherapy with an extra layer of control
- A compound is poorly biologically active until irradiation
  - Prodrug
- Photosubstitution is a chemical change that results in one or multiple biologically active compounds
- **Since irradiation activates the drug, and since we govern the location, intensity, and duration of that irradiation, we have additional control over which cells experience the effects of the drug**



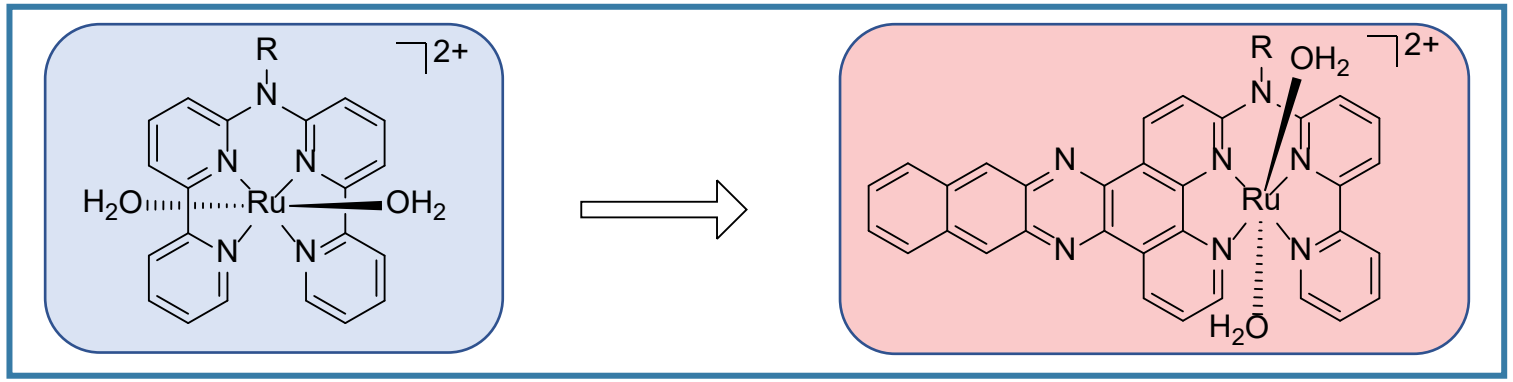
Bonnet, S. Why develop photoactivated chemotherapy? *Dalton Trans.* **2018**, *47*, 10330-10343.



Current model

My project

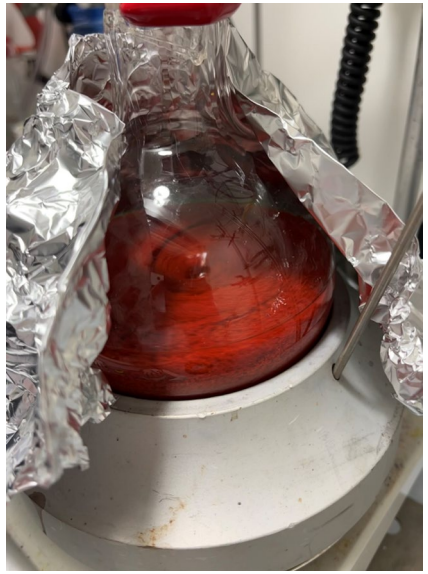
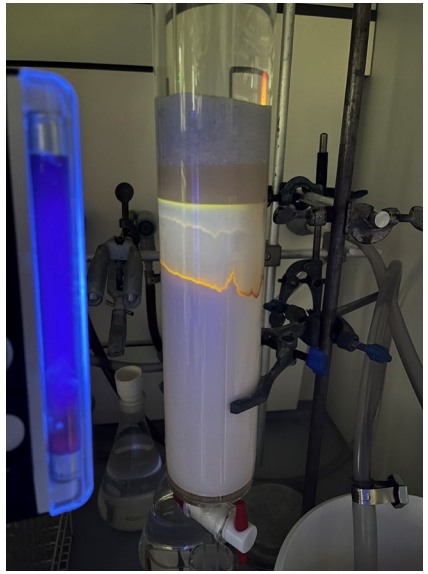
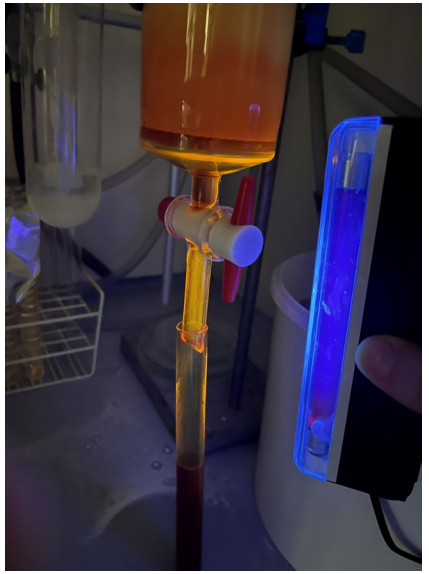
Known to kill cells poorly

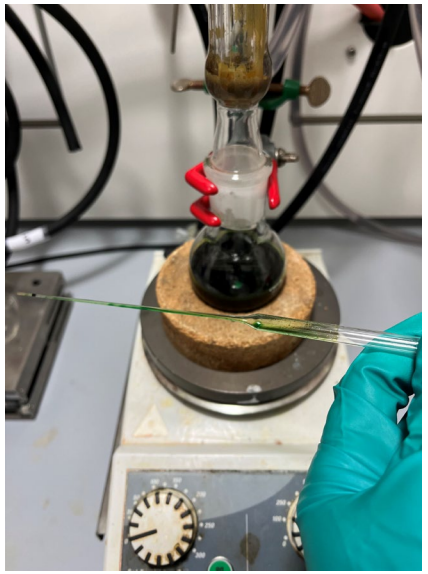


Expected to kill cells effectively

Project Goals

- Complete the synthesis of the compound
- Explore the photochemistry of the compound
  - UV-Vis Spectroscopy, $^1O_2$ production, and photosubstitution
- Evaluate the DNA binding capabilities of the compound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Acknowledgements

Many thanks to the following!

Wessel Verbeet, MSc

Prof. Dr. Sylvestre Bonnet

Usha Mohunlol

Thank you for your attention!

Any questions?

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