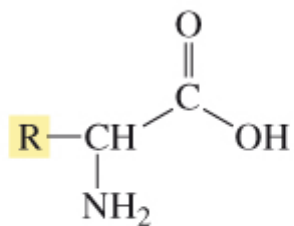
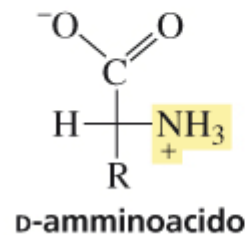
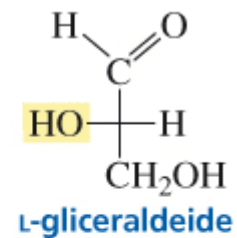
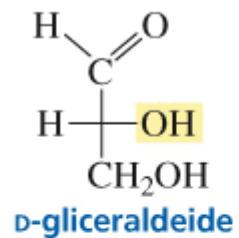


α -amminoacidi



acido α -amminocarbossilico
amminoacido



α -amminoacidi

Tabella 23.2 I più comuni amminoacidi naturali.

Gli amminoacidi sono rappresentati nella forma predominante a pH fisiologico (7.3).

Formula	Nome	Abbreviazioni	Abbondanza relativa media nelle proteine
Amminoacidi con catena laterale alifatica $\begin{array}{c} \text{O} \\ \parallel \\ \text{H}-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Glicina	Gly G	7.5%
$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Alanina	Ala A	9.0%
$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}-\text{CH}-\text{C}-\text{O}^- \\ \quad \\ \text{CH}_3 \quad ^+\text{NH}_3 \end{array}$	Valina*	Val V	6.9%
$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CHCH}_2-\text{CH}-\text{C}-\text{O}^- \\ \quad \\ \text{CH}_3 \quad ^+\text{NH}_3 \end{array}$	Leucina*	Leu L	7.5%
$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{CH}-\text{CH}-\text{C}-\text{O}^- \\ \quad \\ \text{CH}_3 \quad ^+\text{NH}_3 \end{array}$	Isoleucina*	Ile I	4.6%
Amminoacidi con un gruppo idrossilico $\begin{array}{c} \text{O} \\ \parallel \\ \text{HOCH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Serina	Ser S	7.1%
$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}-\text{CH}-\text{C}-\text{O}^- \\ \quad \\ \text{OH} \quad ^+\text{NH}_3 \end{array}$	Treonina*	Thr T	6.0%
Amminoacidi contenenti zolfo $\begin{array}{c} \text{O} \\ \parallel \\ \text{HSCH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Cisteina	Cys C	2.8%

(Continua)

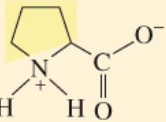
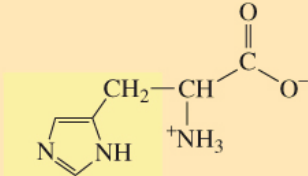
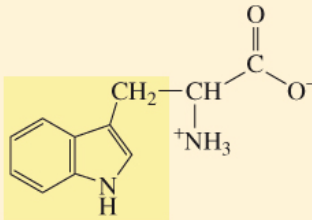
Tabella 23.2 Continuazione

Formula	Nome	Abbreviazioni	Abbondanza relativa media nelle proteine
$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{SCH}_2\text{CH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Metionina*	Met M	1.7%
Amminoacidi acidi $\begin{array}{c} \text{O} \quad \text{O} \\ \parallel \quad \parallel \\ ^-\text{O}-\text{C}-\text{CH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Aspartato (acido aspartico)	Asp D	5.5%
$\begin{array}{c} \text{O} \quad \text{O} \\ \parallel \quad \parallel \\ ^-\text{O}-\text{C}-\text{CH}_2\text{CH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Glutammato (acido glutammico)	Glu E	6.2%
Ammidi di amminoacidi acidi $\begin{array}{c} \text{O} \quad \text{O} \\ \parallel \quad \parallel \\ \text{H}_2\text{N}-\text{C}-\text{CH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Asparagina	Asn N	4.4%
$\begin{array}{c} \text{O} \quad \text{O} \\ \parallel \quad \parallel \\ \text{H}_2\text{N}-\text{C}-\text{CH}_2\text{CH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Glutammina	Gln Q	3.9%
Amminoacidi basici $\begin{array}{c} \text{O} \\ \parallel \\ \text{H}_3^+\text{NCH}_2\text{CH}_2\text{CH}_2\text{CH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Lisina*	Lys K	7.0%
$\begin{array}{c} ^+\text{NH}_2 \quad \text{O} \\ \parallel \quad \parallel \\ \text{H}_2\text{N}-\text{C}-\text{NHCH}_2\text{CH}_2\text{CH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Arginina*	Arg R	4.7%
Amminoacidi con un anello benzenico $\begin{array}{c} \text{O} \\ \parallel \\ \text{C}_6\text{H}_5-\text{CH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Fenilalanina*	Phe F	3.5%
$\begin{array}{c} \text{O} \\ \parallel \\ \text{HO}-\text{C}_6\text{H}_4-\text{CH}_2-\text{CH}-\text{C}-\text{O}^- \\ \\ ^+\text{NH}_3 \end{array}$	Tirosina	Tyr Y	3.5%

(Continua)

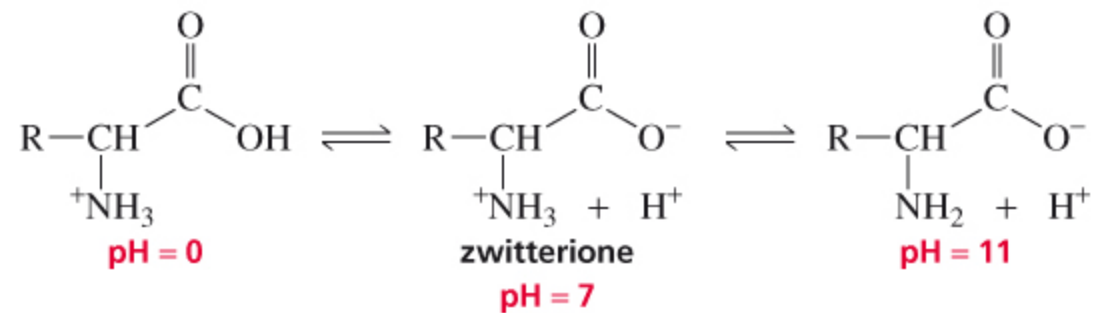
α -amminoacidi

Tabella 23.2 Continuazione

	Formula	Nome	Abbreviazioni		Abbondanza relativa media nelle proteine
Amminoacidi con un eterociclo		Prolina	Pro	P	4.6%
		Istidina*	His	H	2.1%
		Triptofano*	Trp	W	1.1%

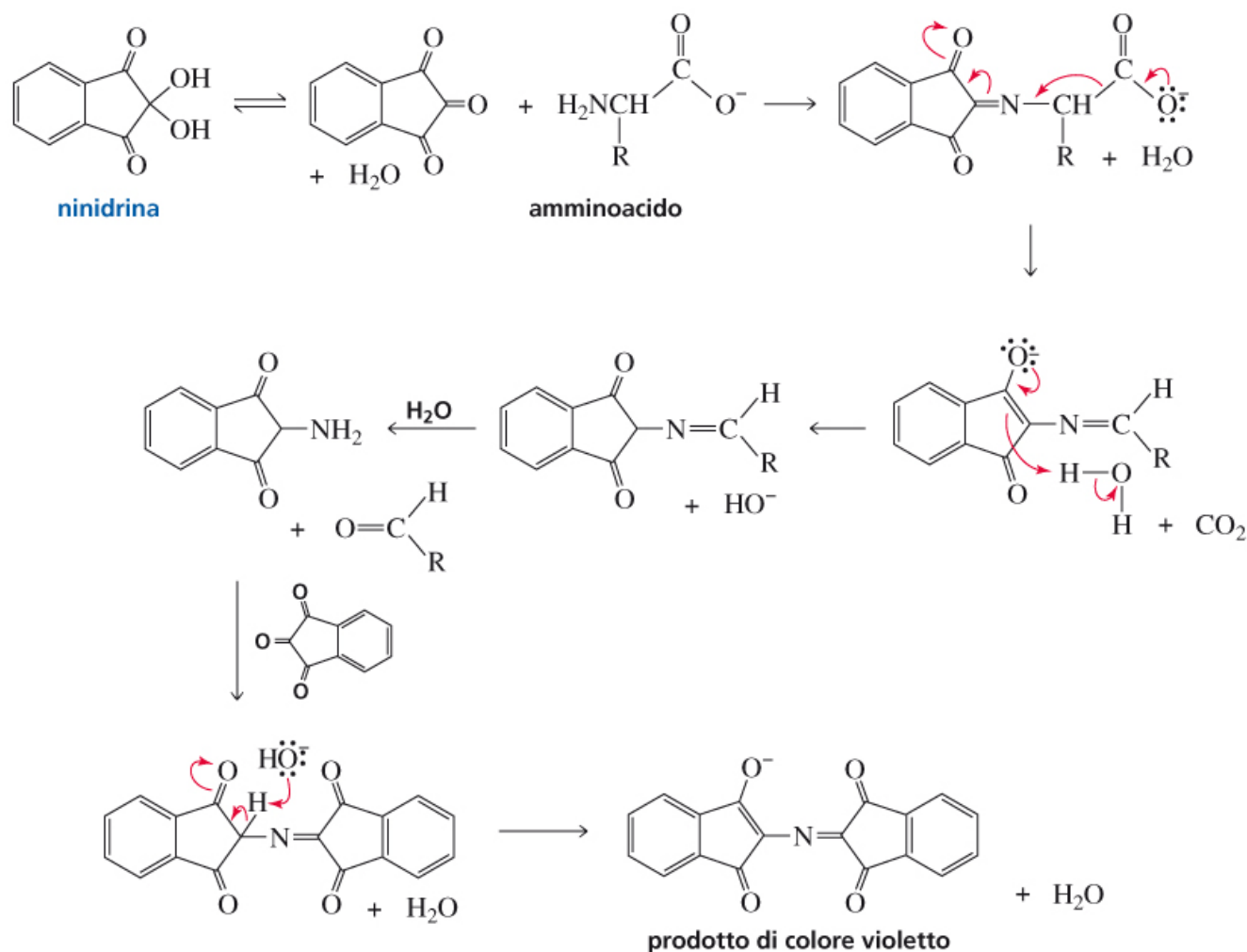
* Amminoacidi essenziali

α -amminoacidi

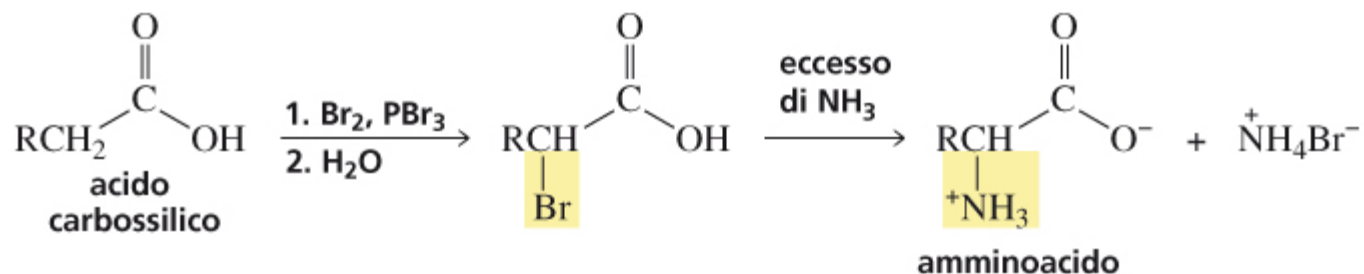


Individuare gli α -amminoacidi

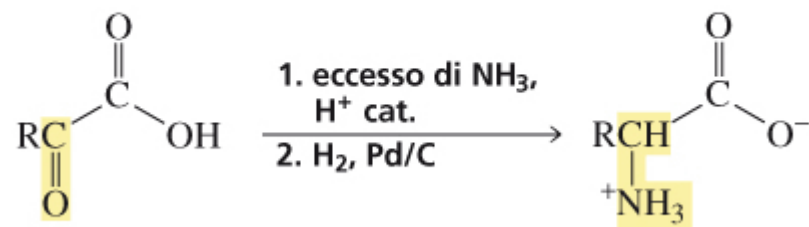
MECCANISMO DELLA REAZIONE DI UN AMMINOACIDO CON LA NINIDRINA
PER DARE UN COMPOSTO COLORATO



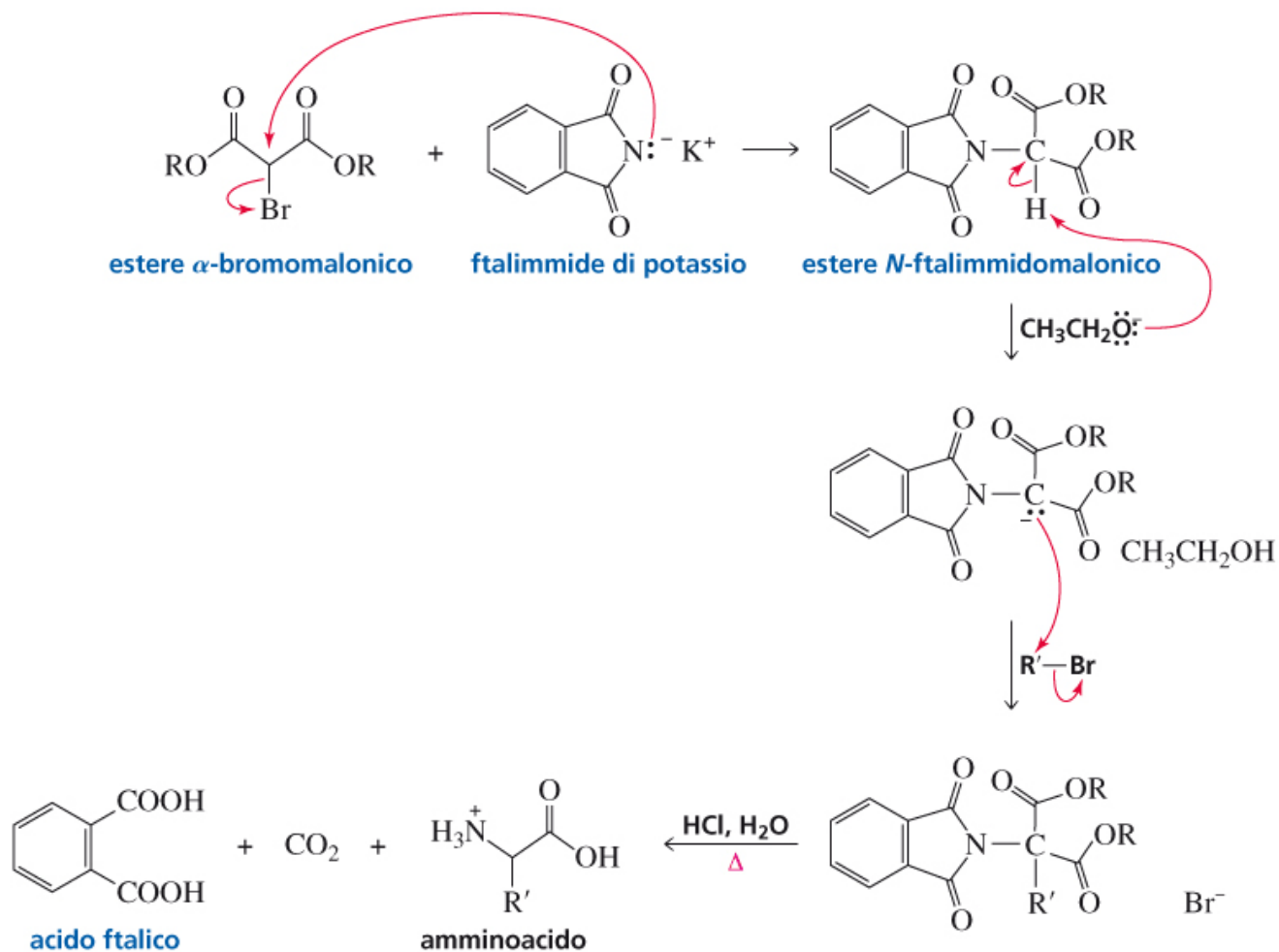
α -amminoacidi: sintesi



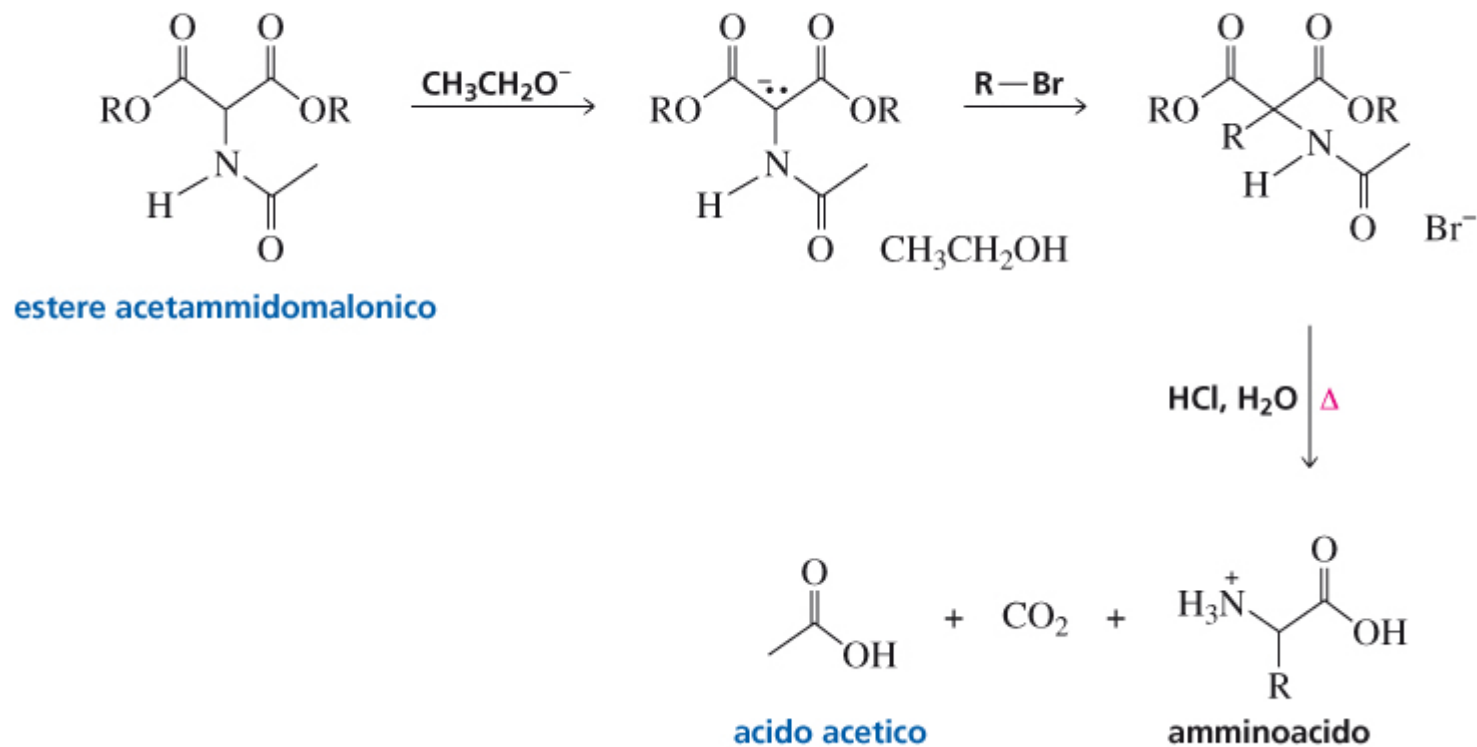
La reazione dà buone rese perché il prodotto è piuttosto ingombrato



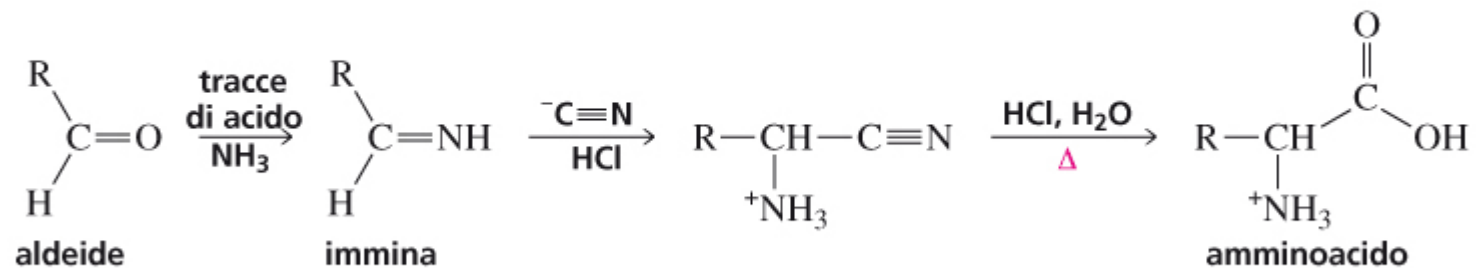
α -amminoacidi: sintesi



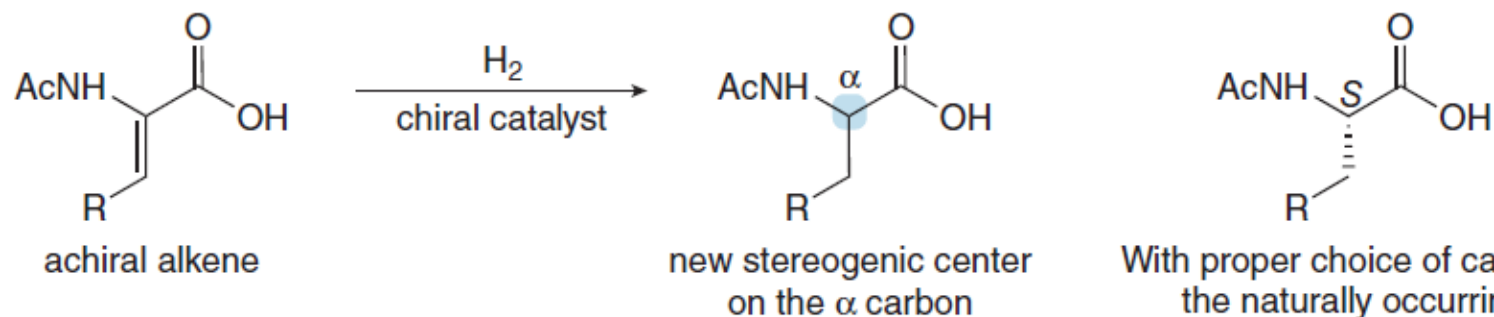
α -amminoacidi: sintesi



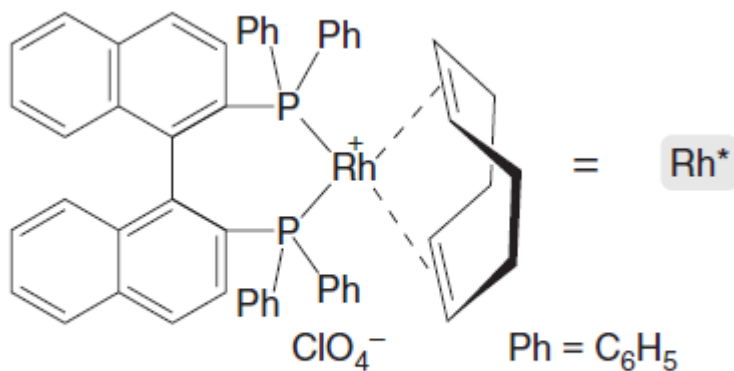
α -amminoacidi: sintesi di Strecker



α -aminoacidi: riduzione enantioselettiva

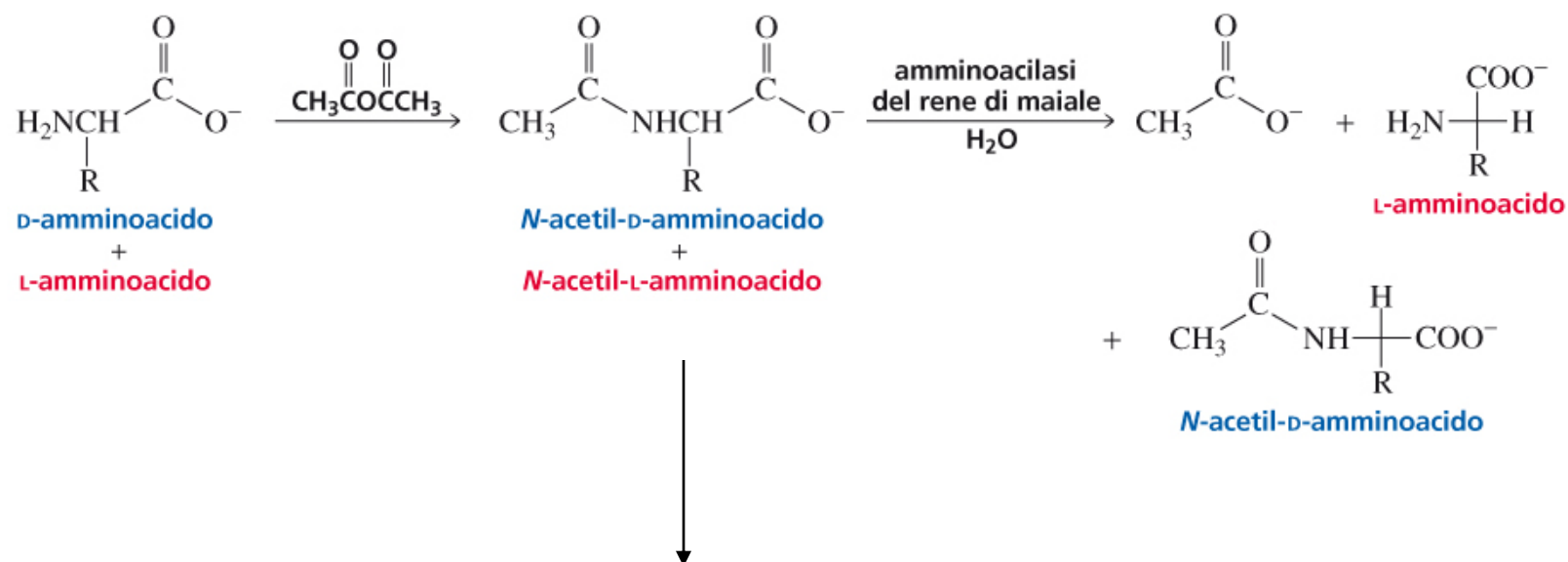


With proper choice of catalyst, the naturally occurring S isomer is formed.



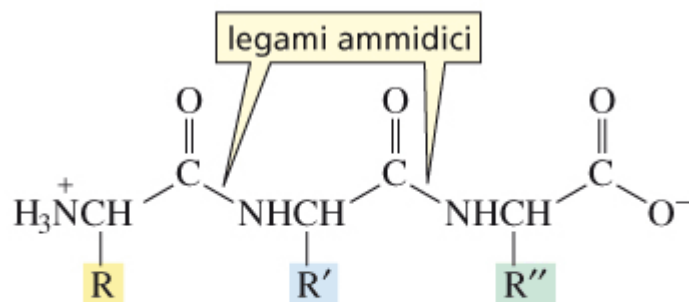
chiral hydrogenation catalyst

α -amminoacidi: risoluzione

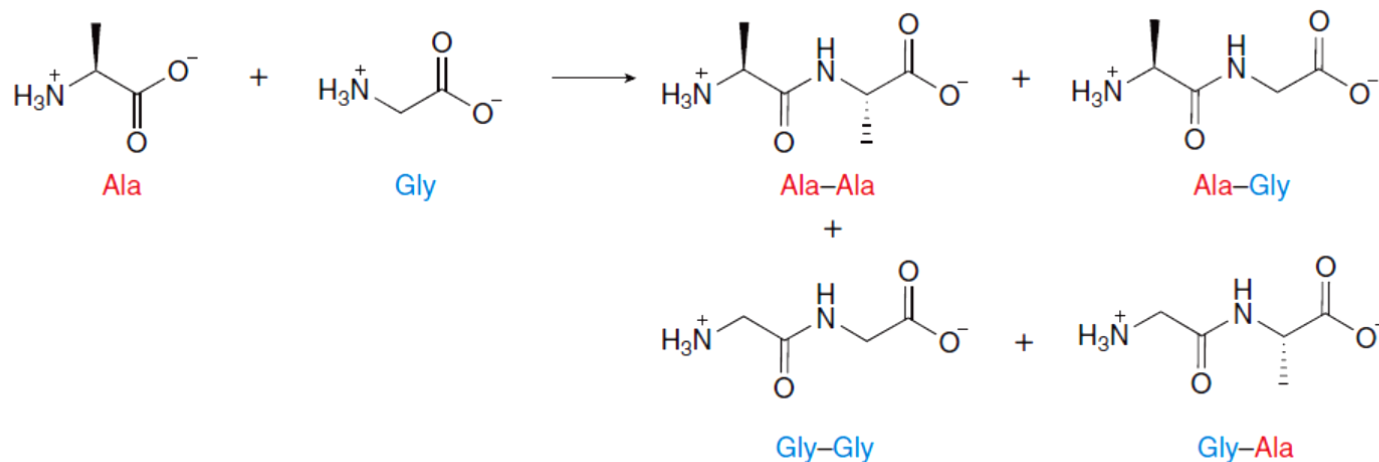


Cristallizzazione con controione chirale
(α -metilbenzilammina)

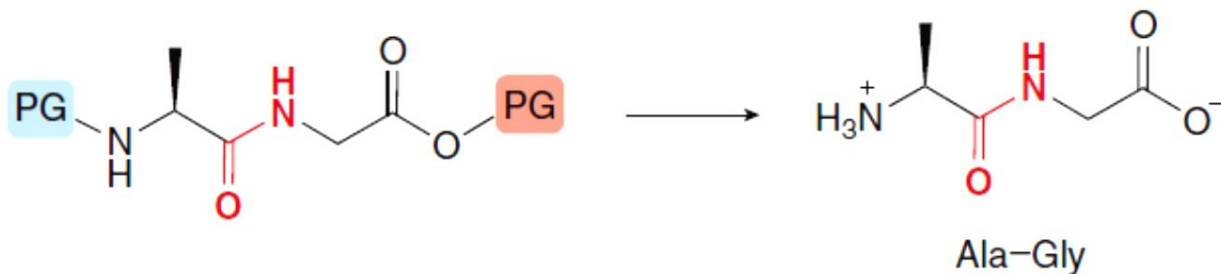
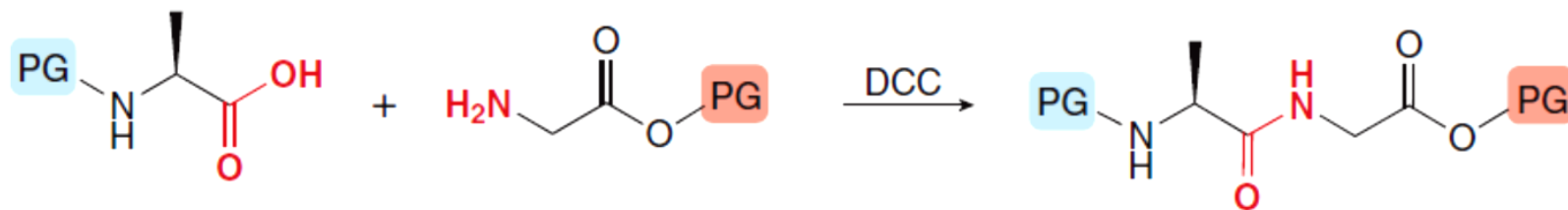
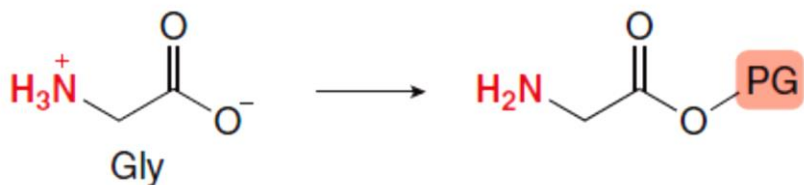
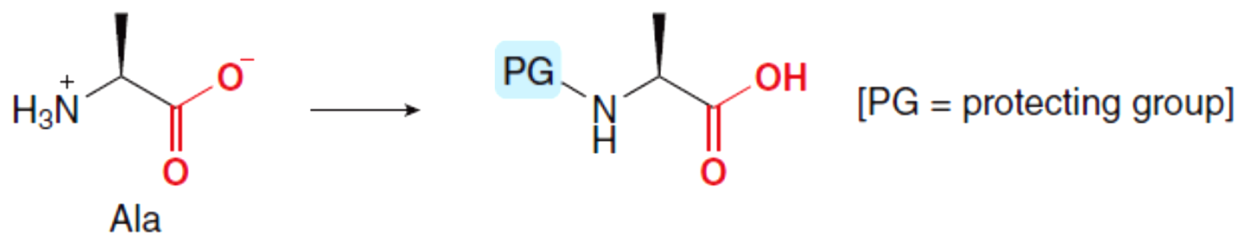
Peptidi



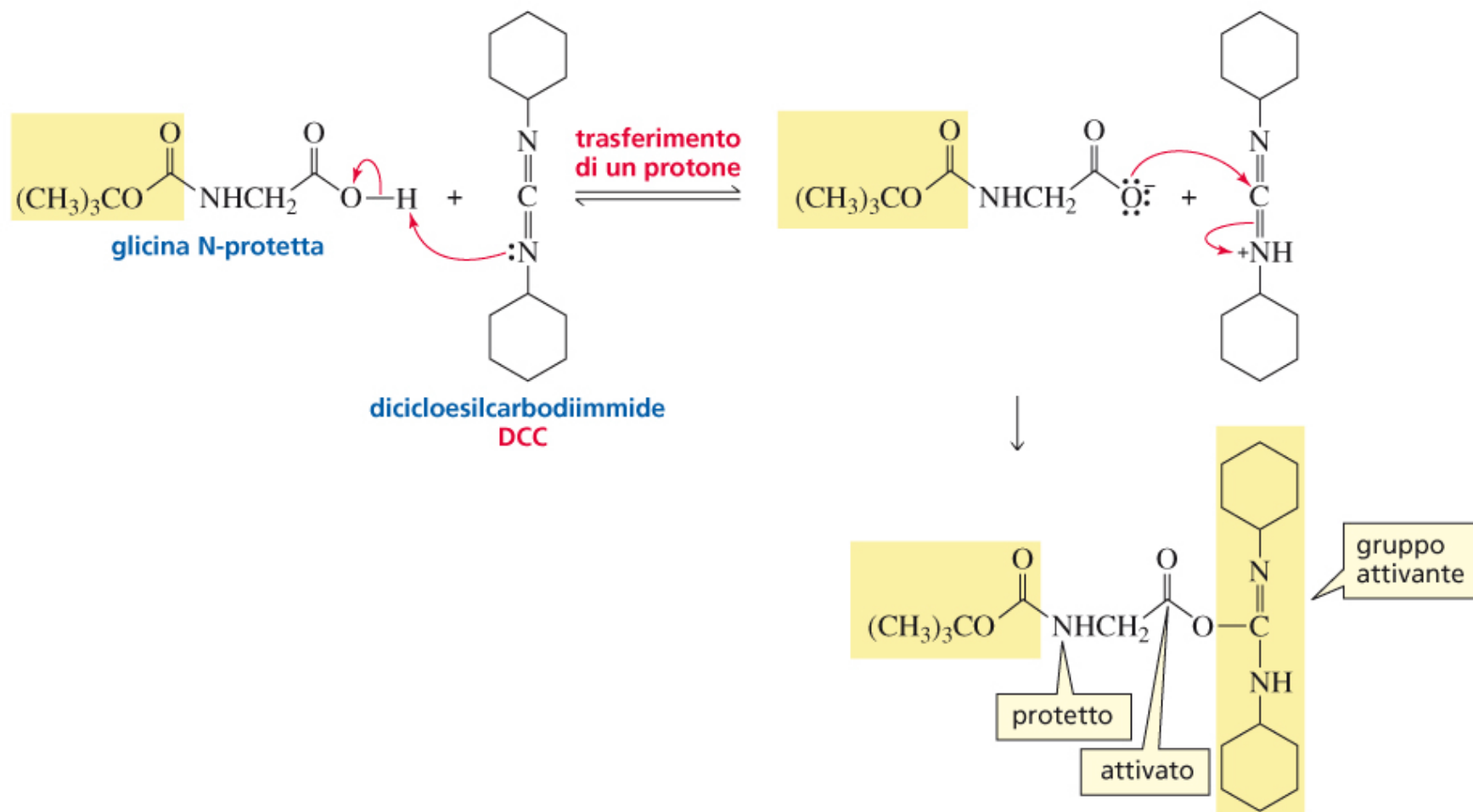
α -amminoacidi uniti con legami ammidici
tripeptide



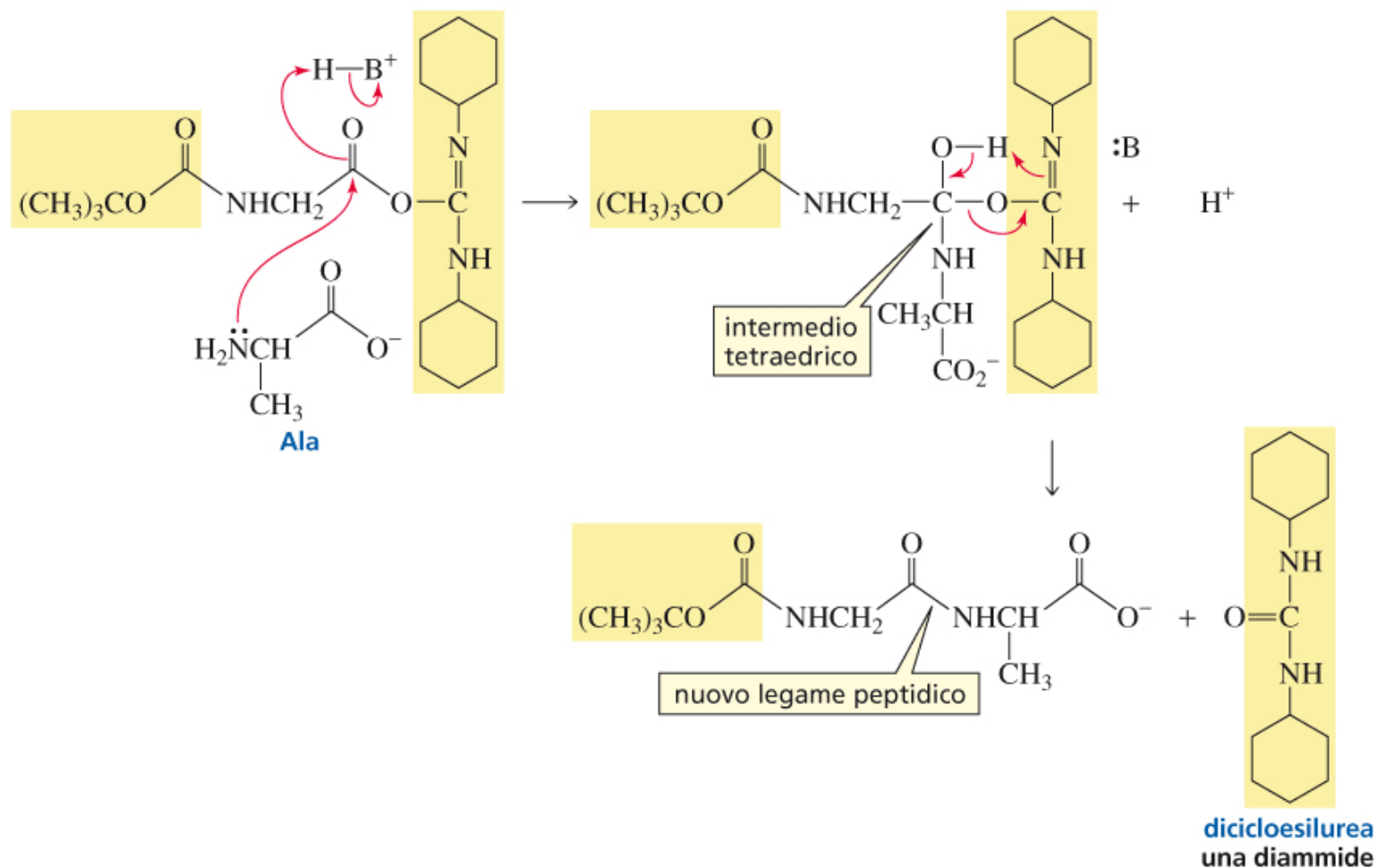
Peptidi



Peptidi

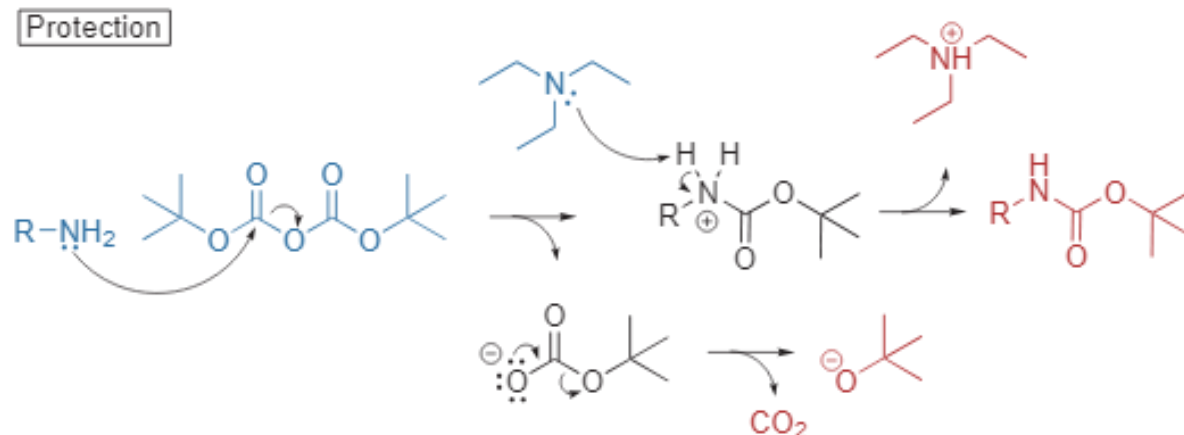


Peptidi

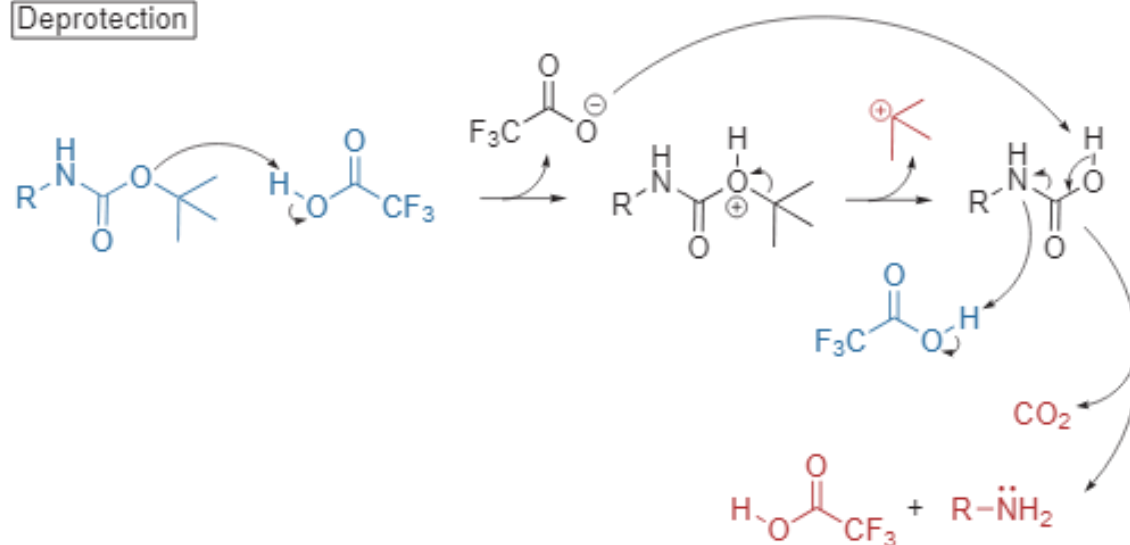


Peptidi

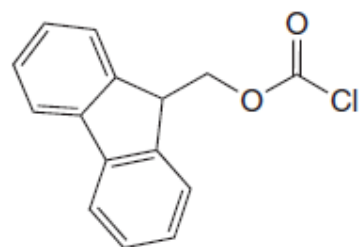
Protection



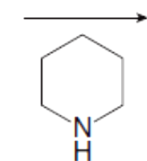
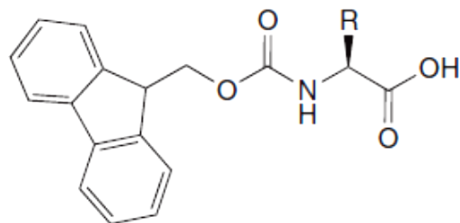
Deprotection



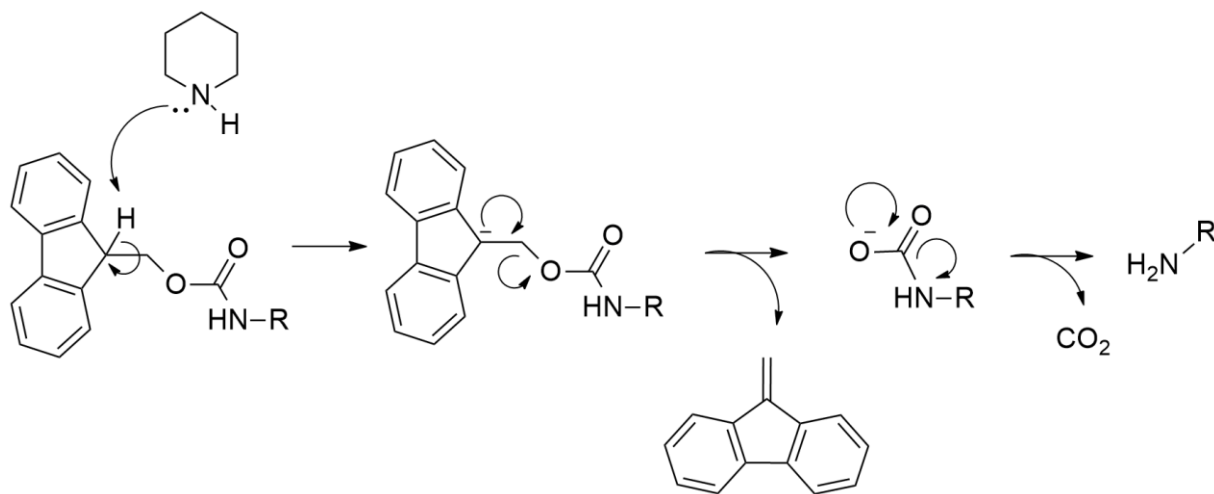
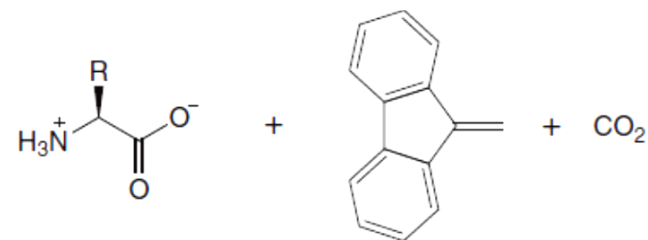
Peptidi



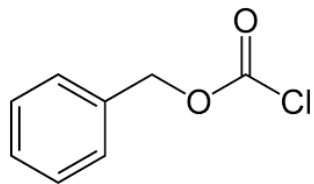
9-fluorenylmethyl
chloroformate



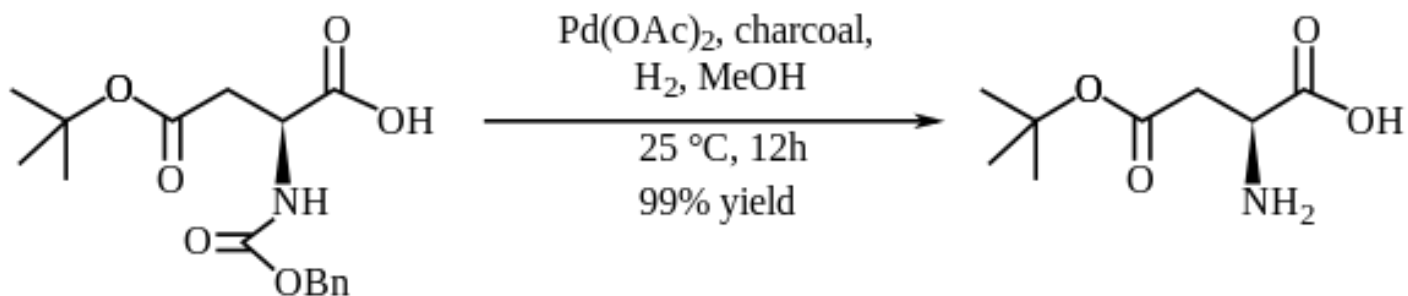
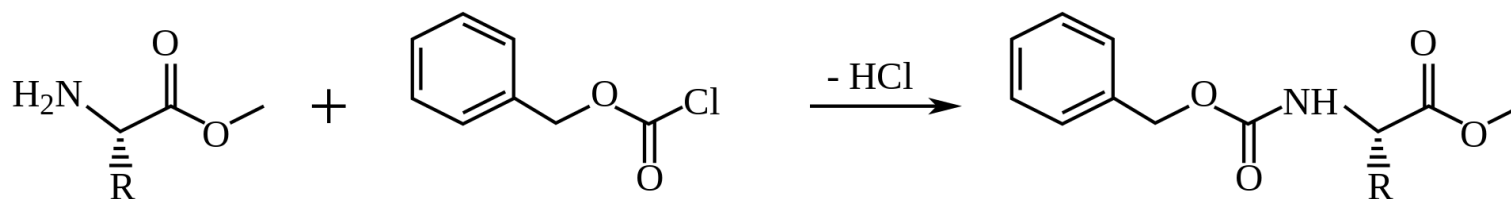
deprotection



Peptidi

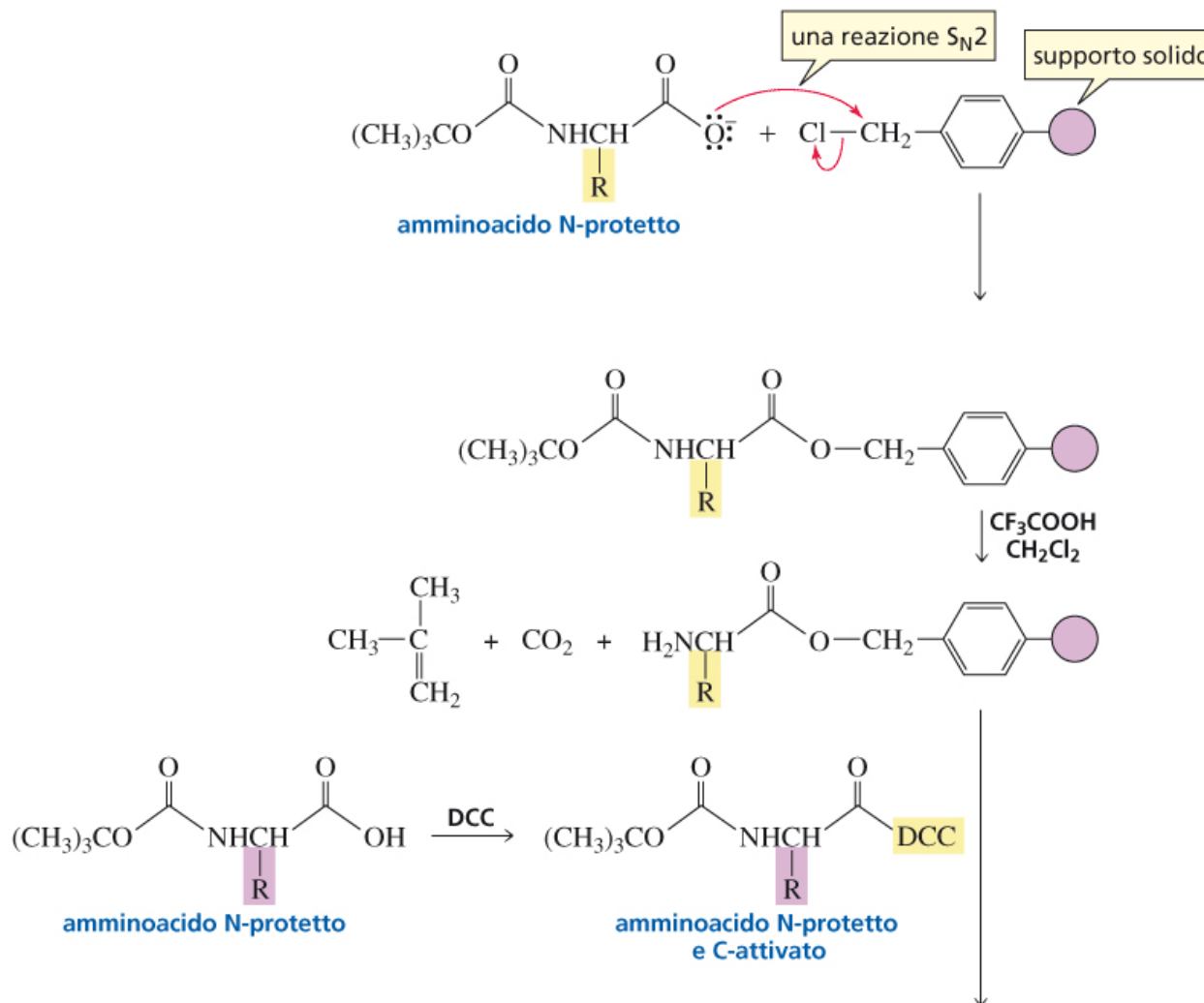


Benzyl chloroformate
(Cbz-Cl, Z-Cl)

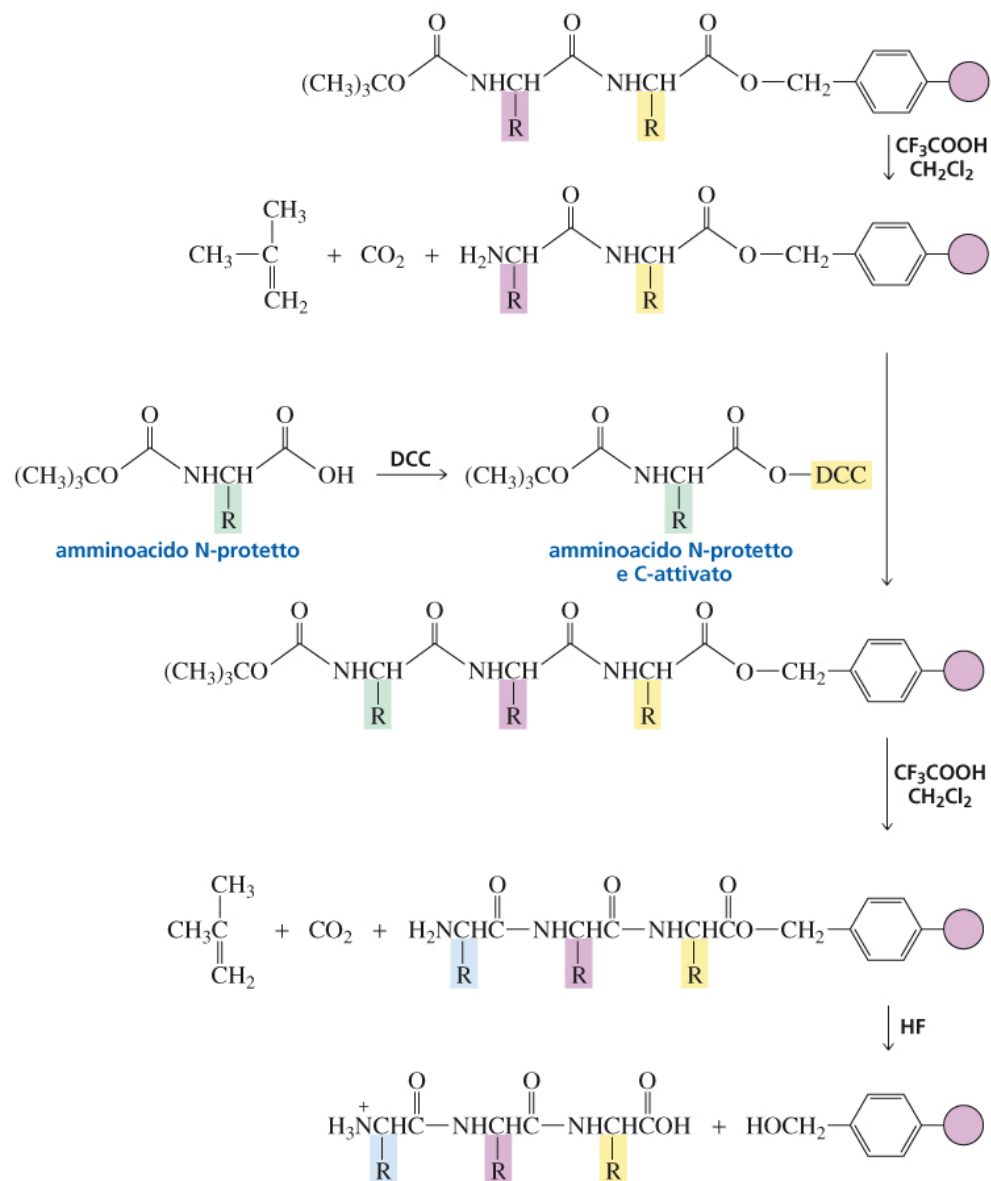


Peptidi

Sintesi peptidica automatizzata in fase solida di Merrifield di un tripeptide



Peptidi



Peptidi

