

# Program Meeting

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LESLIE LOH

ADVISOR: VINCE REMCHO

# WHO

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- Originally from Houston, Texas
- May 2012: B.S. in Biochemistry - St. Edward's University (Austin, Texas)
- Undergraduate Research – Elemental Analysis on Texas Wines using Atomic Absorption Spectroscopy
- Clinical Assistant Dell Children's Medical Center
- 2012-2013: Thermofisher Scientific (Production Planner)



**ThermoFisher**  
S C I E N T I F I C

Image 1: [http://www.stedwards.edu/sites/default/files/about\\_stedwards\\_top\\_level\\_03.jpg](http://www.stedwards.edu/sites/default/files/about_stedwards_top_level_03.jpg)

Image 2: <http://www.thermofisher.com/en/about-us.html>

# WHAT I HAVE DONE

- July 2013 – Rotation in Burrows' Lab
- Fall 2013 – NSF Proposal on a Photo-actuated Device for Water Desalination
- Research – synthesis problems
  - Reagent purity
  - Solvent purity
- Coursework (courses listed at the end)
- TA
  - CH200 series (Fall and Winter Term)
  - CH324 Spring Term

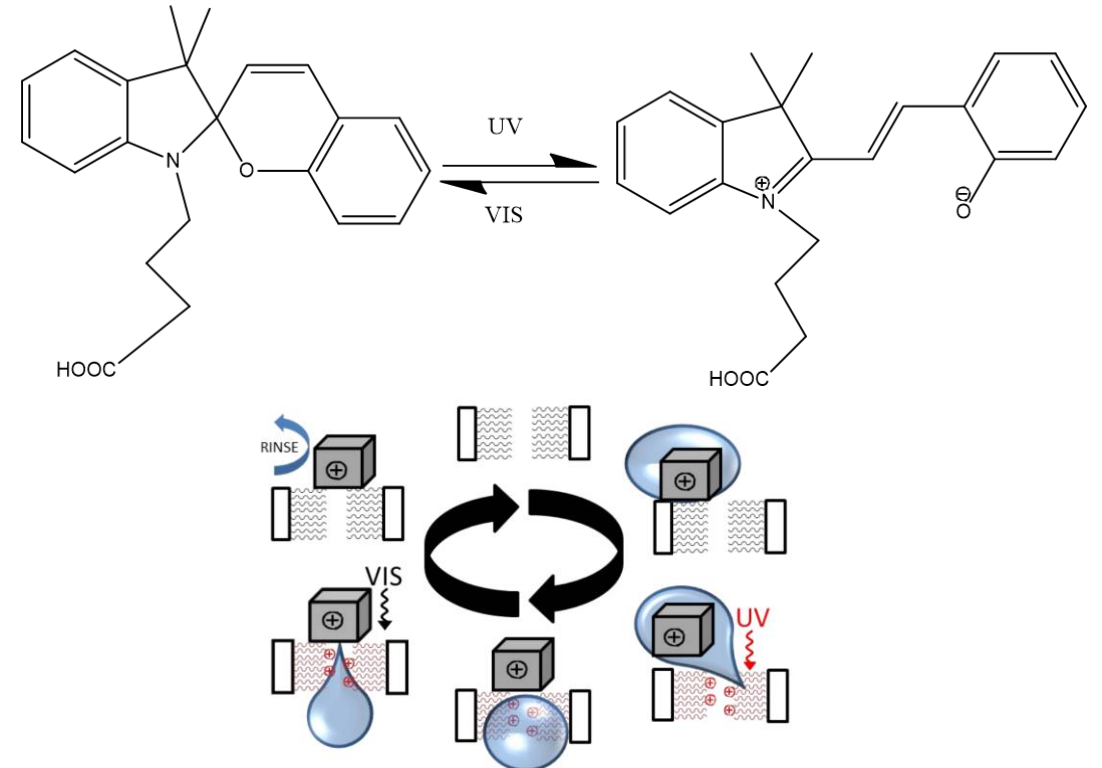


Figure 1. Schematic of functionalized membrane pore. Cube represents the cation. (Note: not the final embodiment of the device).

# MOVING FORWARD

- NMR training -- next week
- Functionalizing surfaces
- Apply toward a device
- Internship

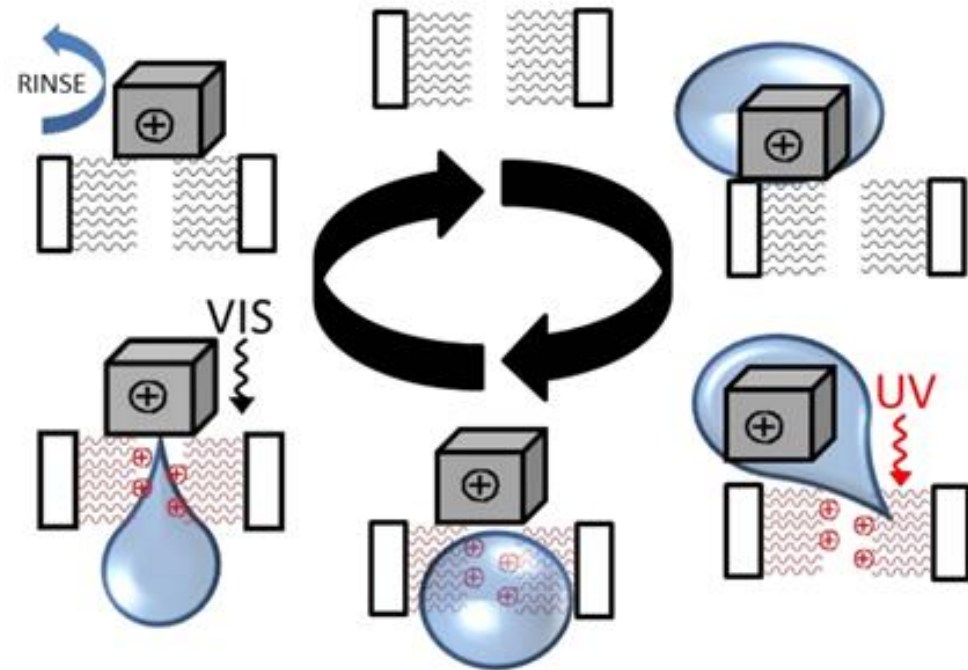
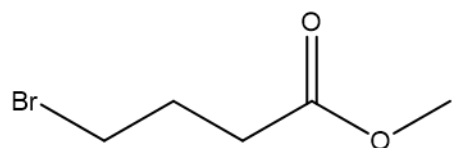
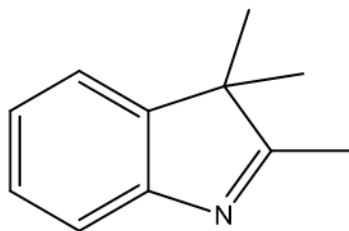
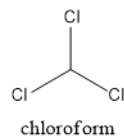


Figure 1. Schematic of functionalized membrane pore. Cube represents the cation. (Note: not the final embodiment of the device).

**Step 1:**

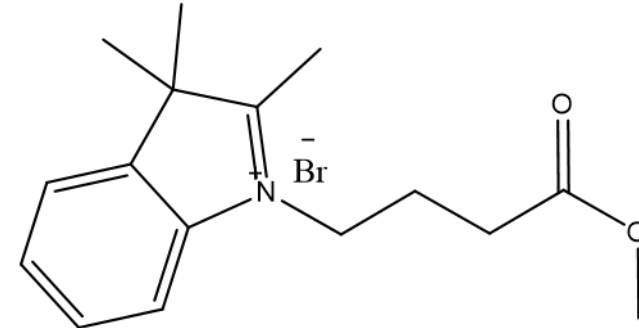
methyl 4-bromobutanoate

+

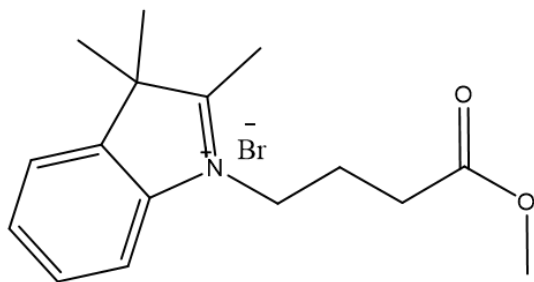
2,3,3-trimethyl-3*H*-indole

chloroform

Reflux in 20 hours

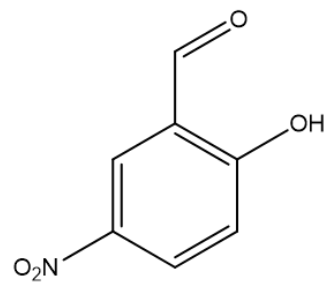


1-(3-carbomethoxypropyl)-3,3-dimethyl-2-methyleneindoline

**Step 2:**

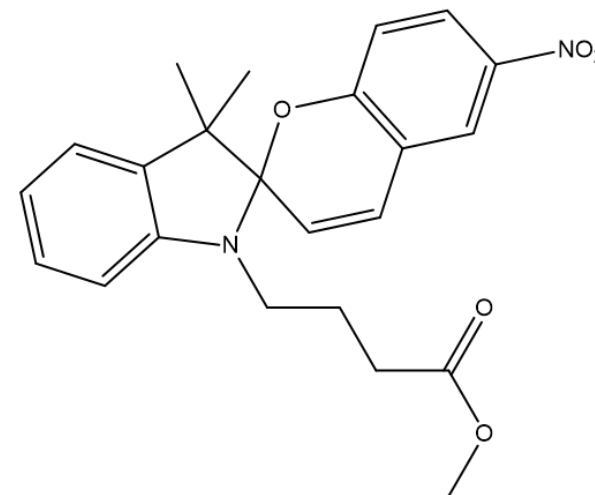
1-(3-carbomethoxypropyl)-3,3-dimethyl-2-methyleneindoline

+

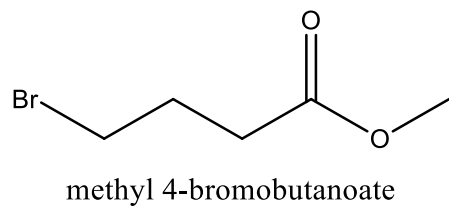


2-hydroxy-5-nitrobenzaldehyde

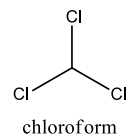
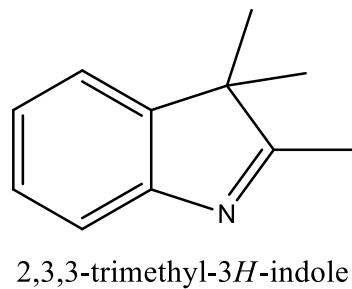
Reflux 6 hours in EtOH

1'-(3-carbomethoxypropyl)-3',3'-dimethyl-6-nitrospiro[2*H*-1]-benzopyran-2,2'-indoline

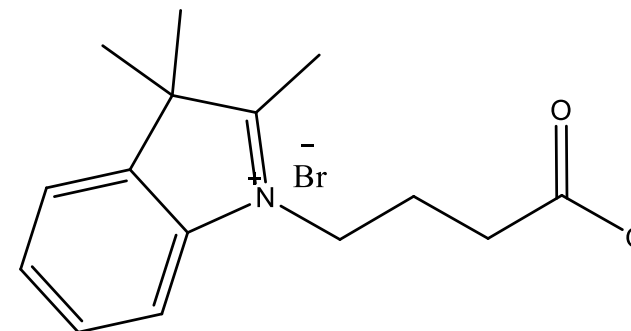
**Step 1:**



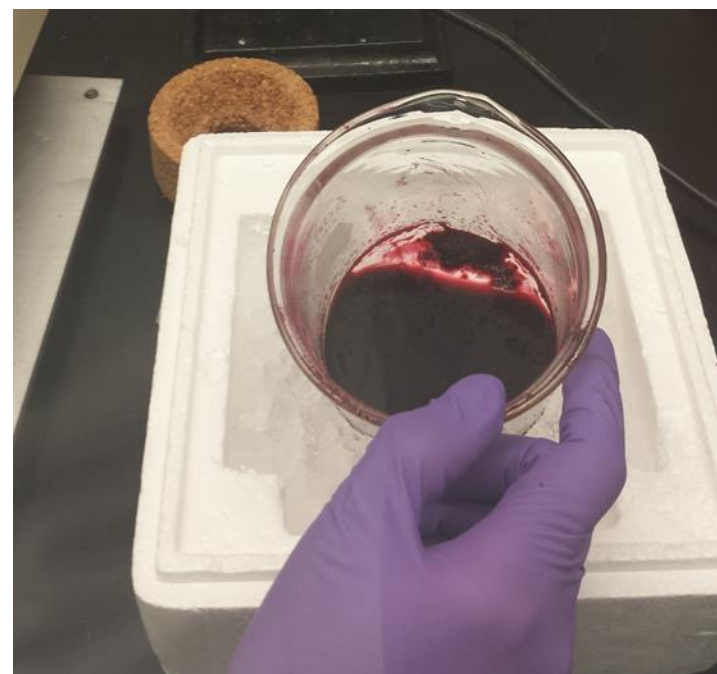
+



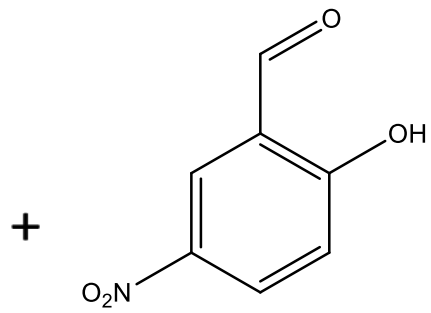
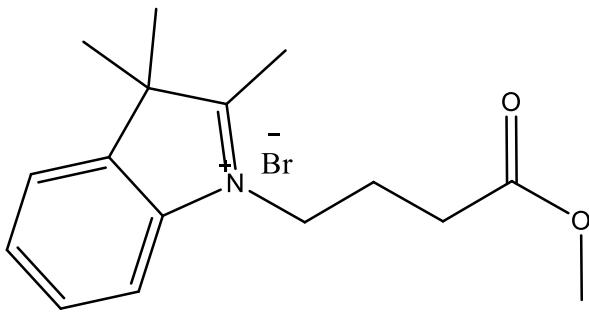
Reflux in 20 hours



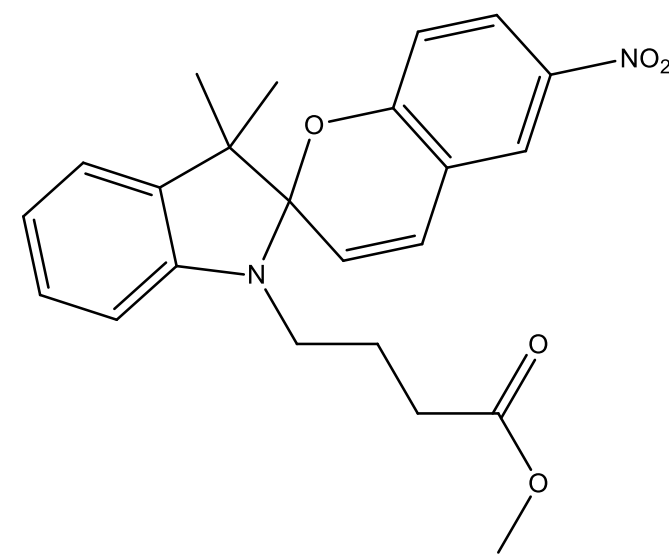
Rotovap  
→  
Recrystallize  
from diethyl  
ether and  
MeOH



**Step 2:**



Reflux 6 hours in EtOH



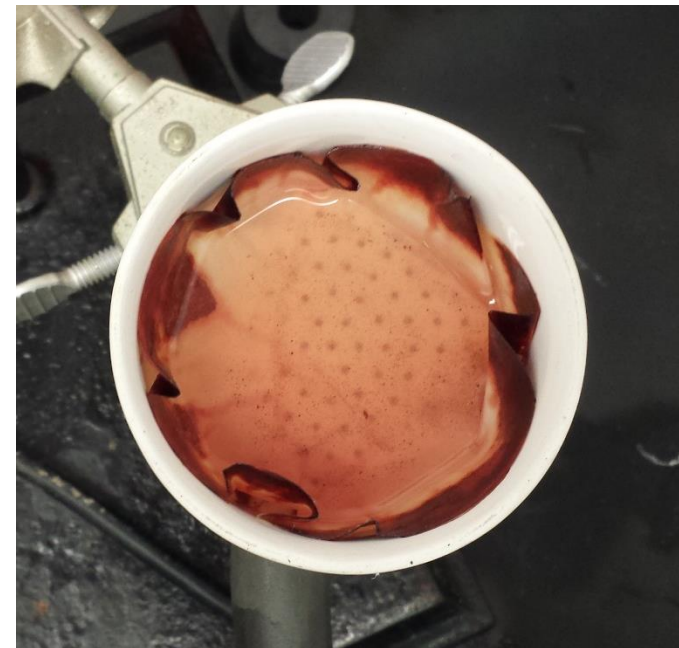
1'-(3-carbomethoxypropyl)-3',3'-dimethyl-6-nitrospiro[2H-1]-benzopyran-2,2'-indoline

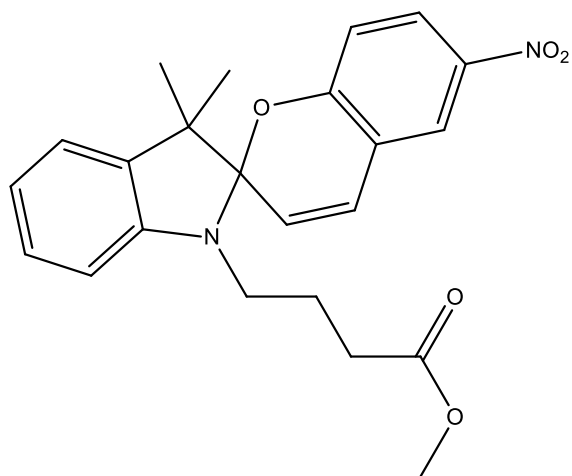


Cooled in an ice bath

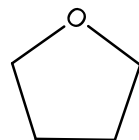


No resulting filter cake

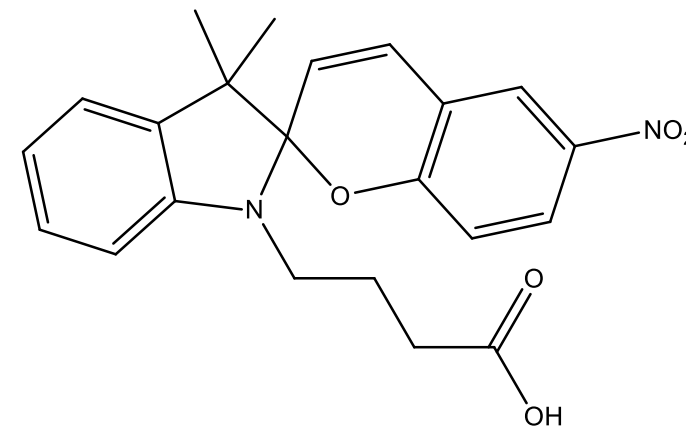


**Step 3:**

+



\*see steps below



1'-(3-carbomethoxypropyl)-3',3'-dimethyl-6-nitrospiro[2H-1]-benzopyran-2,2'-indoline

tetrahydrofuran

1'-(3-Carboxypropyl)-3',3'-dimethyl-6-nitrospiro[2H-1]benzopyran-2,2'-indoline

- \*Dissolve in THF and stir for 24 hours in excess 10% NaOH
- \*Acidify with dilute HCl
- \*extract with chloroform
- \*distill to remove chloroform



