

Psychoaktive Substanzen

- Stimmungen
- Denkprozesse
- Verhalten
- Behandlung neurologischer und psychischer Erkrankungen
- Missbrauch/Fehlgebrauch/Abhängigkeit

Psychoaktive Substanzen

- Wirkungen komplex
- Entstehungsursachen der Erkrankungen oft unklar
- Einteilung
 - Wirkungsmechanismus
 - Chemische Struktur
 - Verhalten/klinische Anwendung
- Dosisabhängigkeit der Wirkung

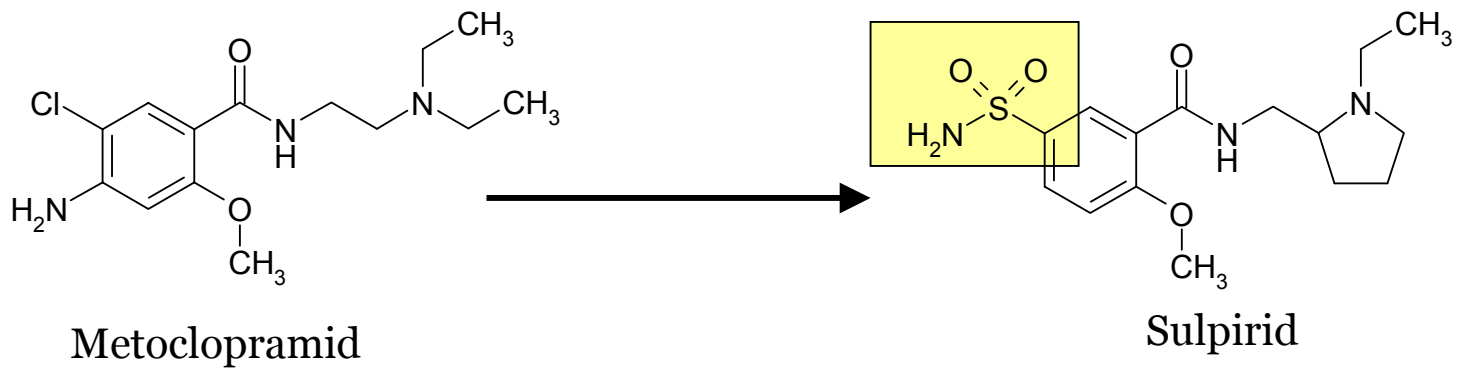
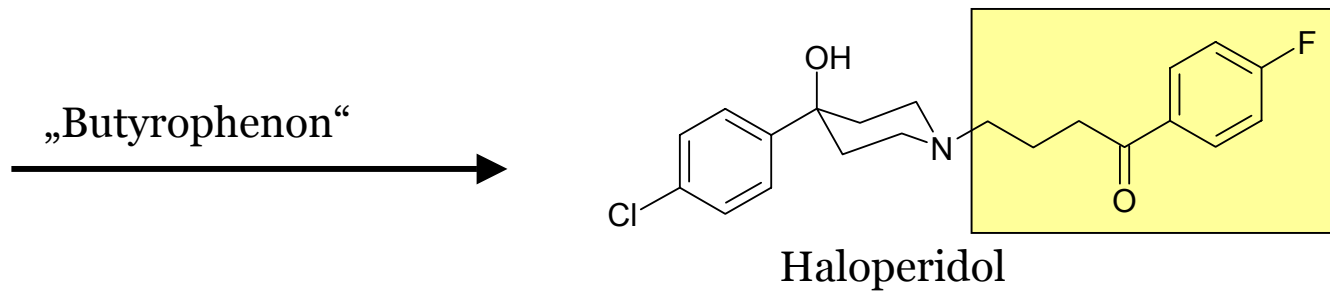
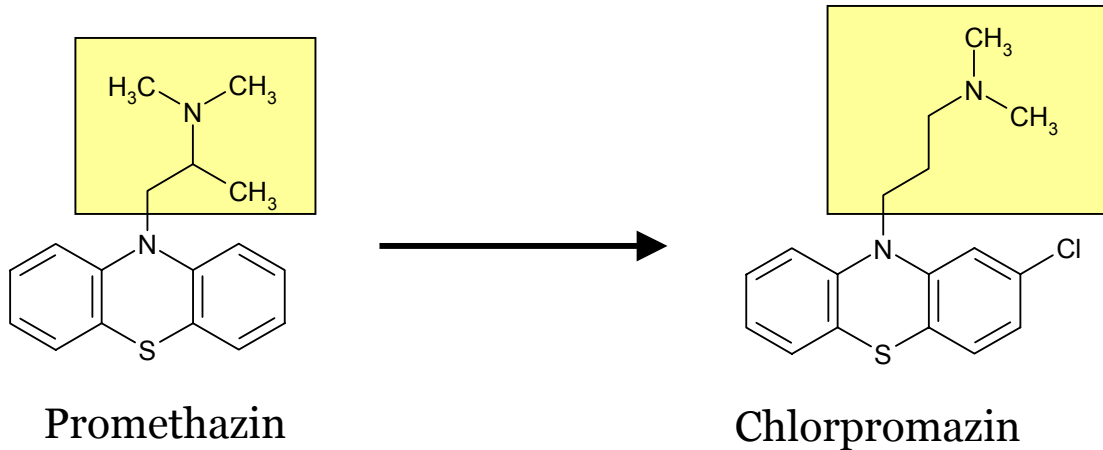
Psychoaktive Substanzen

Einteilung

- Zentralnervös dämpfende Substanzen
 - Anxiolytika
 - Antiepileptika
- Psychostimulantien
 - Antidepressiva
 - „mood stabilizer“
 - Opioidanalgetika
 - Neuroleptika
- Psychedelika/Halluzinogene

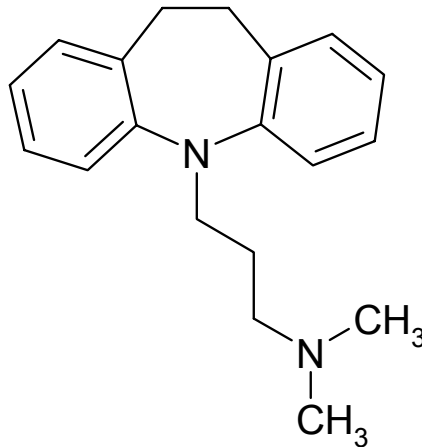
Neuroleptika

- Zufallsentdeckung
 - 1952: Strukturmodifikationen von **Antihistaminika der Phenothiazin-Reihe**
 - 1957: Abwandlungen Phenyl-substituierter **Piperidine mit analgetischer Aktivität**
 - 1972: Abwandlungen in der Reihe der **antiemetischen Salicylamide**



Antidepressiva

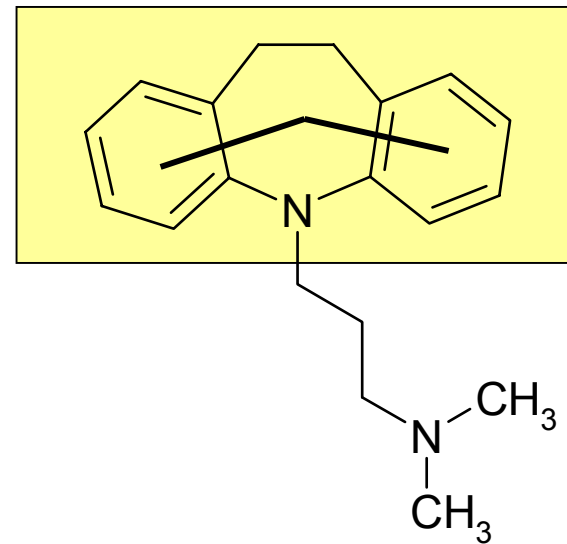
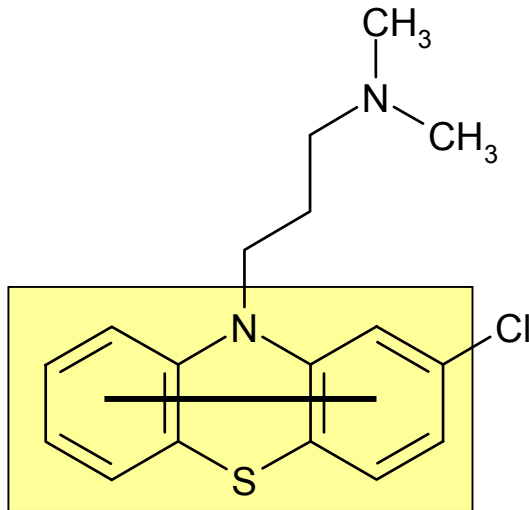
- Weiterentwicklung der tricyclischen Neuroleptika
 - 1957: Entdeckung der Dibenzazepin-Derivate



Imipramin

Tricyclische Psychopharmaka

- Geometrie -

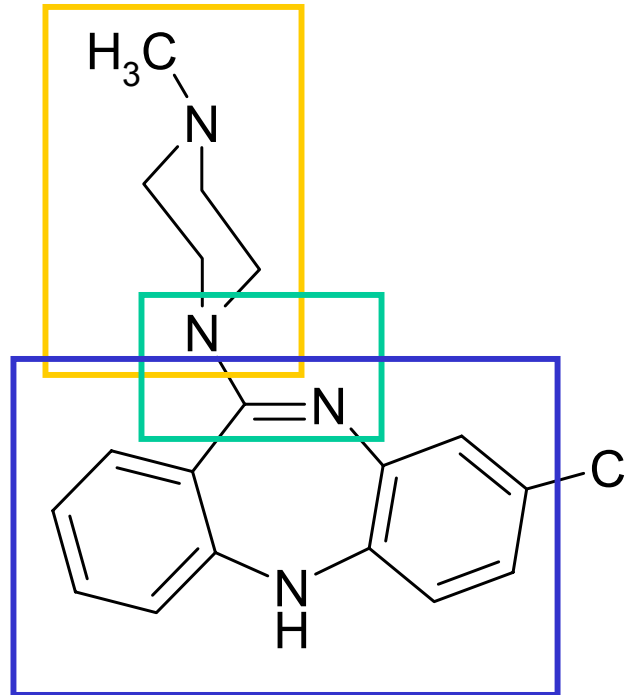


Neuroleptika - Übersicht -

- Phentiazin-Derivate
- Thioxanthen-Derivate
- Dibenzodiazepin-Derivate
- Dibenzothiepin-Derivate
- Butyrophenon-Derivate
- Diphenylbutylpiperidin-Derivate
- Salicylamid-Derivate

Neuroleptika

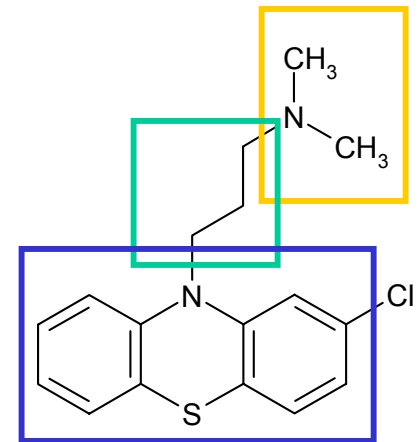
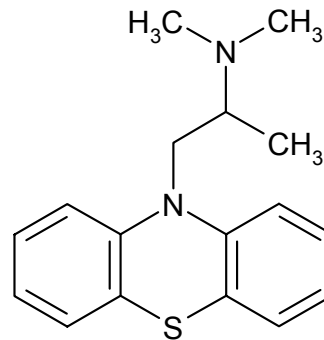
- Clozapin -



Neuroleptika

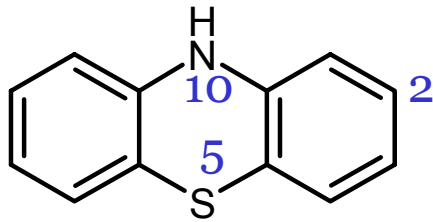
- Phenothiazine -

- Promazin-Typ
 - Promethazin
 - Promazin
 - Chlorpromazin



- Perazin-Typ
- Perphenazin-Typ

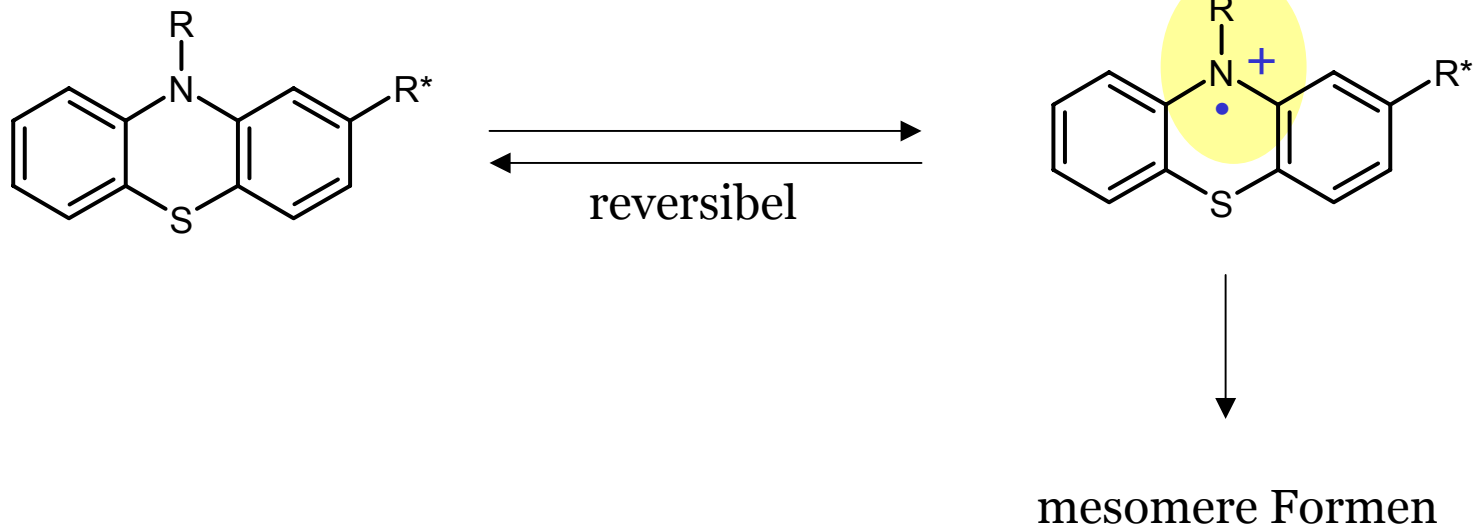
Neuroleptika -Phenothiazine-



2 Benzen-Ringe
4*H*-1,4-Thiazin

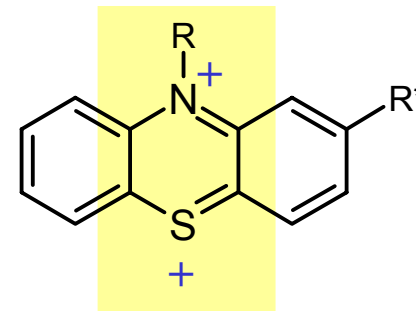
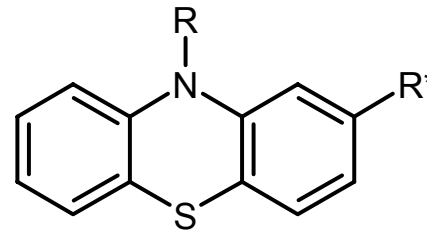
- Oxidation am Schwefel:
 - biolog. Aktivität verschwindet
- Stabilität (Licht, Wärme, Oxid.mittel)

Neuroleptika -Phenothiazine-



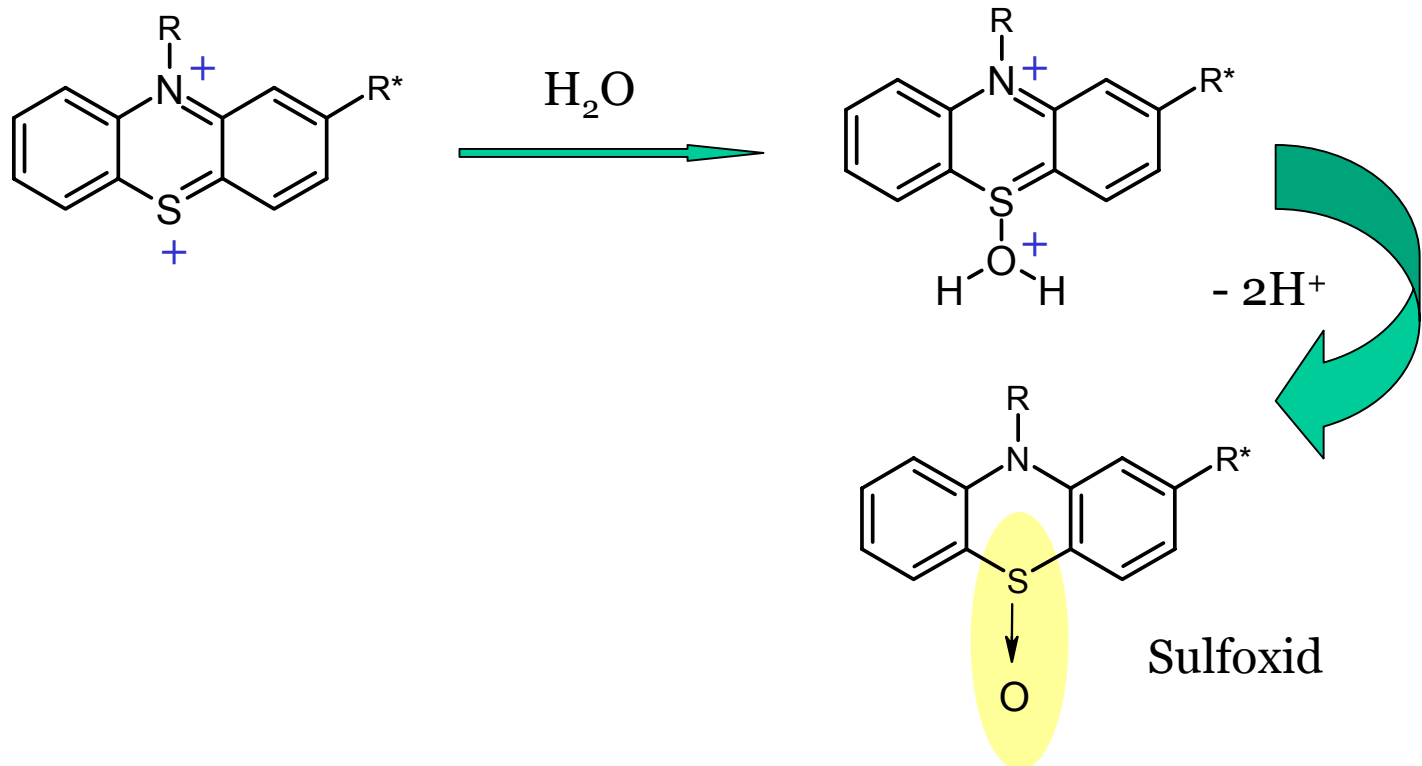
Neuroleptika -Phenothiazine-

Radikale

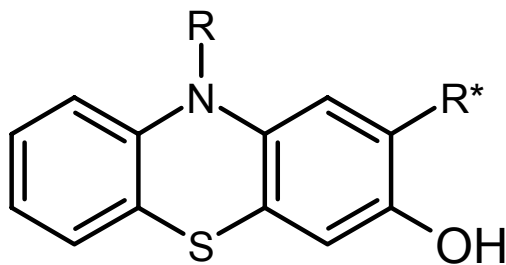


Phenazathionium-Ion

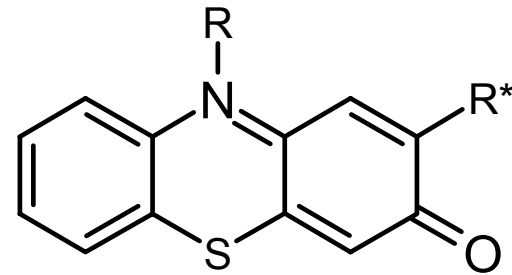
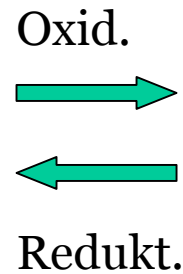
Neuroleptika -Phenothiazine-



Neuroleptika -Phenothiazine-

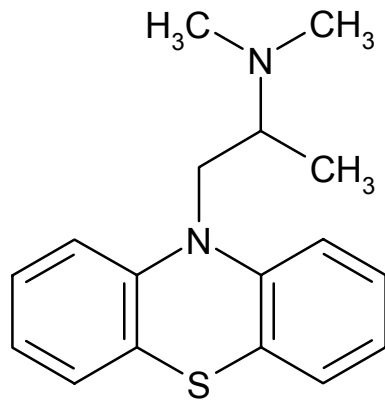


3-Hydroxyphenothiazin

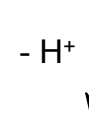
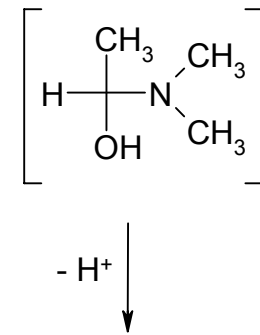
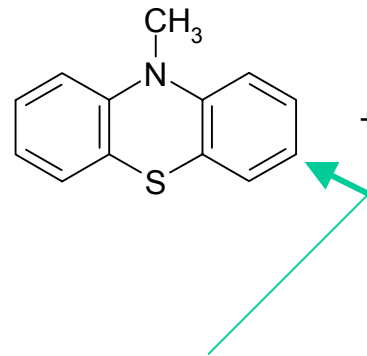
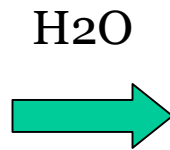


Phenothiazin-3-on

Neuroleptika -Phenothiazine-



Promethazin



Neuroleptika -Phenothiazine-

Chlorpromazin / Promethazin

- **Identifizierung**

- **Quantifizierung**

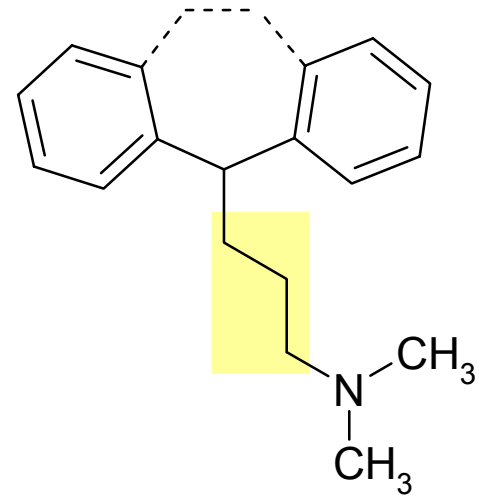
Antidepressiva

- Tricyclische Antidepressiva
- Nicht-tricyclische Antidepressiva
- Monoaminoxidase-Hemmer
- Lithium-Salze

Antidepressiva

Tricyclische Antidepressiva

- Carbo- oder heterocyclische Struktur mit Ringsystem (6-6-6 oder 6-7-6)
- C₃-Struktur der Seitenkette
- terminale sek. oder tert. Amino-Gruppe

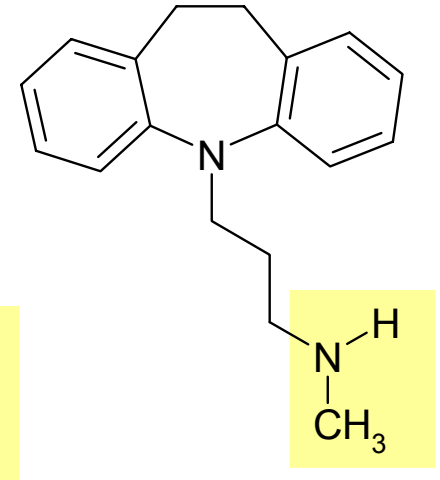
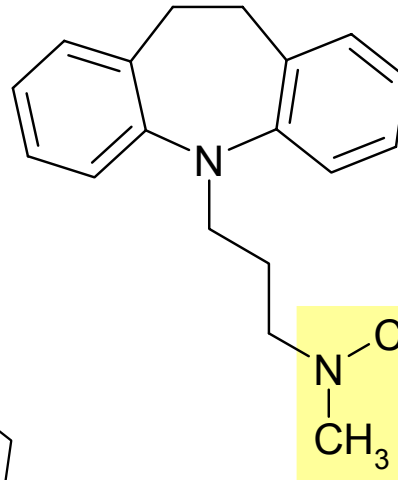


Antidepressiva

Tricyclische Antidepressiva

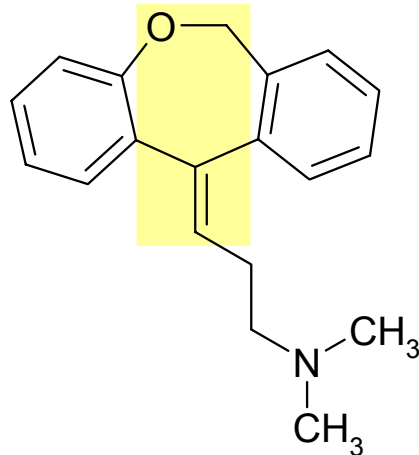
Dihydrodibenzazepine

- Imipramin
- Desipramin



Dibenzoxepin

- Doxepin

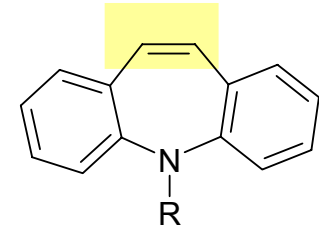
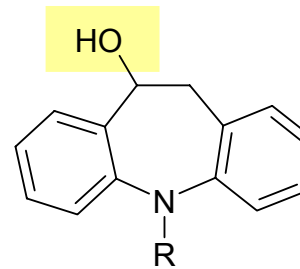
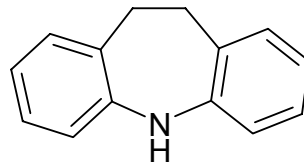


Antidepressiva

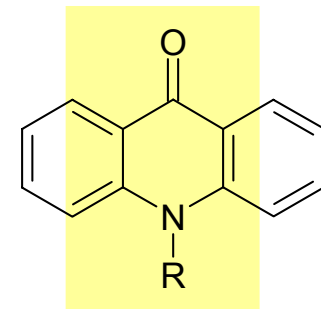
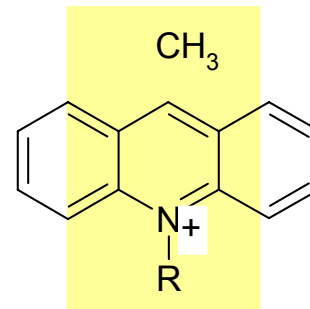
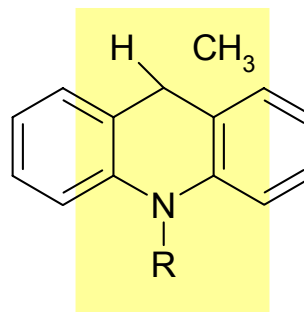
Tricyclische Antidepressiva

Stabilität

- Iminodibenzyl
- Hydroxy~
- Stilben~



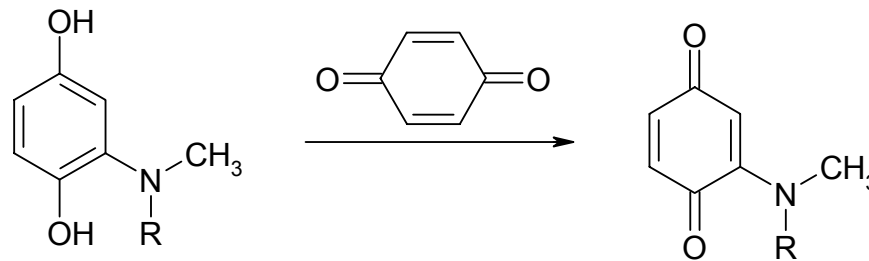
- Acridin~



Antidepressiva

Tricyclische Antidepressiva

Identifizierung:



Quantifizierung:

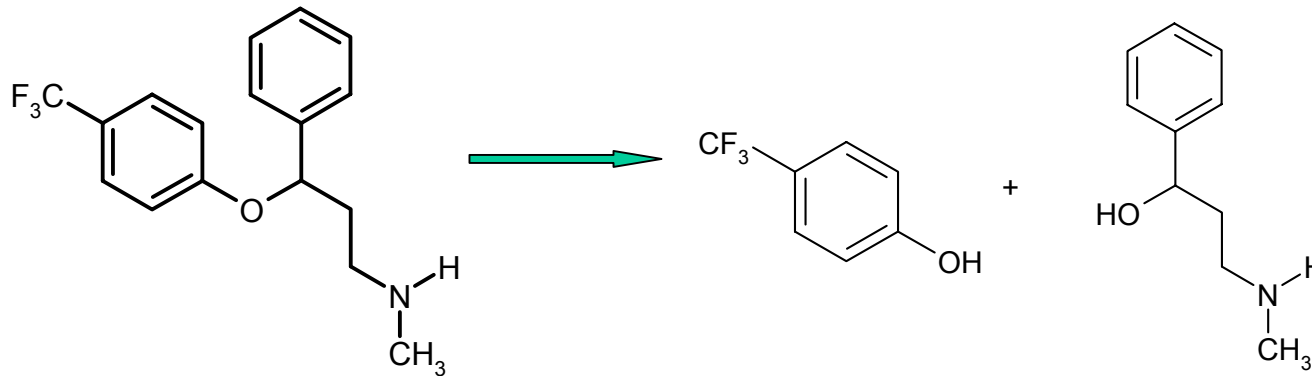
Antidepressiva

Nicht-tricyclische Antidepressiva

Fluoxetin ((R,S)-Methyl-3-phenyl-3-[4-(trifluormethyl)phenoxy]propylazan)

- Stabilität:

Hydrolyse beim Erhitzen in 0,1 N-Salzsäure



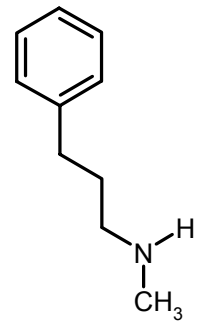
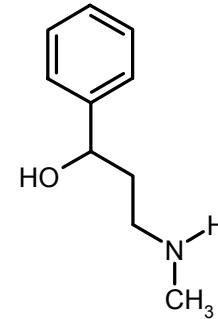
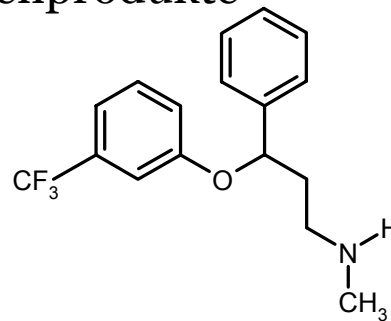
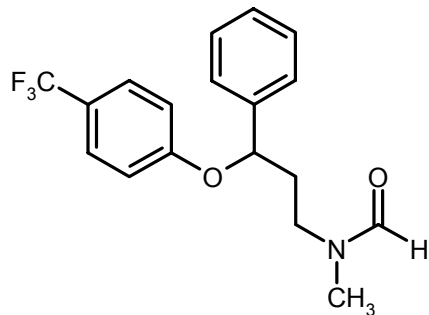
Antidepressiva

Nicht-tricyclische Antidepressiva

Fluoxetin

- Reinheit:

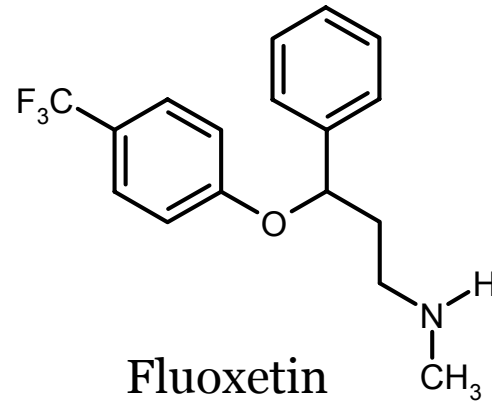
Synthesenebenprodukte



N-Formylfluoxetin (bei Lactose als Tablettierungshilfe)

Antidepressiva

Nicht-tricyclische Antidepressiva



Angststörungen

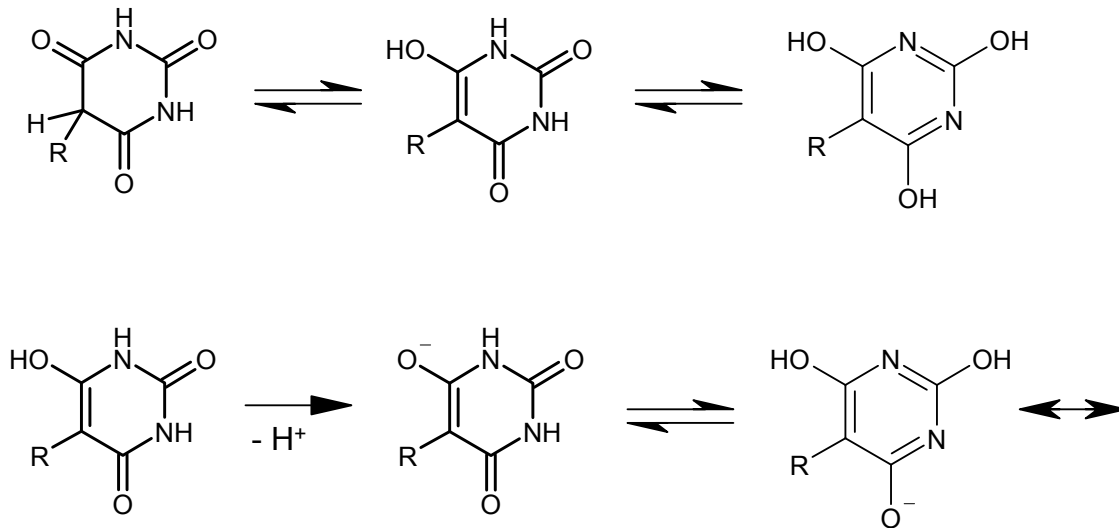
- Angst
- Panik
- Phobie

- Grunderkrankungen
- Substanz-induziert

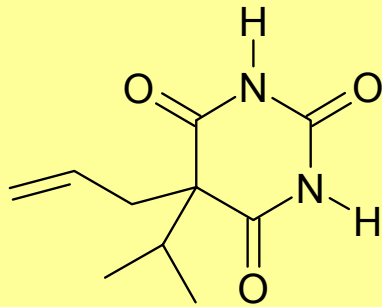
- Barbitursäurederivate
- Benzodiazepine

Barbitursäure-Derivate

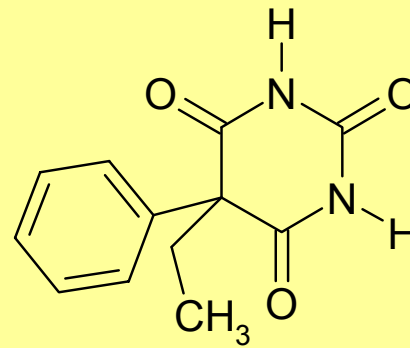
- 1863 v. Baeyer: Barbitursäure
- Substitution und Acidität



Barbitursäure-Derivate



Aprobarbital

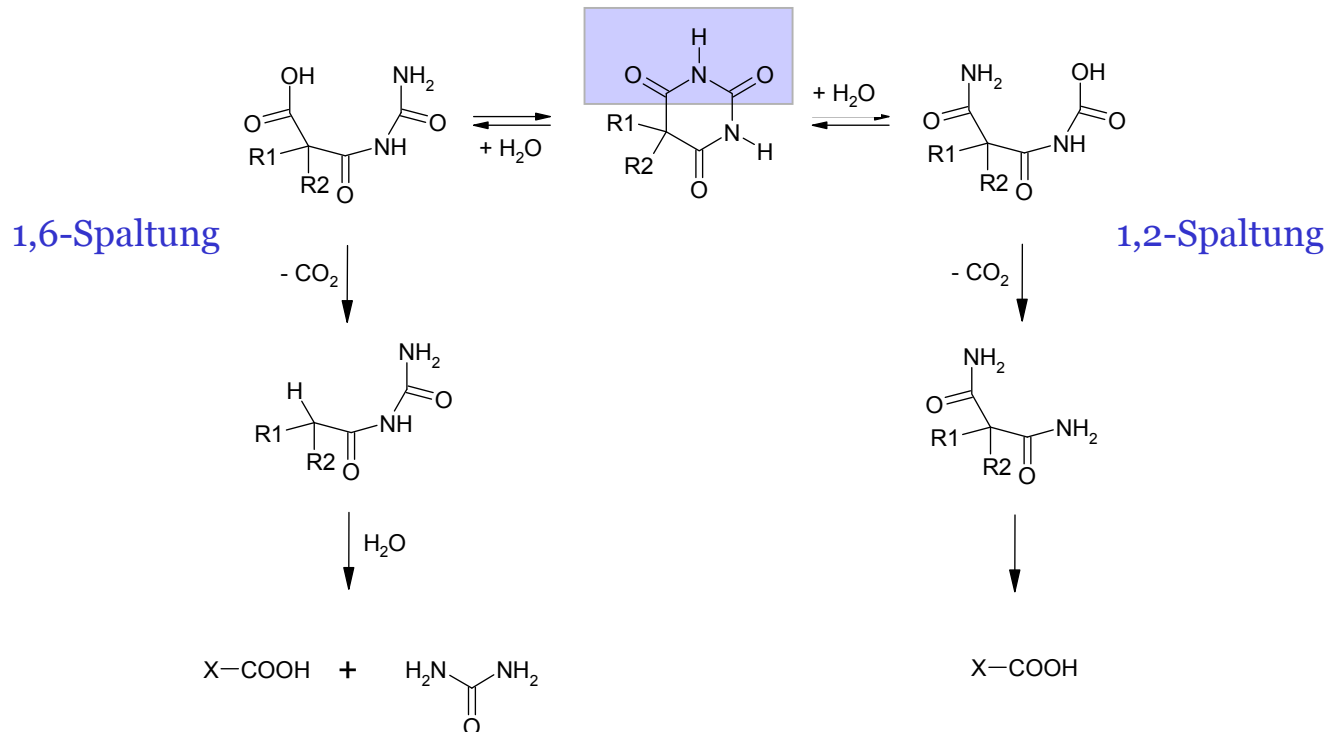


Phenobarbital

Barbitursäure-Derivate

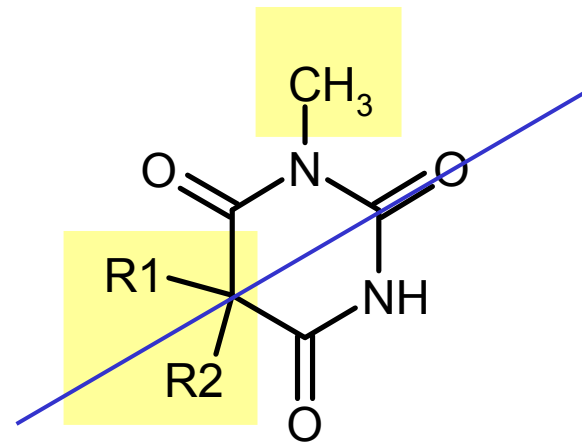
Instabilitäten:

- Photoreaktionen
- Hydrolyse (in vitro, in vivo)



Barbitursäure-Derivate

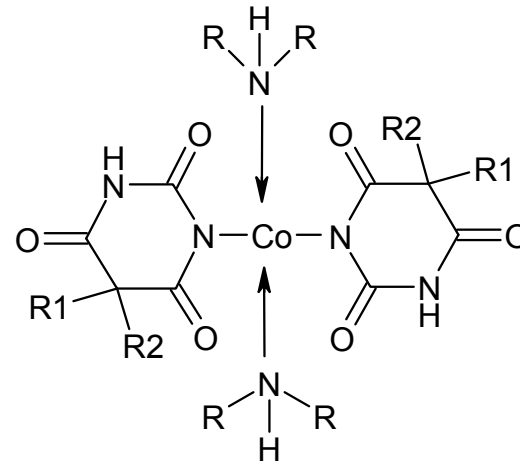
Chiralität



Barbitursäure-Derivate

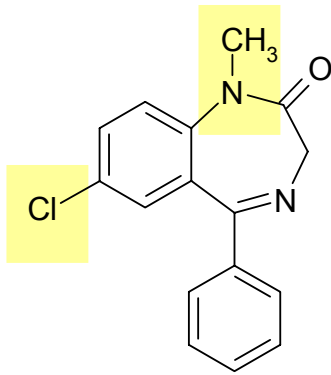
Analytik

- Zwickler
- Kupferkomplexe

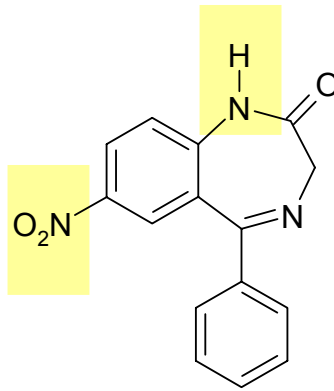


- wasserfreie Titrationsarten

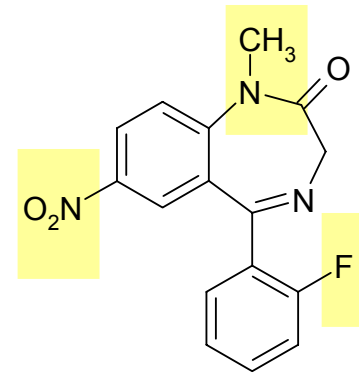
Benzodiazepine



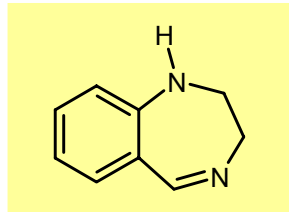
Diazepam (1963)



Nitrazepam



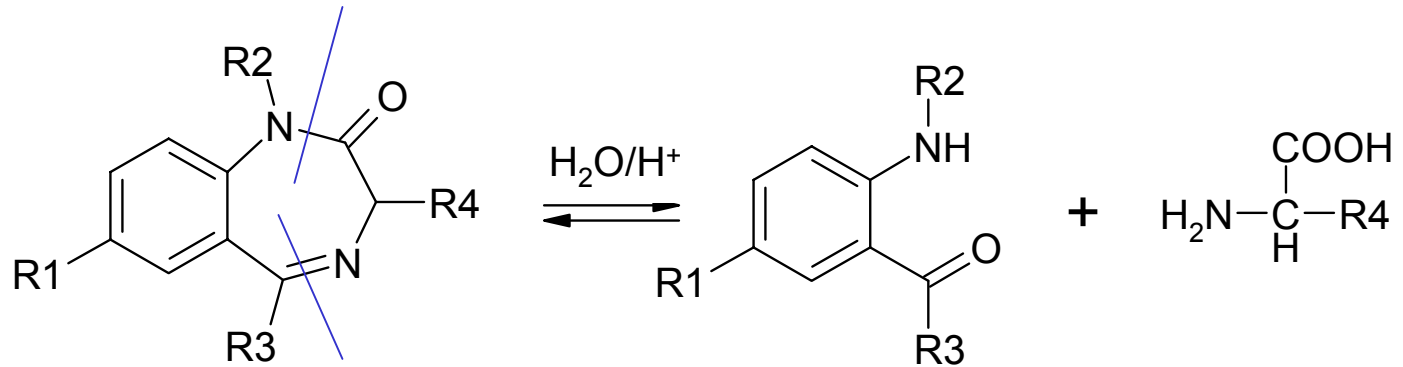
Flunitrazepam



2,3-Dihydro-1H-1,4-benzodiazepin

Benzodiazepine

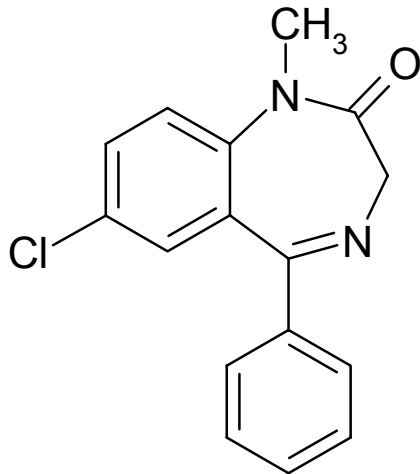
Analytik



Hydrolyse zum Aminobenzophenon-Derivat

Benzodiazepine

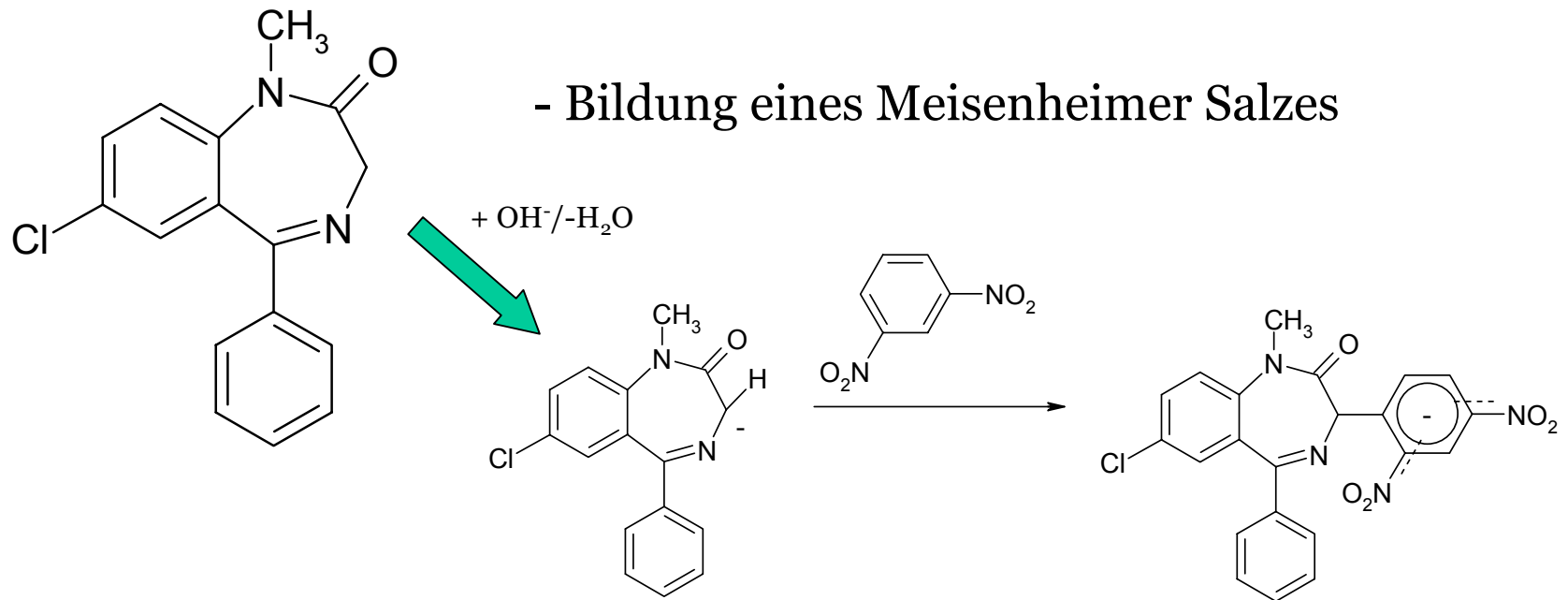
Diazepam (7-Chlor-1-methyl-5-phenyl-1H-1,4-benzodiazepin-2(3H)-on)



- Bildung eines Meisenheimer Salzes
- saure Hydrolyse und Azofarbstoff-Bildung
- Zersetzungsprodukte
- wasserfreie Titration

Benzodiazepine

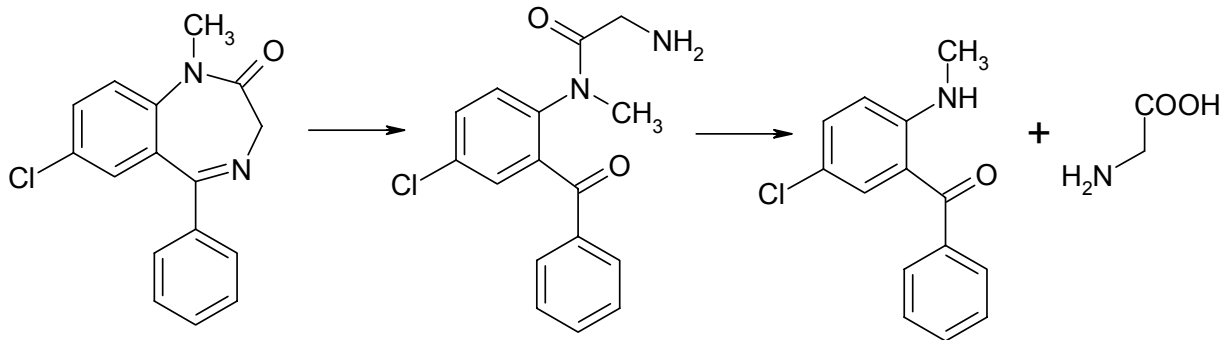
Diazepam (7-Chlor-1-methyl-5-phenyl-1H-1,4-benzodiazepin-2(3H)-on)



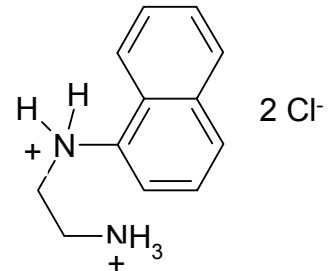
Benzodiazepine

Diazepam (7-Chlor-1-methyl-5-phenyl-1H-1,4-benzodiazepin-2(3H)-on)

- saure Hydrolyse und Azofarbstoff-Bildung

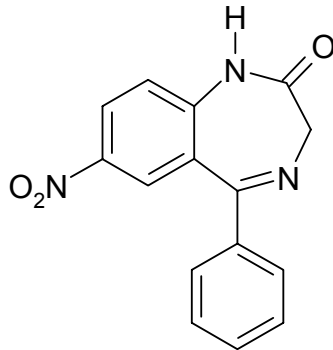


Bratton-Marshall



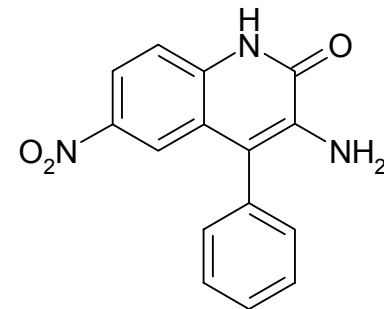
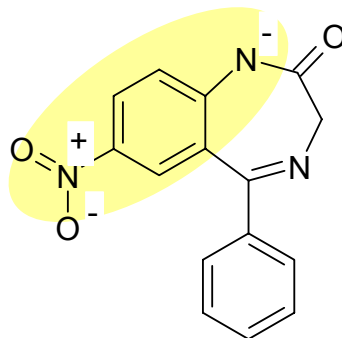
Benzodiazepine

Nitrazepam (7-Nitro-5-phenyl-1H-1,4-benzodiazepin-2(3H)-on)



- Verhalten gg. Laugen
- Lagerung von Nitrazepam-Zubereitungen
- Hydrolyse und Azofarbstoffbildung

- wasserfreie Titration
- polarographisch



Benzodiazepine

Flunitrazepam (5-(2-Fluorophenyl)-1-methyl-7-nitro-1H-1,4-benzodiazepin-2(3H)-on)

