

SEDATIVE AND HYPNOTIC DRUGS

Pharmaceutical Chemistry I

2017-2018

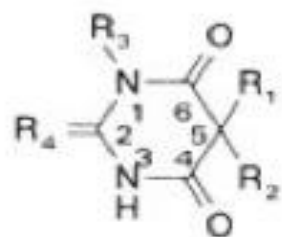
- A ***sedative*** drug decreases activity and excitement of the patient.
- A ***hypnotic*** drug produces drowsiness, forcing the patient to sleep.



Drug Classification

1. **Herbal drugs:** *Valeriana officinalis*, *Humulus lupulus*
- 2- **Inorganic compounds:** KBr, NH₄Br, Mg
- 3- **Organic compounds**
- 4- **Endogen compound:** Melatonin

Organic Compounds

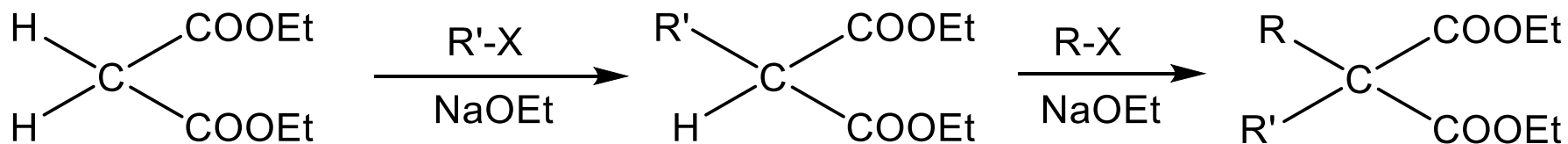
- Alcohols
- Aldehydes
- Amides and Ureides
- Piperidinediones
- Barbiturates
- Benzodiazepines
- Others



	R_1	R_2	R_3	R_4
<i>Barbital</i>	$-\text{C}_2\text{H}_5$	$-\text{C}_2\text{H}_5$	H	O
<i>Phenobarbital</i>	$-\text{C}_2\text{H}_5$		H	O
<i>Pentobarbital</i>	$-\text{C}_2\text{H}_5$	$-\text{CH}(\text{CH}_3)-\text{CH}_2\text{CH}_2\text{CH}_3$	H	O
<i>Secobarbital</i>	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}(\text{CH}_3)-\text{CH}_2\text{CH}_2\text{CH}_3$	H	O
<i>Hexobarbital</i>	$-\text{CH}_3$		$-\text{CH}_3$	O
<i>Thiopental</i>	$-\text{C}_2\text{H}_5$	$-\text{CH}(\text{CH}_3)-\text{CH}_2\text{CH}_2\text{CH}_3$	H	S

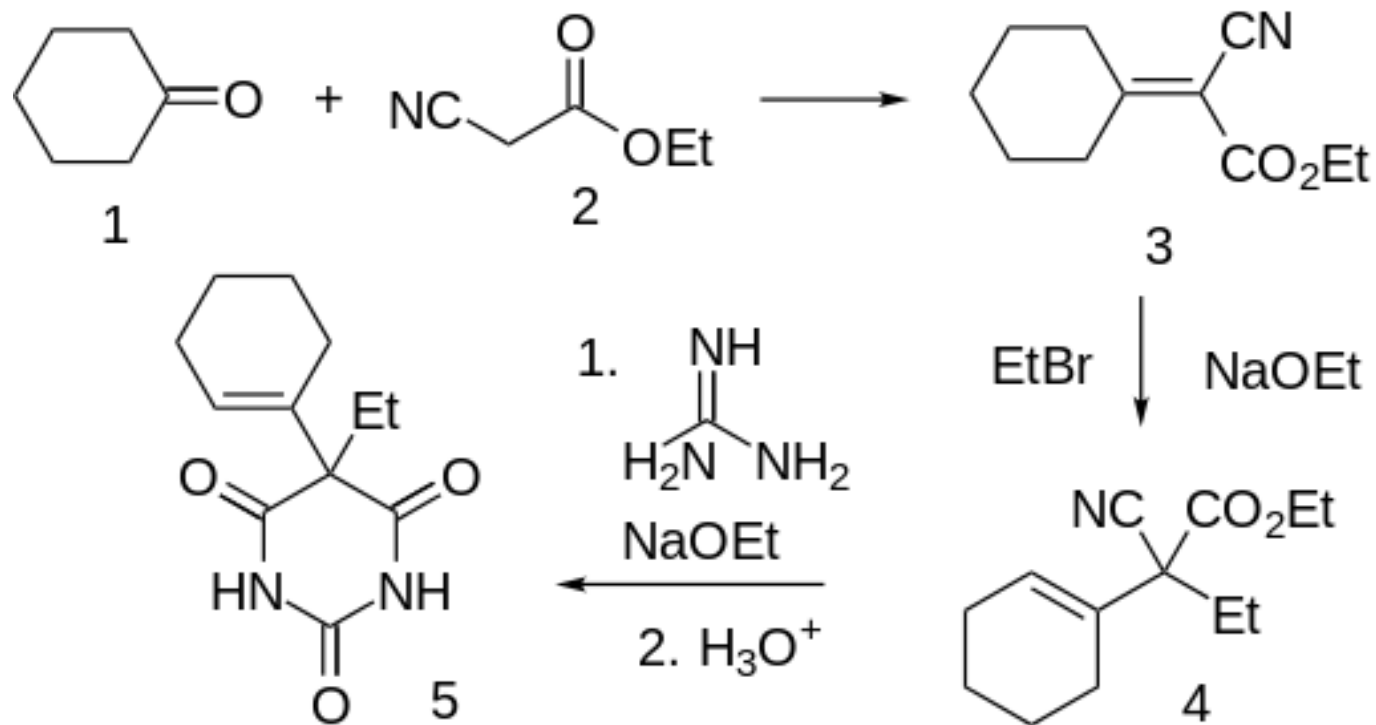
Synthesis of Barbituric Acid Derivatives- General Methods

a- R & R'=aliphatic chain

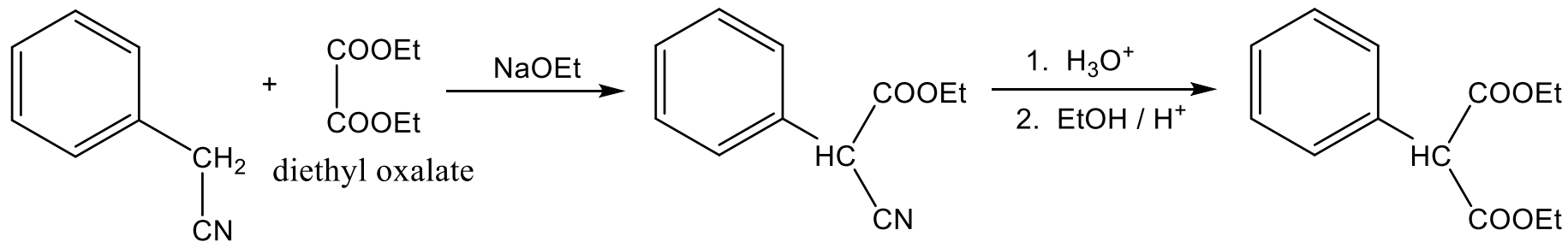


diethyl malonate

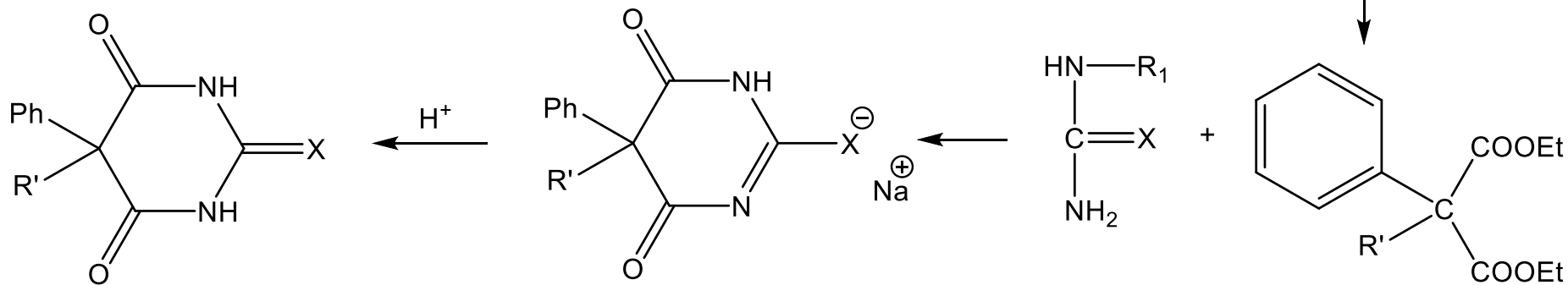
b- R= aliphatic, R'= cyloaliphatic



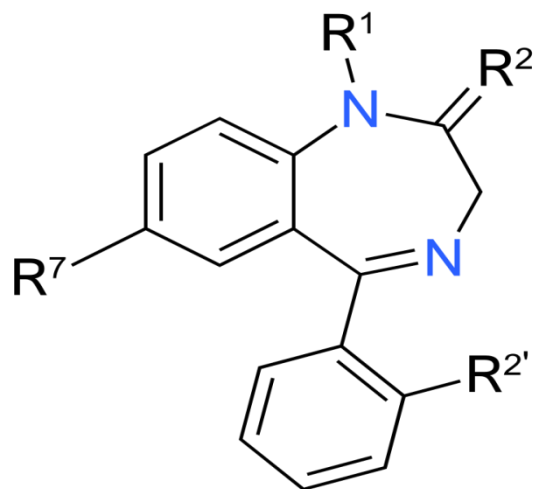
c- R= aliphatic, R'= aromatic



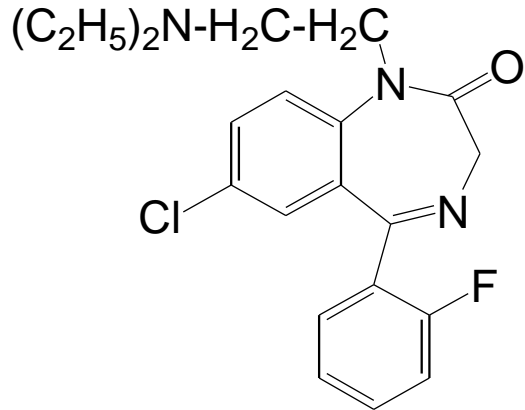
2-phenylacetonitrile



BENZODIAZEPINES

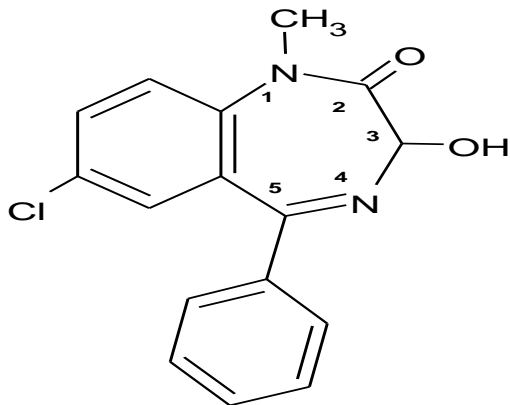


Flurazepam



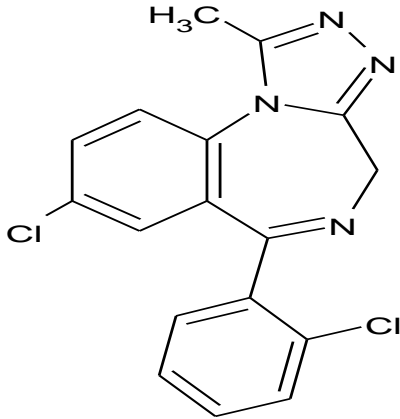
7-Kloro-1-[(2-diethylamino)ethyl]-5-(2-fluorophenyl)- 1,3-dihydro-2*H*-1,4-benzodiazepine-2-on

Temazepam



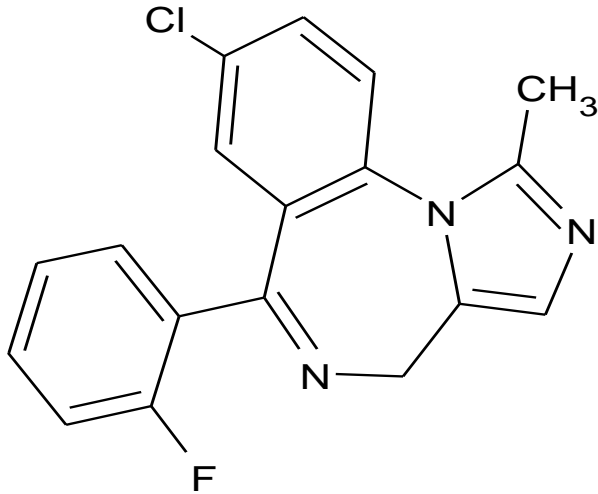
7-Kloro-1,3-dihydro-3-hydroxy-1-methyl-5-phenyl-2*H*-1,4-benzodiazepine-2-on

Triazolam (Triazolo-Benzodiazepines)



8-chloro-6-(2-chlorophenyl)-1-methyl-4*H*-
[1,2,4]triazolo[4,3-*a*] [1,4]benzodiazepine

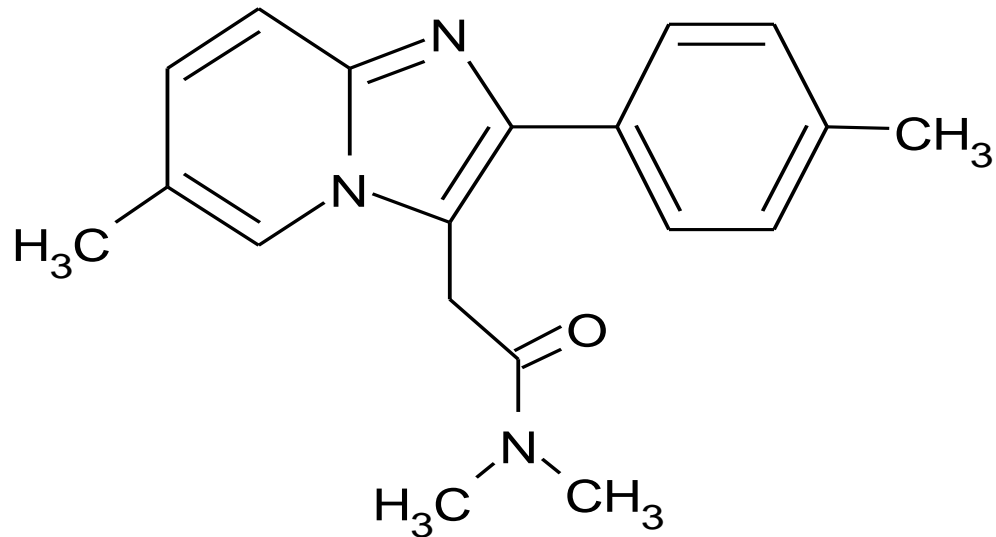
Midazolam (Imidazo-Benzodiazepines)



8-chloro-6-(2-fluorophenyl)-1-methyl-4*H*-imidazo[1,5-*a*][1,4]benzodiazepine

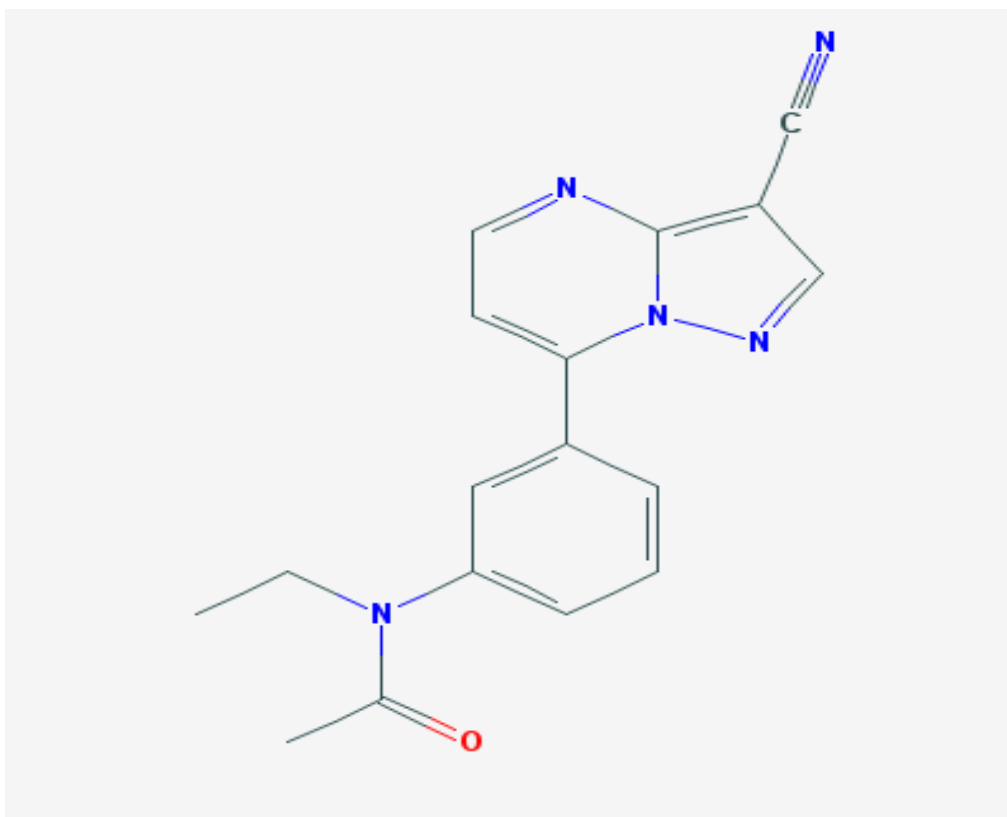
Non-Benzodiazepine GABA Receptor Ligands

Zolpidem (Imidazopyridine class)



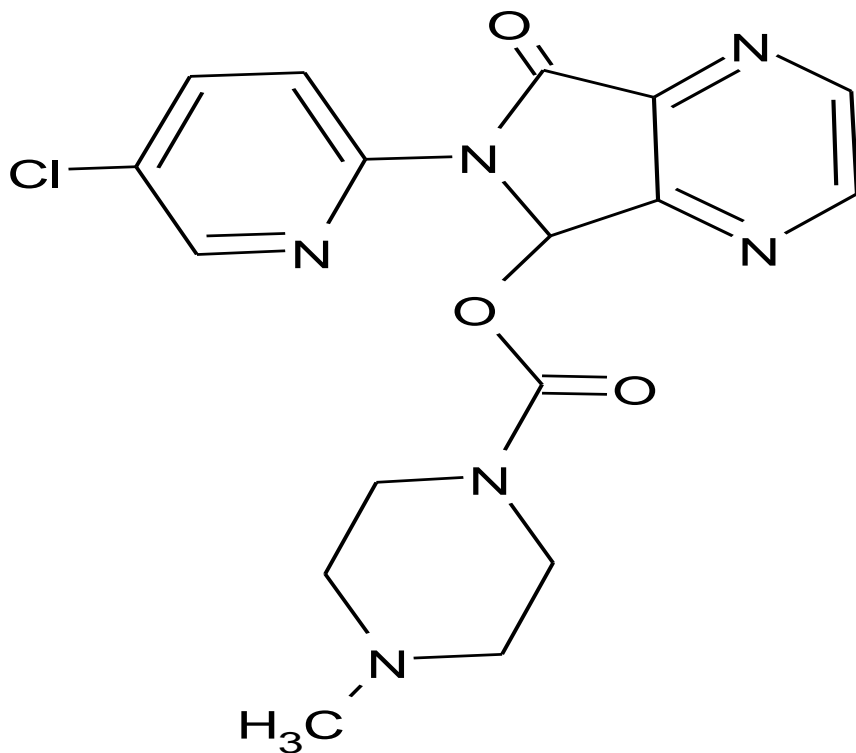
N,N-dimethyl-2-[6-methyl-2-(4-methylphenyl)imidazo[1,2-a]pyridin-3-yl]acetamide

Zaleplon (pyrazolopyrimidine class)



N-[3-(3-cyanopyrazolo[1,5-a]pyrimidin-7yl)phenyl]-N-ethylacetamide

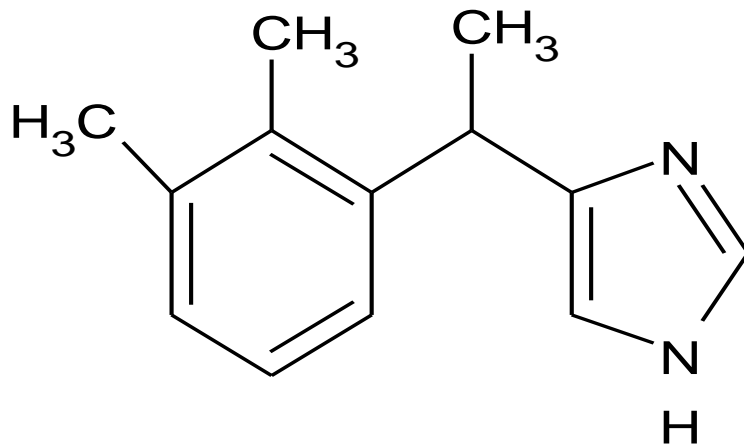
Zopiclone



[6-(5-chloropyridin-2-yl)-6,7-dihydro-7-oxo-5H-pyrrolo[3,4-b]pyrazin-5-yl]4-methyl piperazine-1-carboxylate

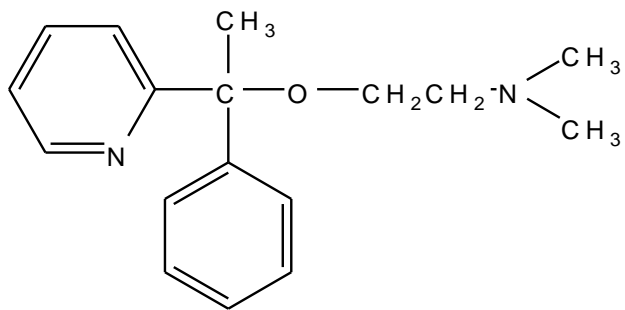
MISCELLANEOUS COMPOUNDS

Dexmedetomidine

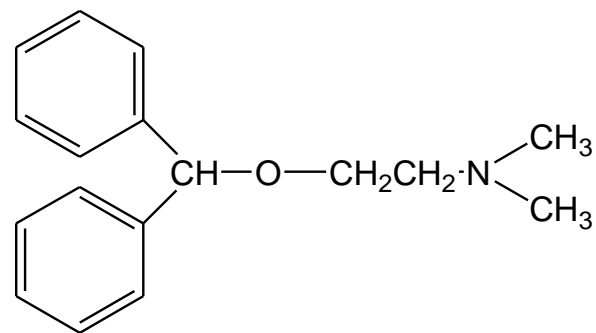


4-[1-(2,3-Dimethylphenyl)ethyl]-1*H*-imidazole

Doxylamine succinate

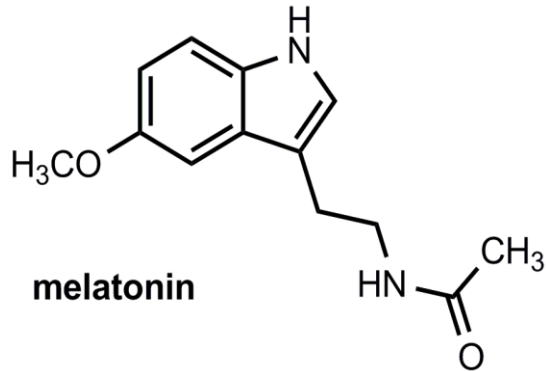


Diphenhydramine . HCl



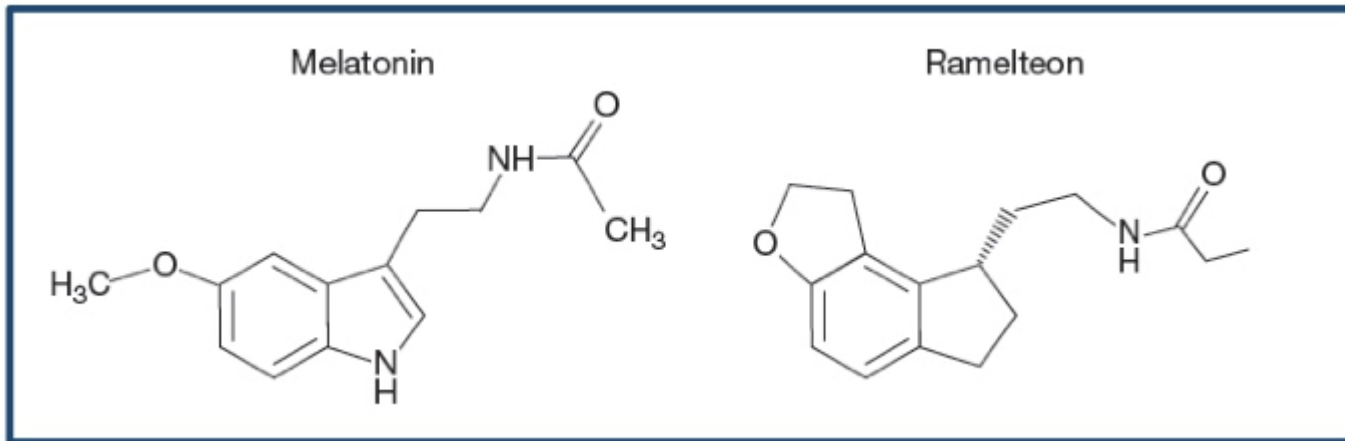
ENDOGEN COMPOUNDS

Melatonin



- N-acetyl-5-methoxytryptamine
- 5-methoxy-N-acetyltryptamine
- N-(2-(5-methoxyindole-3-yl)ethyl)acetamide

Ramelteon



Scopolamin

