



Elias James Corey, Dr.

Sheldon Emery Research Professor
Department of Chemistry and Chemical Biology, Harvard University

July 1928	Born	Methuen, Massachusetts, US
1945 - 1950	B.S & Ph.D	MIT (Advisor: John C. Sheehan)
1951 - 1953	Instructor	UIUC (Collaborator: Roger Adams & Carl S. Marvel)
1953 - 1959 - 1966	Assistant Prof. & Prof.	UIUC
1959 - now	Prof. & Sheldon Emery Prof.	Harvard



Dr. John Clark Sheehan
1915 - 1992

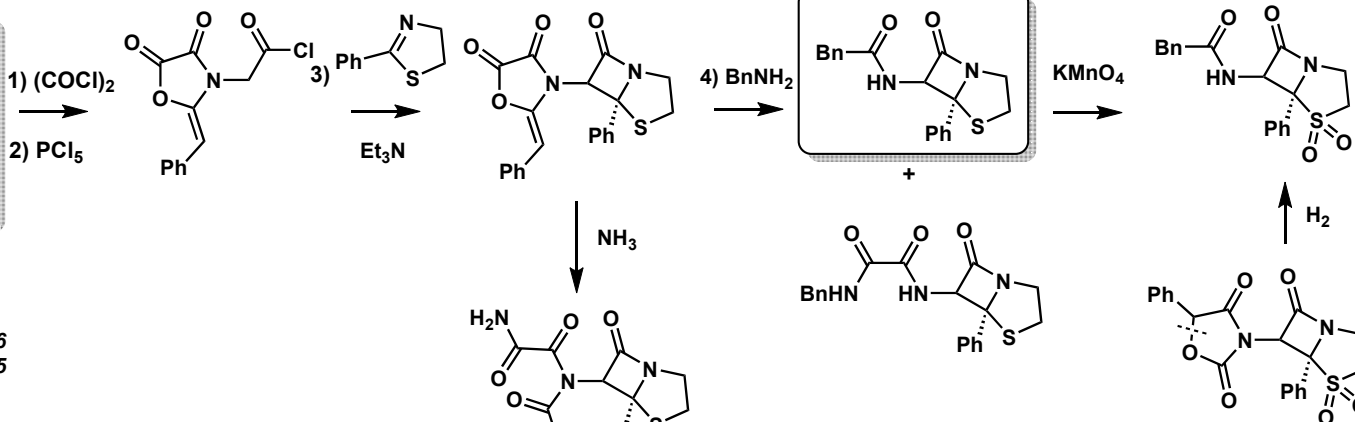
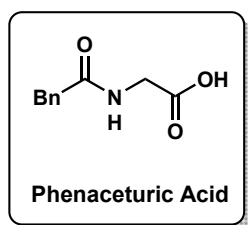


Dr. Roger Adams
"the Chief"
Head of Noyes Lab, UIUC
1889 - 1971



Dr. Carl Shipp Marvel
"Speed Marvel"
1892 - 1988

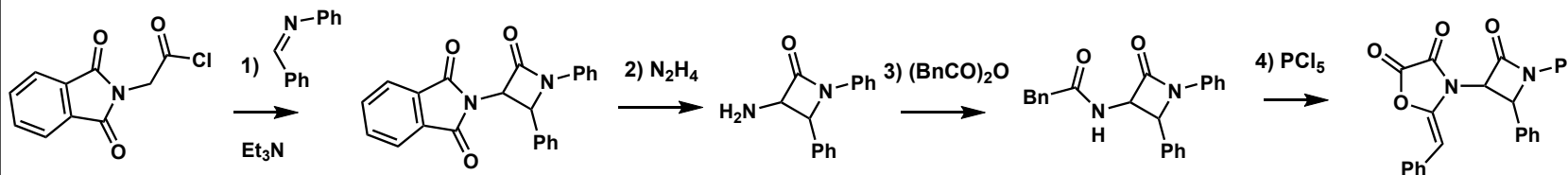
I. Doctoral work: Penicillin



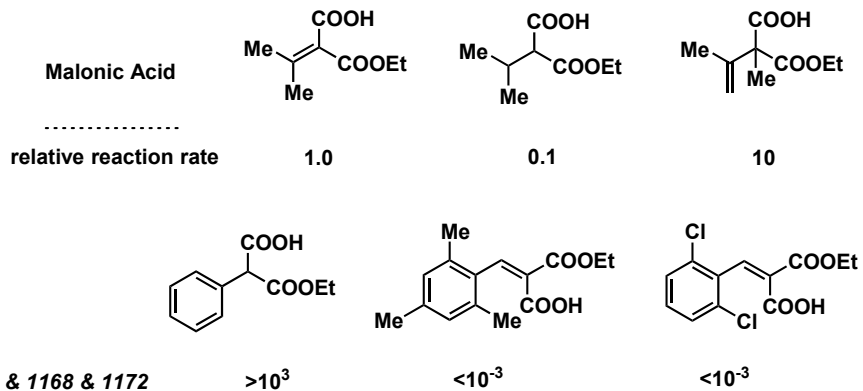
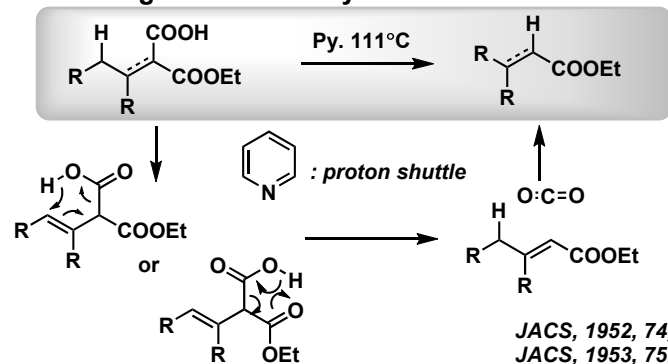
JACS, 1951, 73, 4756
JACS, 1952, 74, 4555

Model Studies (with James J. Ryan) *JACS*, 1951, 73, 1204

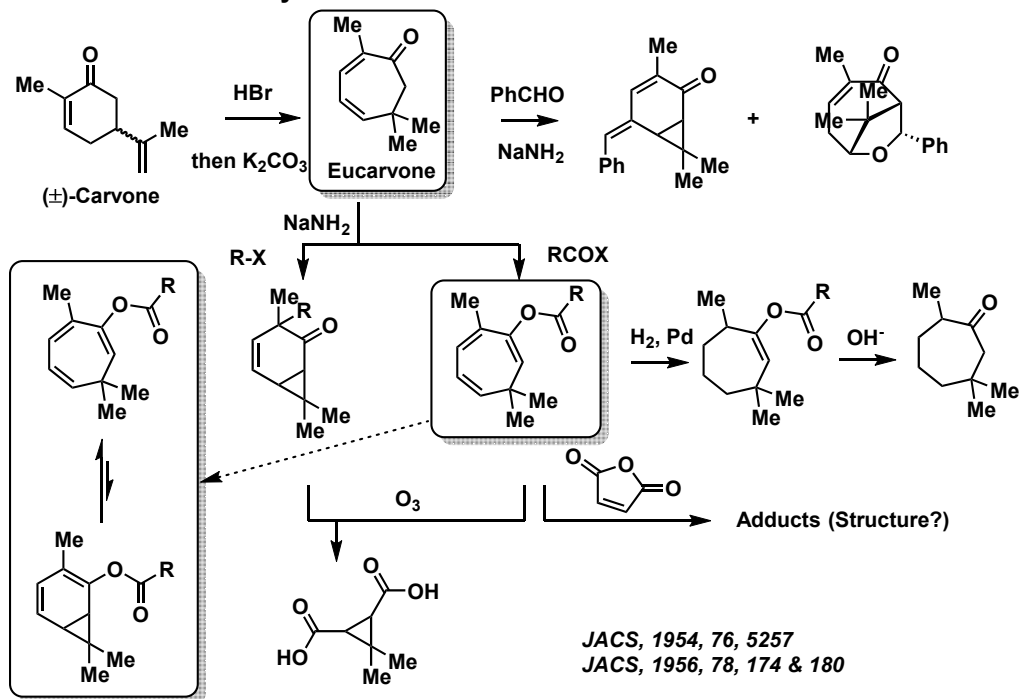
(by Sheehan & Gerald D. Laubach)
JACS, 1951, 73, 4752

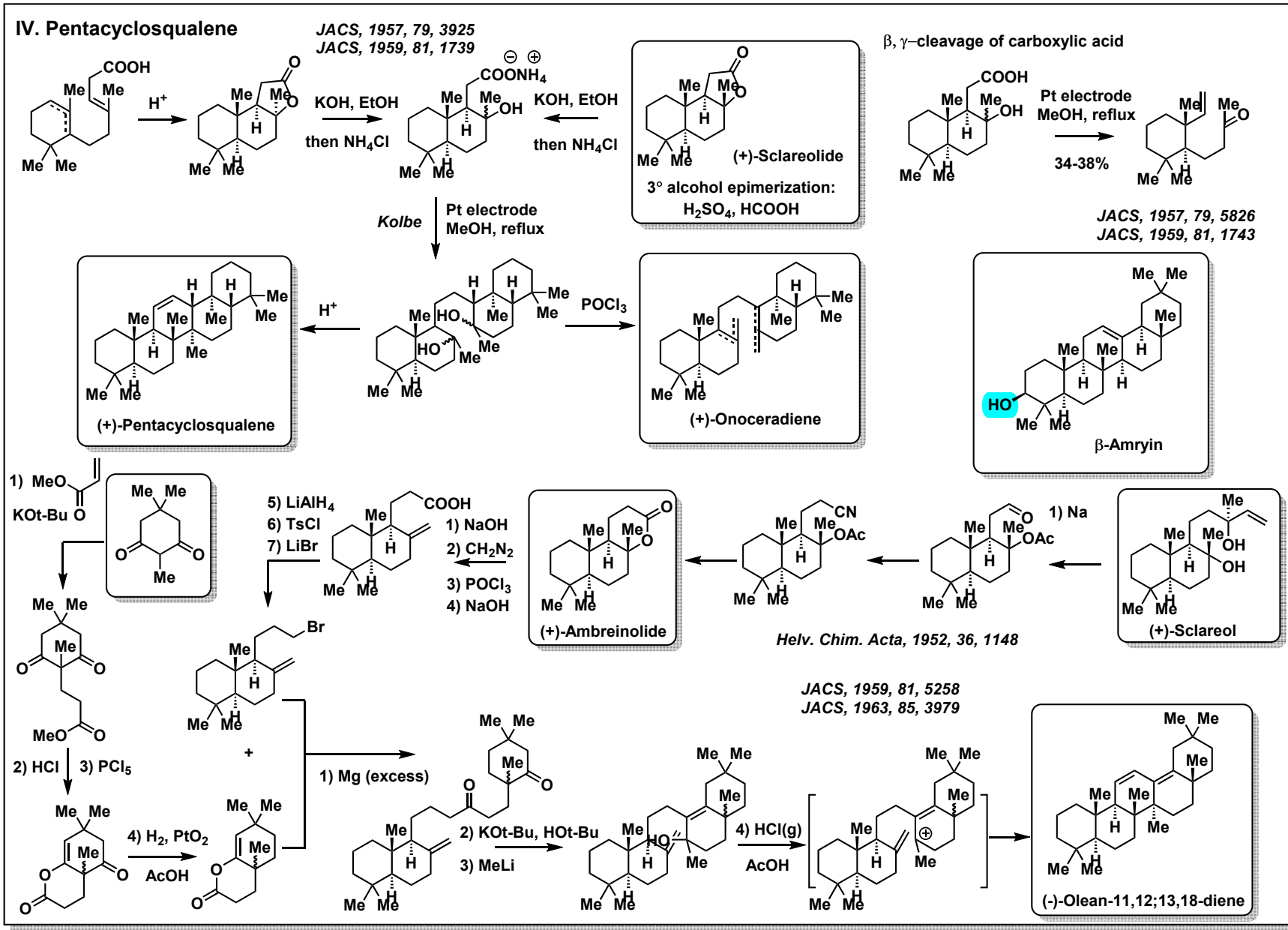


II. First Program: Decarboxylation of Malonic Acids

Dr. Gideon A. Fraenkel
Ohio State Univ.

III. First Natural Product Synthesis: Carenes from Eucarvone

Dr. Howard J. Burke
Upjohn (Pfizer)



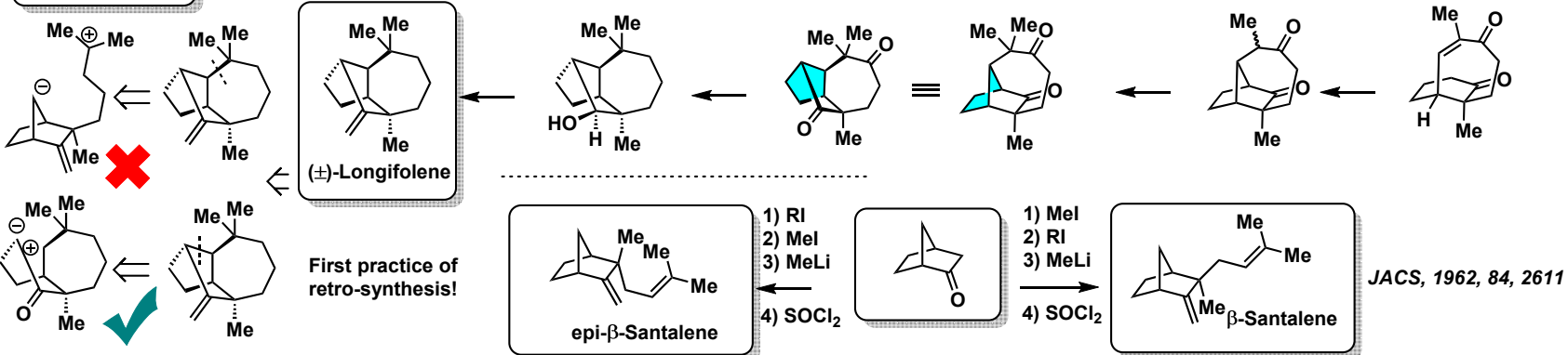
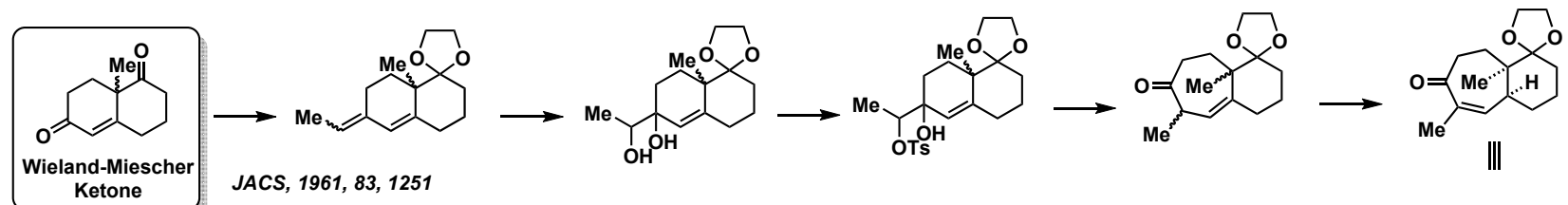
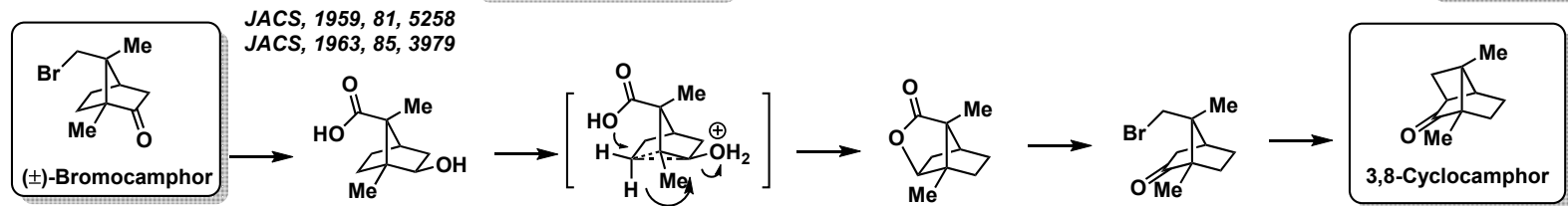
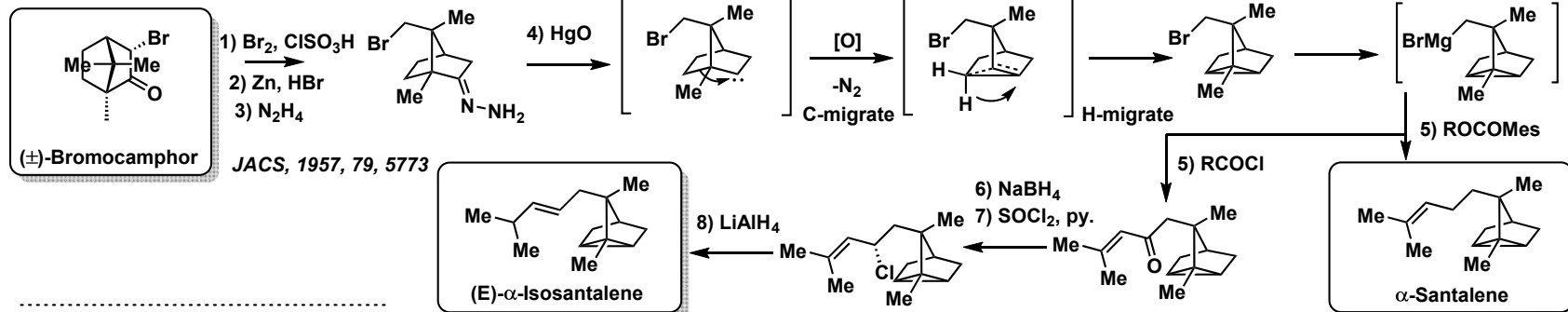
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Dr. Ronald R. Sauer
Rutgers Univ.

• Direct introduce of -OH?

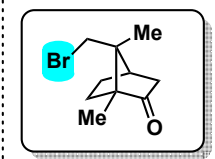
• Mechanism of cationic cyclization?

V. Camphor



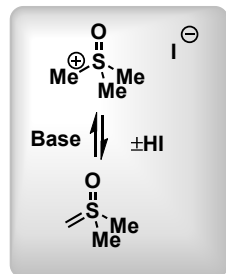
• mechanism discussion & difference with Meerwein rearrangement:
JEduc, 2000, 77, 858

• Why π (exo-methyl)-brominated in the starting material?

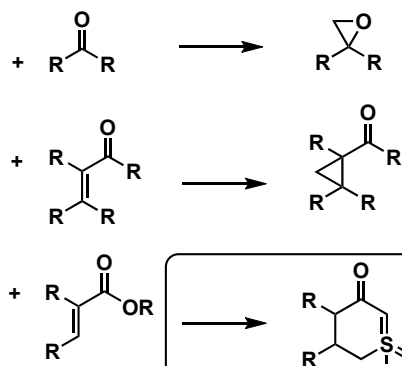


• Any other disconnection for Longifolene?

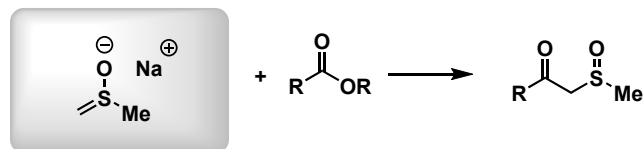
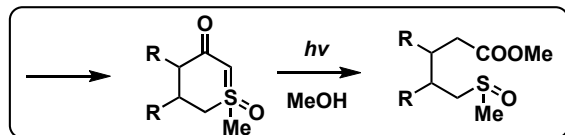
VI. Sulfonyl Carbanion (Corey-Chaykovsky Reaction)



Light unstable



JACS, 1962, 84, 866 & 867 & 3782
 TL, 1963, 4, 169
 JOC, 1963, 28, 254 & 1128



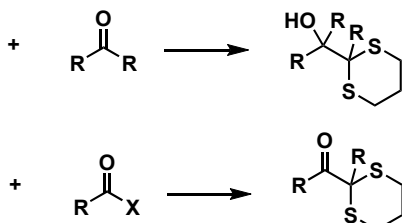
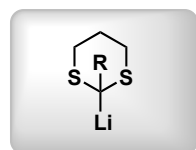
JACS, 1964, 86, 1639 & 1640 & 1899
 JACS, 1965, 87, 1345 & 1353
 TL, 1965, 6, 793 & 801

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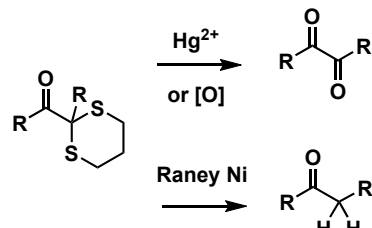
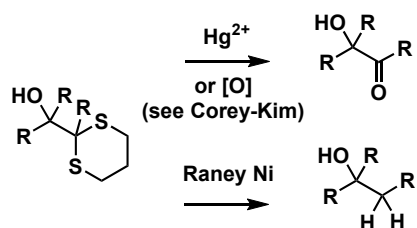
Dr. Michael Chaykovsky
 US Navy & NIH

• Mechanism of
 light induced
 rearrangement?

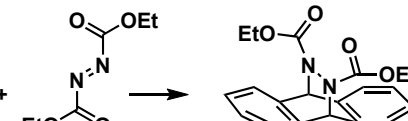
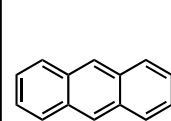
VI. Li-Thiane Umpolung (Corey-Seebach Reaction)



ACIE, 1965, 4, 1075
 JOC, 1966, 31, 4097
 JACS, 1967, 89, 434
 JOC, 1968, 33, 298 & 300

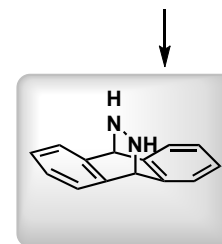


VII. Diimide



TL, 1961, 2, 347
 JACS, 1961, 83, 2957
 JACS, 1962, 84, 685

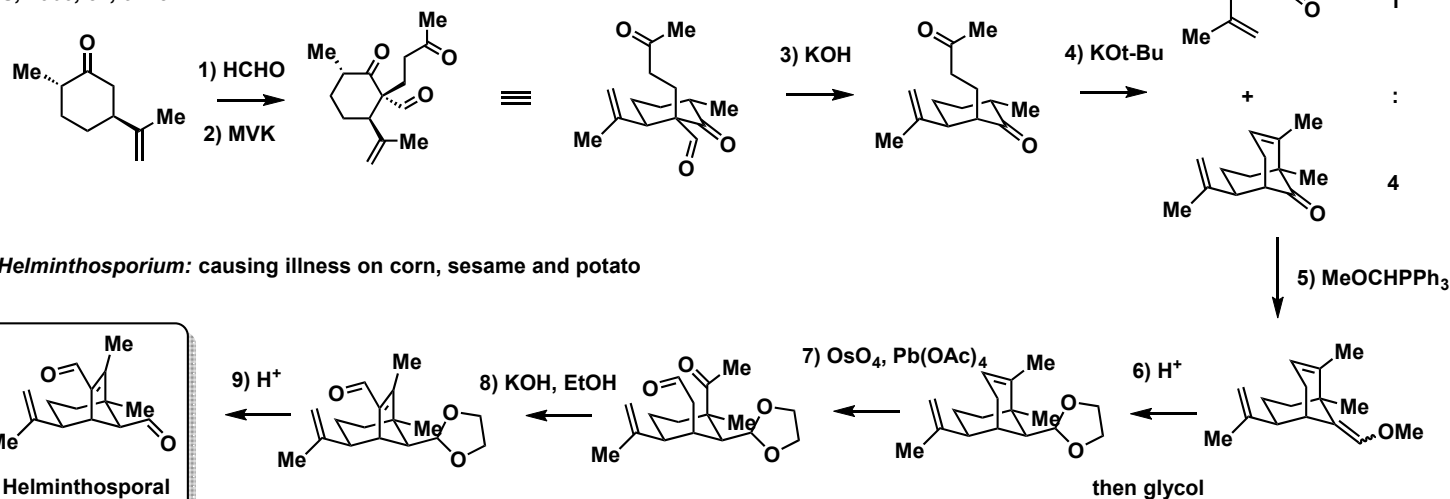
• generate N₂H₂ *in situ*
 • white solid (relatively stable)



Dr. Dieter Seebach
 ETH Zurich

VIII. Helminthosporal

JACS, 1963, 85, 3527
JACS, 1965, 87, 5728



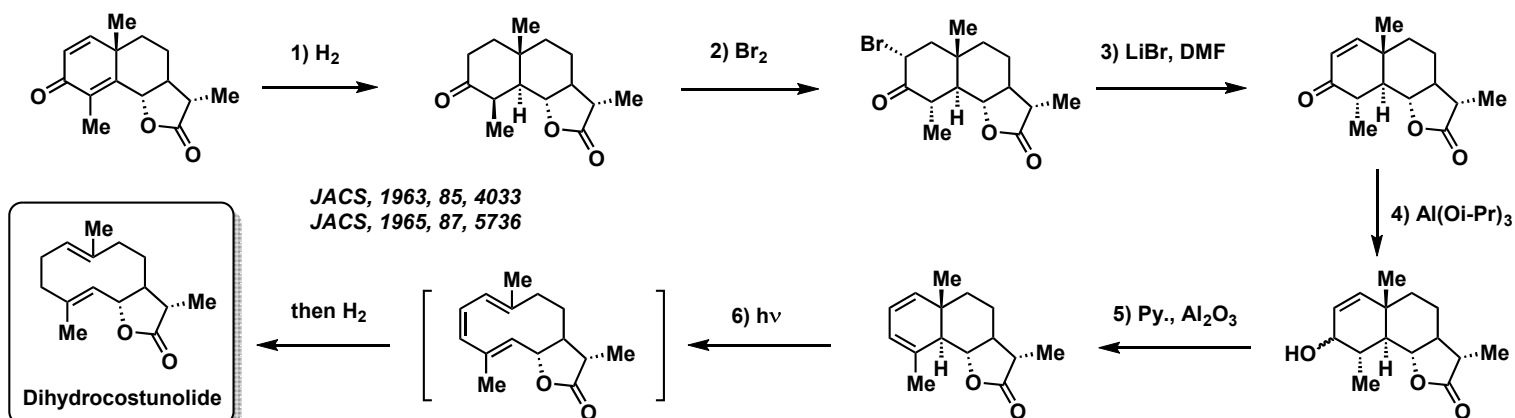
Helminthosporium: causing illness on corn, sesame and potato



Dr. Shigeo Nozoe
Hokkaido Univ.
(son of Dr. Tetsuo Noezo)

IX. Dihydrocostunolide

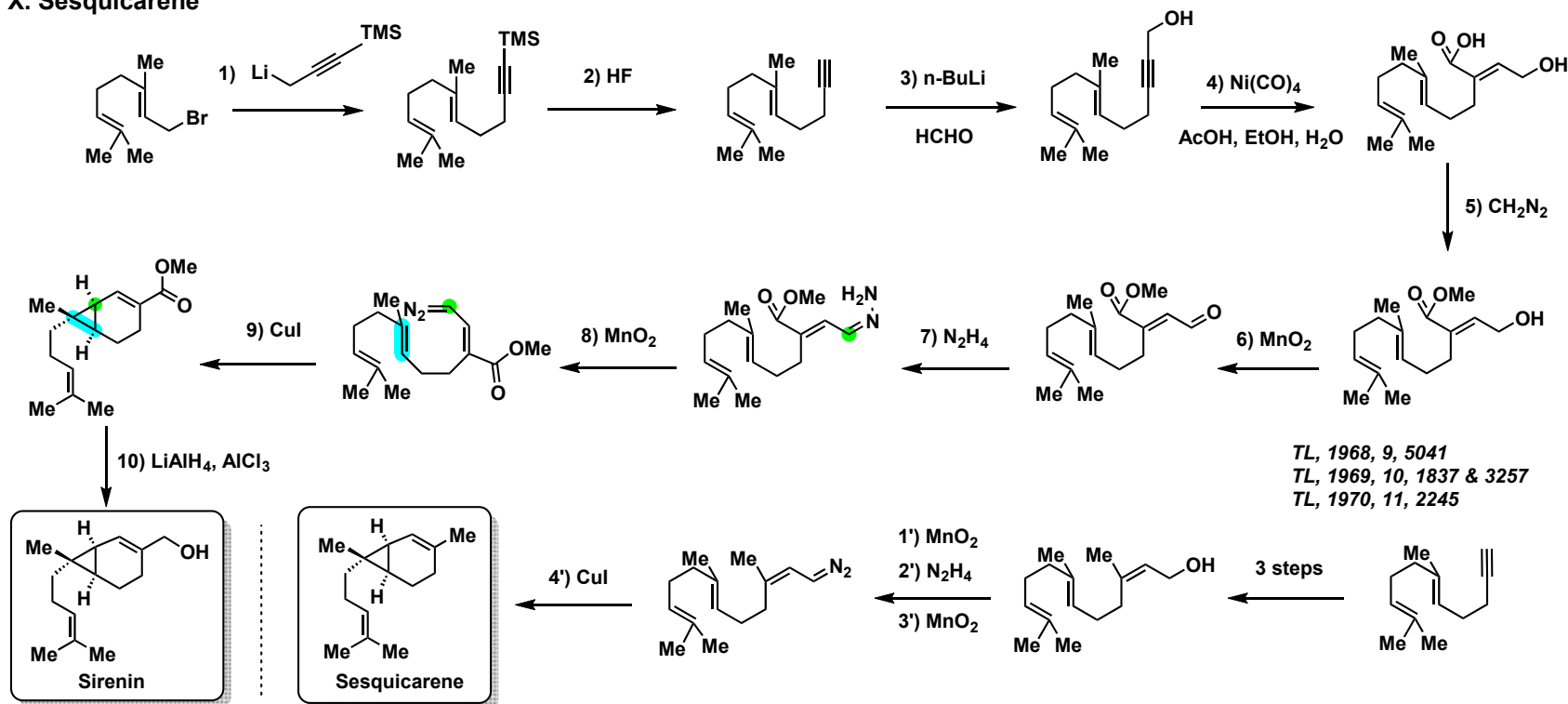
JACS, 1963, 85, 4033
JACS, 1965, 87, 5736



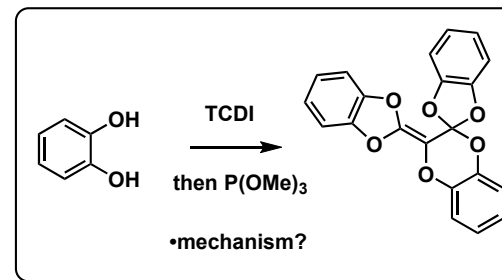
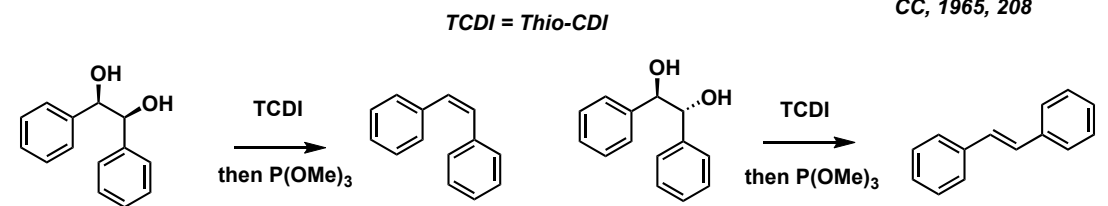
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Dr. Alfred G. Hortmann
Washington Univ.
St. Louis

X. Sesquicarene

Dr. Herbert A. Kirst
Eli Lilly & DowDr. Kazuo Achiwa
Univ. Shizuoka

XI. 1,2-Thionocarbonates (Corey-Winter Olefination)

Dr. Roland A. E. Winter
Univ. Dortmund