



# Grundlagen der organischen Chemie II Vorlesung 2

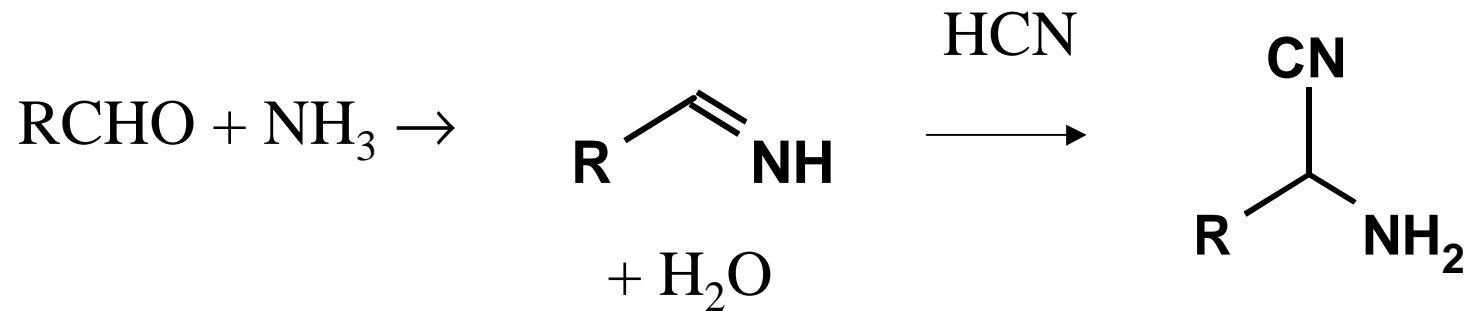
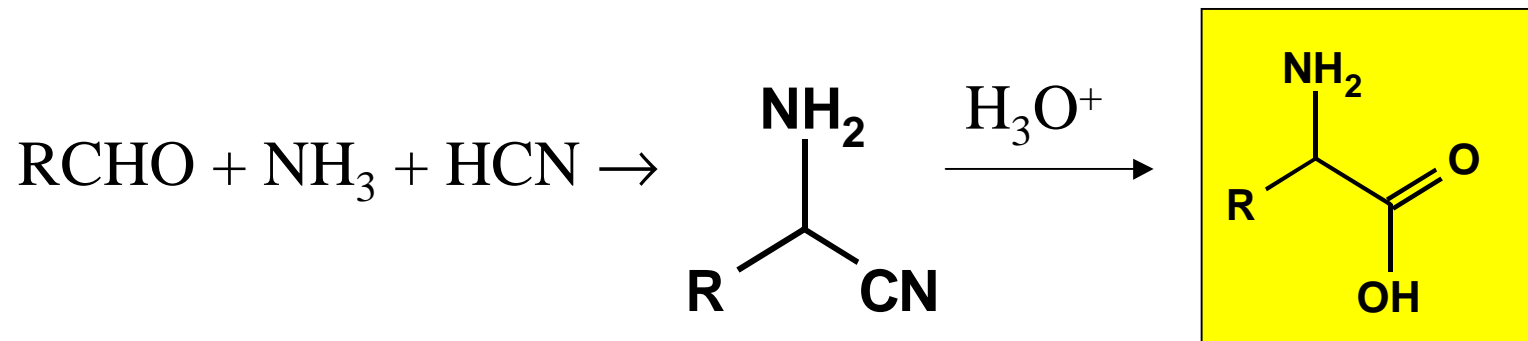
(<http://www.chemie.uni-erlangen.de/vorlesungen/oc/oc05>)

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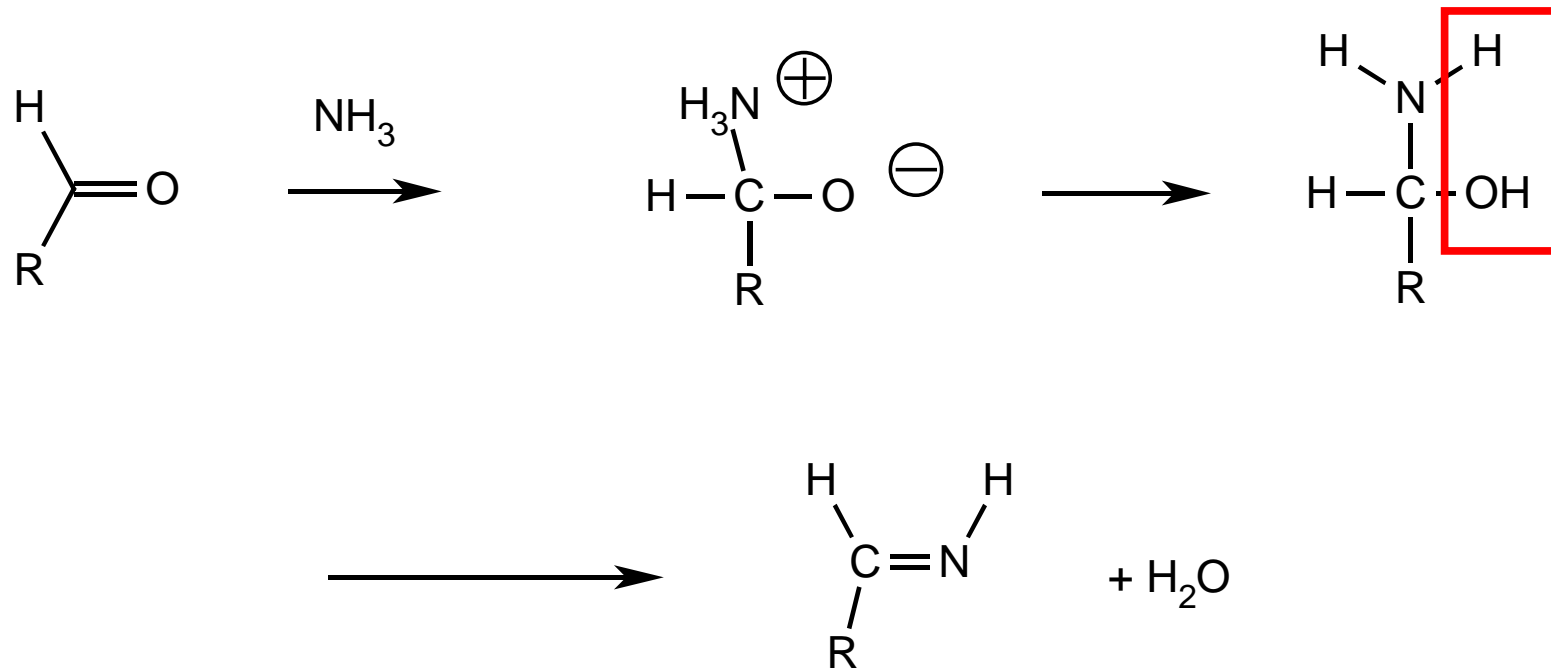


# Strecker-Synthese





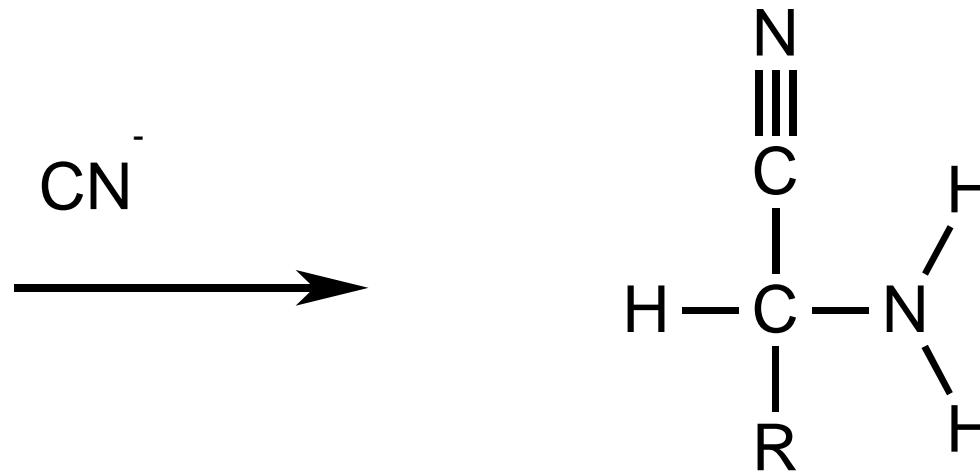
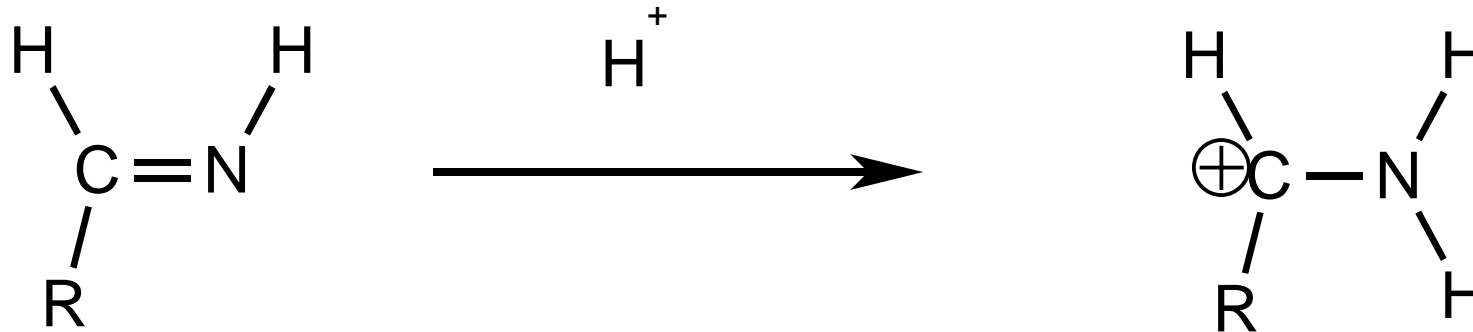
# Strecker-Synthese



Imin (Schiffsche Base)

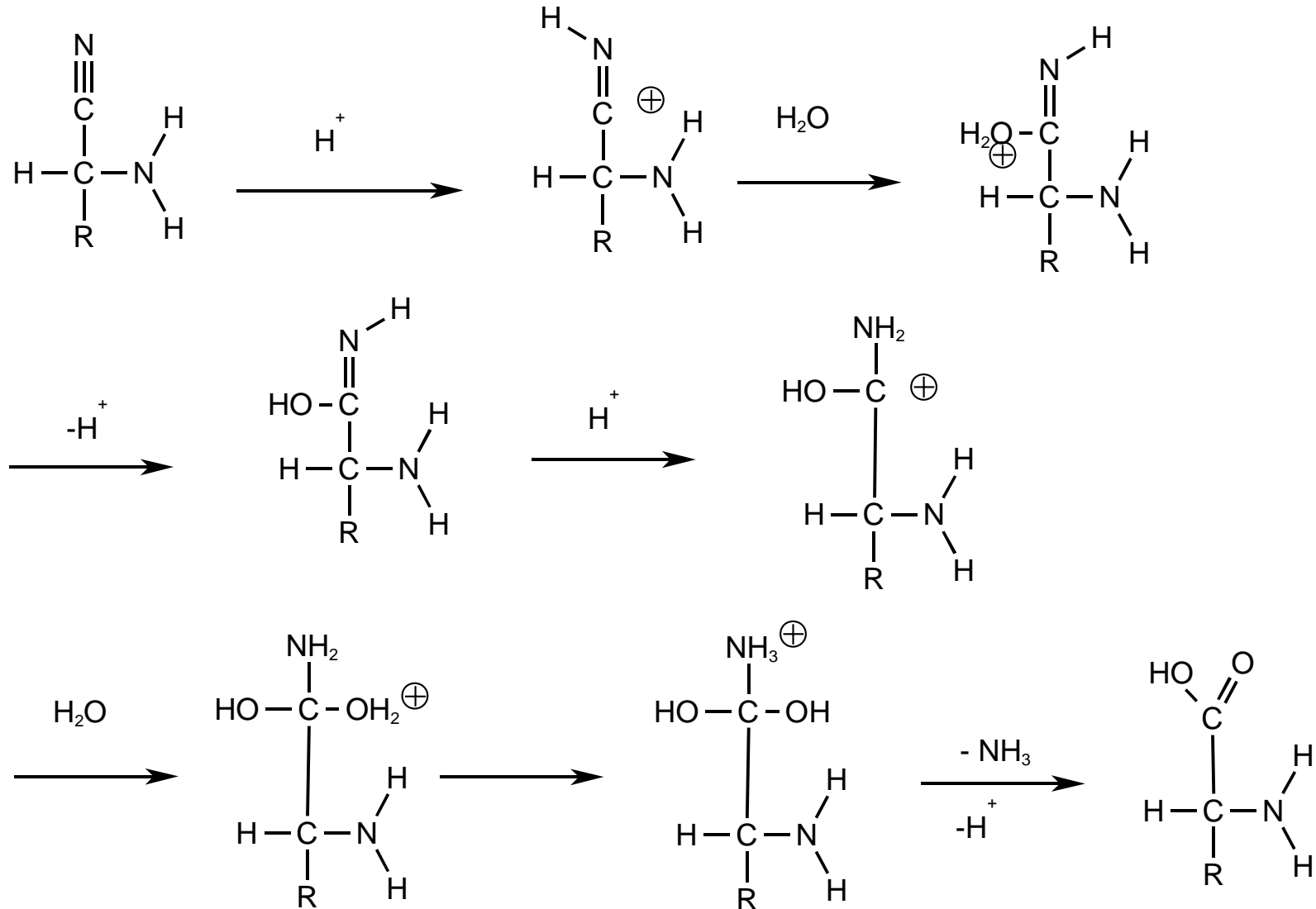


# Strecker-Synthese





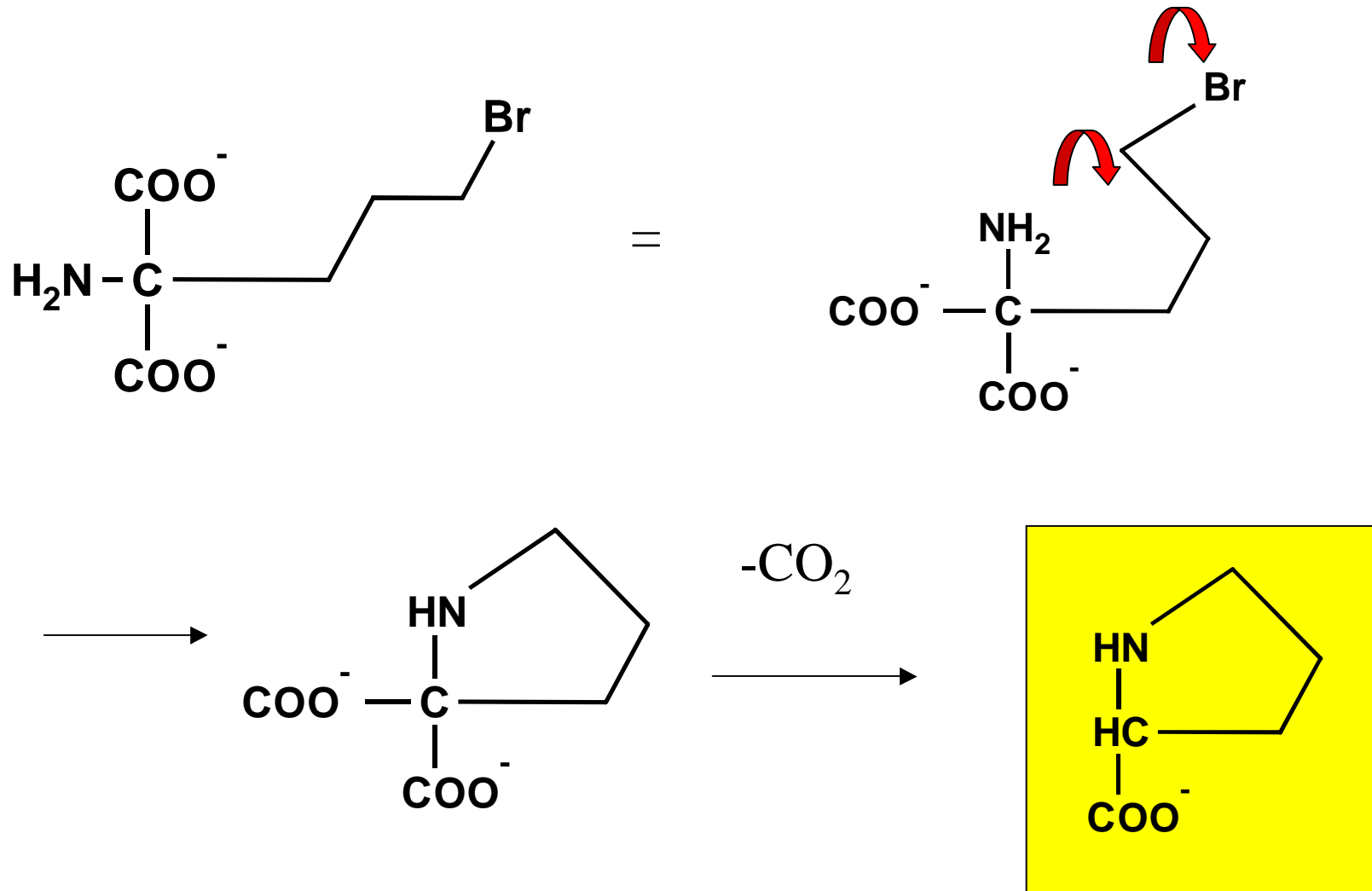
# Strecker-Synthese







# Prolin-Synthese



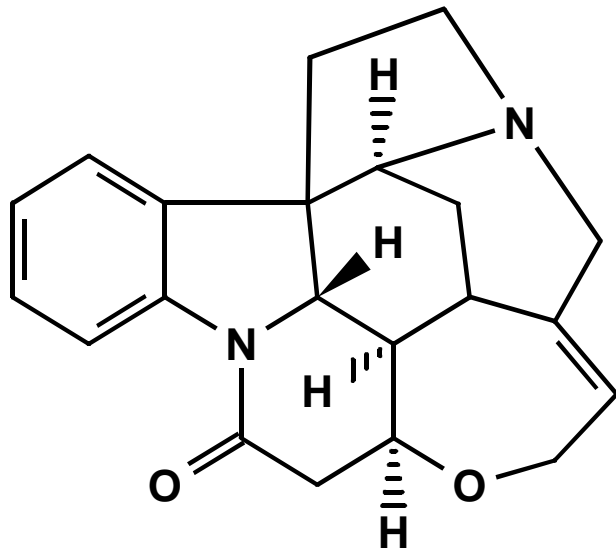


# Enantiomerentrennung (Resolution)

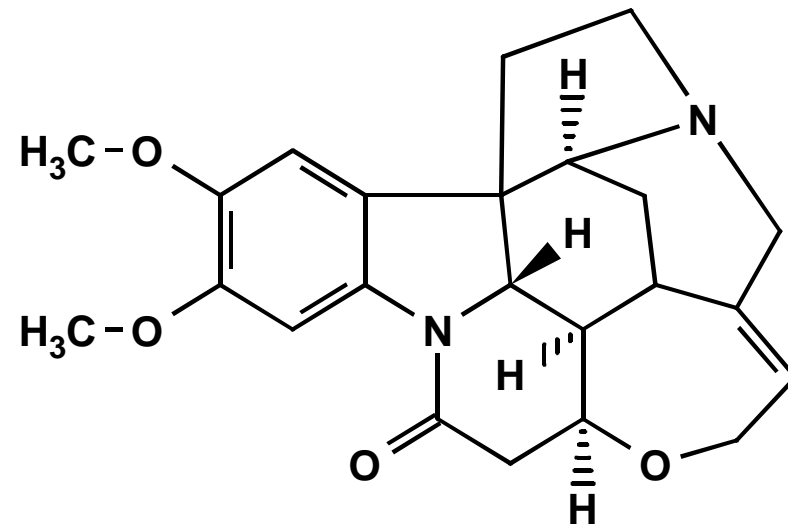
- Chemische Synthesen liefern Racemate
- Enantiomerentrennung nur möglich mit einem chiralen Hilfsreagenz
  - Chirale Base
  - Enzym-Reaktion
  - Chirale Chromatography



# Resolution mit chiralen Basen



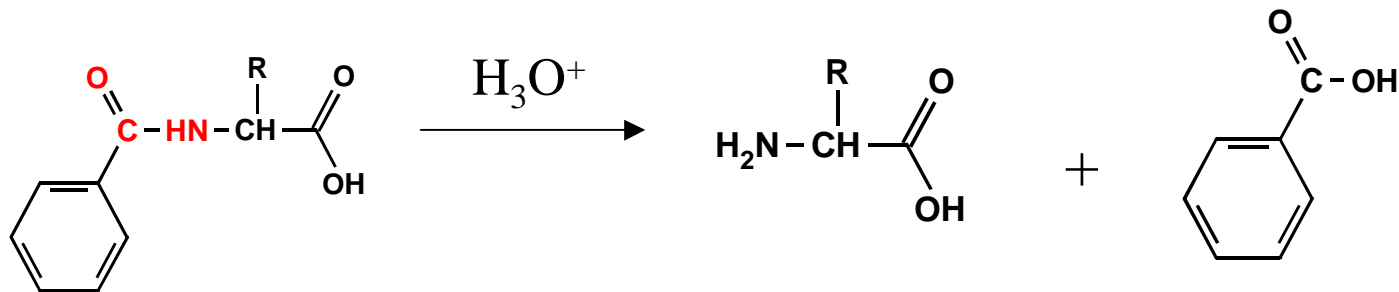
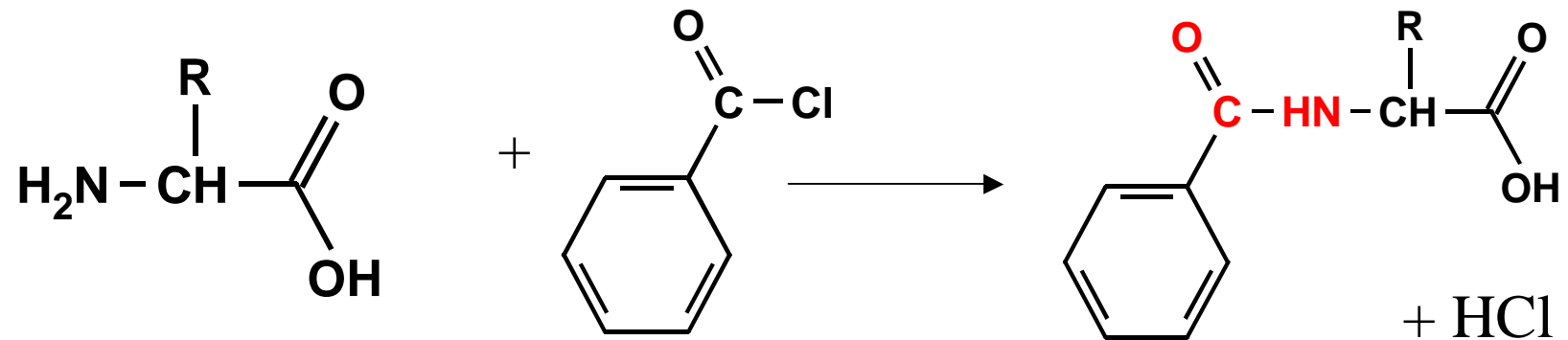
Strychnin



Brucin

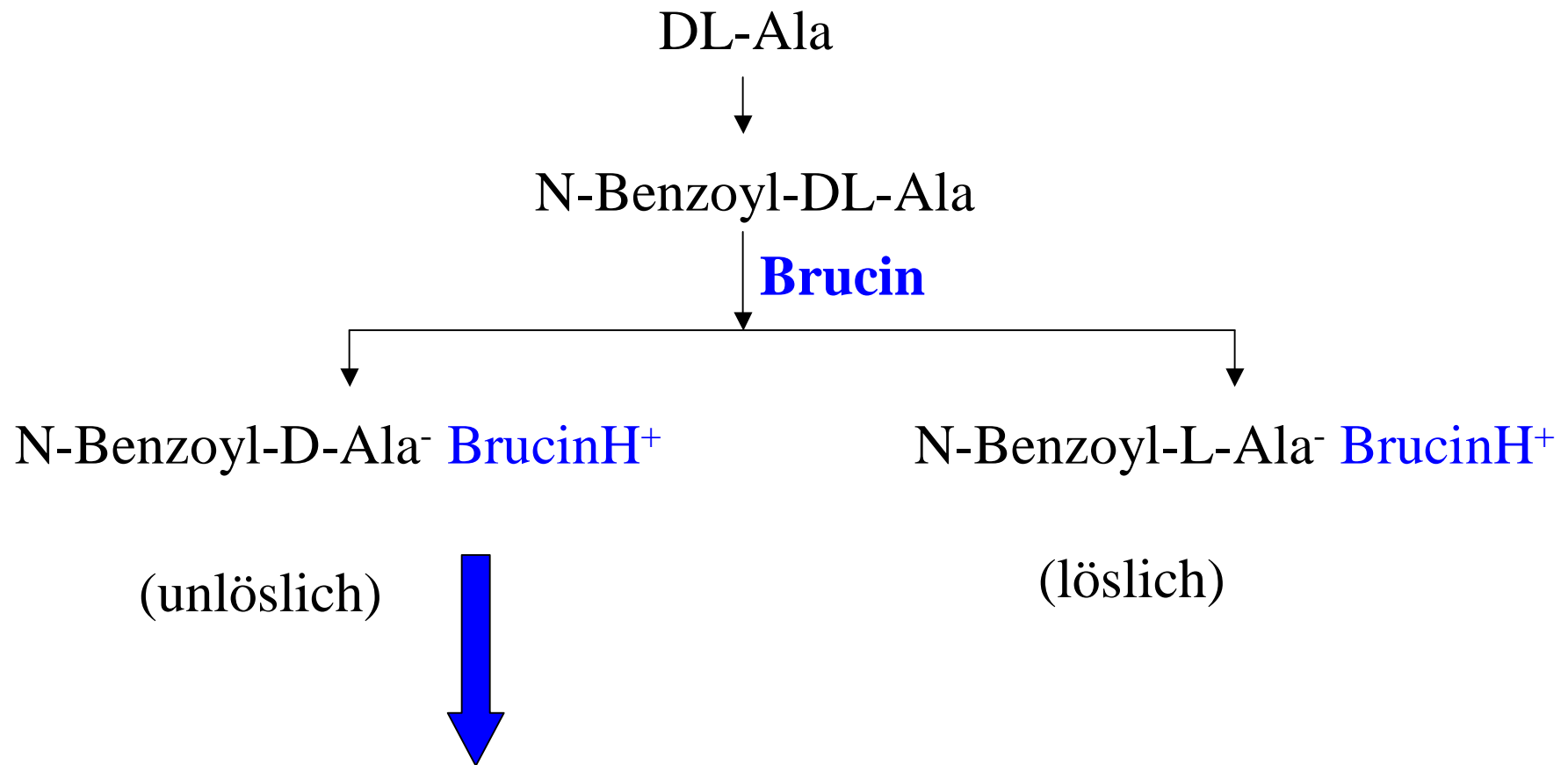


# Amin-Schutzgruppe





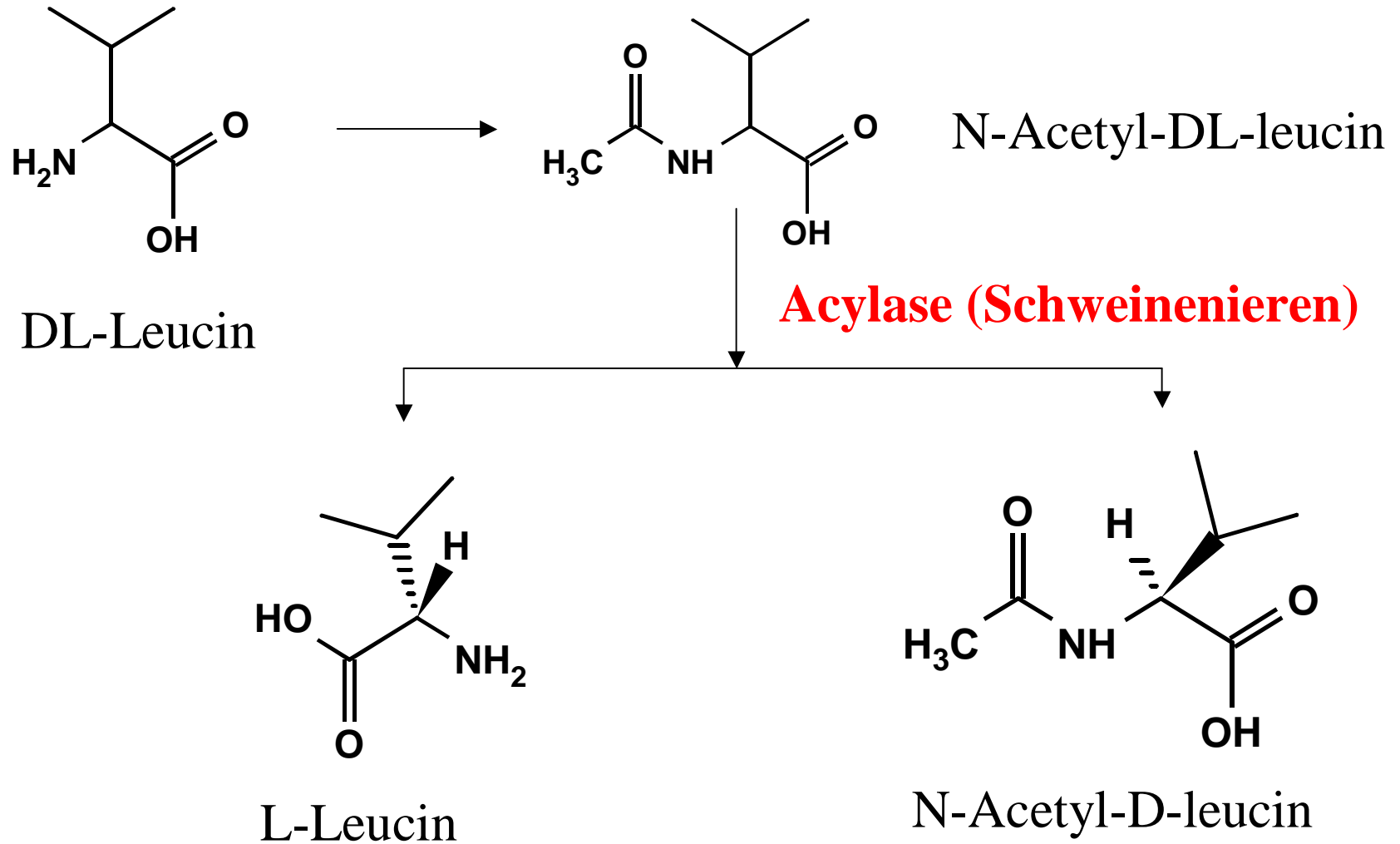
# Resolution mit chiralen Basen







# Resolution durch Enzym-Reaktionen



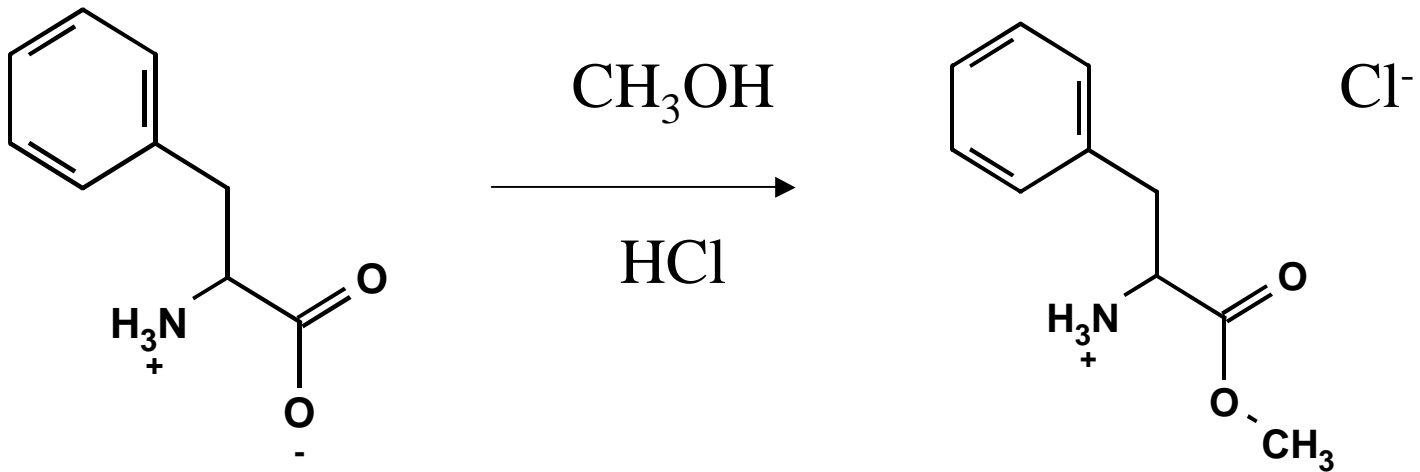


# Reaktionen von Aminosäuren

- Esterifizierung
- Amid-Bildung
- Oxidative Deaminierung (Ninhydrin)



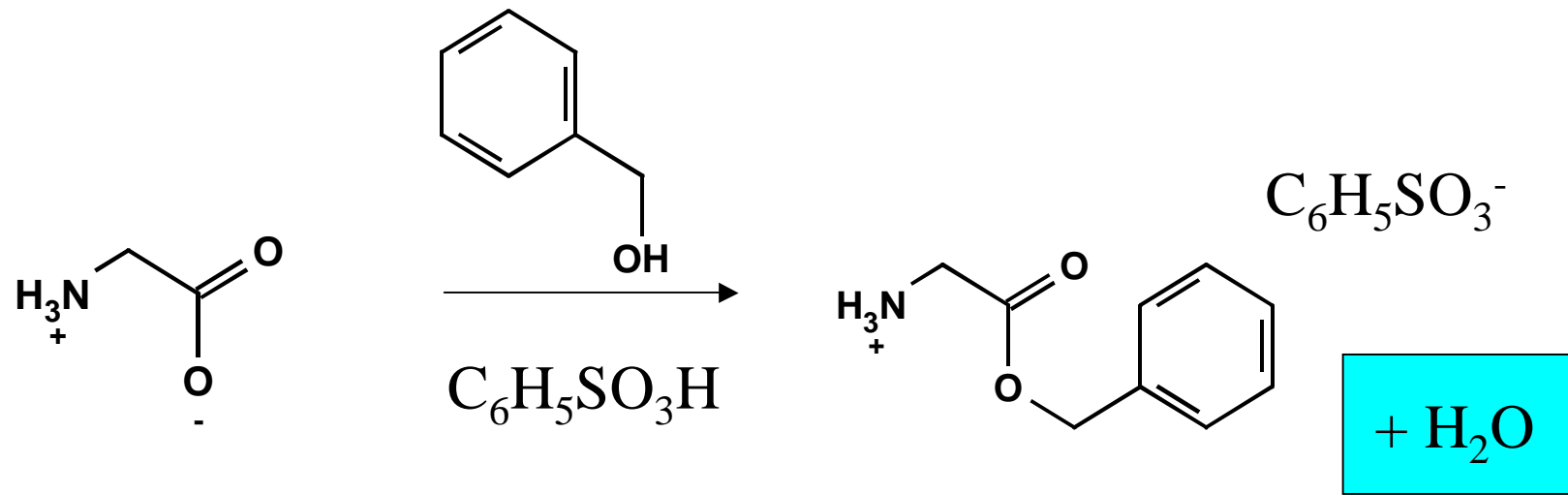
# Esterifizierung



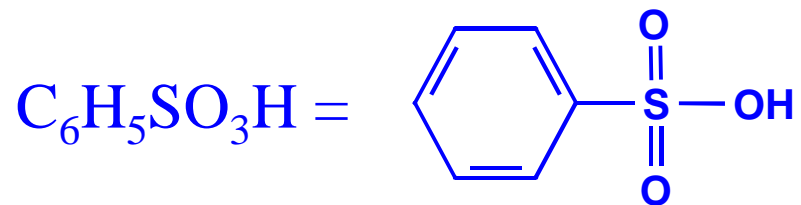
Phenylalanin-methylester-hydrochlorid



# Esterifizierung

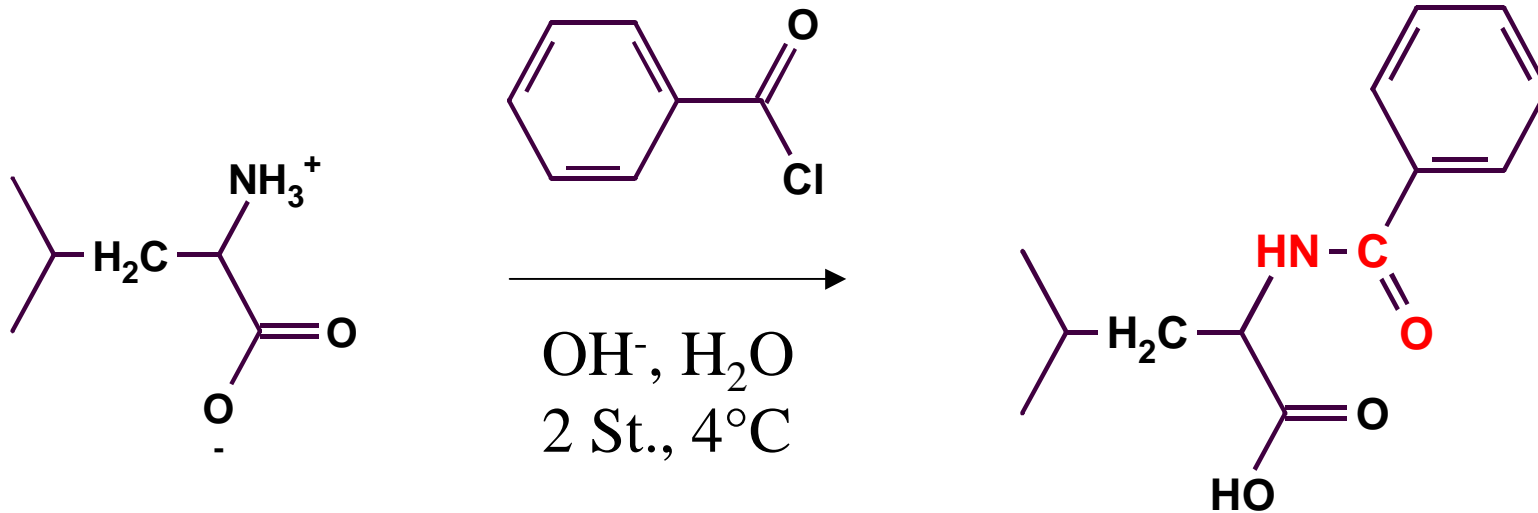


Glycin-benzylester-phenylsulfonat





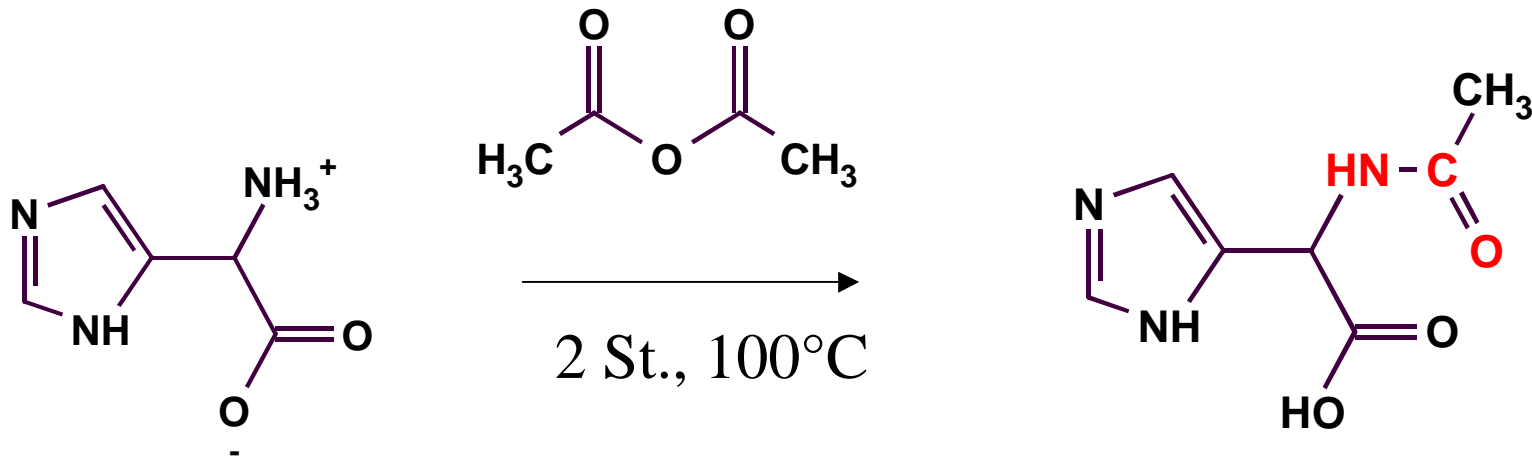
# Amid-Bildung



N-Benzoylvalin



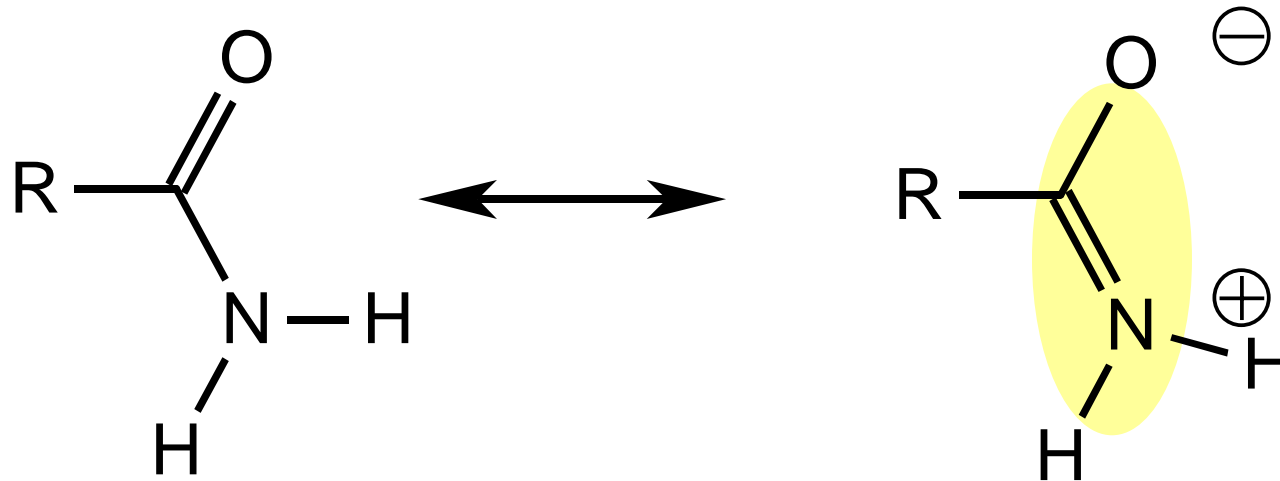
# Amid-Bildung



N-Acetylhistidin



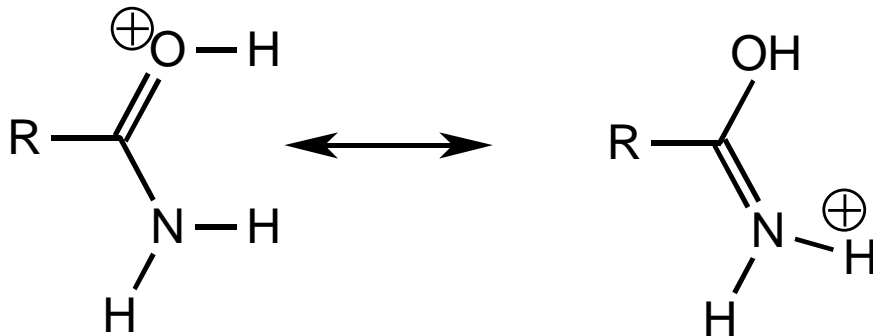
# Mesomerie



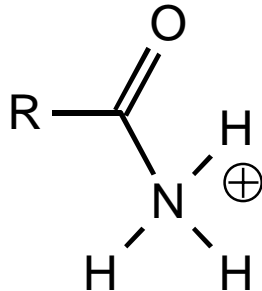
- **C=N Doppelbindungscharakter**
- **N ist planar trigonal koordiniert**
- **C=N Rotationsbarriere ist groß (ca. 18 kcal mol<sup>-1</sup>)**



# Basizität



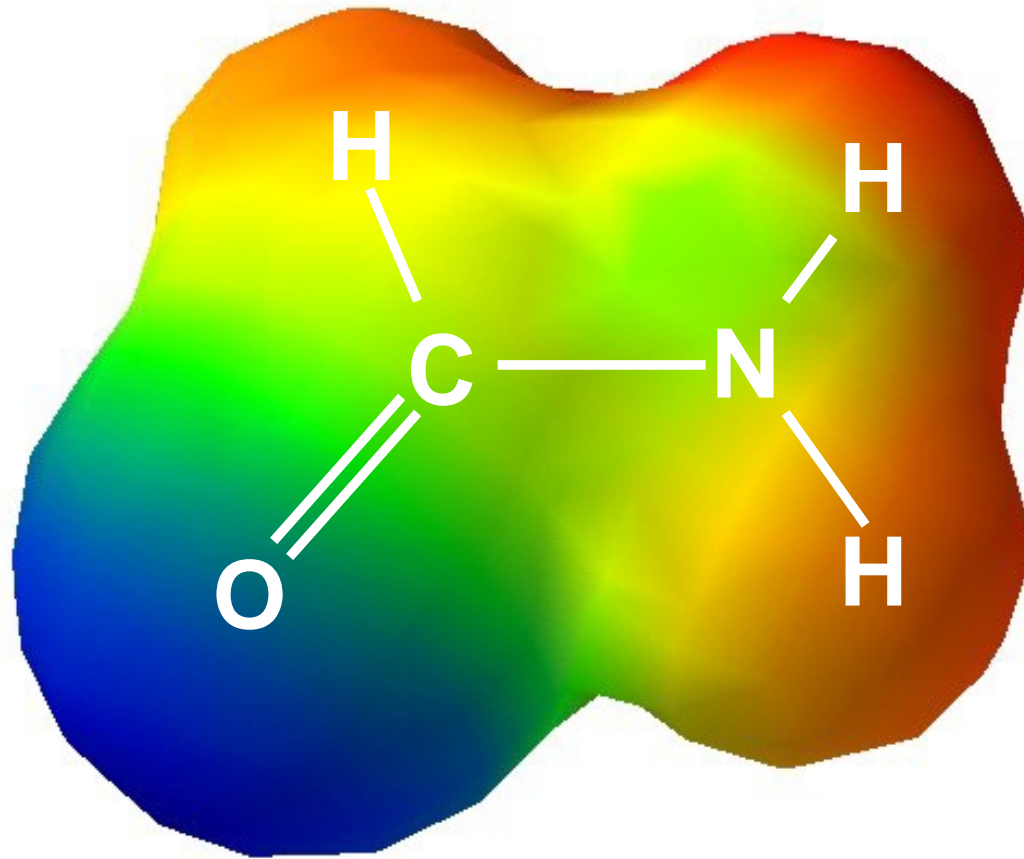
**Amide sind sehr schwache Basen, die am O, nicht am N protoniert werden**



**Keine Mesomerie möglich**

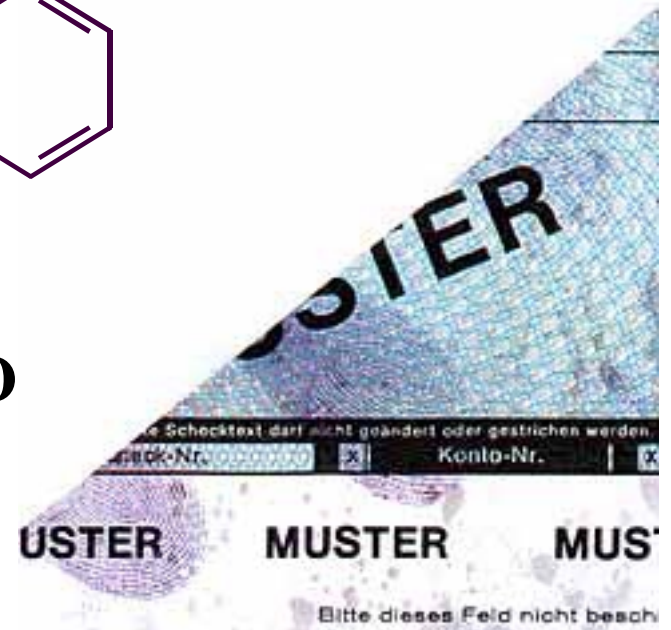
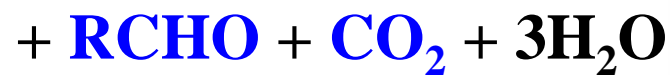
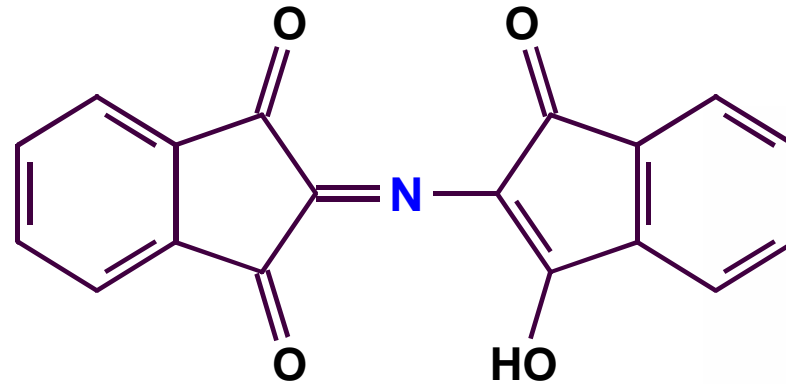
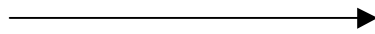
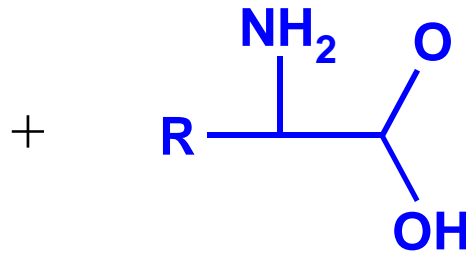
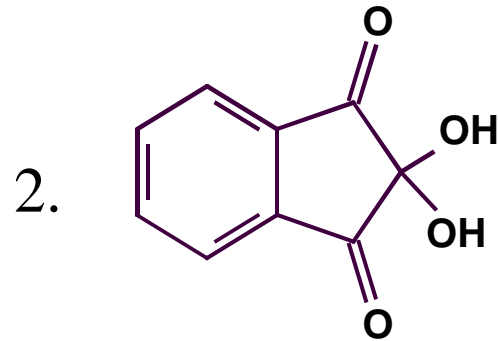


# Die Amid-Bindung



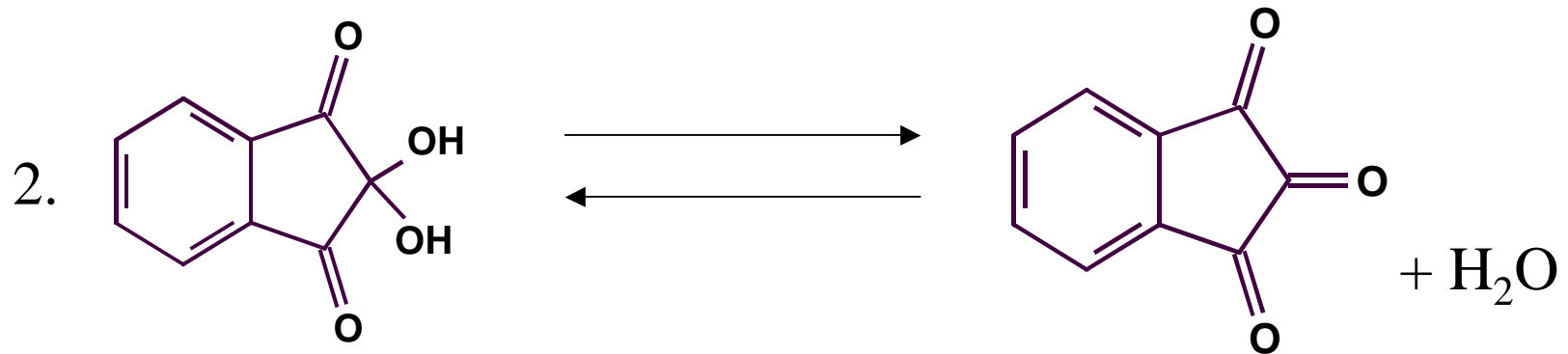


# Oxidative Deaminierung (Ninhydrin)



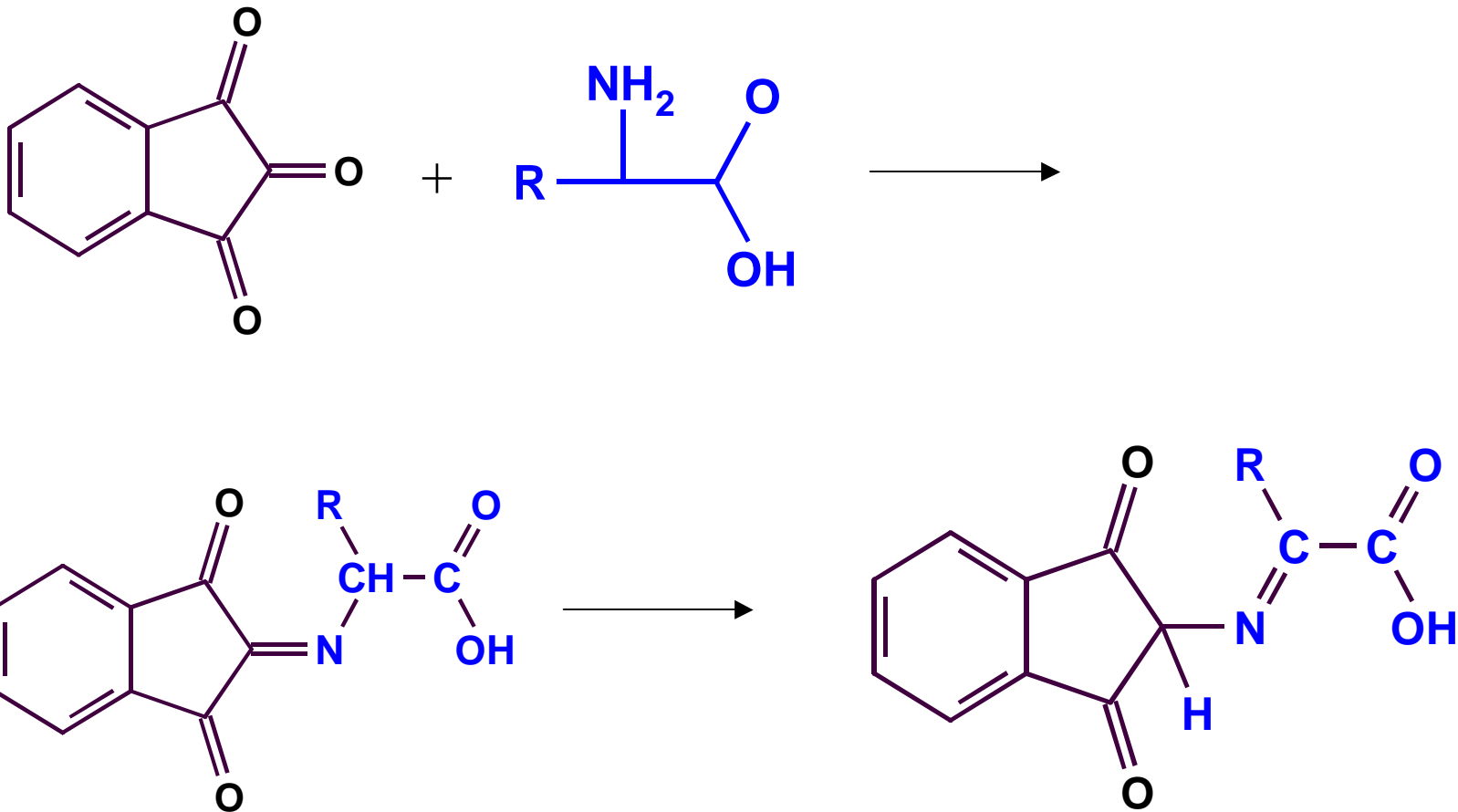


# Oxidative Deaminierung (Ninhydrin)



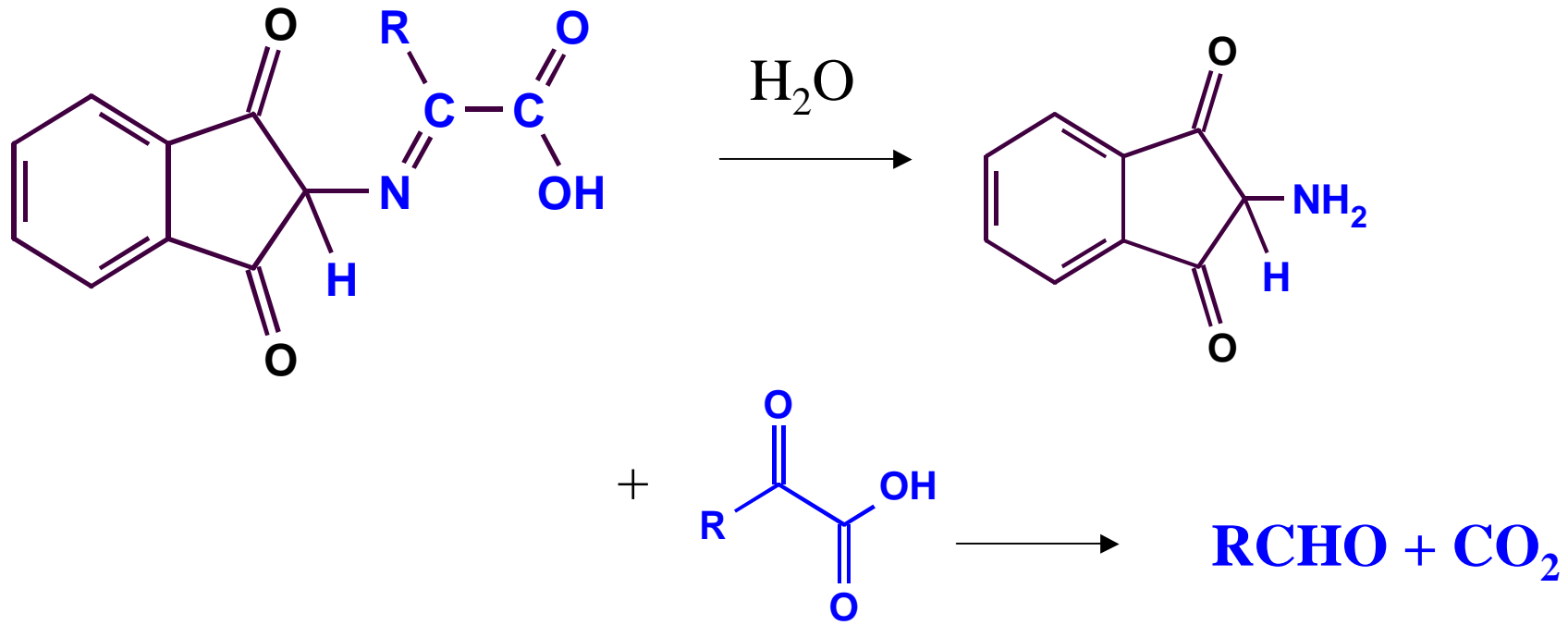


# Oxidative Deaminierung (Ninhydrin)



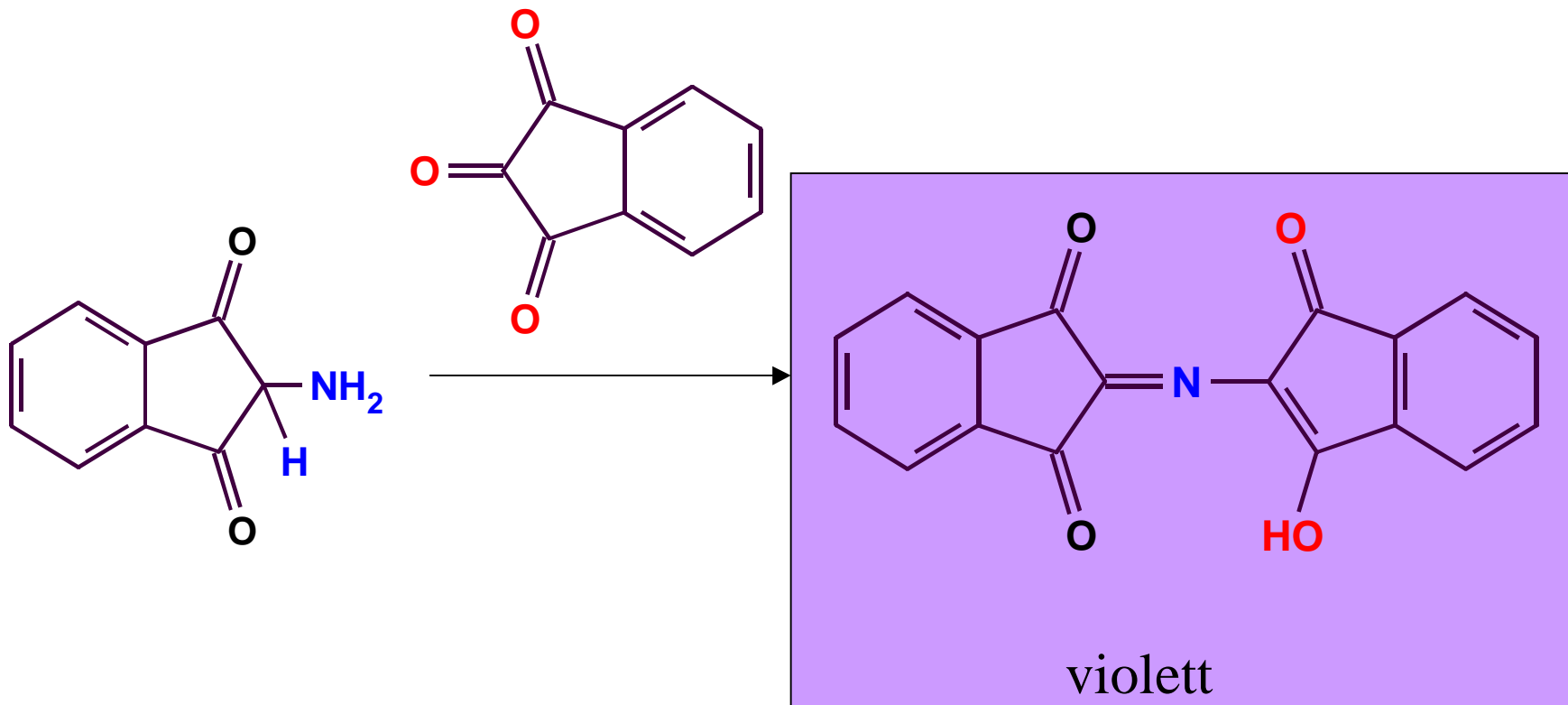


# Oxidative Deaminierung (Ninhydrin)



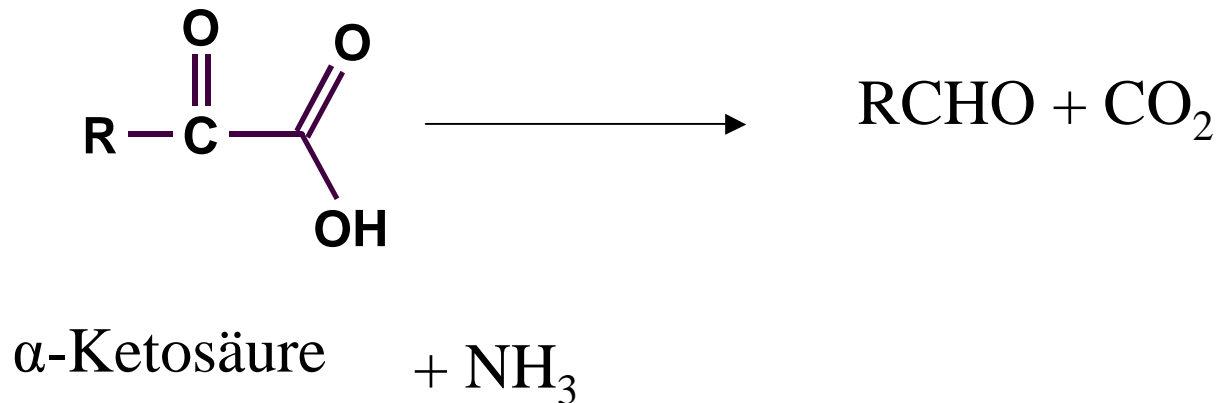
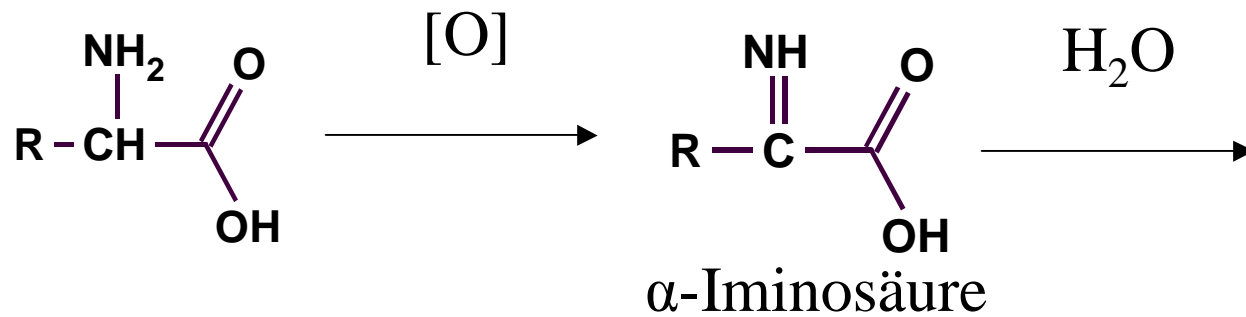


# Oxidative Deaminierung (Ninhydrin)



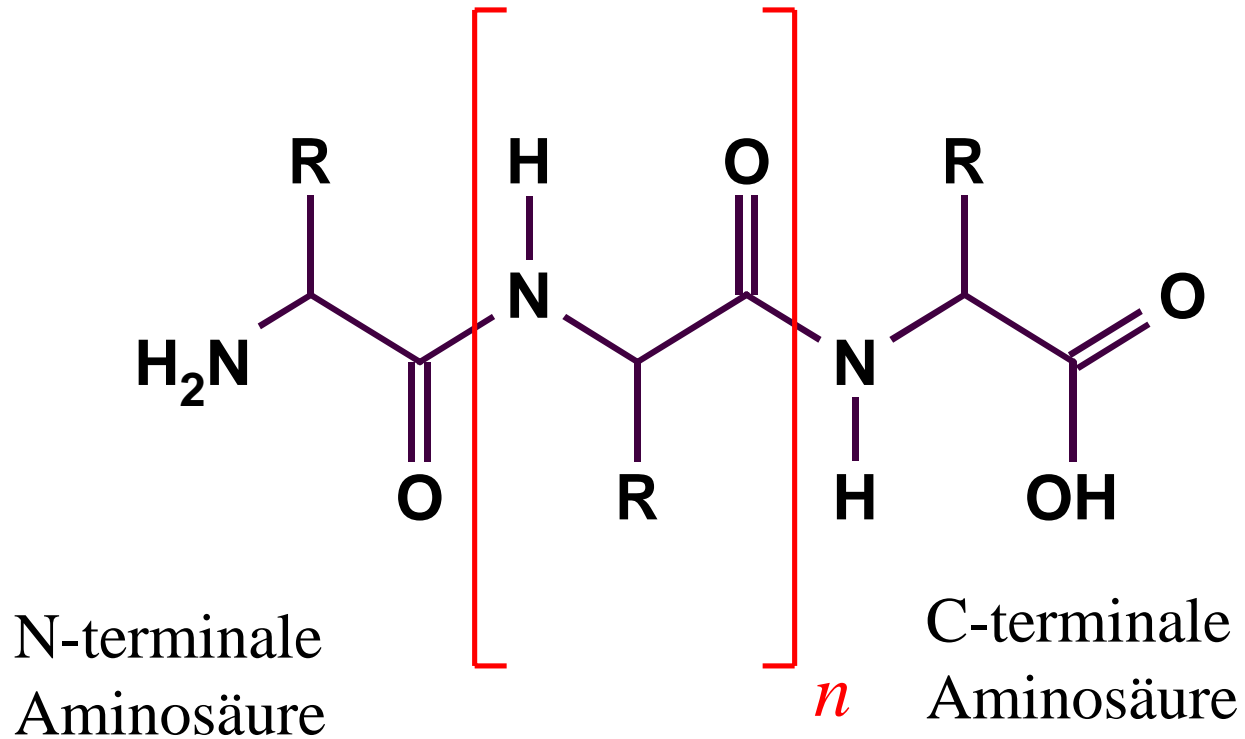


# Oxidative Deaminierung (biologische Abbau)



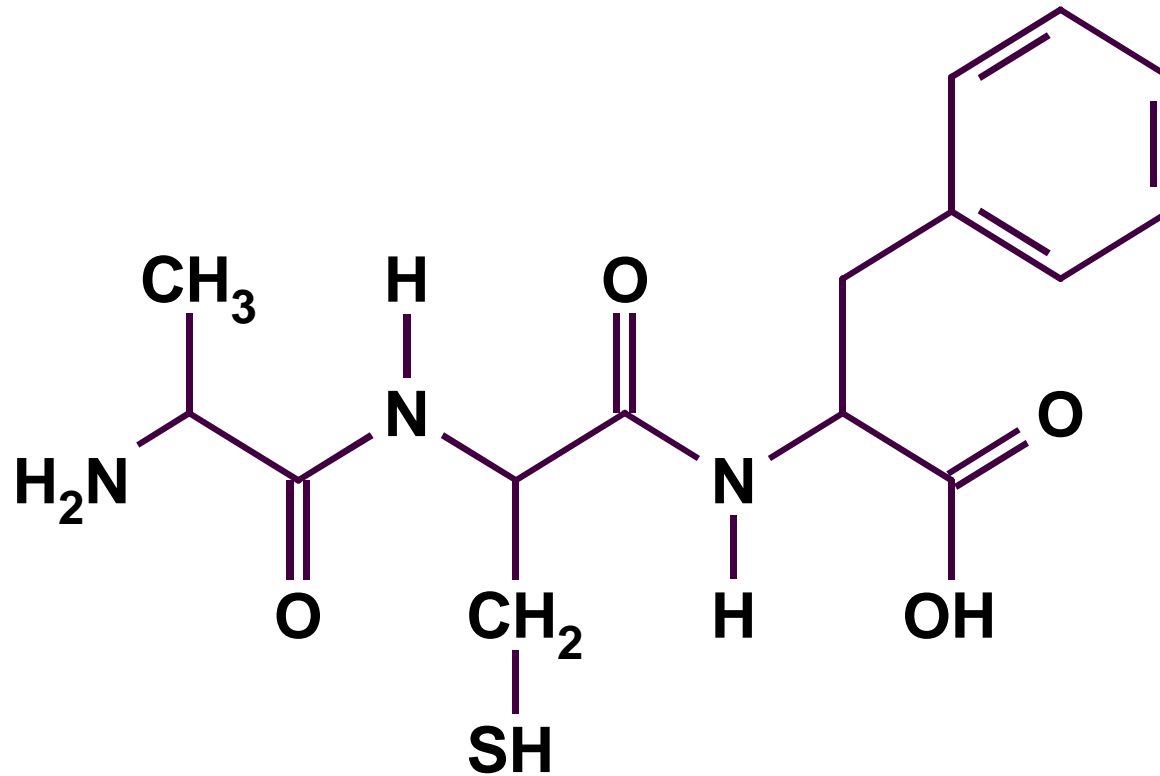


# Peptide





# Peptide



Ala-Cys-Phe



# Peptide

Arg-Pro-Pro-Gly-Phe-Ser-Pro-Phe-Arg

*Bradykinin (Nonapeptid, regelt Blutdruck)*



*Leucyl aminopeptidase*

MW = 324.000 (324 kD)

Natürliches Enzym ist ein  
Hexamer