

Electronic and Steric Effects of Bipyridine Ligands on the Photochemistry of [Ru(tpy)(bpy)X]ⁿ⁺ Complexes

Hyo Jin Jang
EuroScholars Midstay Presentation
20 April 2016

Supervisors: Samantha Hopkins, PhD
Prof. Sylvestre Bonnet



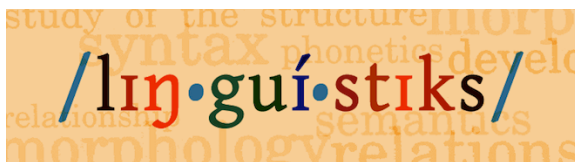
About Me

Leiden University



Washington University in St. Louis, MO, USA

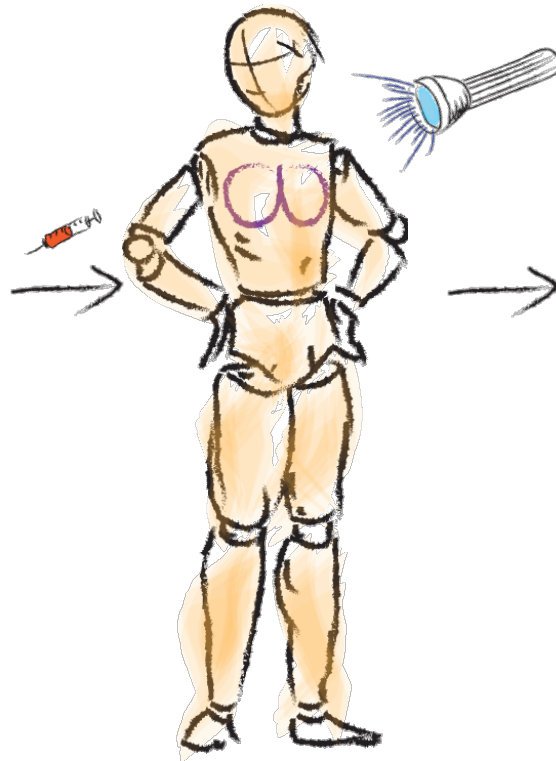
Seoul, South Korea



Light-activated Anti-cancer Prodrugs



Patient
with cancer



Non-toxic prodrug

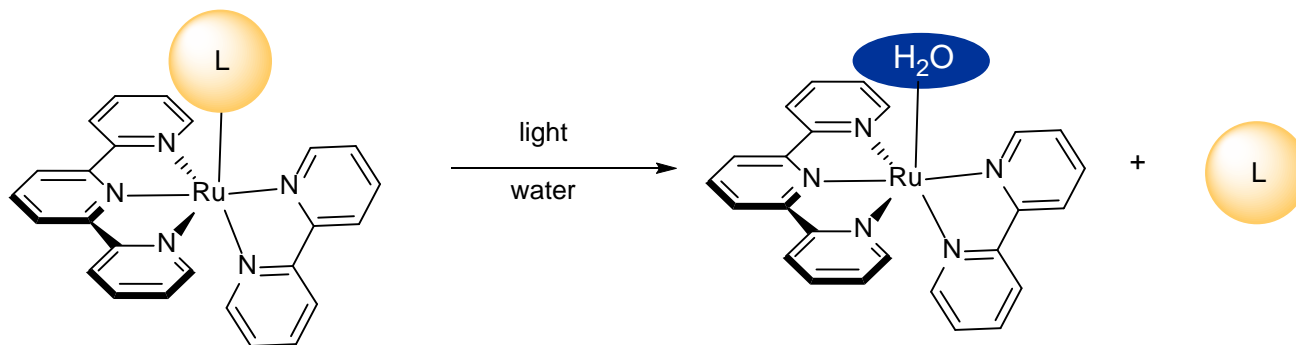
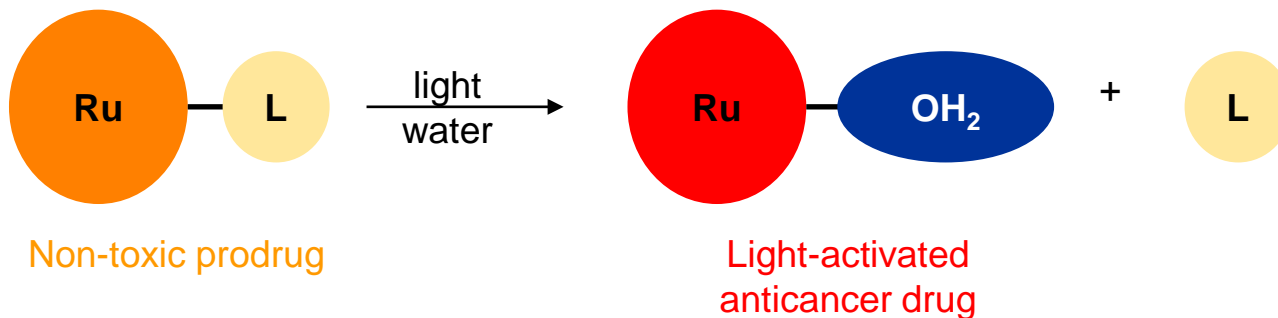


Light-activated
anticancer drug



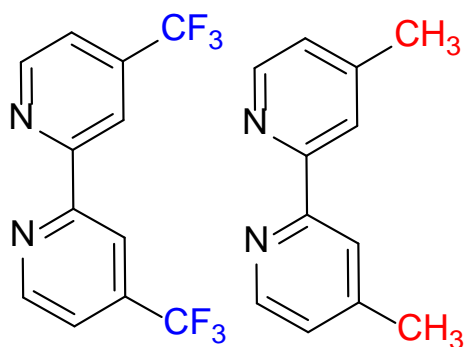
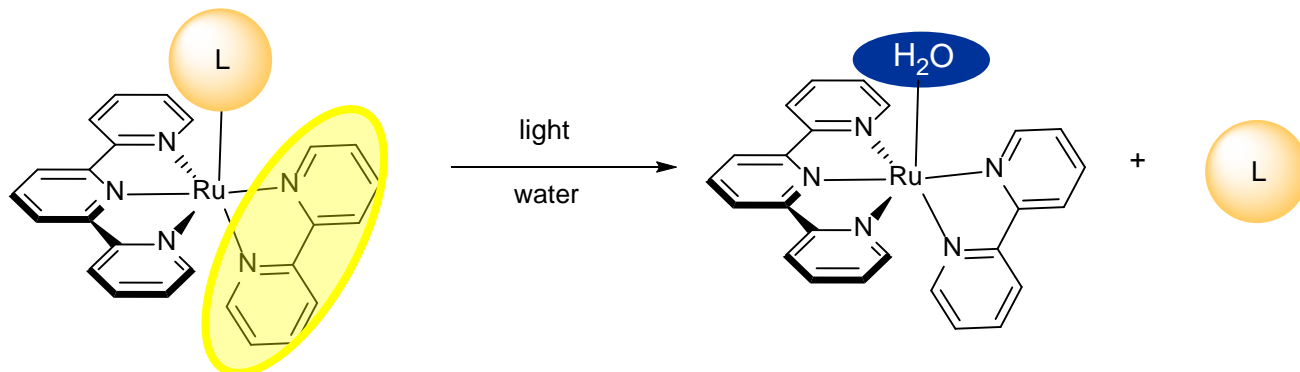
Cancer-free
patient

Ru Complexes as Anti-cancer Prodrug



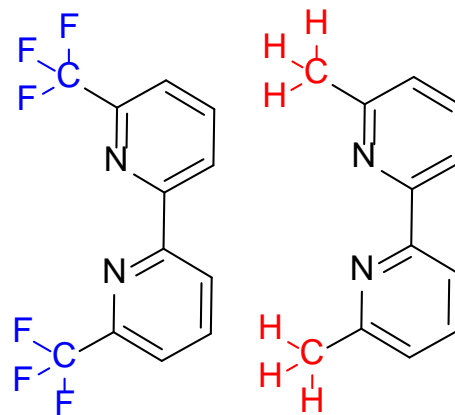
Photosubstitution efficiencies range from 1-15%

How can we modify the bpy to make the ligand exchange more efficient?



e-withdrawing

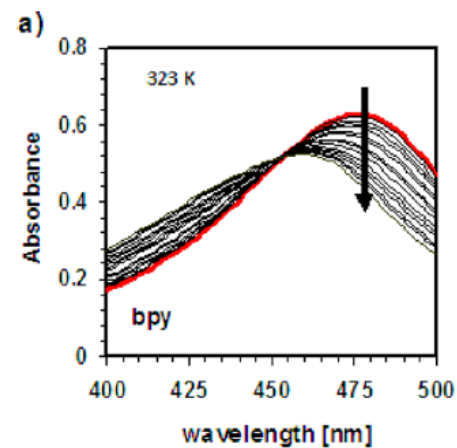
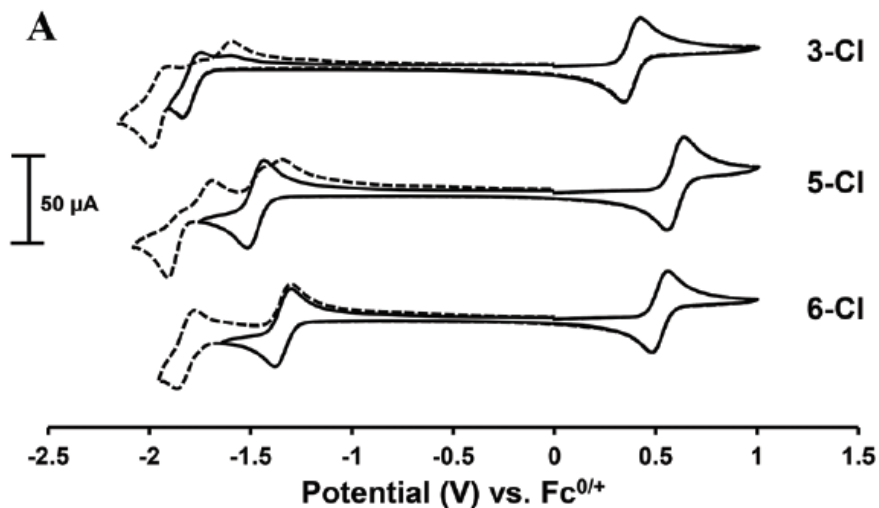
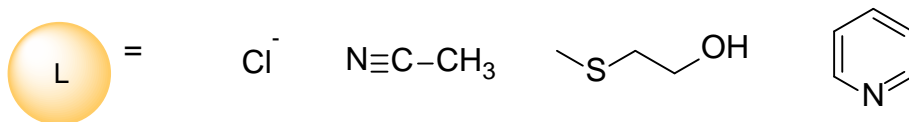
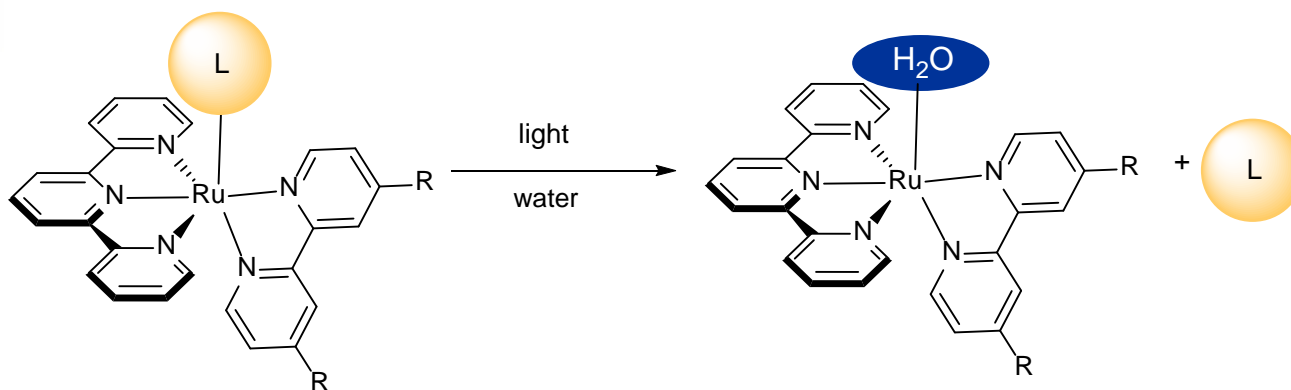
e-donating



Size: CF₃ ≈ CH₃

Knoll, J. D. et al. *J. Phys. Chem. A*. **2014**.
White, T. A. et al. *Dalton Trans.* **2014**.

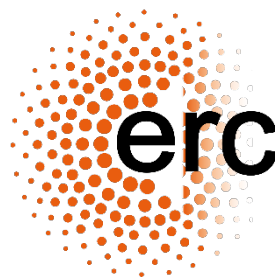
Ligand Exchange and Photosubstitution



Bahreman, A. et al. *Inorg. Chem.* **2014**.
White, T. A. et al. *Dalton Trans.* **2014**.

Acknowledgements

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Dr. Sylvestre Bonnet
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**Universiteit
Leiden**



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