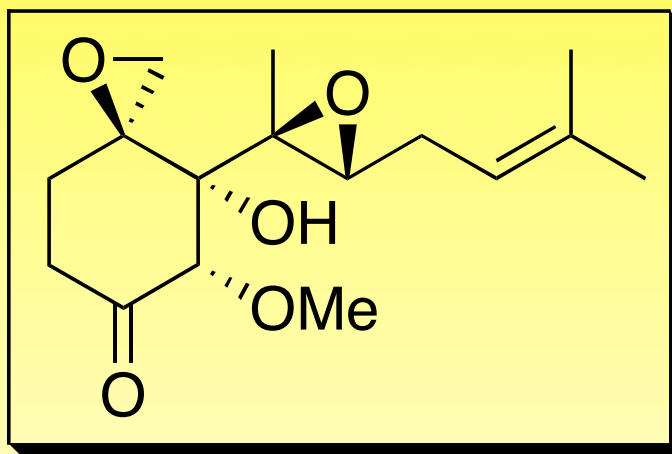


A Diels-Alder Approach to (-)-Ovalicin

Konrad Tiedenbacher, Vladimir B. Arion, and Johann Multzer

Angewandte Chemie International Edition **2007**, 46, 2690-2693



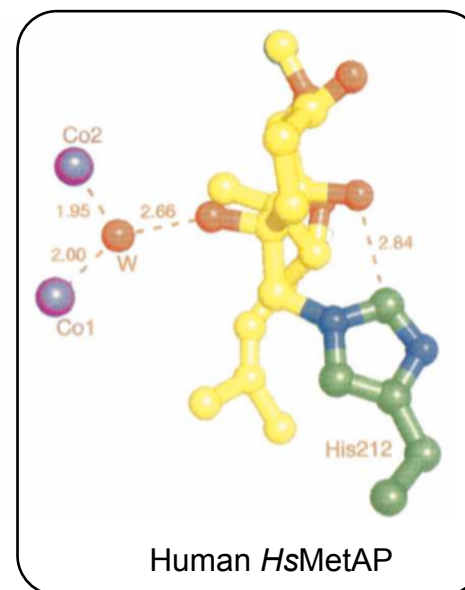
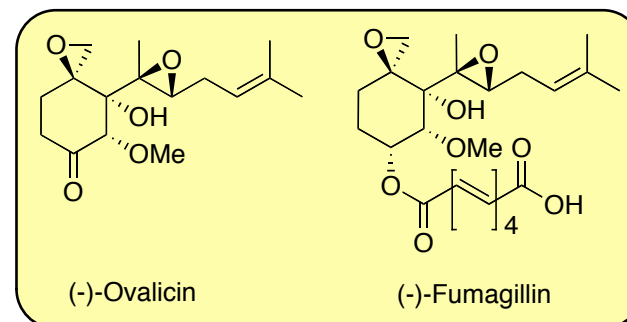
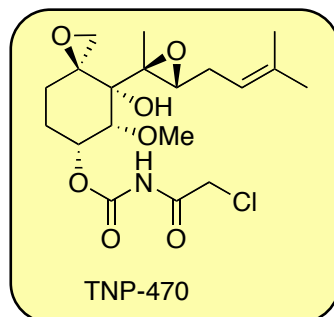
1

Presented by Max Osipov
CHEM 2320
April 16th 2007

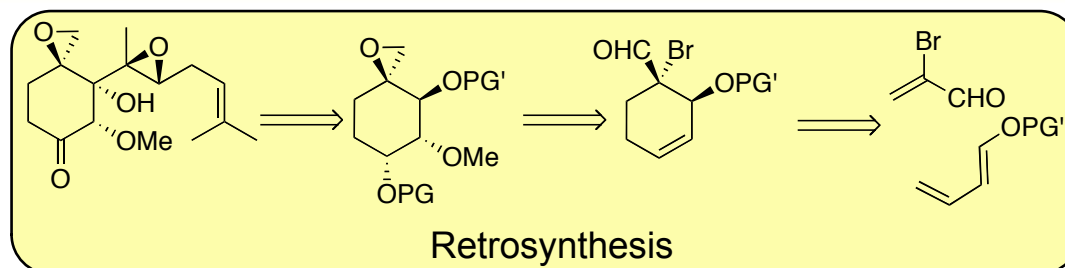


Biological Relevance

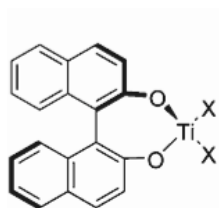
- Isolated from *Pseudorotium ovalis* cultures
- Antiangiogenic activity
 - Tumor growth suppression
 - Suicide inhibitor
 - Methionine Aminopeptidase*
 - HsMetAP2
 - Alkylation
- Anti-Microsporidiosis agent
 - Protazoan/fungal parasites
- Designer analogues
 - TNP-470



Diels-Alder Key-Step

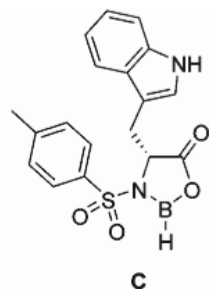


- Catalytic approach to Diels-Alder reaction failed to give acceptable ee's
- Keck, Mikami, Corey and MacMillan Catalysts
- Auxiliary approach gave desired result

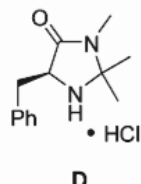


A (X = OiPr)
B (X = Cl)

A: Keck
B: Mikami



C: Corey

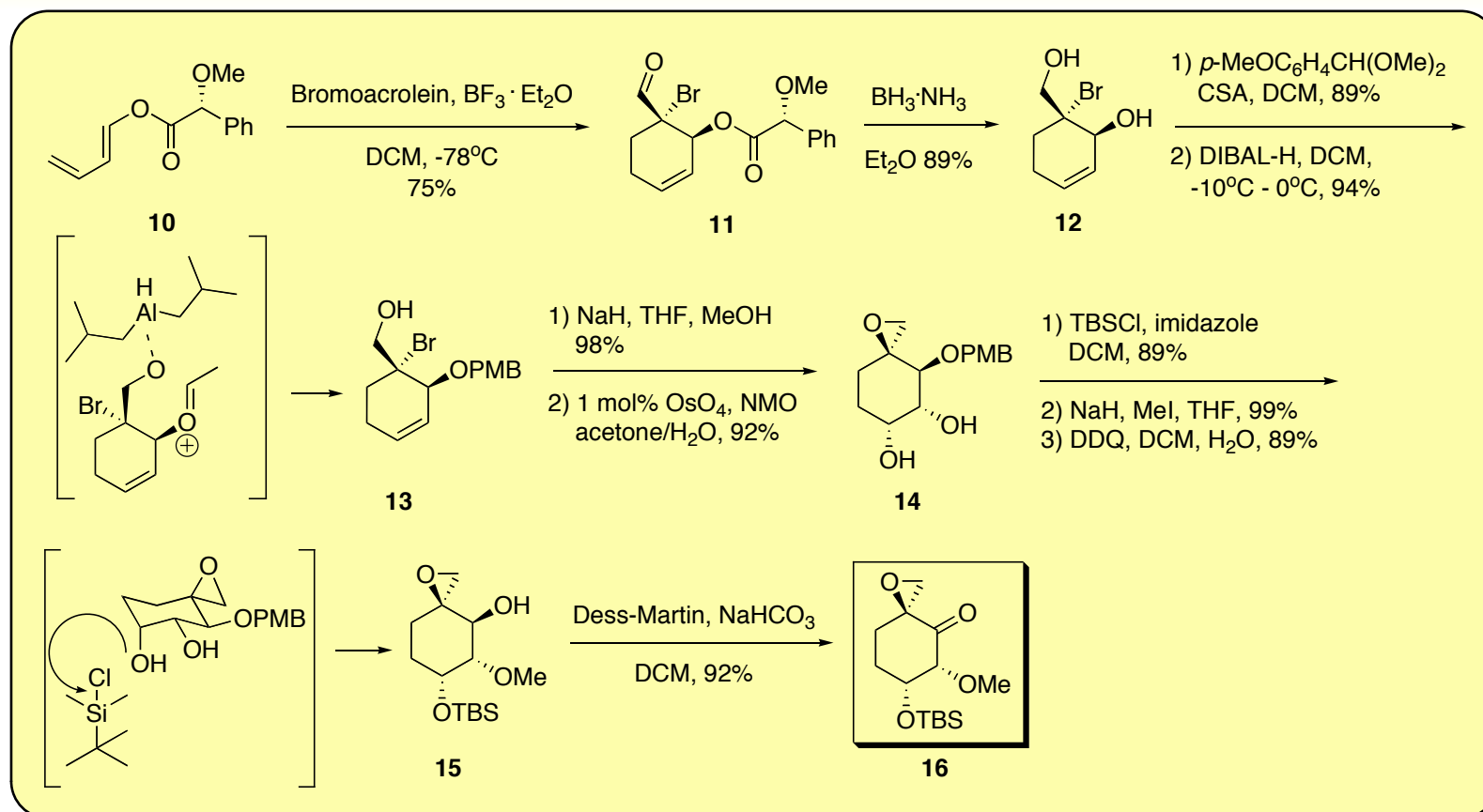


D: MacMillan

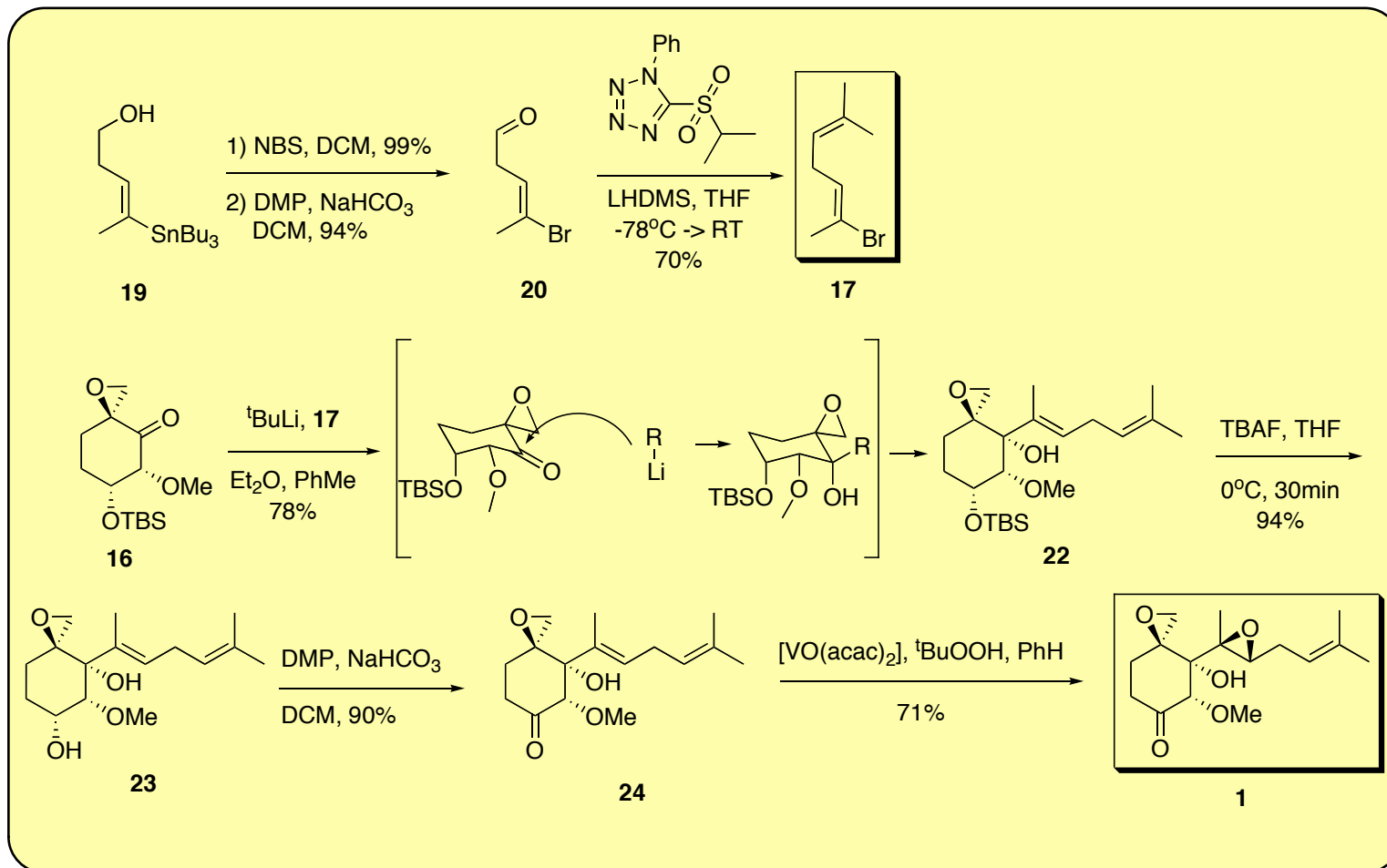
Entry	Catalyst ^[a]	Diene ^[b]	T, t	Yield [%] ^[c]	ee [%] ^[d]
1	A	7	4 °C, 18 h	42	56
2	A	8	–78 °C, 1.5 h	73	< 10
3	B	7	4 °C, 18 h	41	45
4	C	8	–78 °C, 6 h	44	< 10
5	C	9	–30 °C, 5 h 20 °C, 12 h	58	< 10
6	D	7	4 °C, 18 h	74	< 10



Construction of Core Ring



Side-Chain Construction and Fragment Coupling



Conclusion

- Total synthesis of (-)-Ovalicin in 15 linear steps
- 15% Yield overall
- First Diels-Alder approach to Ovalicin
- Interesting selective transformations



Any Questions?

