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# SYNFACTS Highlights in Chemical Synthesis



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Georg Thieme Verlag KG
Rüdigerstraße 14
70469 Stuttgart
ISSN 1861-1958



Thieme

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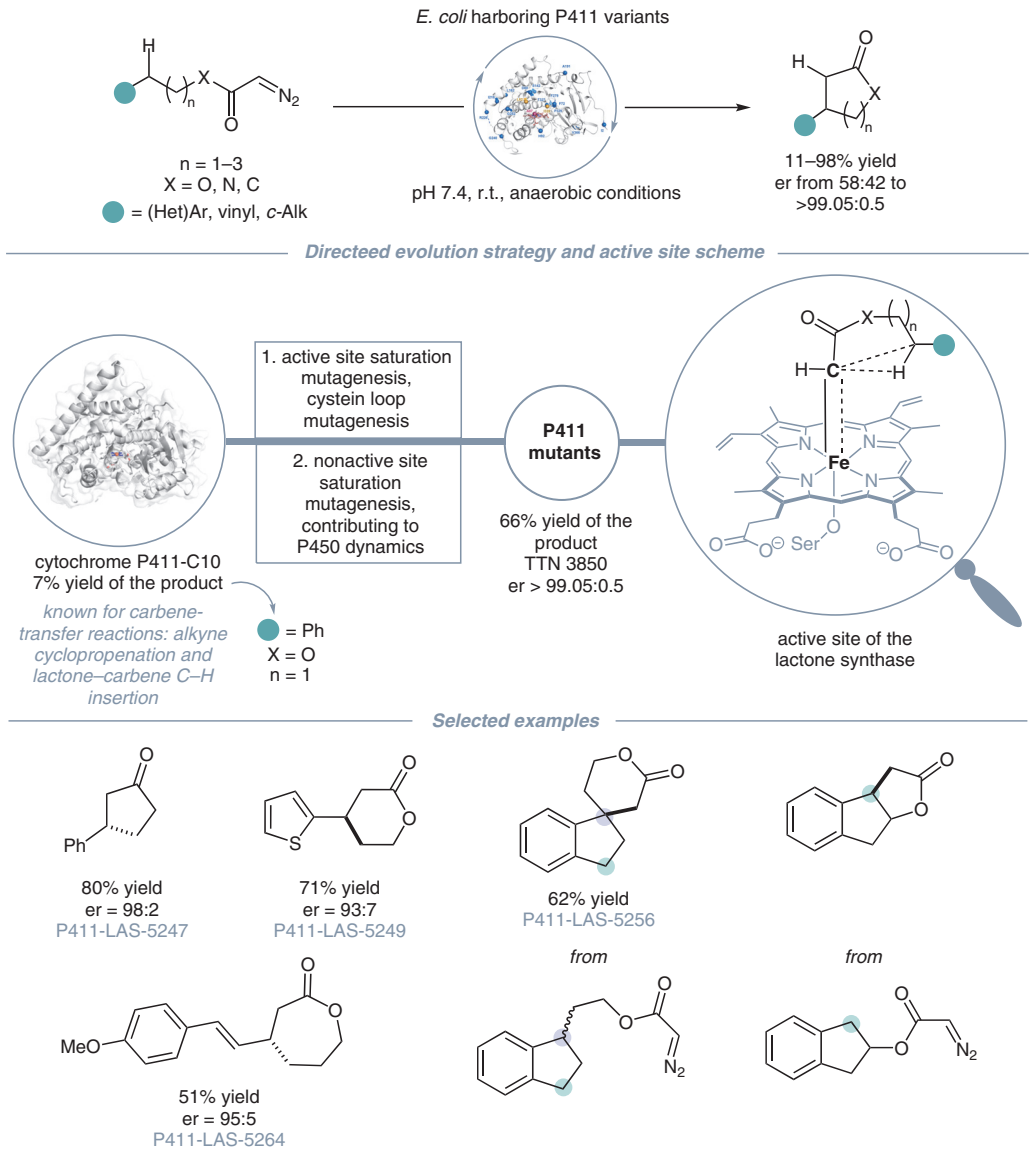
Enzymatic Assembly of Diverse Lactone Structures: An Intramolecular C–H Functionalization Strategy
*J. Am. Chem. Soc.* **2024**, *146*, 1580–1587, DOI: 10.1021/jacs.3c11722.

# Biocatalytic Approach for the Synthesis of Lactones via Carbene C–H Insertion




**Significance:** Arnold and co-workers report an engineered-enzyme-catalyzed intramolecular carbene-insertion reaction of terminal diazo compounds yielding a variety of lactones (including complex-fused and spiro-compounds) in moderate yields and generally high enantioselectivities.

**Comment:** Neither diazo compounds nor C–C bond disconnection for lactone synthesis are found in biological systems. Yet, the exceptional evolvability of P411 allows scientists to successfully implement these biocatalysts in chemical synthesis and its, in many cases, inherently abiotic reactions.

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Synfacts 2024, 20(03), 0301 Published online: 14.02.2024
**DOI:** 10.1055/s-0043-1773118; **Reg-No.:** B02724SF



**Category**
Organo- and Biocatalysis

**Key words**
carbene transferase
P411
diazo compounds
lactones
C–H functionalization