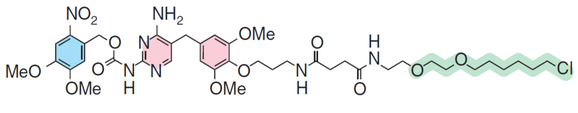
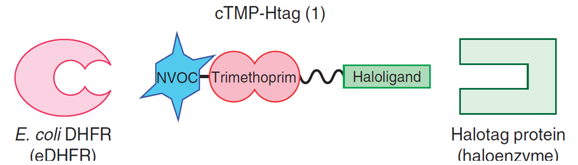
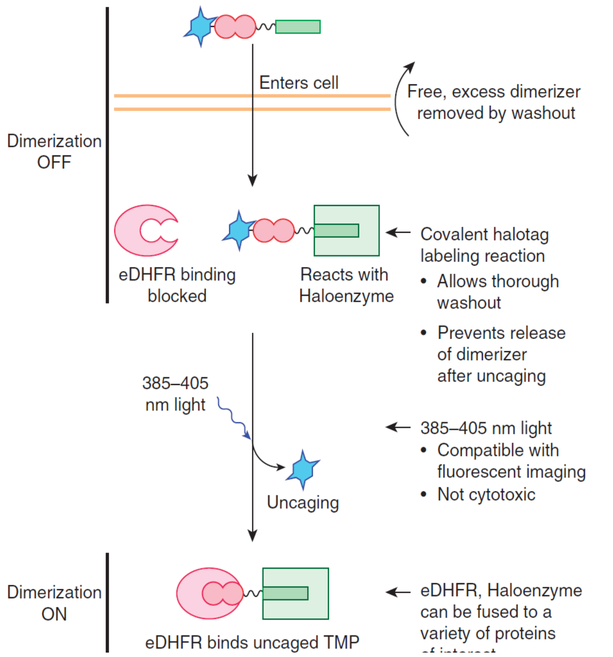
Synthesis and photochemical studies of two p-hydroxyphenacyl derived photocages

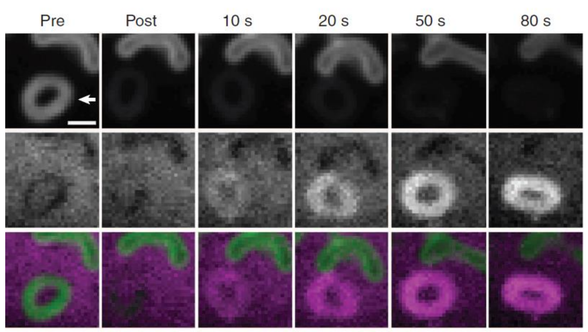
Changfeng Deng, David M. Chenoweth*
Departmeent of Chemistry, University of Pennsylvania, Piladelphia, PA, 19104
Committee: David M. Chenoweth, Ana-Rita Mayol-Cabassa, E. James Petersson

Introduction

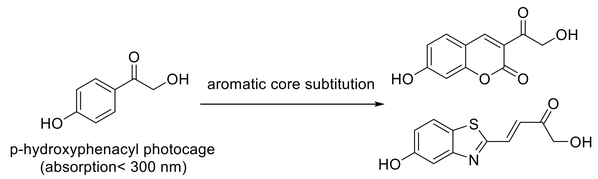




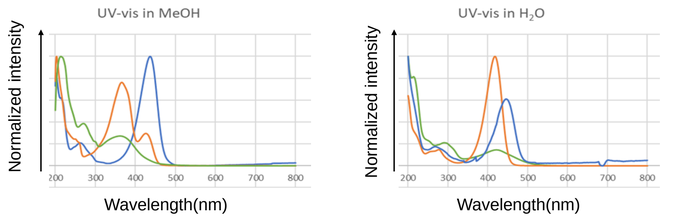




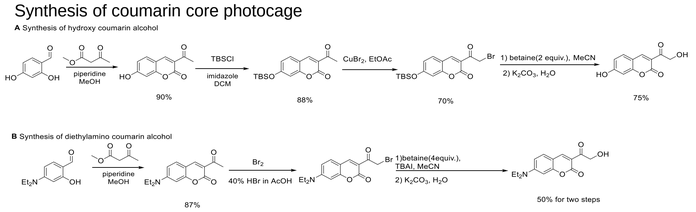
Experimental design



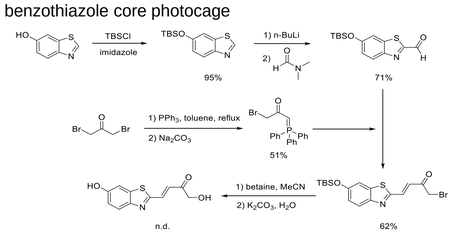
Result and discusssion



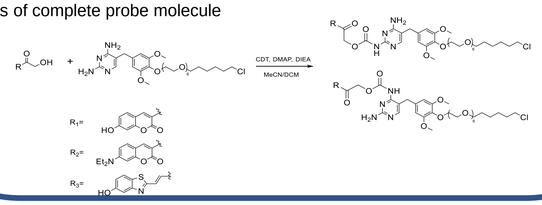
Synthesis of coumarin core photocage



Synthesis of benzothiazole core photocage



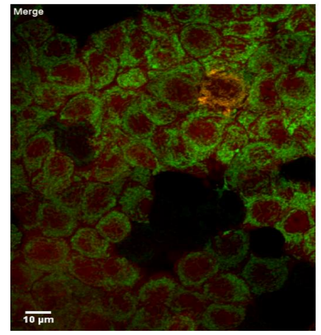
Synthesis of complete probe molecule



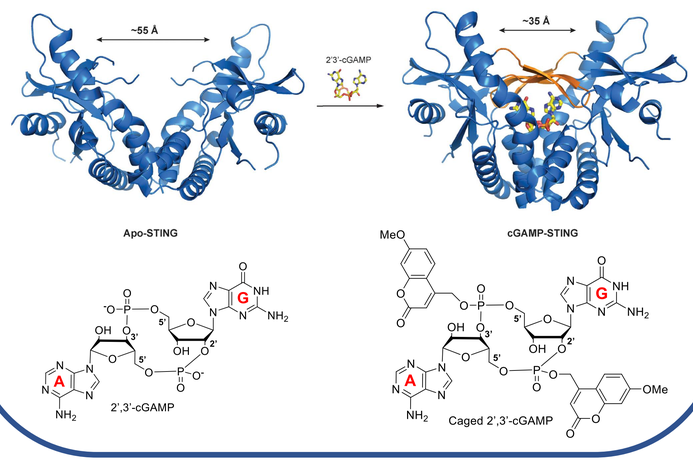
Conclusion and Future Development

The synthesis of three photocages and corresponding probe molecule is demonstrated. All these photocages have aborption maxima over 400 nm in water and can be easily prepared.

Future development 1-cell imaging experiment



Future development 2-caged cGAMP



Reference

1. Ballister, E. R.; Aonbangkhen, C.; Mayo, A. M.; Lampson, M. A.; Chenoweth, D. M. Localized Light-Induced Protein Dimerization in Living Cells Using a Photocaged Dimerizer. *Nat. Commun.* **2014**, *5* (1), 5475.
2. Cai, X.; Chiu, Y.-H.; Chen, Z. J. The CGAS-CGAMP-STING Pathway of Cytosolic DNA Sensing and Signaling. *Molecular Cell* **2014**, *54* (2), 289–296.

Chenoweth Group

PI: David M. Chenoweth

Emily Brackhahn
Changfeng Deng
Michael Elbaum
Abigail Gringeri
Trevor Harris
Shijie Huang
Alexander Kasznel
Rachel Lackner
Samuel Melton
Samuel Orlin
Aziz Jalil
Pengfei Jin
Christopher Johnny
Joo Myung Jun
Mason Smith
Jessica Wickware
Daniel Wu

Penn
Master of Chemical Sciences