



Grundlagen der organischen Chemie II

Aminosäuren I

Tim Clark

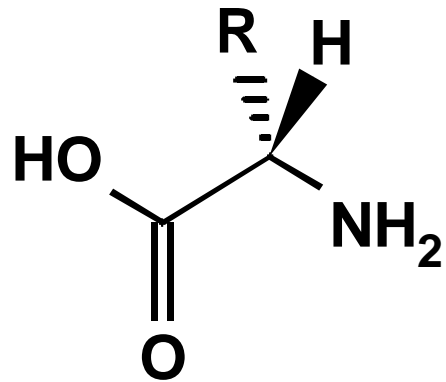
Computer-Chemie-Centrum

Universität Erlangen-Nürnberg

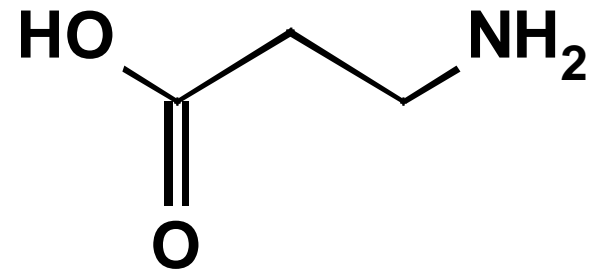
clark@chemie.uni-erlangen.de



Aminosäuren



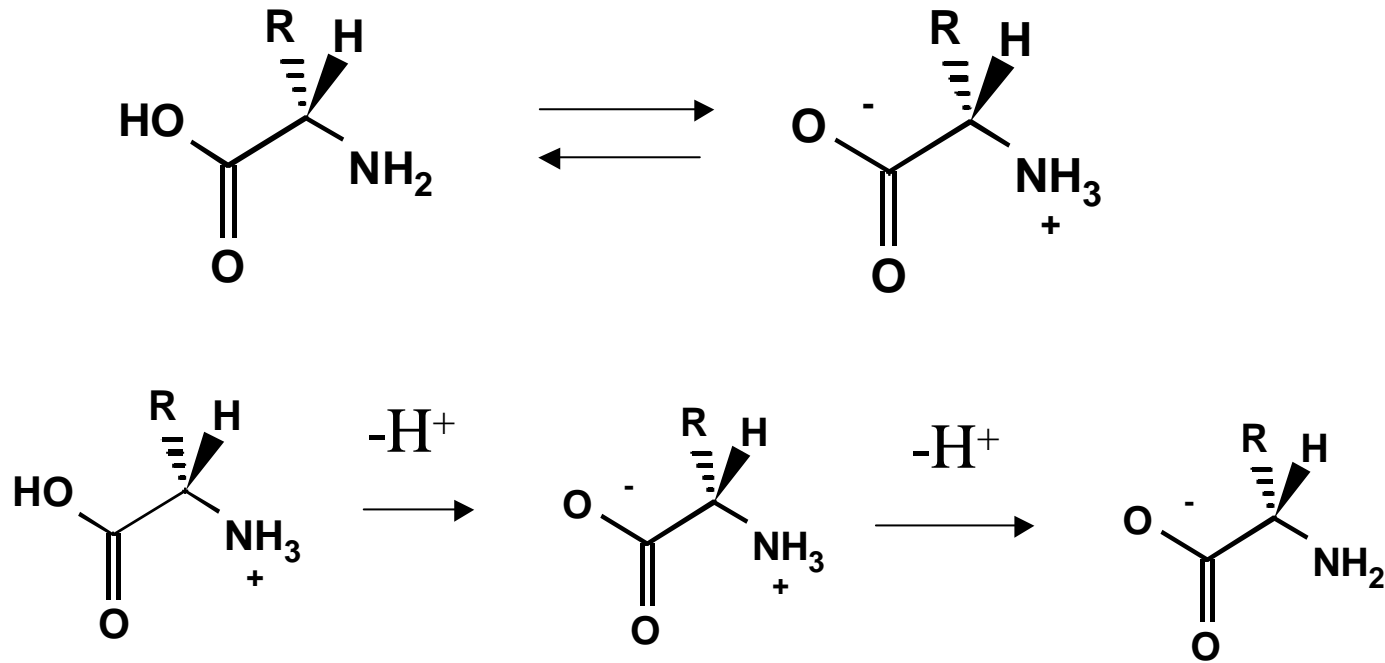
L- α -Aminosäure



β -Aminosäure



Aminosäuren





Titration curve

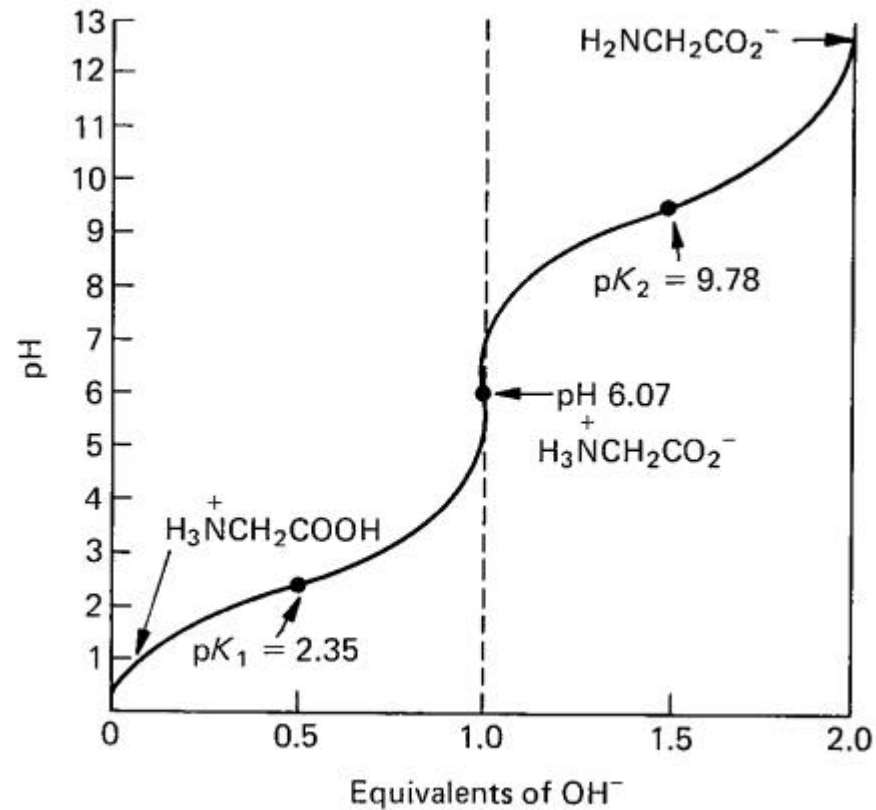
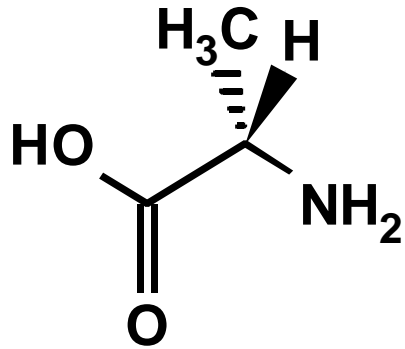


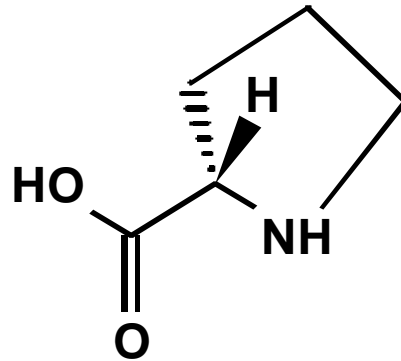
FIGURE 29.3 Titration curve for glycine hydrochloride.



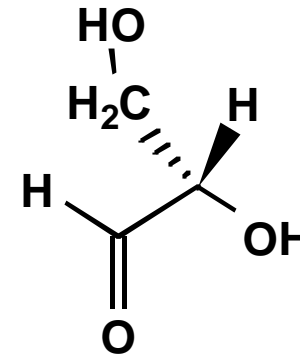
Die L-Konfiguration



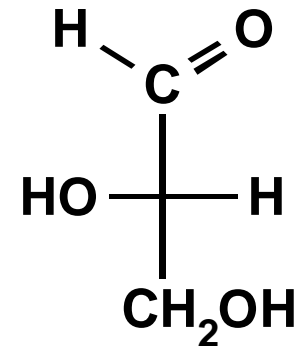
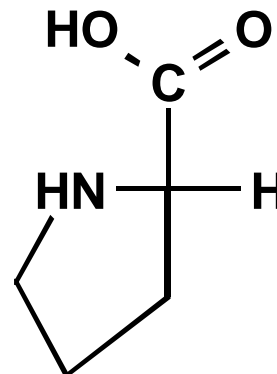
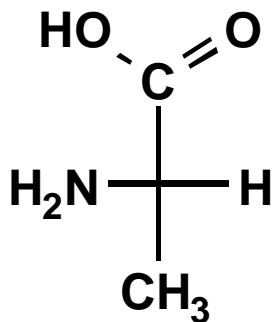
Alanin



Prolin

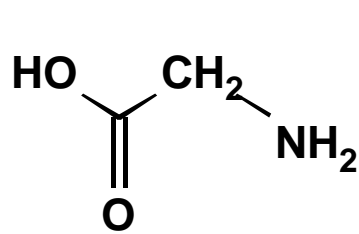


Glyceraldehyd

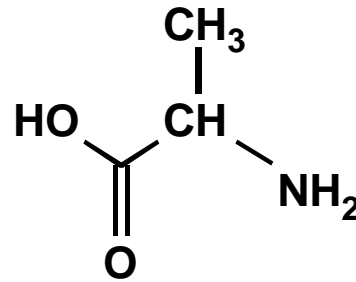




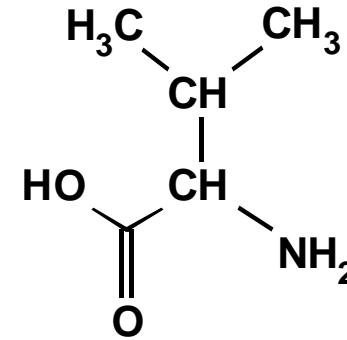
Alkyl-Aminosäuren



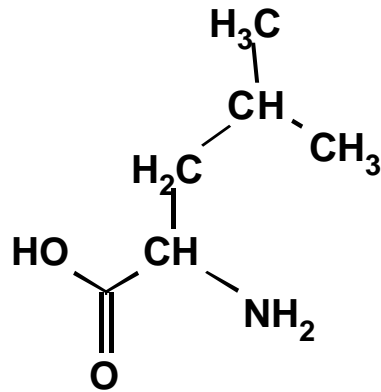
Glycin



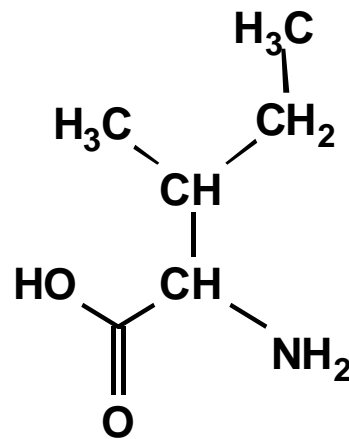
Alanin



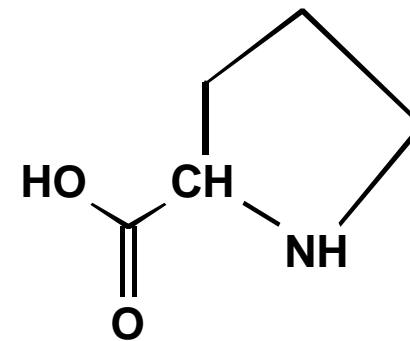
Valin



Leucin



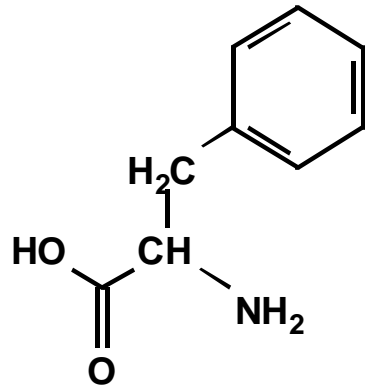
Isoleucin



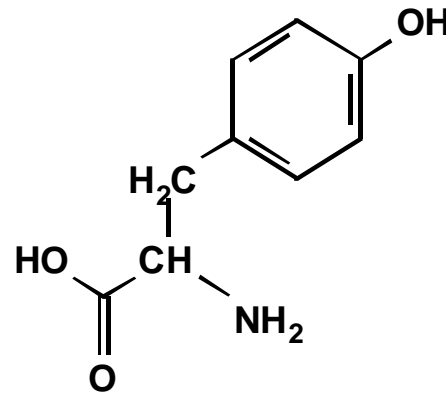
Prolin



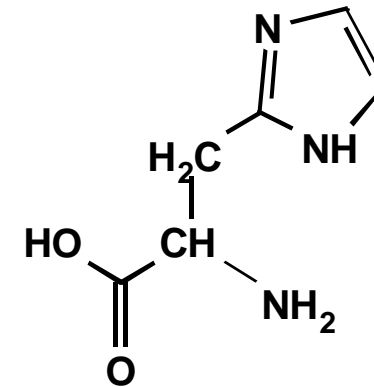
Aromatische Aminosäuren



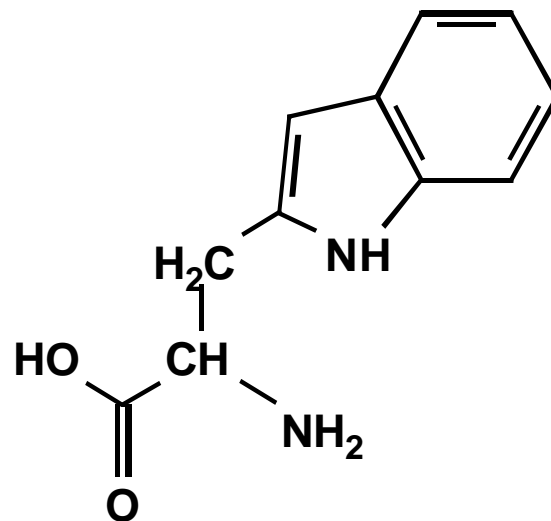
Phenylalanin



Tyrosin



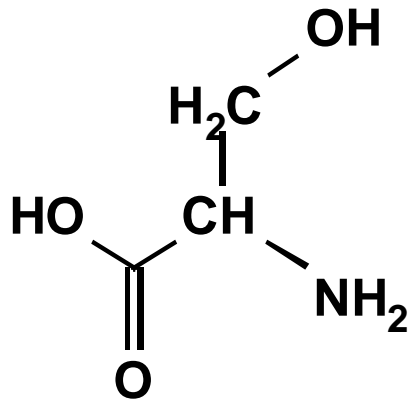
Histidin



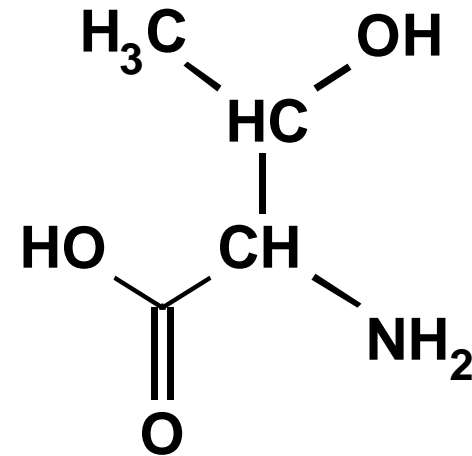
Tryptophan



Alkohole



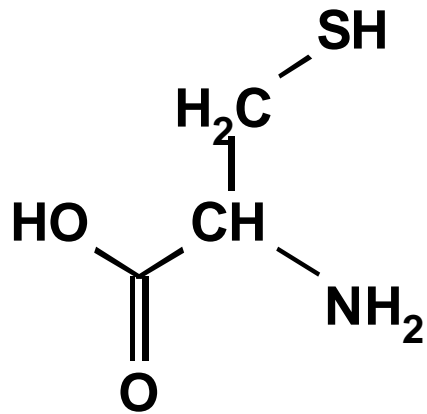
Serin



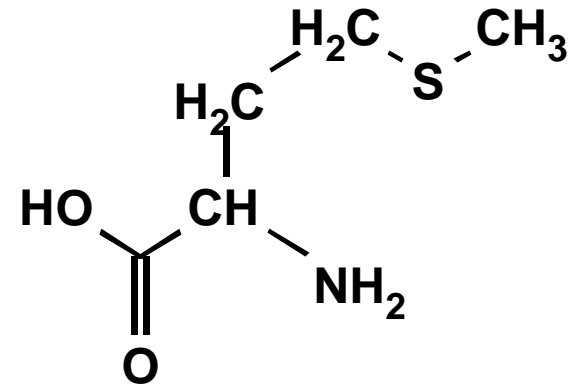
Threonin



Schwefelhaltige



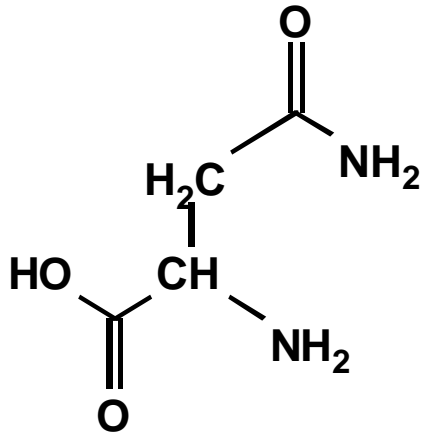
Cystein



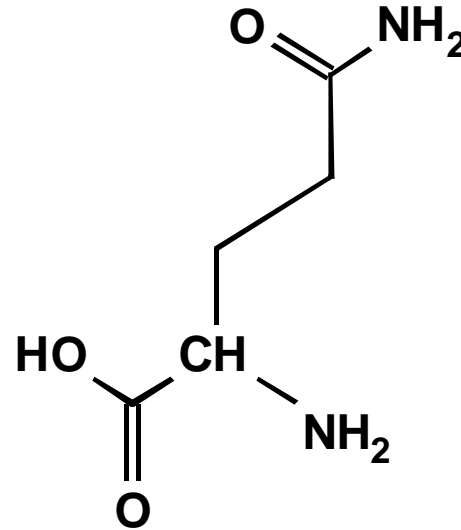
Methionin



Amide



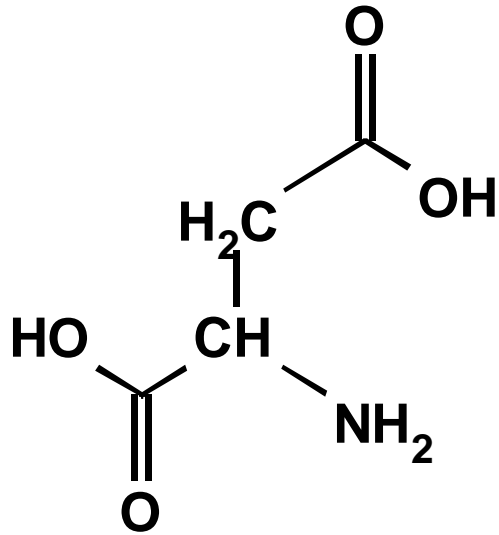
Asparagin



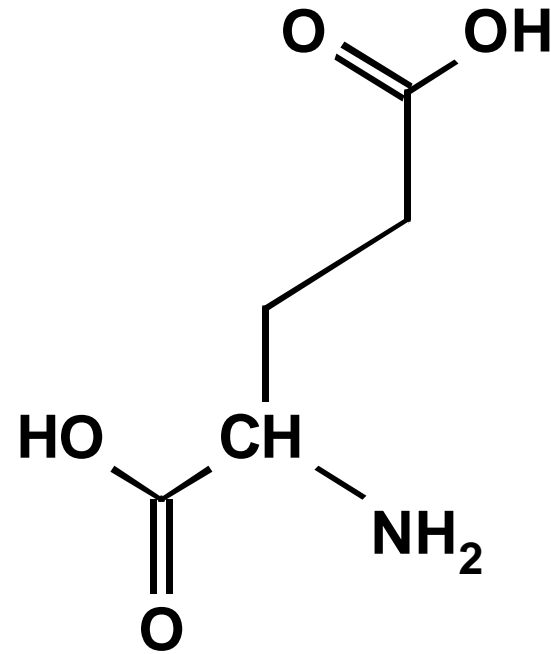
Glutamin



Saure



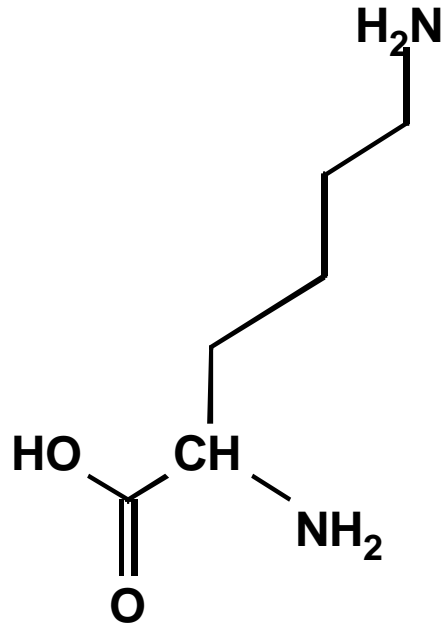
Asparginsäure



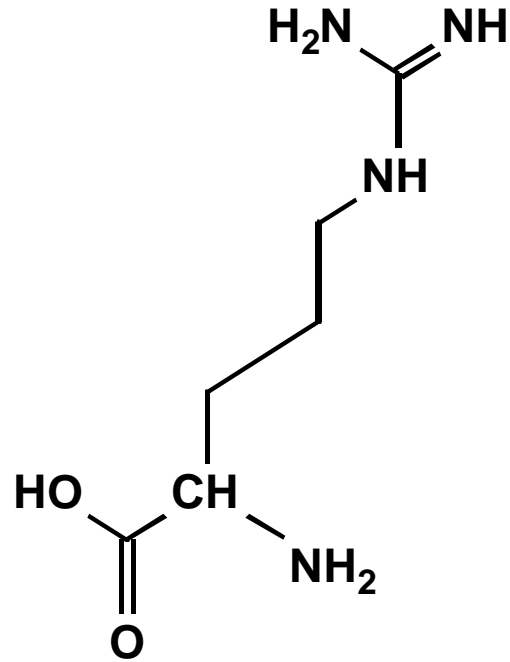
Glutaminsäure



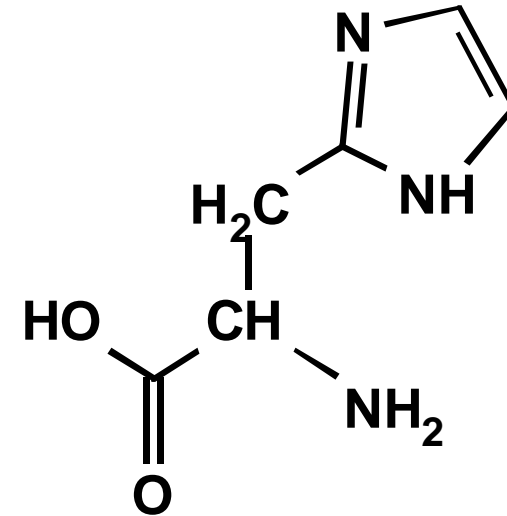
Basische



Lysin



Arginin



Histidin



Preise (\$/100g)

Aminosäure	L-Enantiomer	D-Enantiomer	Racemat
Glycin	-	-	1.10
Alanin	14.00	91.00	3.00
Prolin	17.00	1430.00	18.00
Cystein	15.00	1840.00	210.00
Glutaminsäure	1.25	690.00	90.00

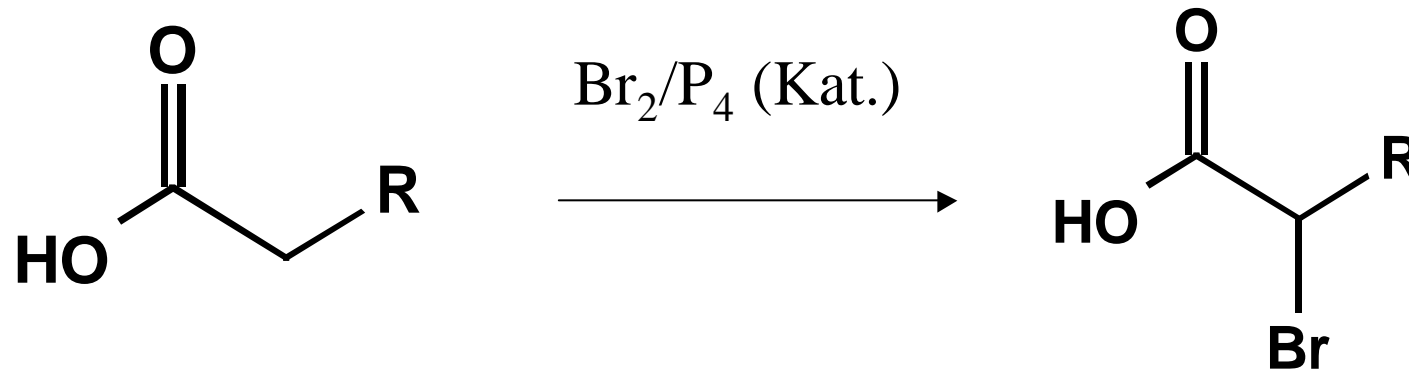


Aminosäure-Synthesen

- Hell-Vollhard-Zelinkski + Aminierung
- Malonsäureester-Synthese
- Strecker-Synthese
- Prolin-Synthese



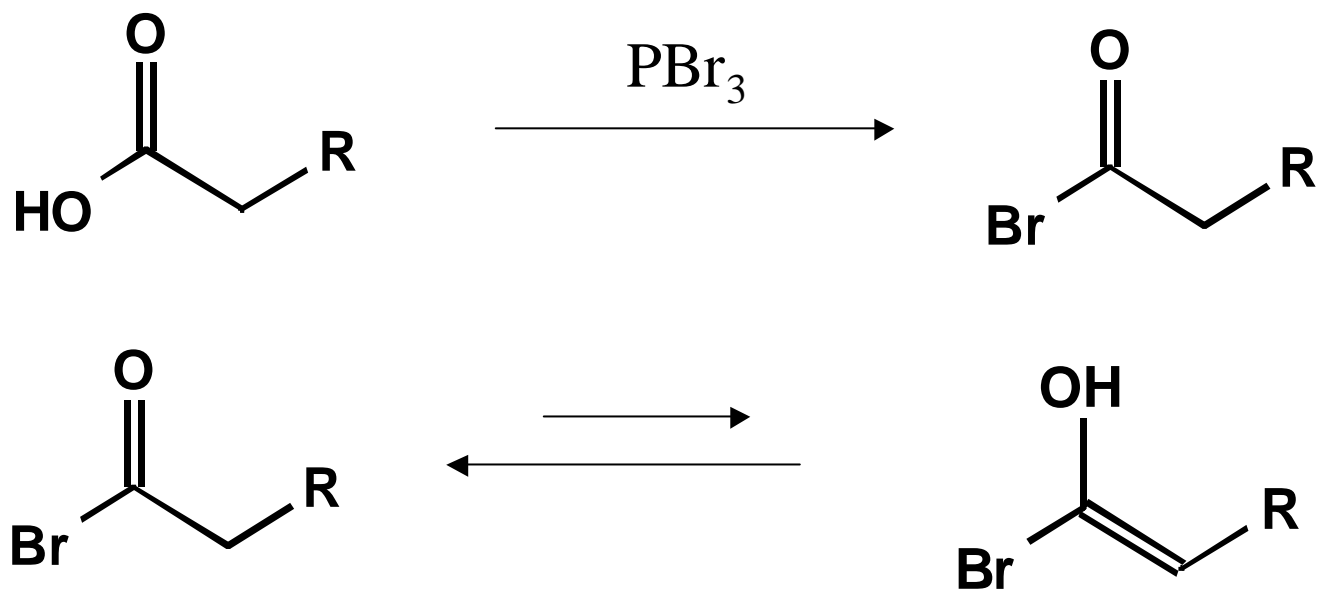
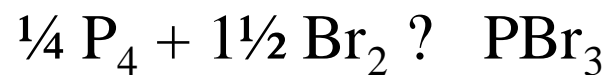
Hell-Vollhard-Zelinkski



α -Bromierung

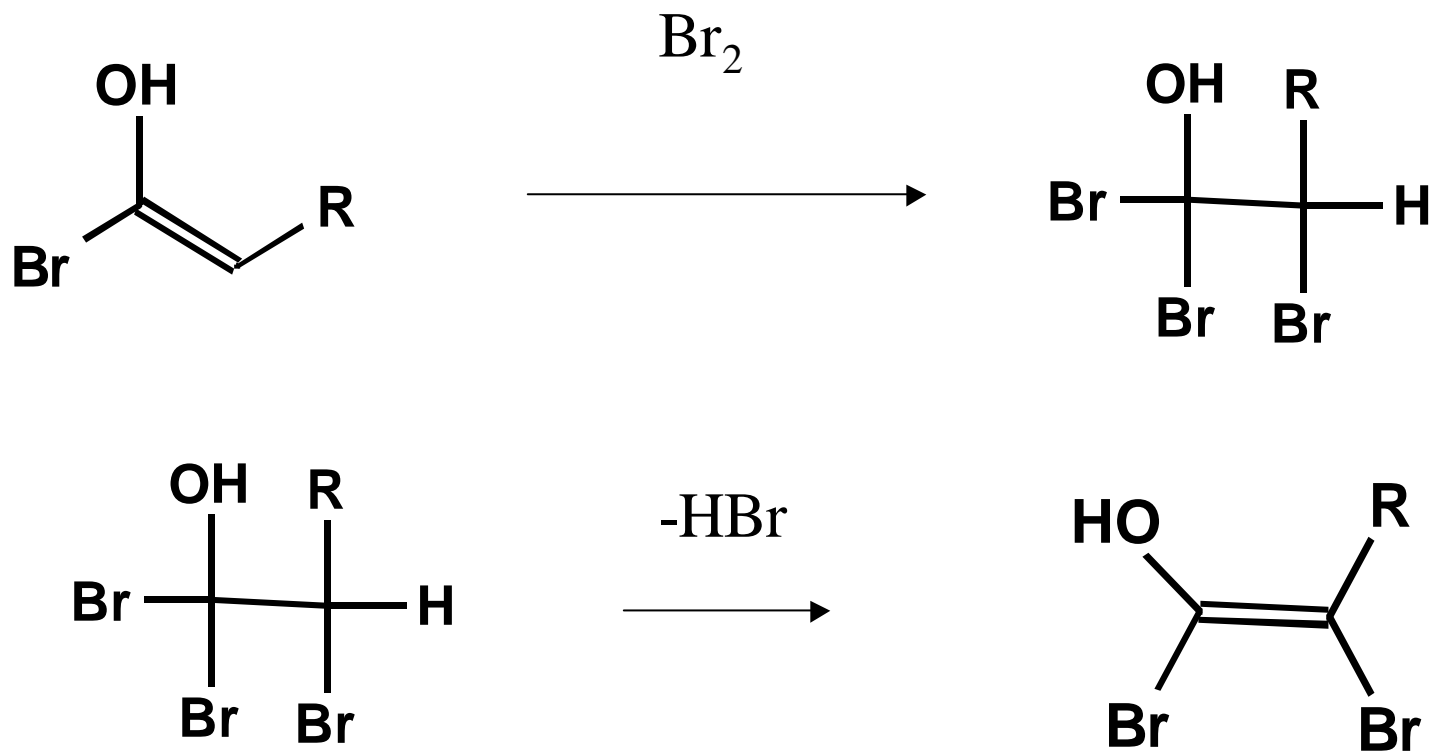


Hell-Vollhard-Zelinkski



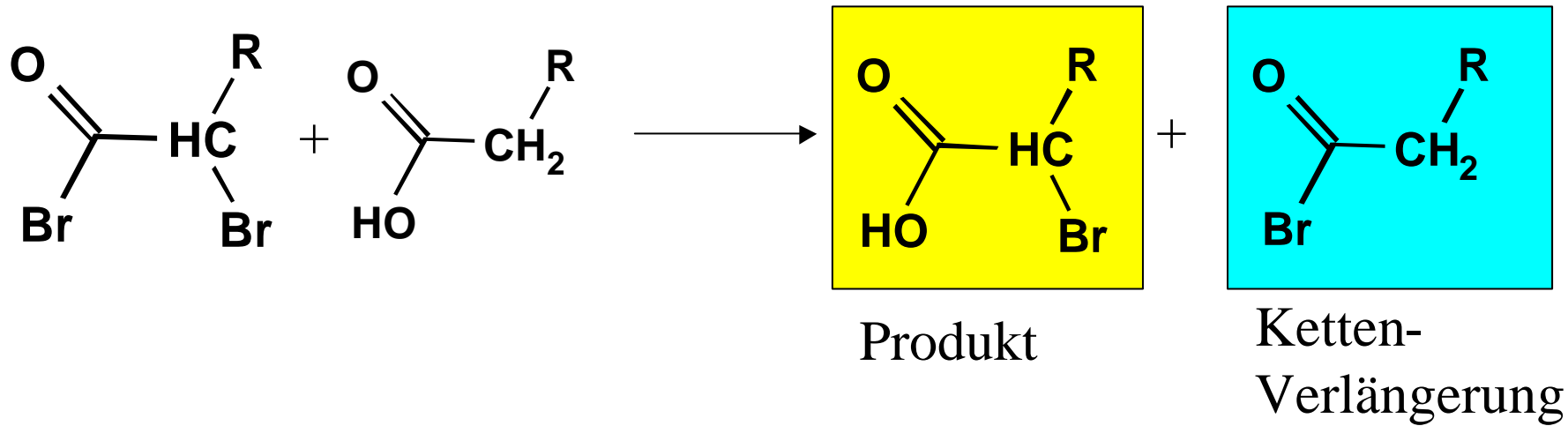
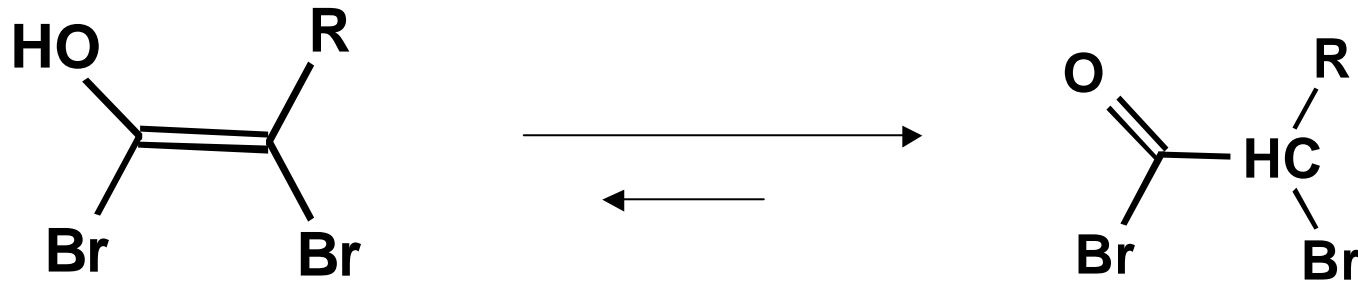


Hell-Vollhard-Zelinkski



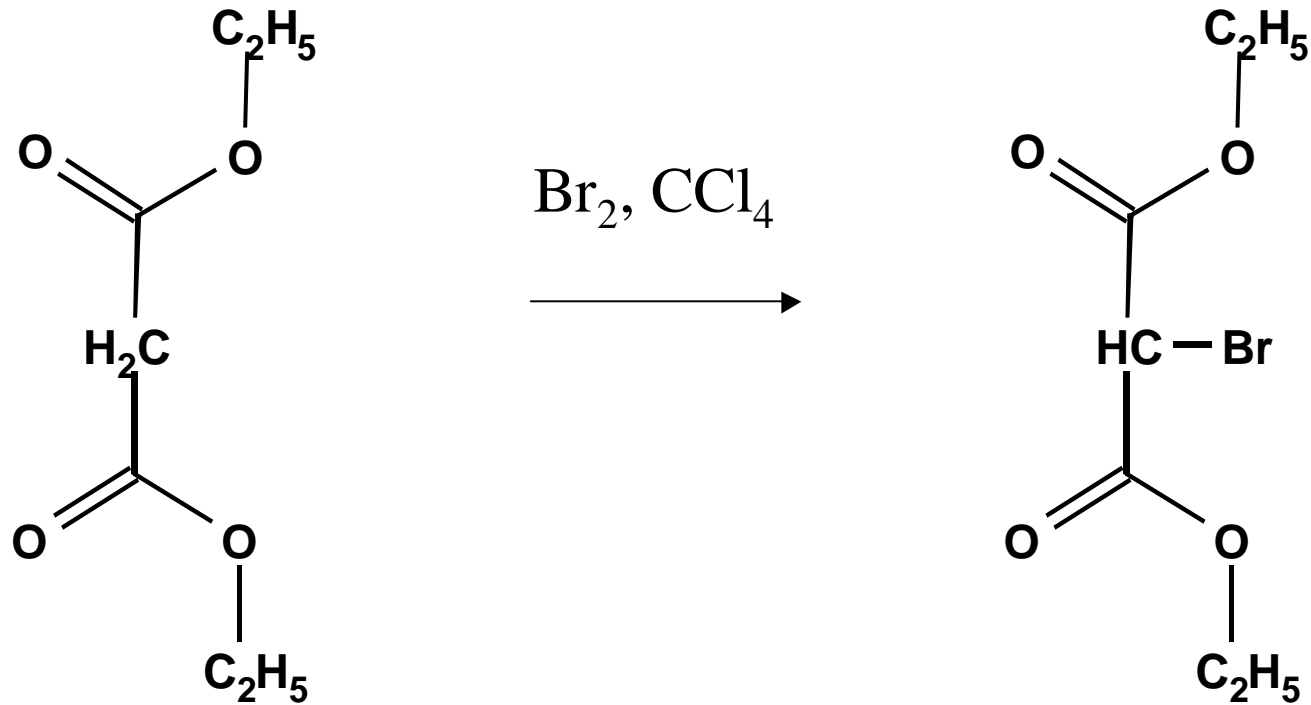


Hell-Vollhard-Zelinkski





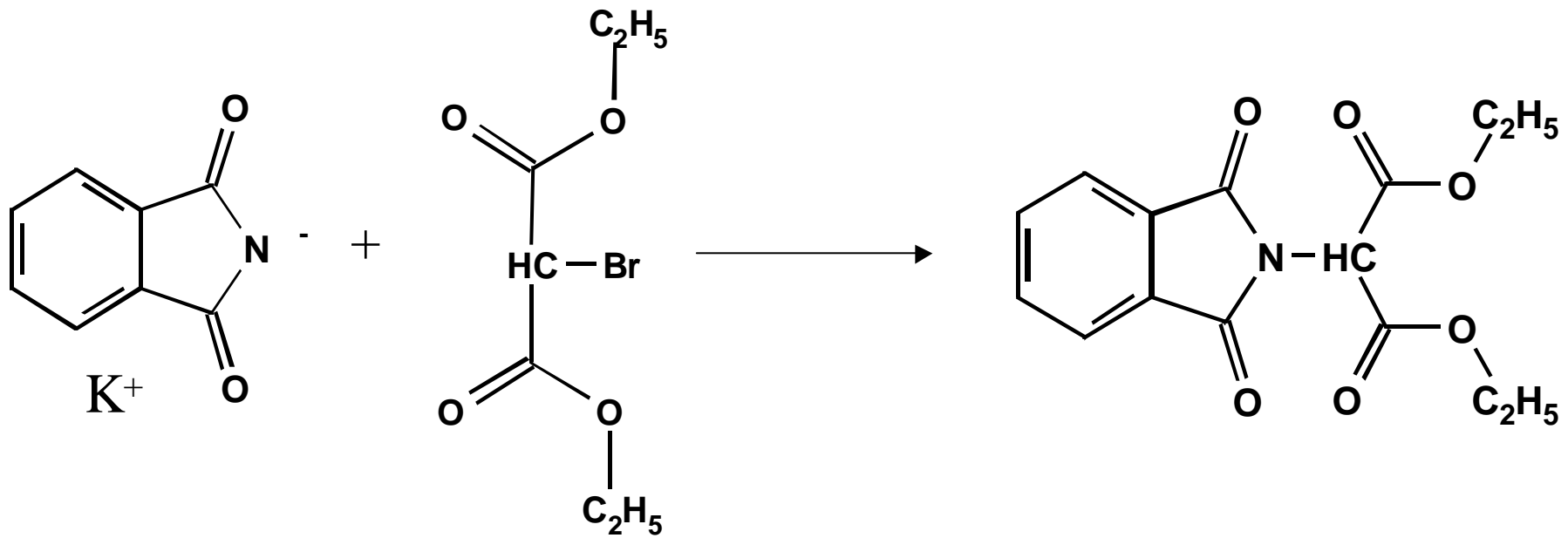
Malonsäureester- Synthese



Malonsäure-
diethylester

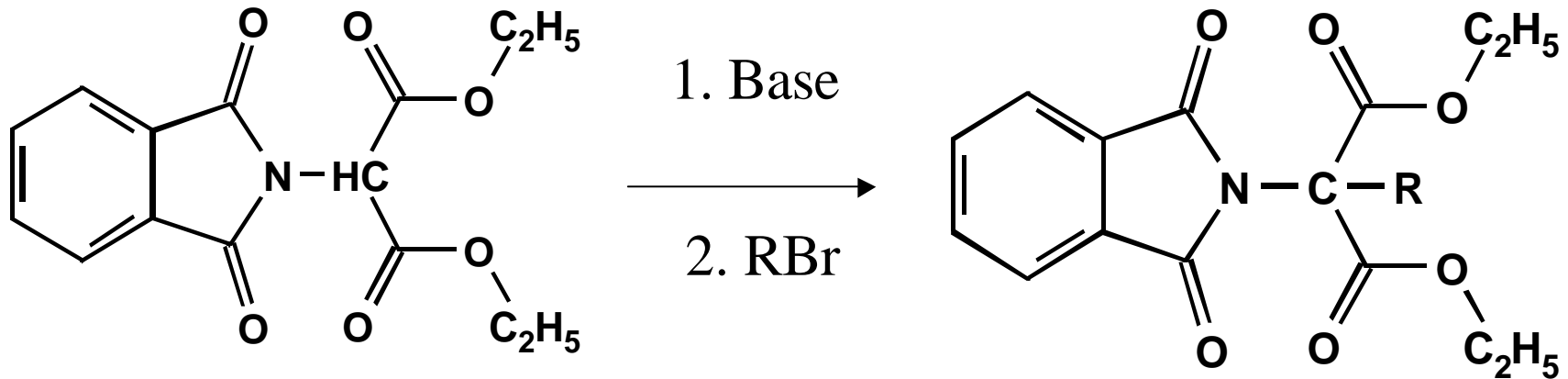


Malonsäureester- Synthese



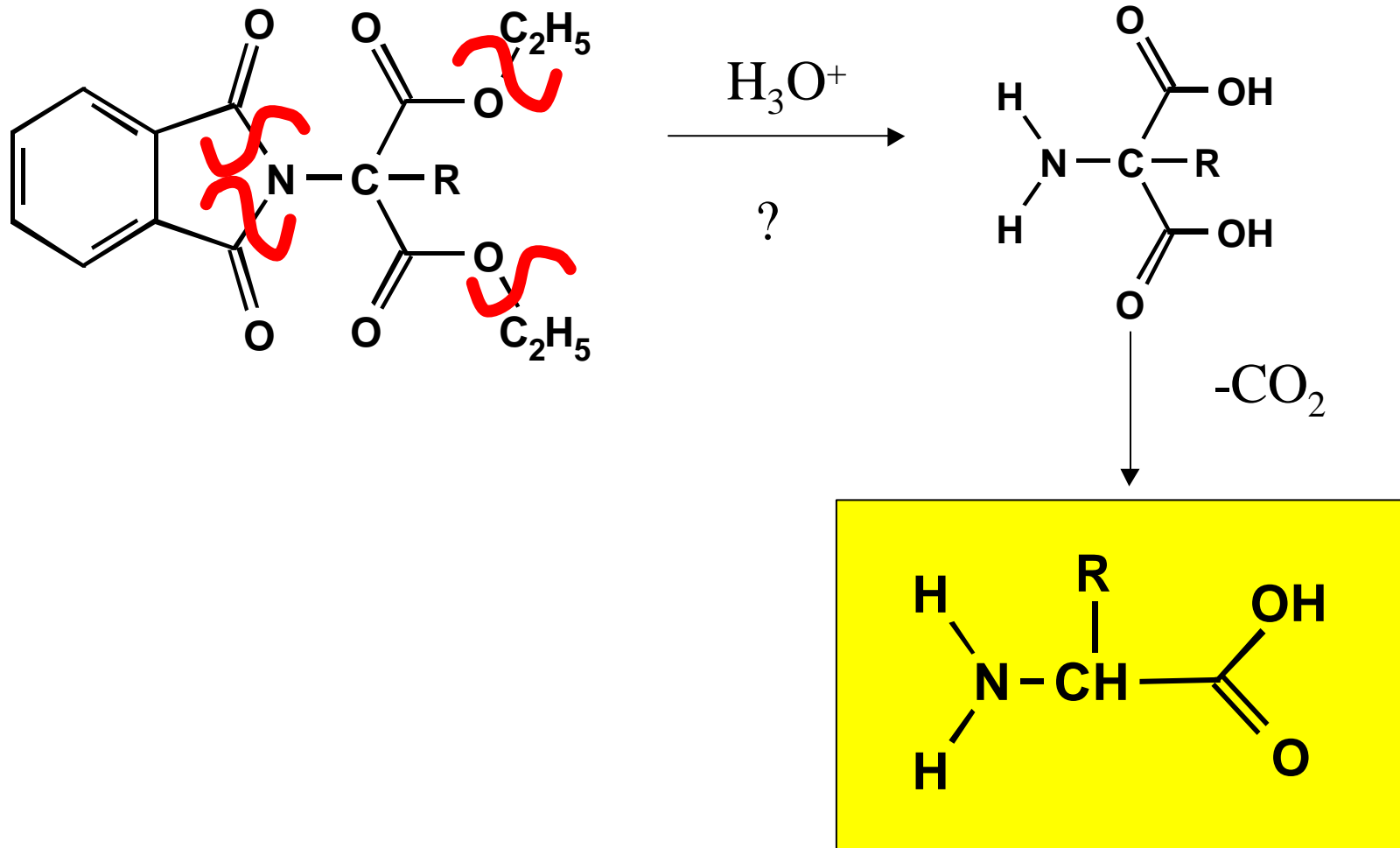


Malonsäureester- Synthese



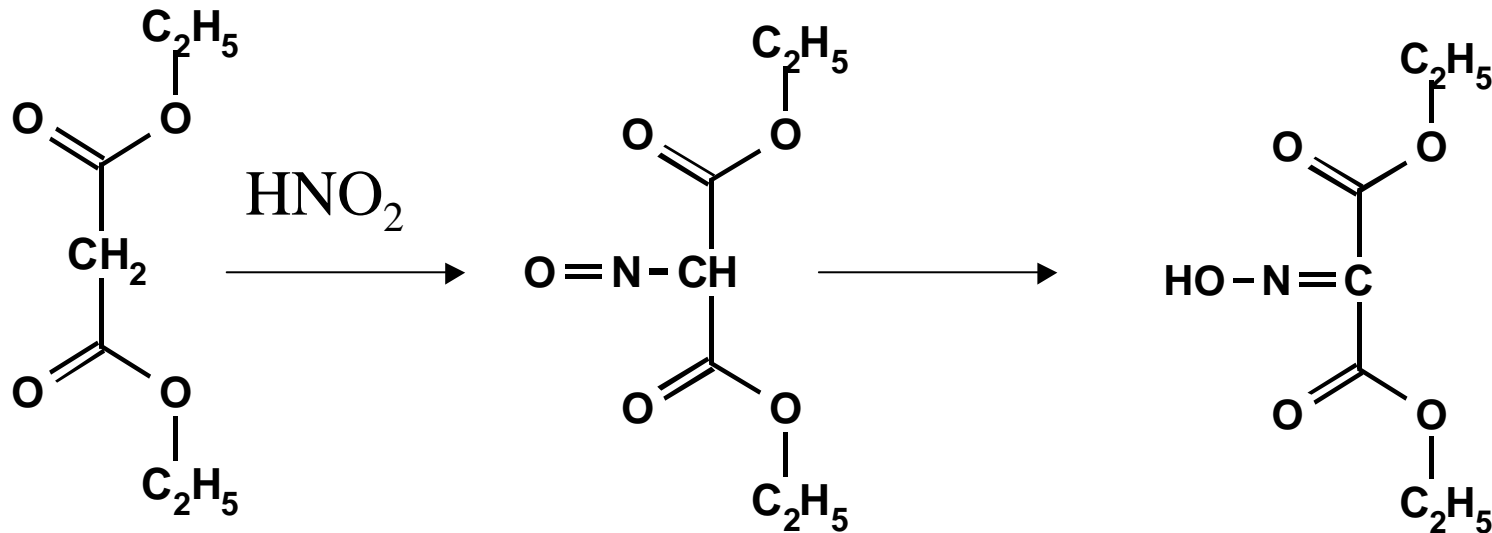


Malonsäureester-Synthese





Oxim-Synthese



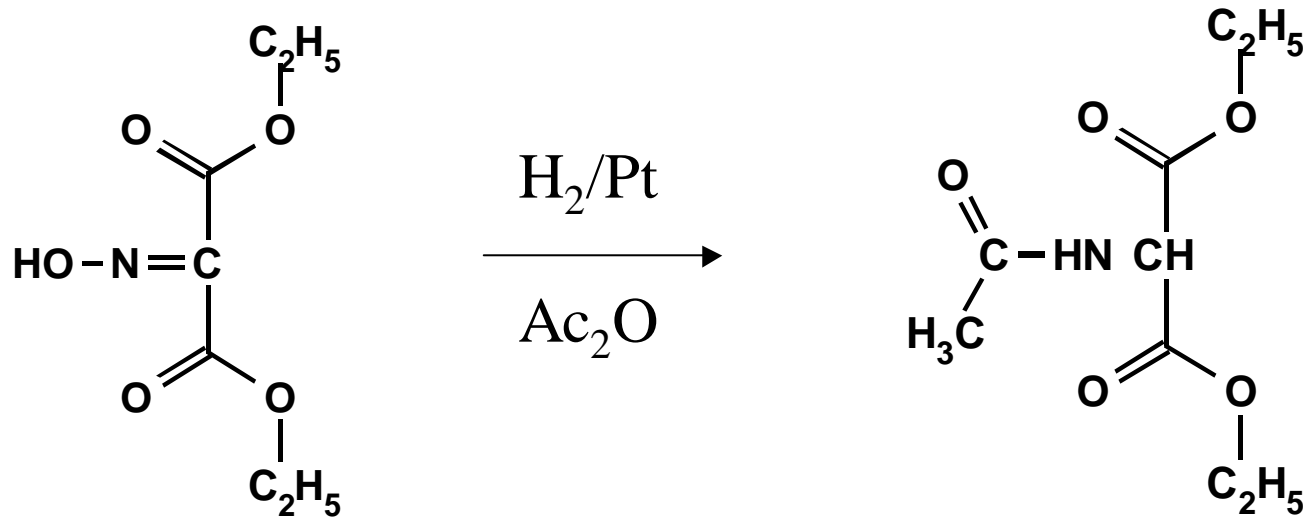
Malonsäure-
diethylester

Nitrosomalonsäure-
diethylester

Oxim



Oxim-Synthese

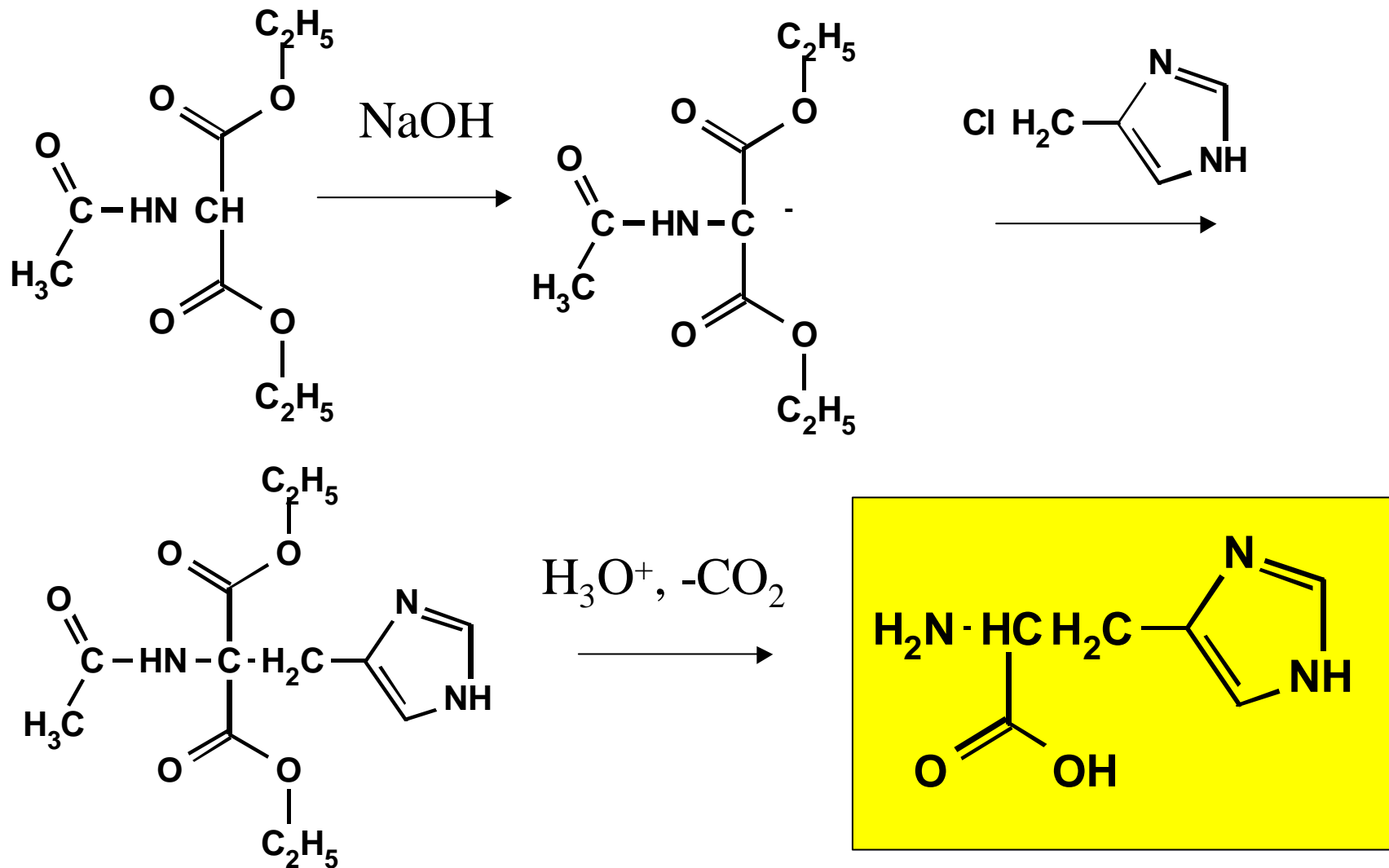


Oxim

Ac_2O = Essigsäureanhydrid

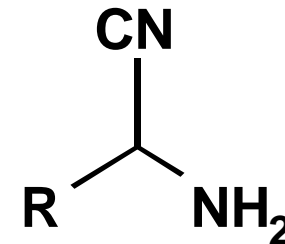
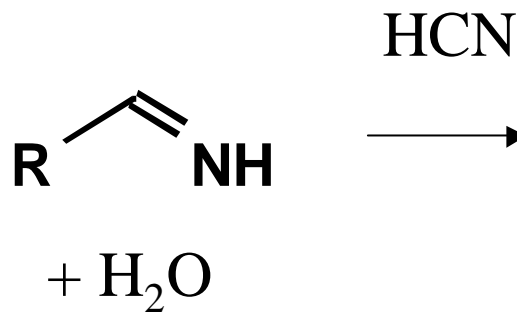
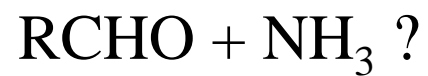
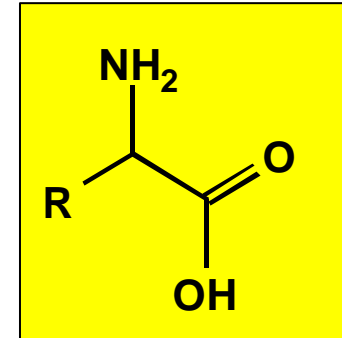
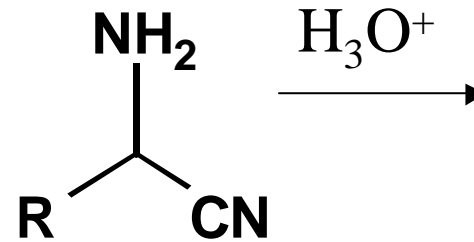


Oxim-Synthese



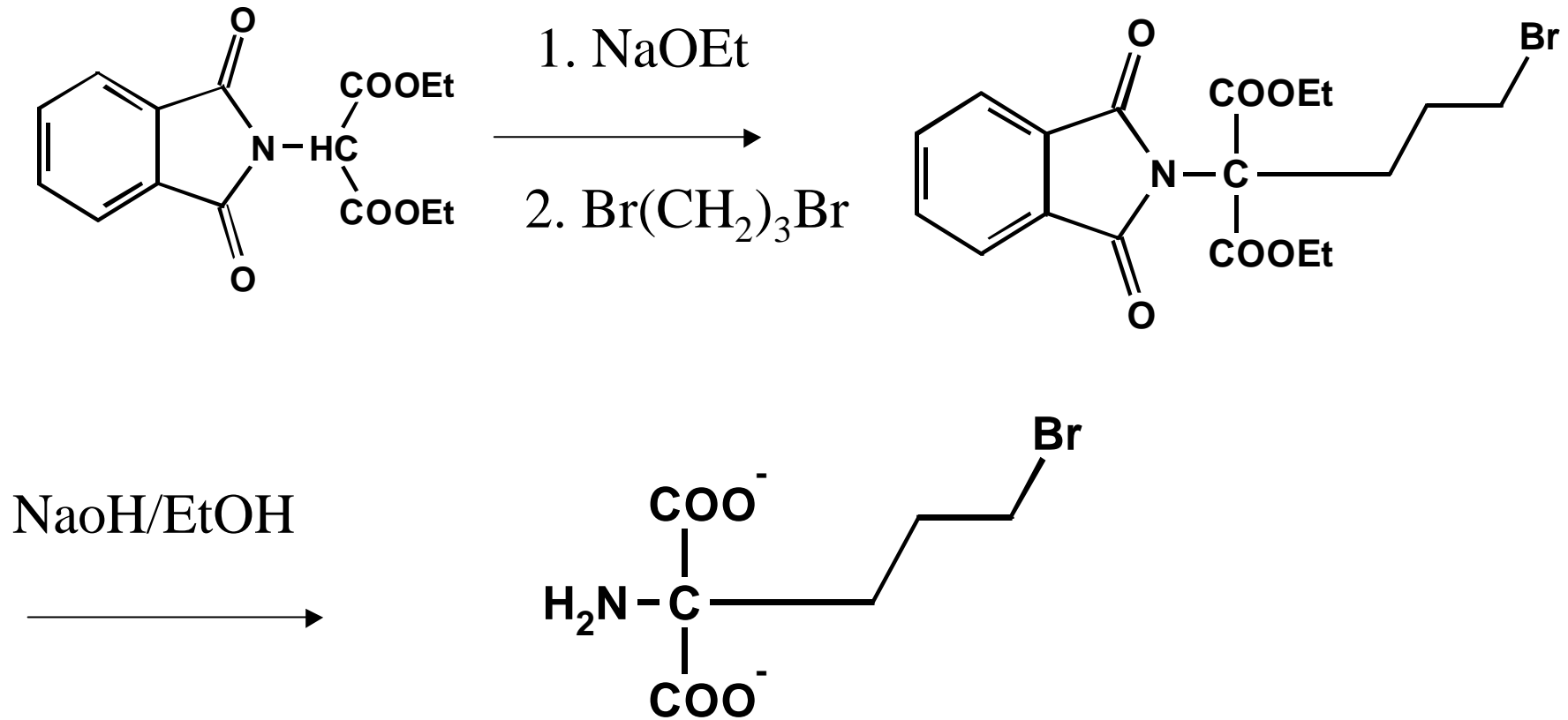


Strecker-Synthese



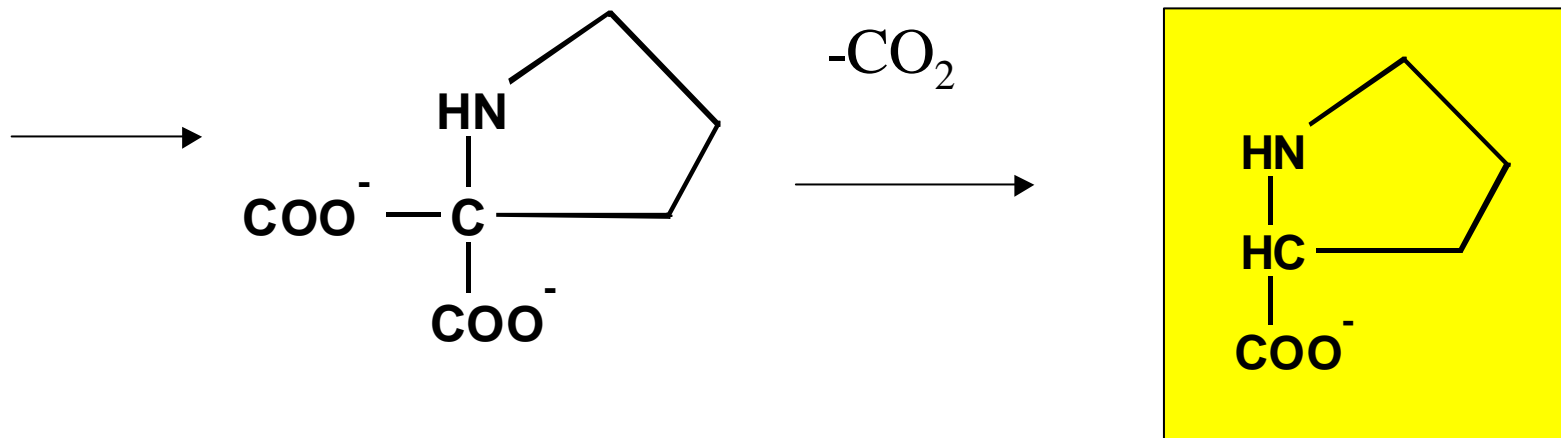
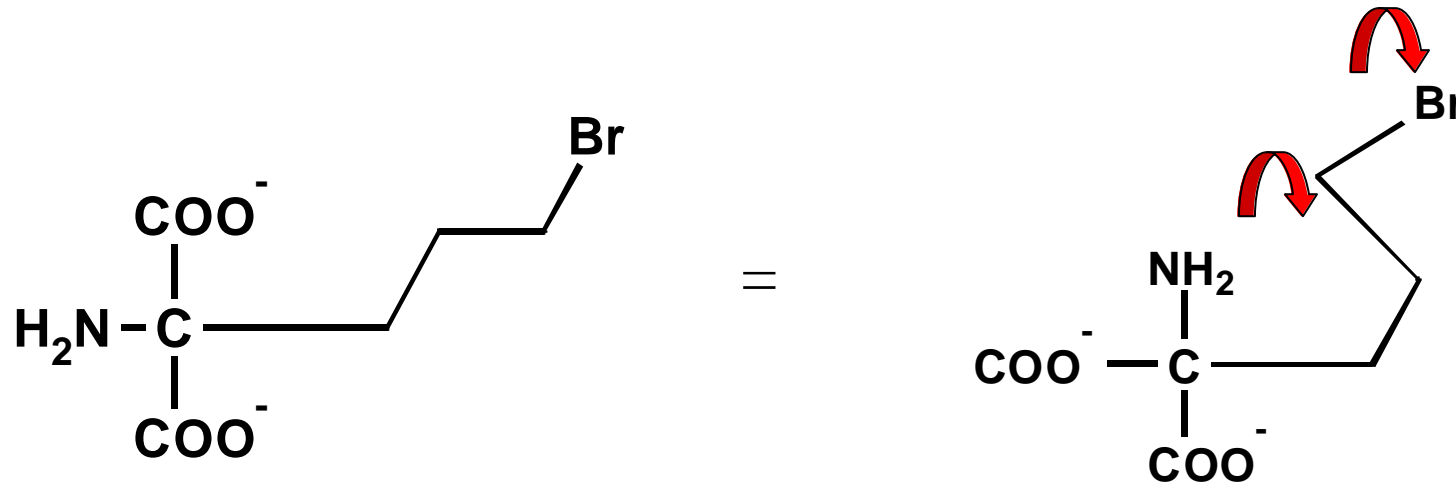


Prolin-Synthese





Prolin-Synthese



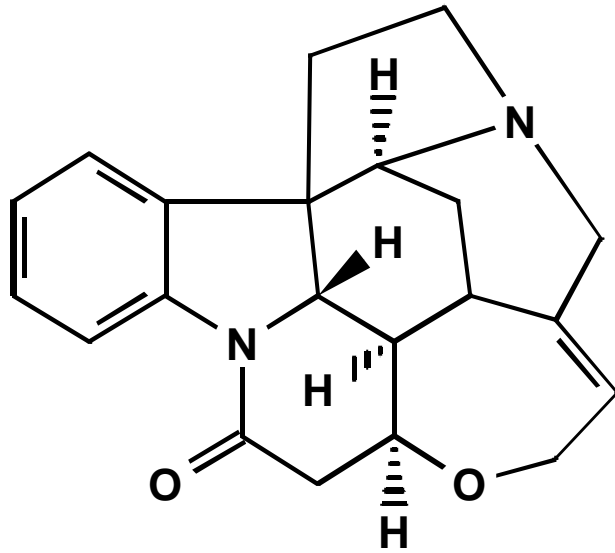


Enantiomerentrennung (Resolution)

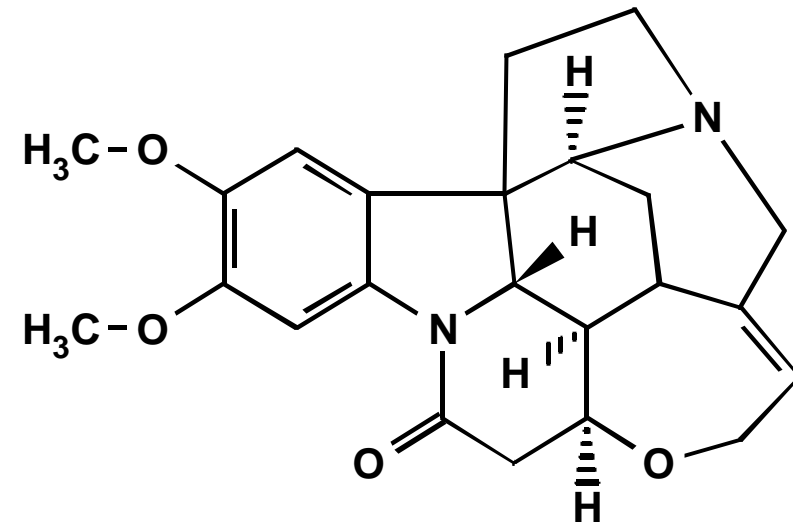
- Chemische Synthesen liefern Racemate
- Enantiomerentrennung nur möglich mit einem chiralen Hilfsreagenz
 - Chirale Base
 - Enzym-Reaktion
 - Chirale Chromatography



Resolution mit chiralen Basen



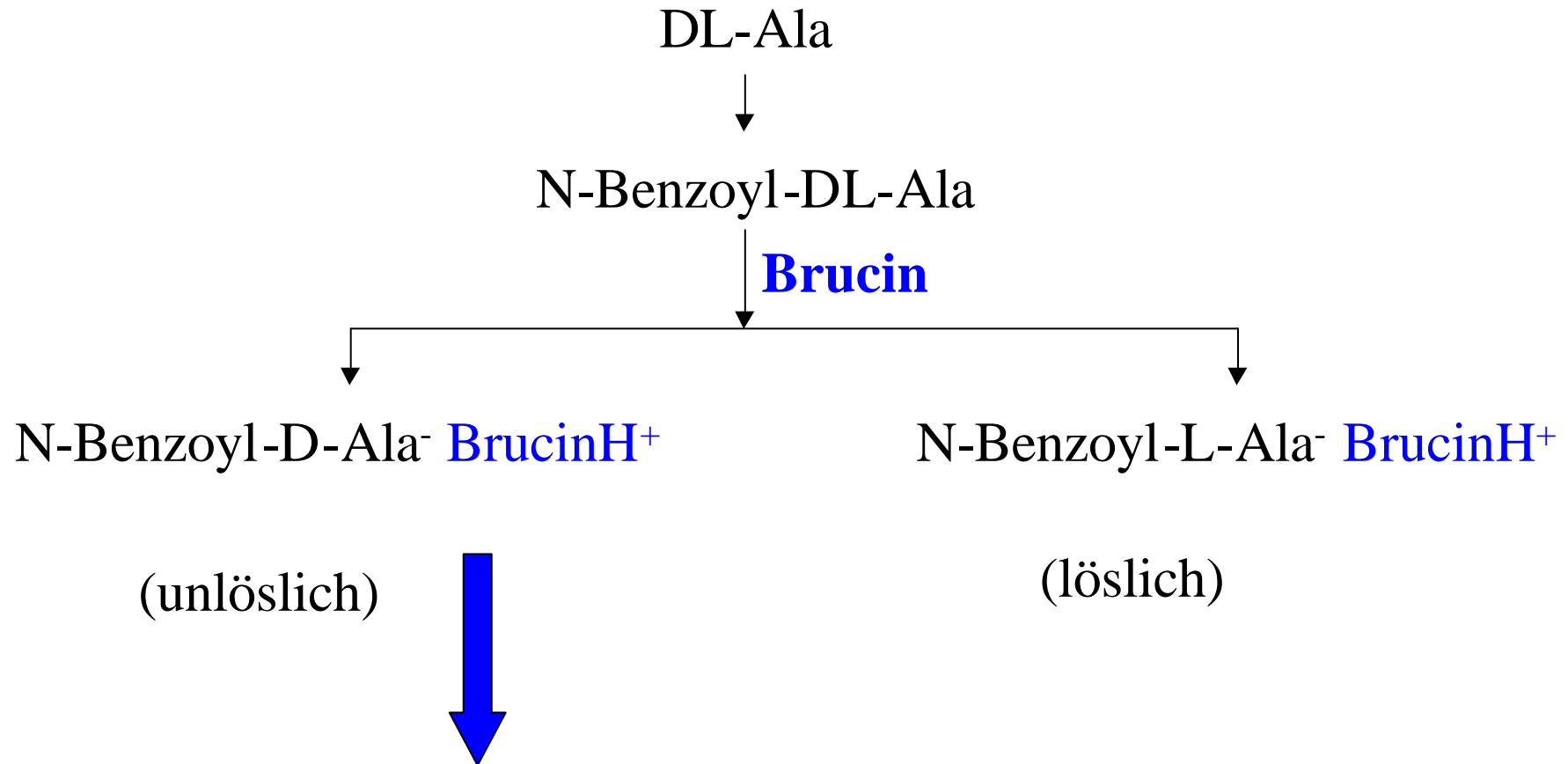
Strychnin



Brucin



Resolution mit chiralen Basen





Resolution mit chiralen Basen

