

# The Chemistry of Carboxylic Acids

April 22, 2013

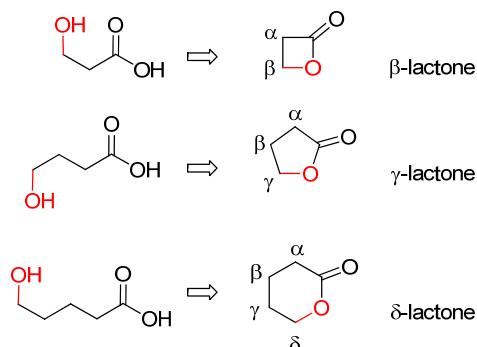
- Ester vs. amide hydrolyses, continued.
- Nitrile hydrolysis under acidic and basic conditions.
- Reduction of amides and nitriles.
- The cyclic versions of esters and amides: lactones & lactams.

## Announcements

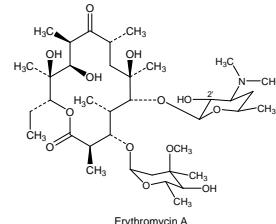
**Suggested Problems for Chapter 20:** 20.25, 20.27, 20.30, 20.32, 20.35, 20.38, 20.40, 20.43, 20.45, 20.46, 20.49, 20.51, 20.53, 20.55.  
Chapter 21: 21.31, 21.34, 21.35, 21.39, 21.43, 21.44, 21.46, 21.48, 21.51, 21.53, 21.54 (b,d), 21.55 (f,g,h,i), 21.56 (b,c,e), 21.60.

**TA Office Hours:** Mon 7-8 pm: Rob Craig - 302 Schlinger (x4056); Tue 3-4 pm: Kelly Kim - 302 Schlinger (x4047); Tue 7-8 pm: Corey Reeves - 302 Schlinger (x4056); Wed 5-6 pm: Adam Boynton - 139 Noyes (x3202); Wed 8-9 pm: Ben Suslick (UTA) - Lloyd Lounge; Thu 8-9 pm: Evan Zhao (UTA) - Fleming Lounge ; Thu 9-10 pm: Crystal Chu - 202 Schlinger (x3634); Sun 3-4 pm: Chung Wan Lee - 302 Schlinger (x4056).

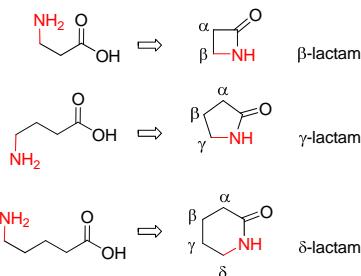
## lactones are cyclic esters



a macrocyclic lactone



## Cyclic Amides are Called Lactams

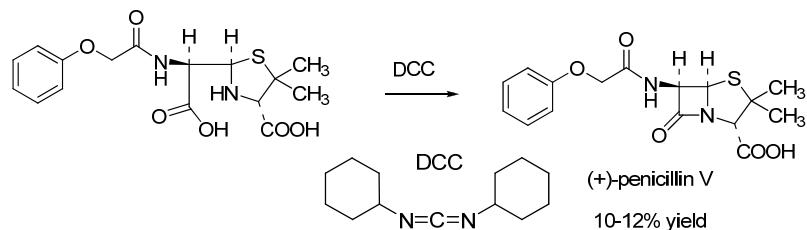


Sir Alexander Fleming  
1881-1955  
1945 Nobel Laureate (Medicine)

Fleming's accidental discovery and isolation of penicillin in September 1928 marks the start of modern antibiotics.



Coming attractions (Chapter 26):  
DCC was invented to make  $\beta$ -lactam syntheses possible



J.C. Sheehan  
MIT  
-synthesized penicillin for the first time  
-invented DCC as a mild dehydrating reagent



Dorothy Crowfoot-Hodgkin  
Oxford, 1964 Nobel Laureate  
-established the structure of  $\beta$ -lactams  
using X-ray crystallography