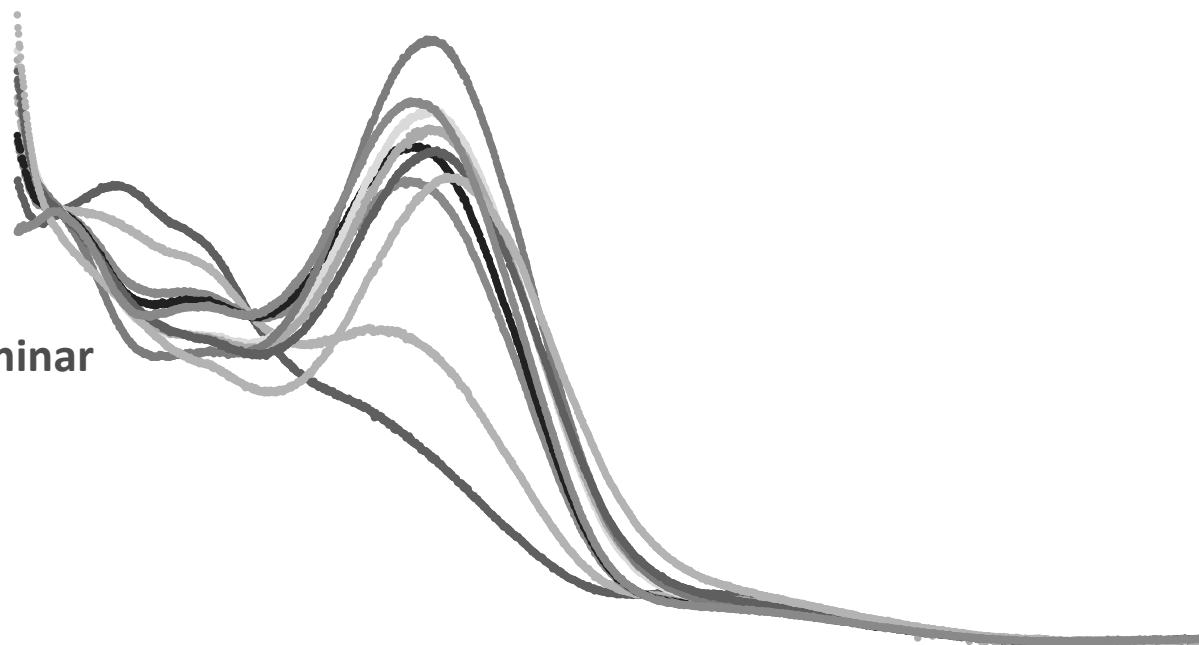


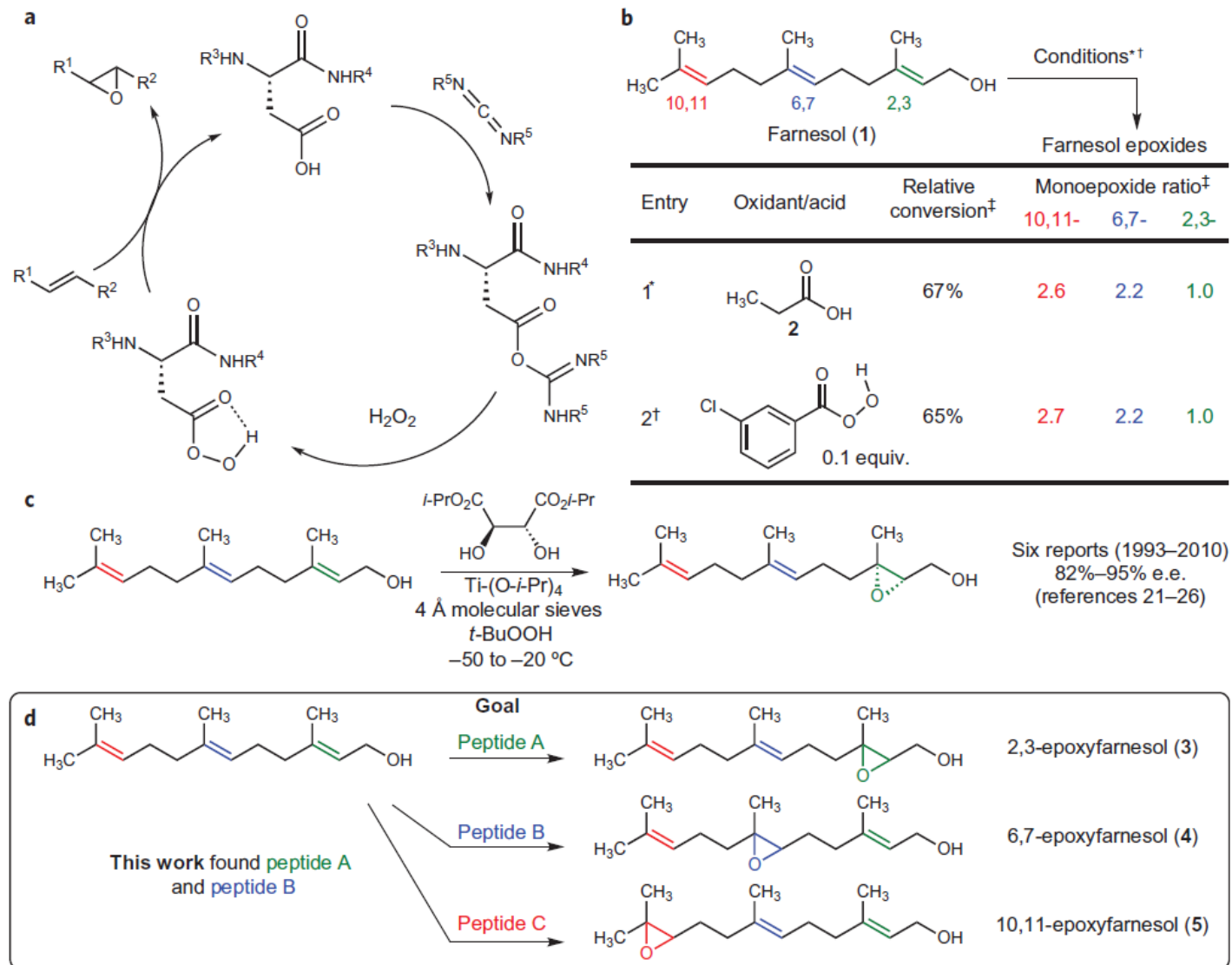
Make Azobenzenes Switchable Again!

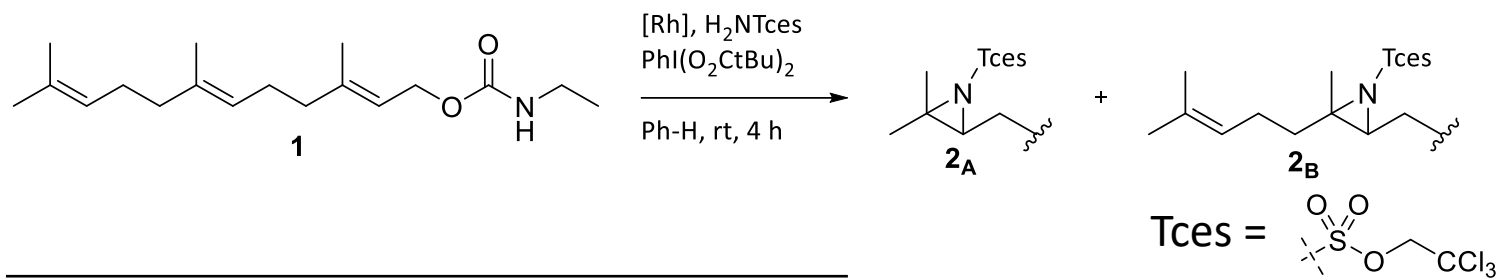
08.05.2020

Christopher Topp, Group seminar

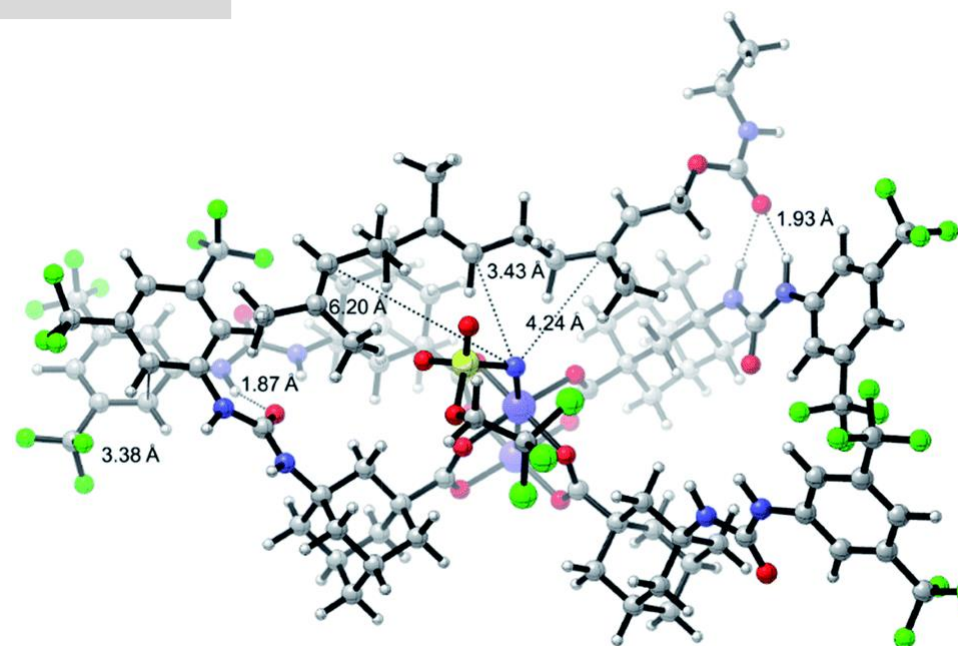
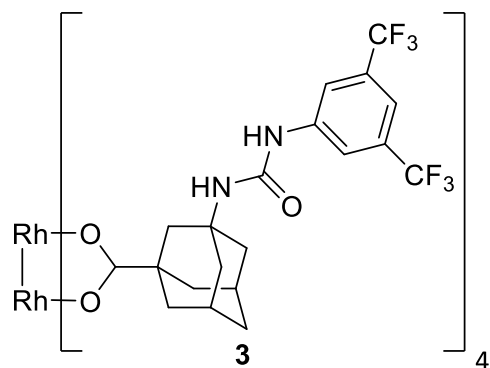
*Institute of Organic Chemistry
Justus-Liebig-University
35392 Giessen, Germany*







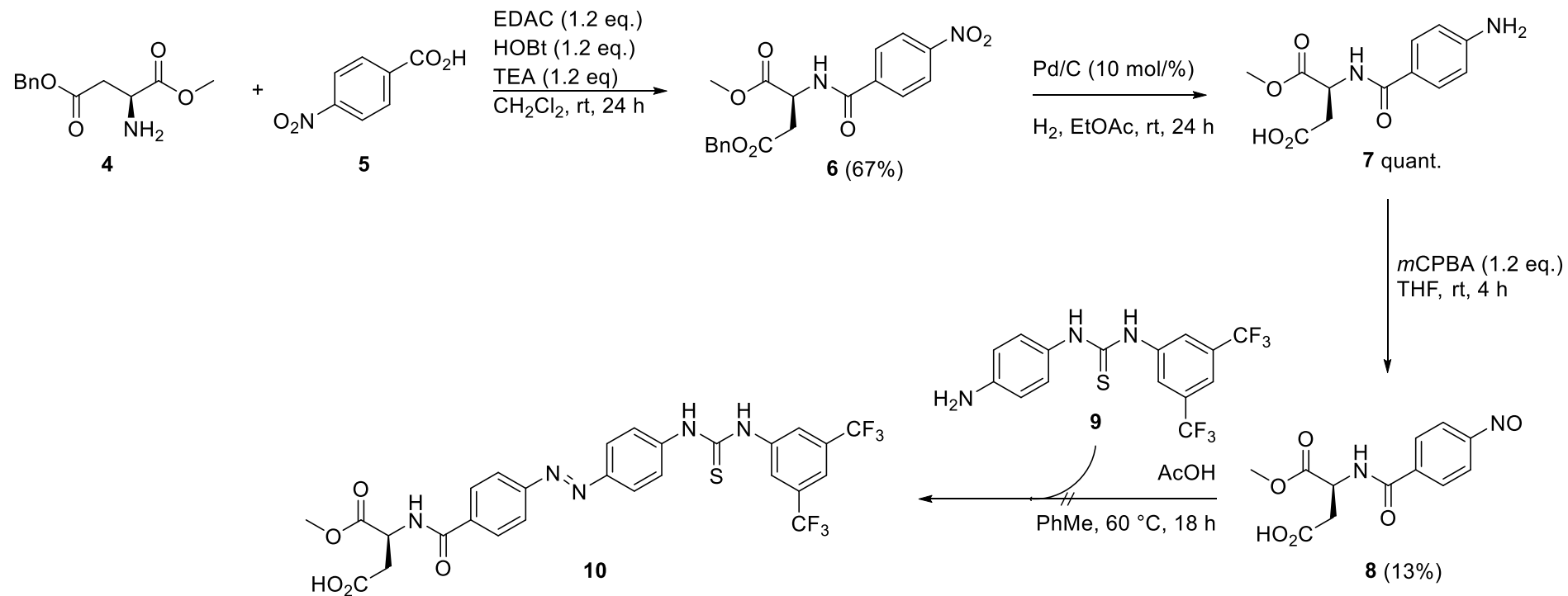
Catalyst	2 _A : 2 _B	Yield (2 _A : 2 _B) / %	Conversion (1) / %
Rh ₂ (esp) ₂	2.0 : 1.0	29	81
3	1.0 : 1.9	31	80

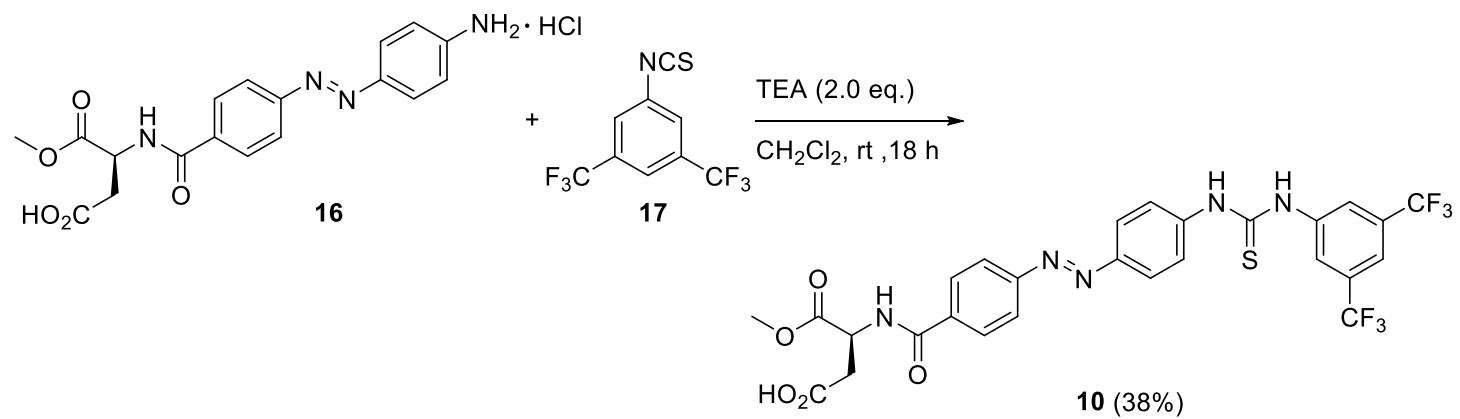
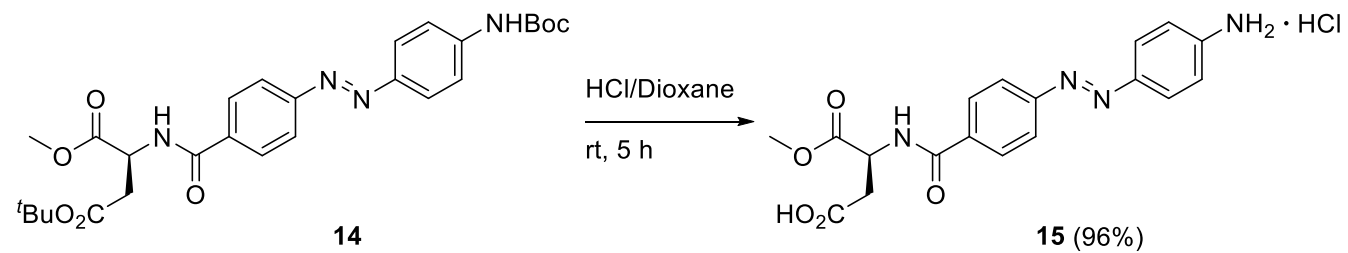
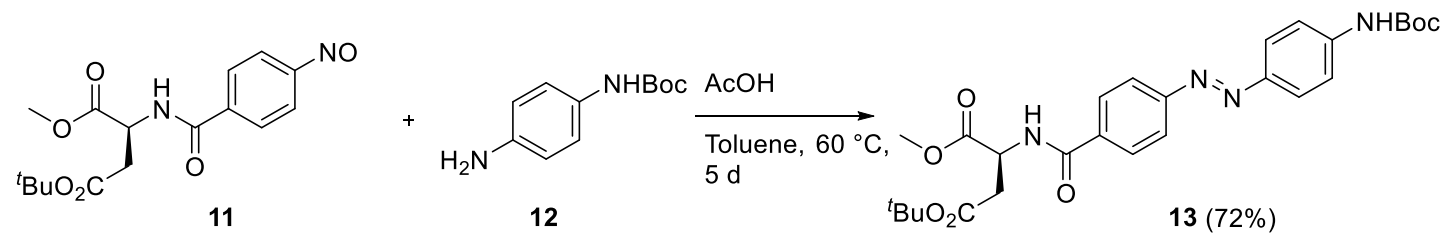


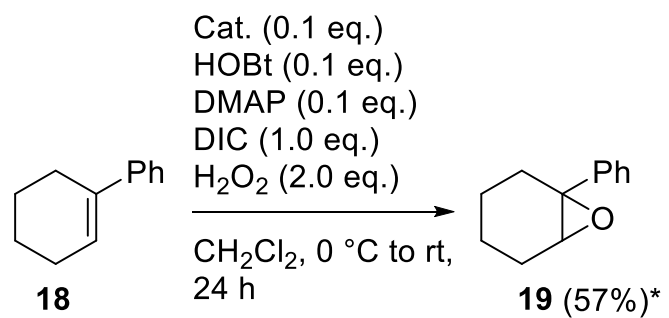
Synthesis attempt of a switchable bifunctional epoxidation catalyst



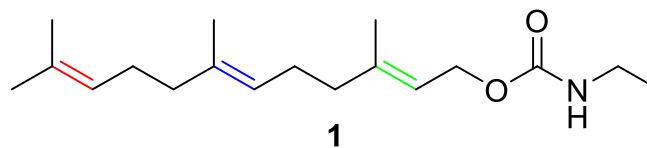
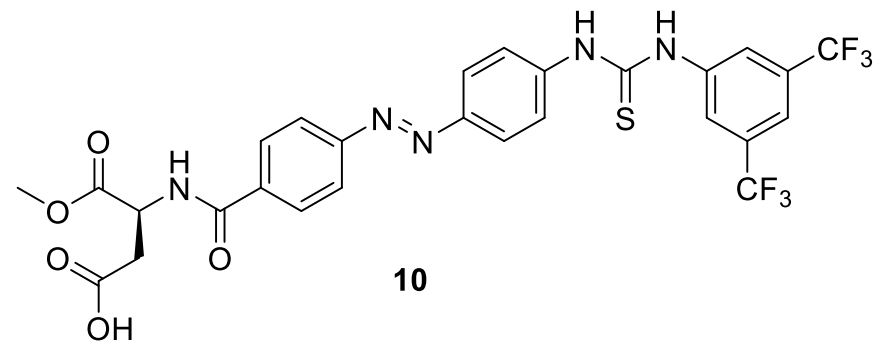
Past:

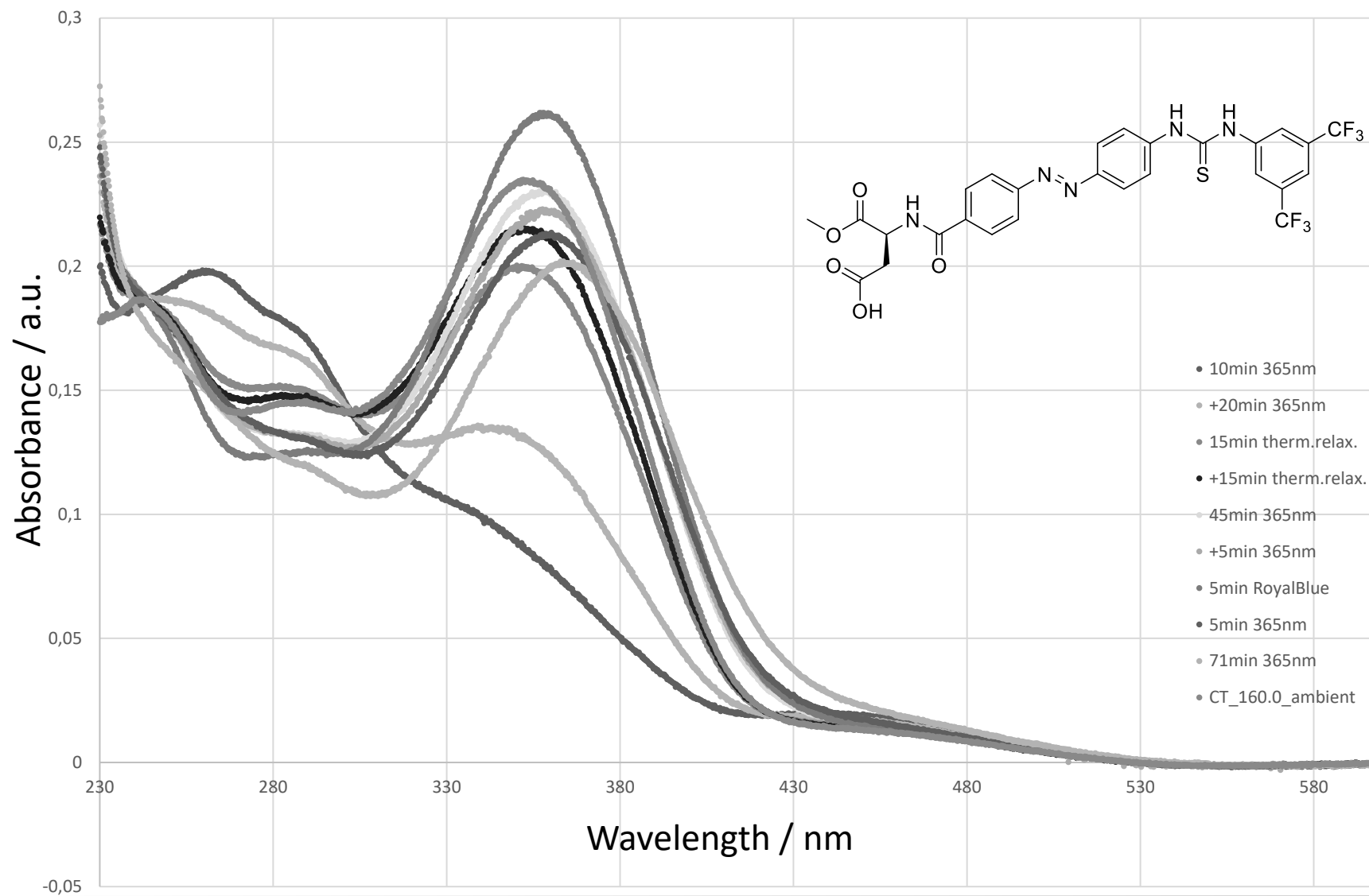


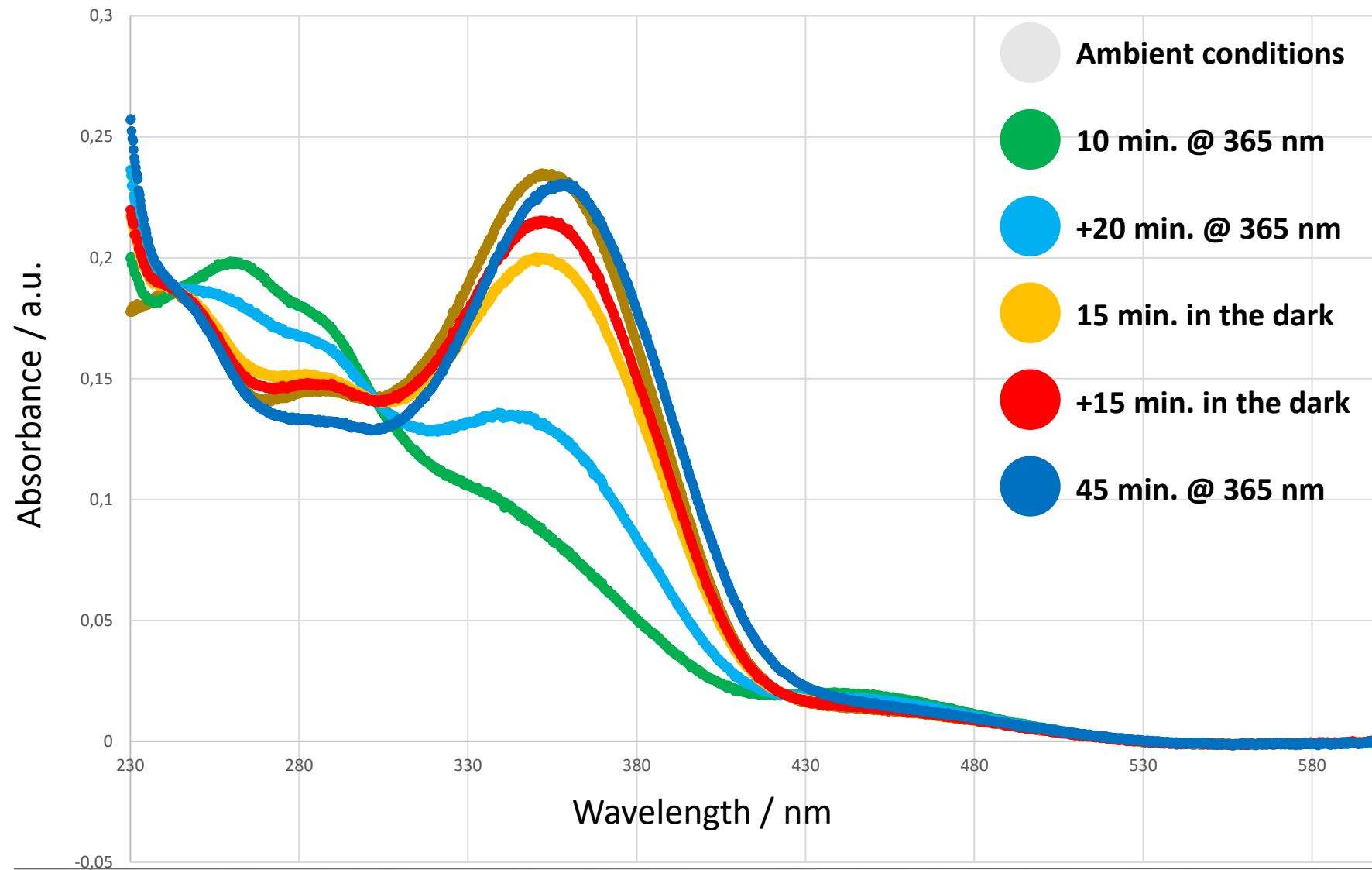


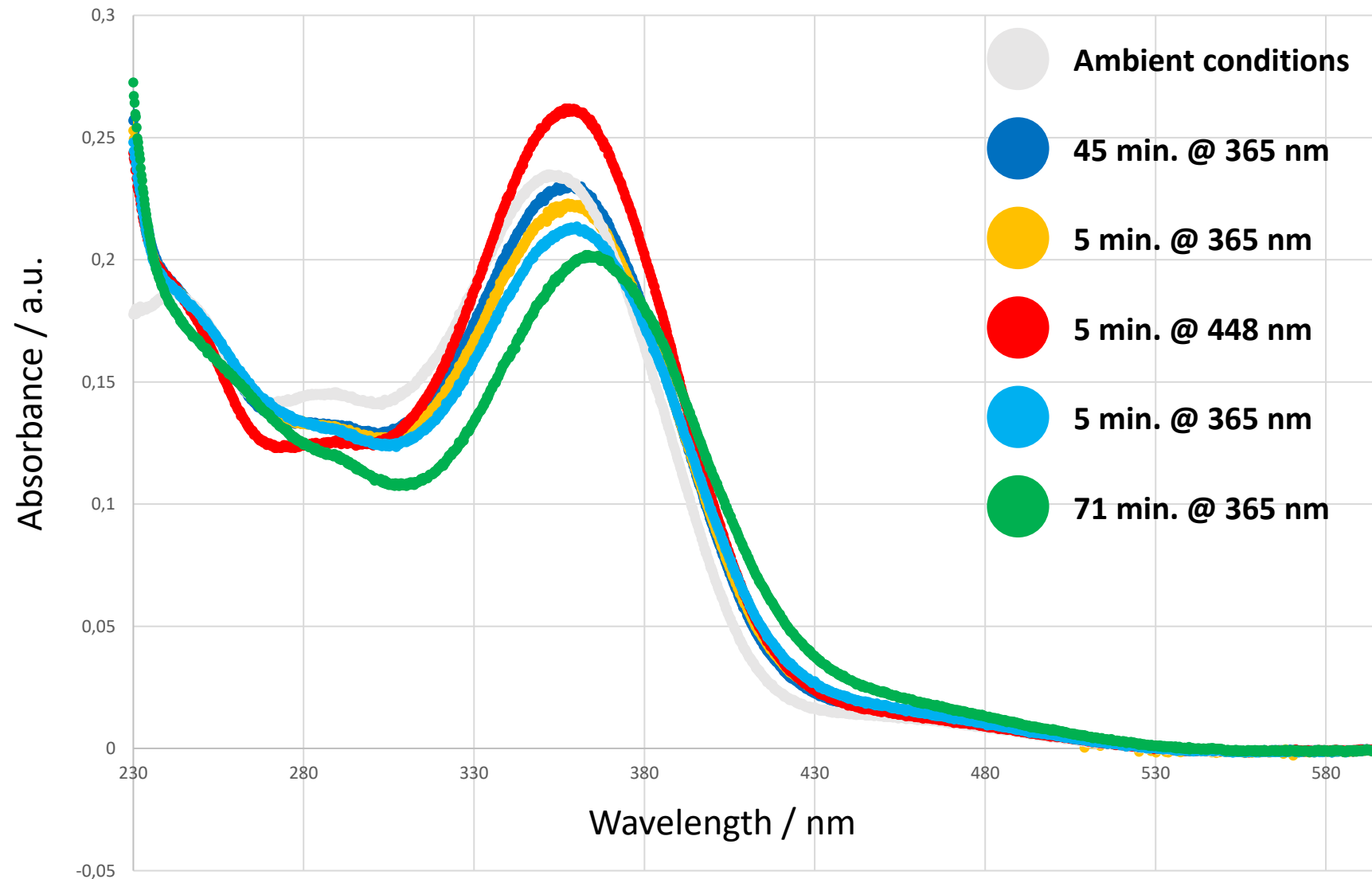


*Determined *via* $^1\text{H-NMR}$

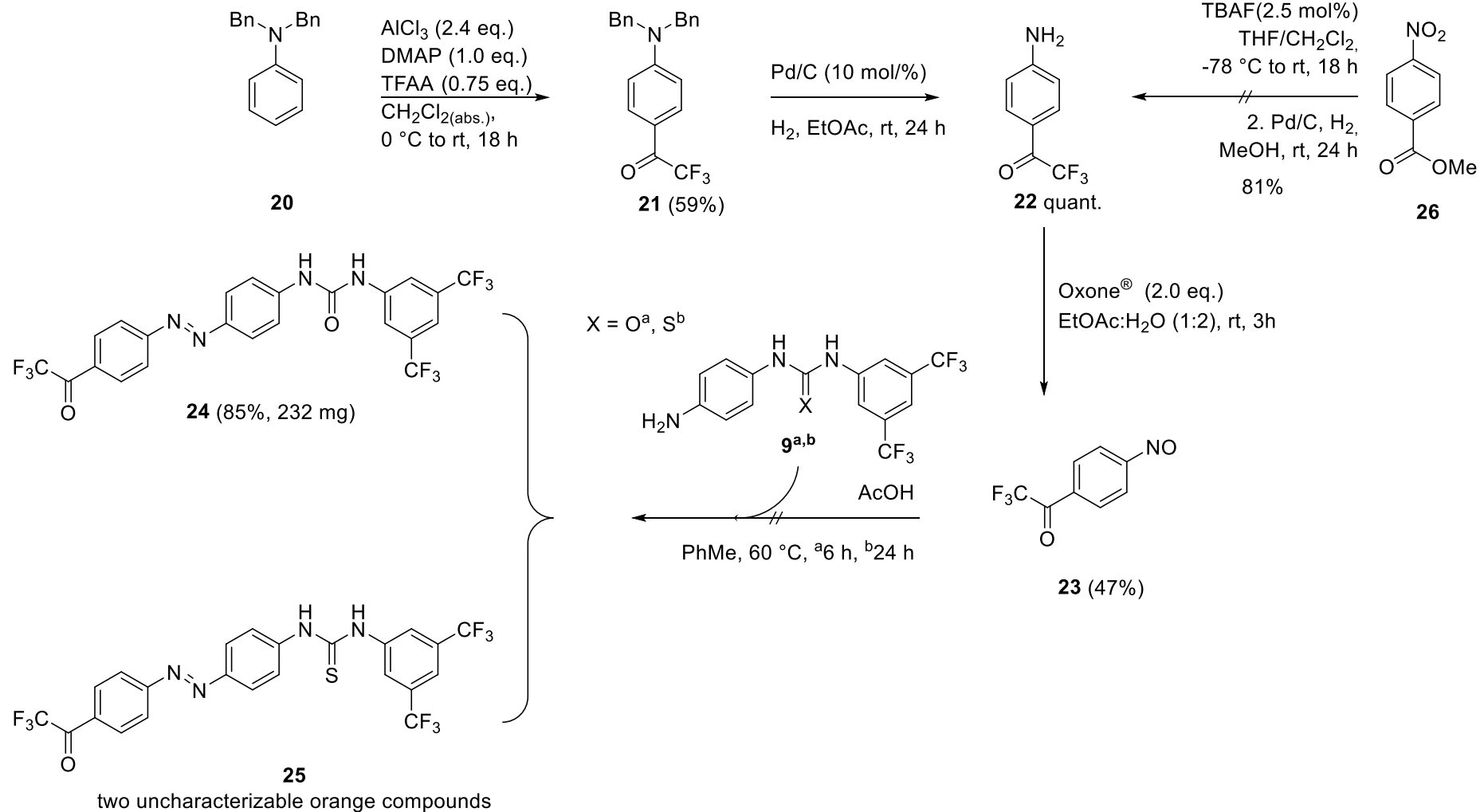






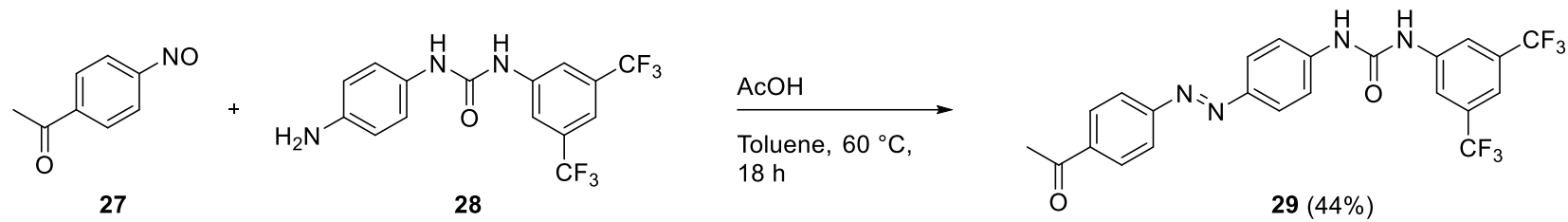


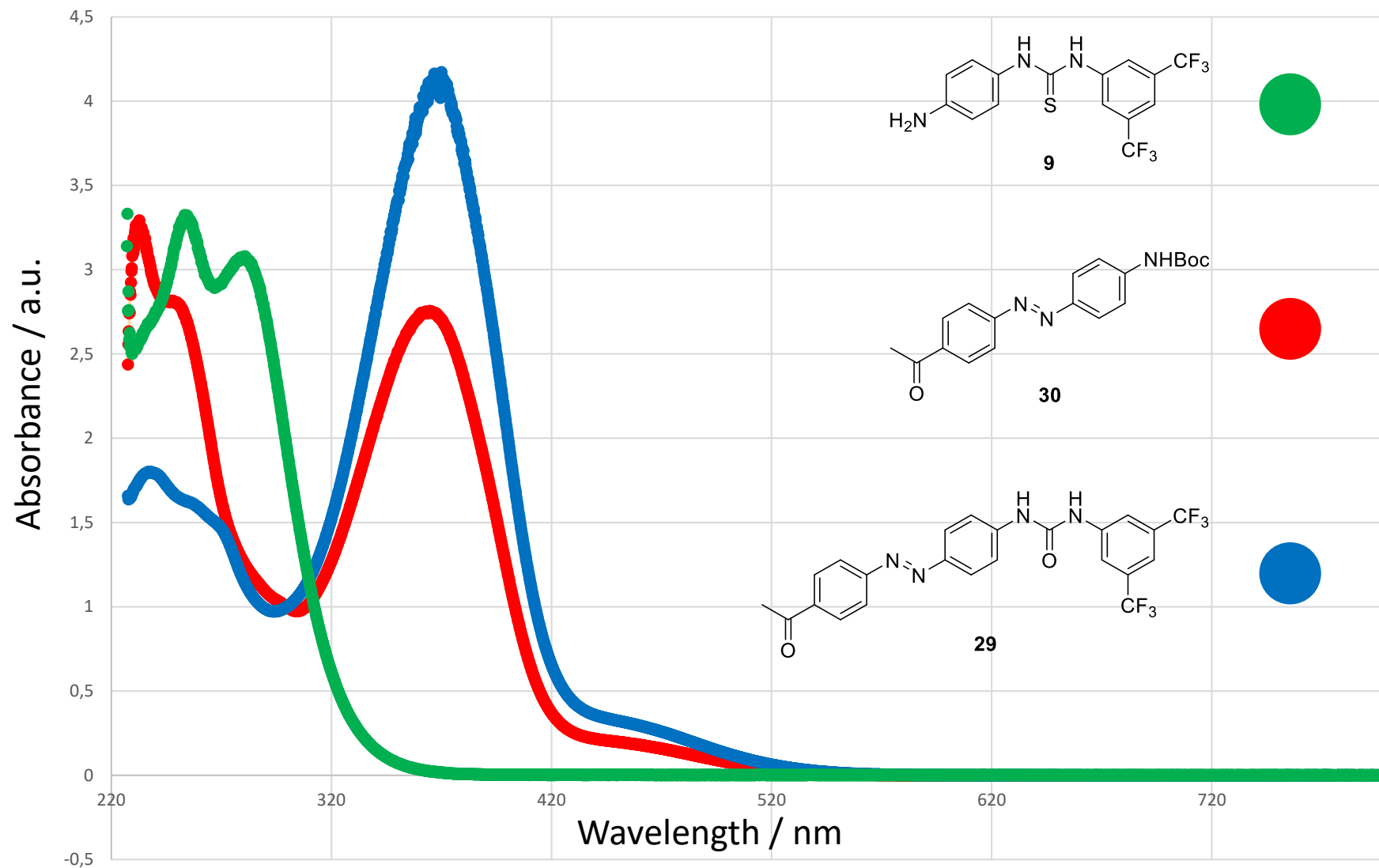
Synthesis attempt of a switchable bifunctional epoxidation catalyst

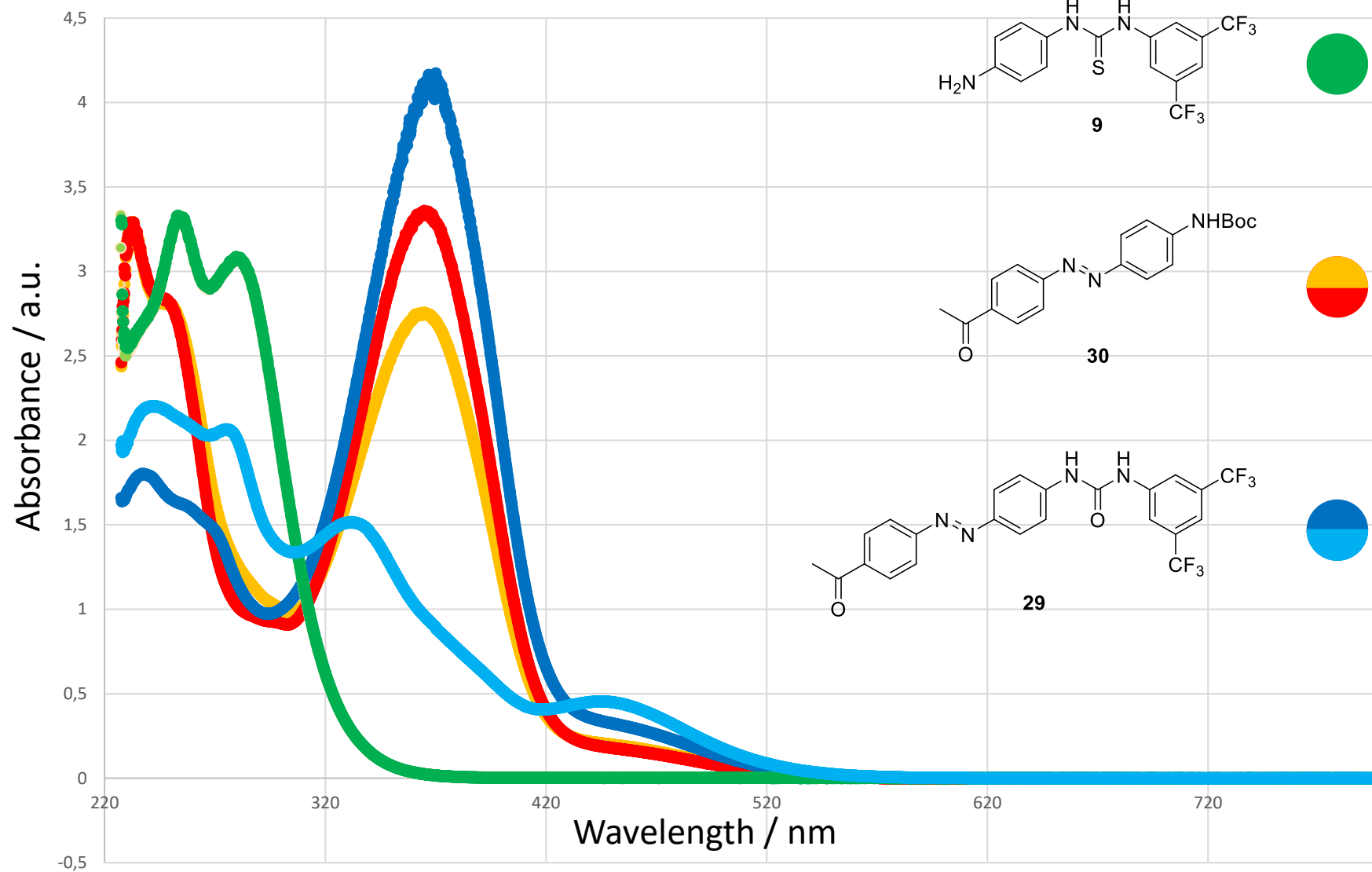


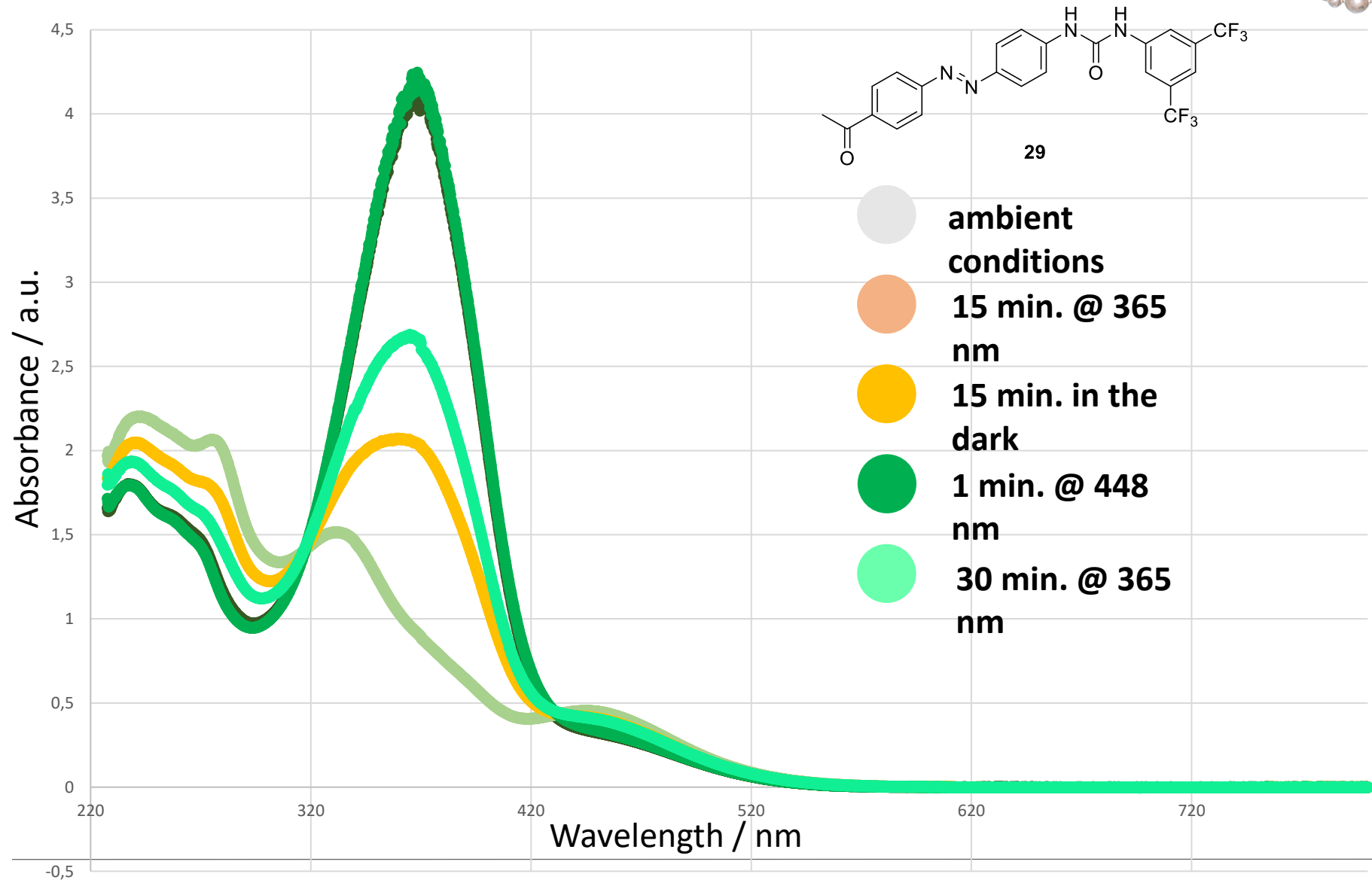


Synthesis of less active ketones to check switchability, activity, etc.











Definition by Cohen & Fischer:

“For a closed system:

(I) the spectra of the limiting systems (e.g., the systems before and after reaction) intersect;

(II) the changes in the concentrations of the various components are linearly related.

...

The existence or absence of isosbestic points provides a basis for distinguishing between systems whose compositions are defined by single reaction parameters, and those requiring more than one such parameter.”

They conclude, consecutive reactions in the form $A \rightarrow B \rightarrow C$ cannot form isosbestic points.

Outlook



- Upgrade the irradiated NMR setup to follow the reaction.
 - Problem: much higher concentration needed, no switching possible with the waveguide so far.

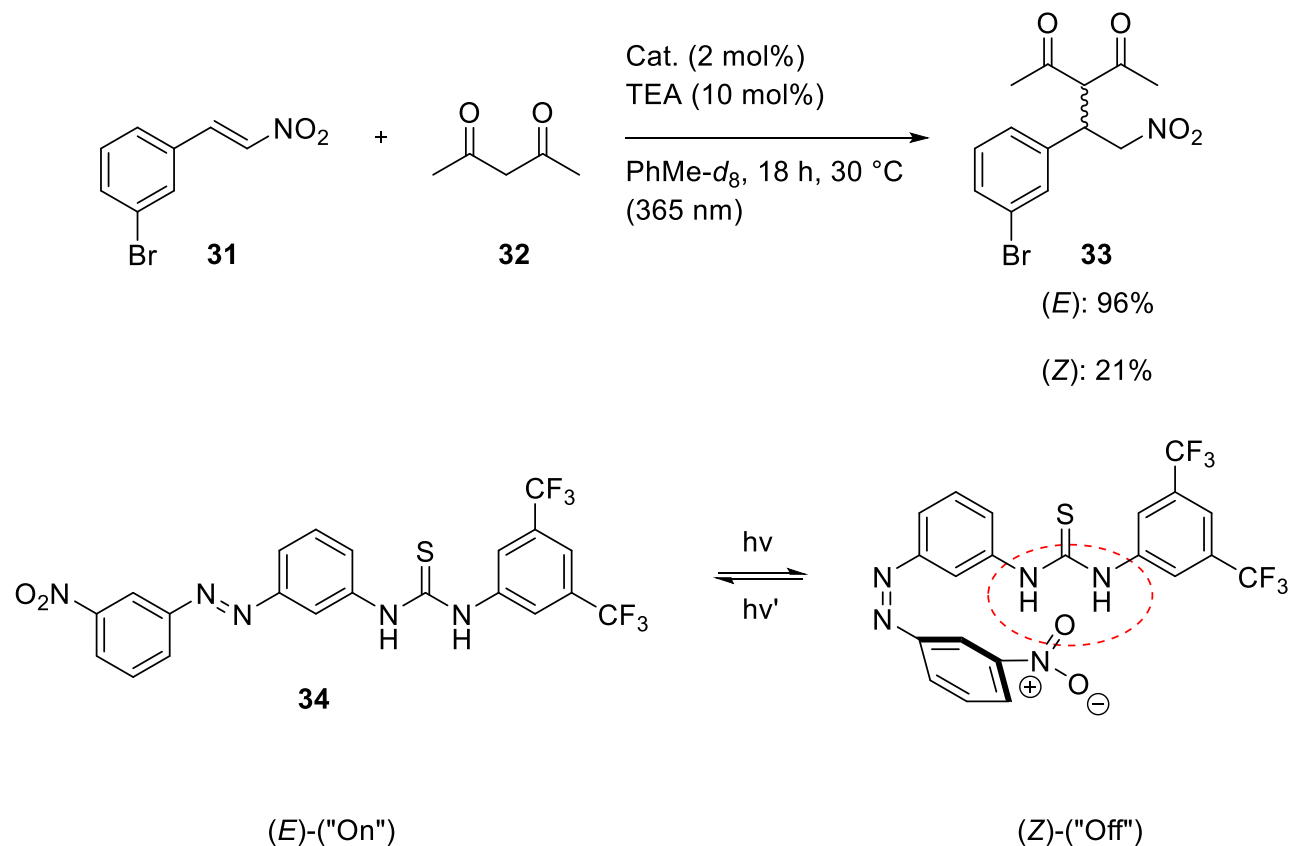
Outlook



- Upgrade the irradiated NMR setup to follow the reaction.
 - Problem: much higher concentration needed, no switching possible with the waveguide so far.
- Reproduce the work of Pericàs et al. to validate my experimental setup.



Photoswitchable on/off organocatalysis in the past



Outlook



- Upgrade the irradiated NMR setup to follow the reaction.
 - Problem: much higher concentration needed, no switching possible with the waveguide so far.
- Reproduce the work of Pericàs et al. to validate my experimental setup.
- Synthesis of different catalysts?