Synopsis of Experiments # 1-5 and Report Due Dates

Chemistry 2312 — Tuesday, September 5, 2023
Honors Organic Chemistry Laboratory — T. R. Hoye

Course Outline: Experiments # 1-5.

1. Ketone Reduction by Sodium Borohydride:
3-Nitroacetophenone to 1-(3-Nitrophenyl)-1-ethanol and 9H-Fluoren-9-one to 9H-Fluoren-9-ol

2. Ozonolysis and Hydrogenation of Naturally Occurring Alkenes (Terpenes):
Nopinone from β-Pinene and Menthone from Pulegone

3. Reactions of Carboxylic Acid Derivatives:
Enolate Alkylation, Ester Hydrolysis, and DCC-Coupling with (R)-1-(1-naphthyl)ethylamine

4. Catalysis: *Palladium(0) Coupling of an Alkyne with an Aryl Halide, Enzymatic Kinetic Resolution of a Chiral Alcohol, and Mosher Ester Analysis of Absolute Configuration*

5. Diels-Alder Cycloaddition Reaction,* Photochemical 2+2 Cycloaddition, and Diketone Reduction: **Preparation of a Starting Material for Synthesis of Analogs of Otteliones A and B, Natural Antitumor Agents*

Points	Experiment 1	110 points
	Experiment 2	220 points
	Experiment 3–5	330 points each

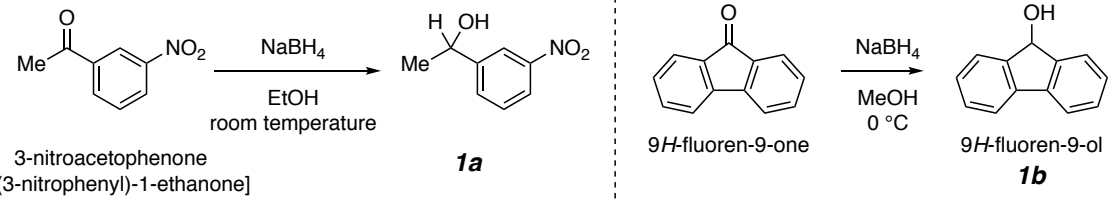
Due Dates (all due **by lab closing time** in a collection box in the 491 Kolthoff lab)

Report 1.	Experiment 1	Thursday, September 21, 2023
Report 2.	Experiment 2	Saturday, October 7, 2023
Report 3.	Experiment 3 (or 4 or 5)	Saturday, October 28, 2023
Report 4.	Experiment 4 (or 5 or 3)	Saturday, November 18, 2023
Report 5.	Experiment 5 (or 3 or 4)	Wednesday, December 13, 2023 (last day of classes/instruction)

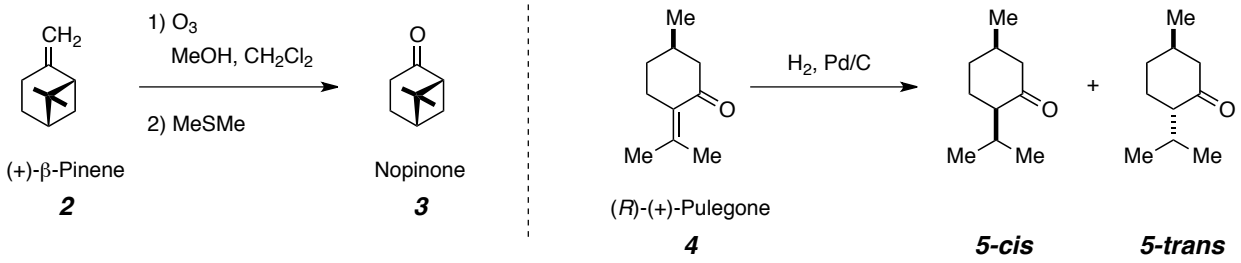
Late Penalty *A 10% penalty will be assessed for each week (or portion thereof) that a report is turned in late.*

Graphical Synopsis of Experiments # 1-5

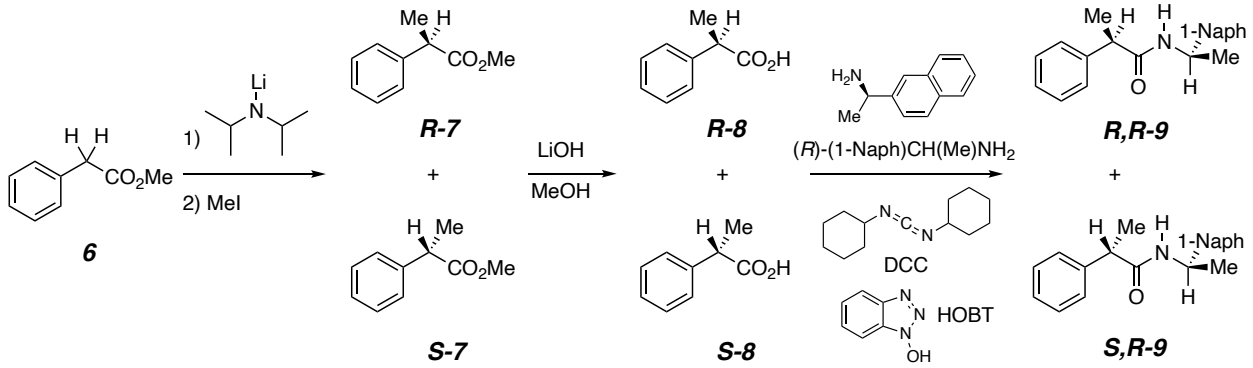
1. Ketone Reduction by Sodium Borohydride:
*1-(3-Nitrophenyl)-1-ethanol (**1a**) and 9H-Fluoren-9-ol (**1b**)*



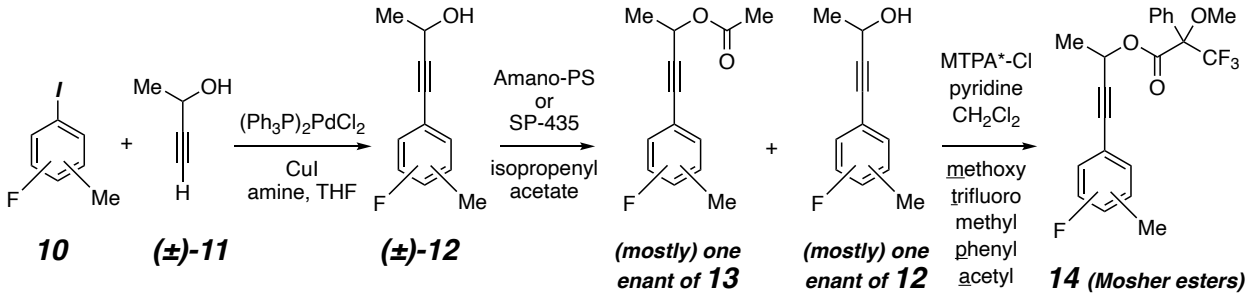
2. Ozonolysis and Hydrogenation of Naturally Occurring Alkenes (Terpenes):
*Nopinone (**3**) from β-Pinene (**2**) and Menthone Diastereomers (**5**) from Pulegone (**4**)*



3. Reactions Relevant to Bioorganic Chemistry: *Enolate Alkylation, Ester Hydrolysis, and DCC-Coupling in the Preparation of Phenyl-N-(1-naphthylethyl)propanamide (**9**)*



4. Catalysis: *Palladium Coupling of an Alkyne (**11**) with an Aryl Iodide (**10**), Enzymatic Kinetic Resolution of a Chiral Alcohol (**12** to **13**), and Mosher Ester Analysis of Absolute Configuration*



5. Cycloadditions: *Diels-Alder, Photochemical 2+2, (and Diketone Reduction)*