

# Antiarrhythmics

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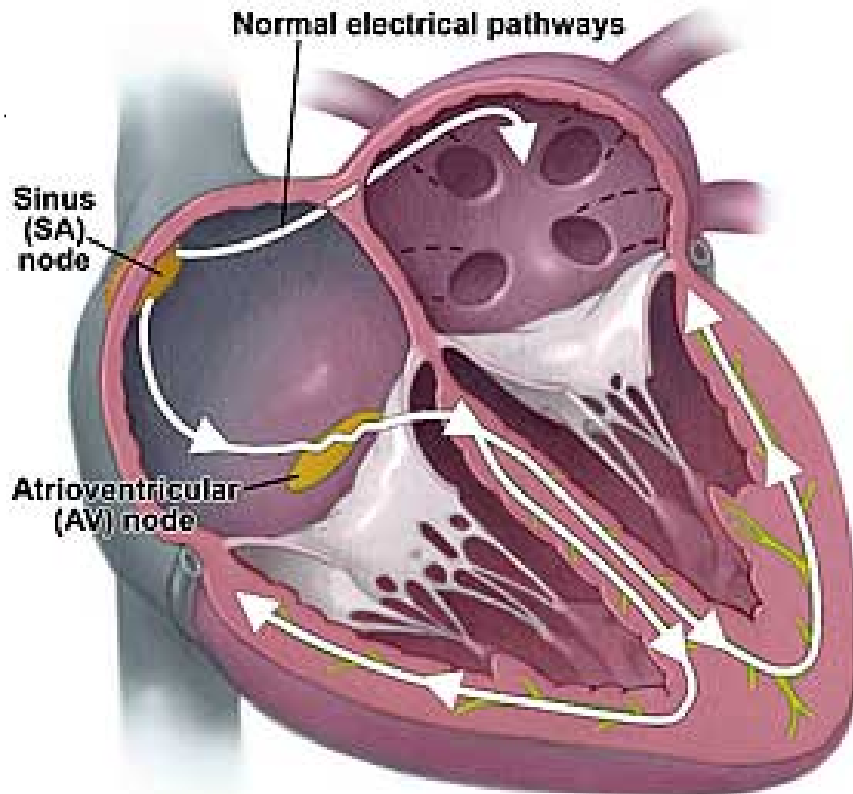
21.11.2011

# Arrhythmia

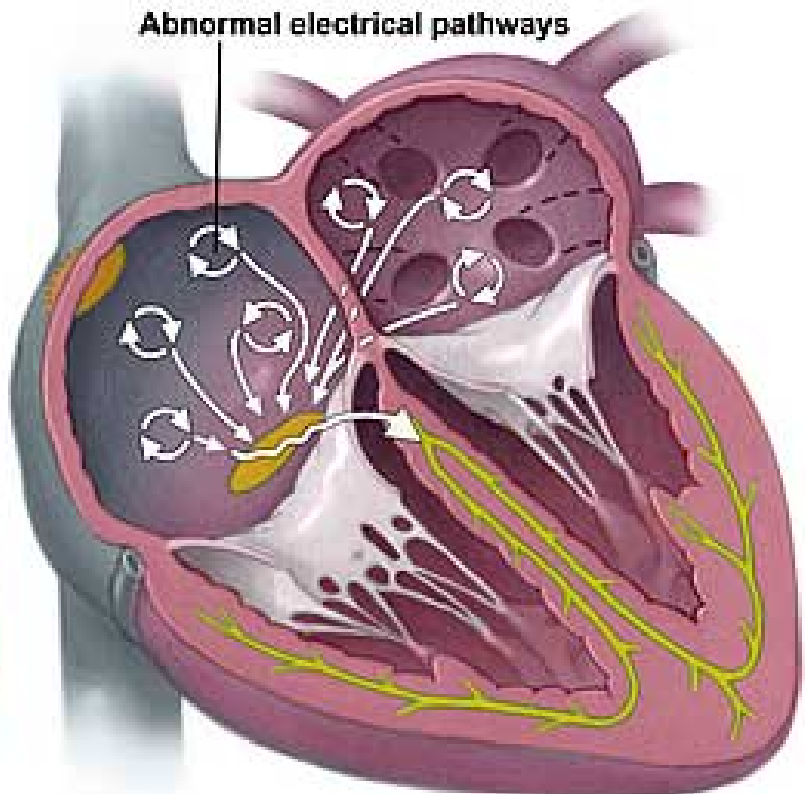
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- alteration in the normal sequence of heart electrical impulse activation
- abnormality in the rate, site of origin or conduction pathway of impulse

# Arrhythmias



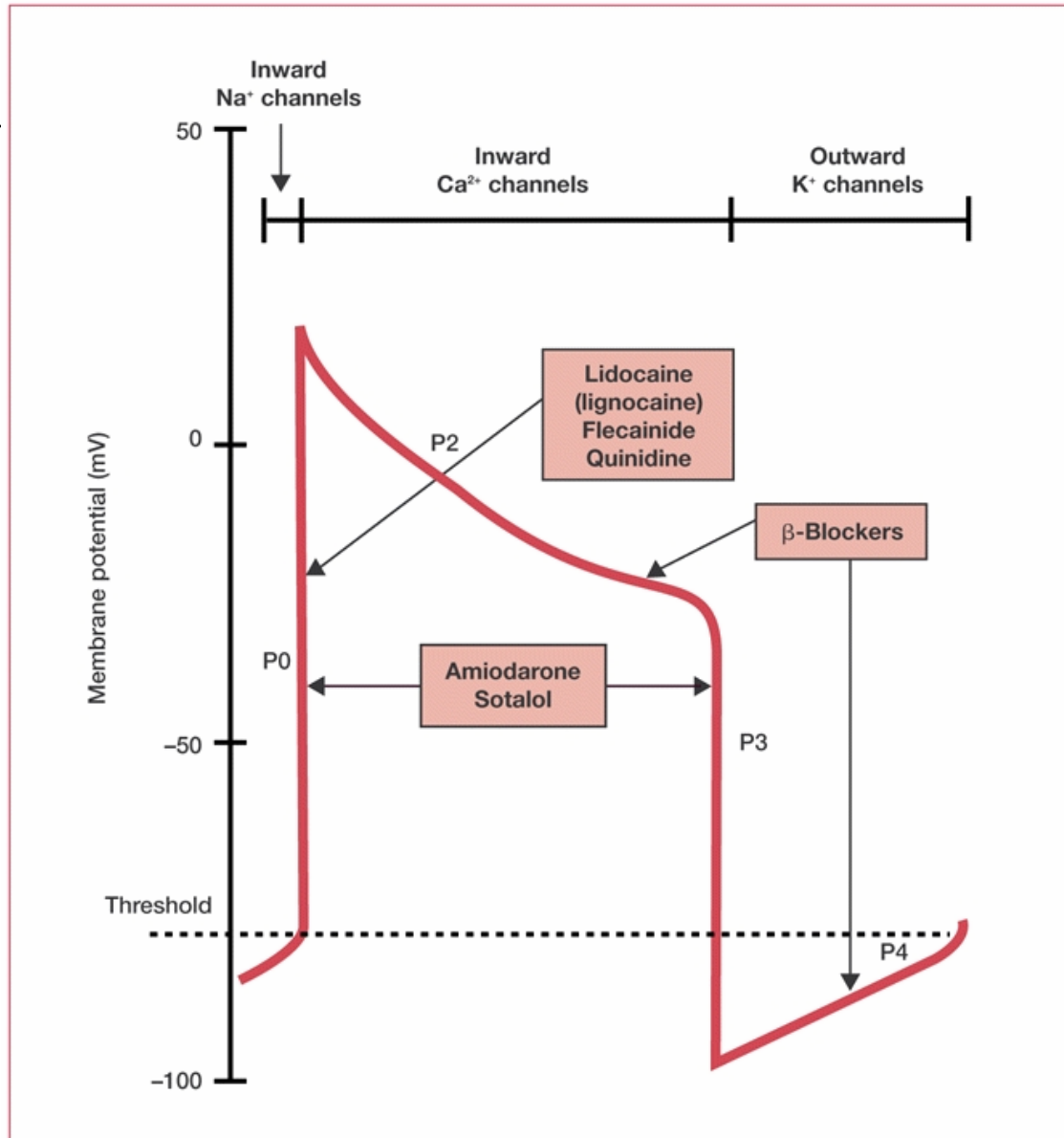
Normal sinus rhythm



Atrial fibrillation



# Physiological contraction



# Arrhythmia therapy

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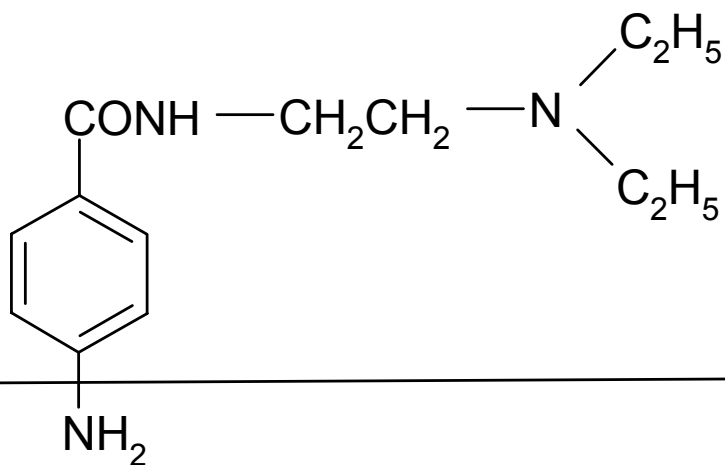
- Invasive: intracardial cardiostimulators, defibrilators
- Medication: antiarrhythmics

# Antiarrhythmics: classification

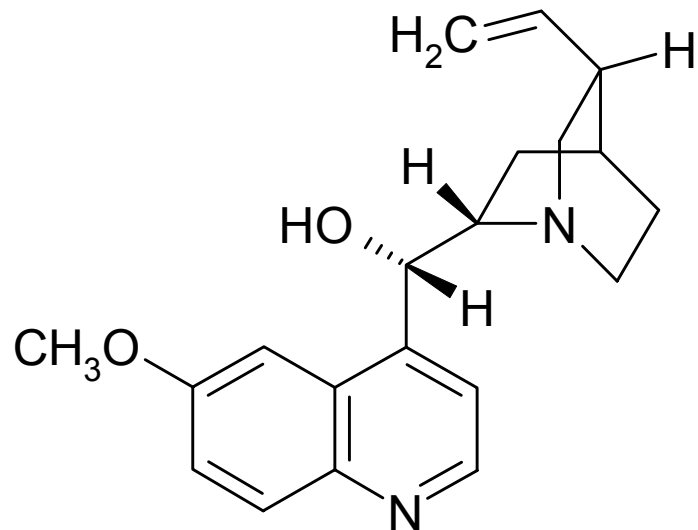
Class	Agent	Primary Pharmacologic Effect
IA	Quinidine	Decrease maximal rate of depolarization; increases duration of action potential
	Procainamide	
	Disopyramide	
IB	Lidocaine	Decrease maximal rate of depolarization; decrease duration of action potential
	Phenytoin	
	Tocainide	
	Mexiletine	
IC	Flecainide	Decrease maximal rate of depolarization; no change in duration of action potential
	Encainide	
	Propafenone	
	Moricizine	
II	Propranolol	Inhibition of sympathetic activity
III*	Sotalol	Prolongation of duration of action potential
	Ibutilide	
	Bretylum	
	Amiodarone	
IV	Verapamil	Inhibition of inward slow calcium current
	Diltiazem	
	Bepridil	

# Class I A.

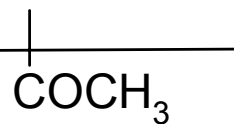
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PROCAINAMIDE

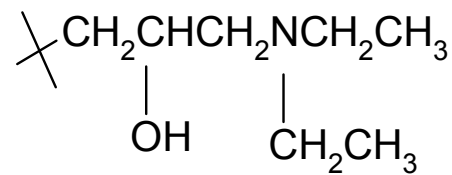
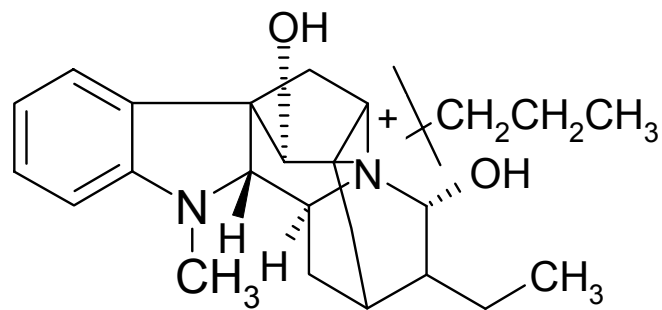
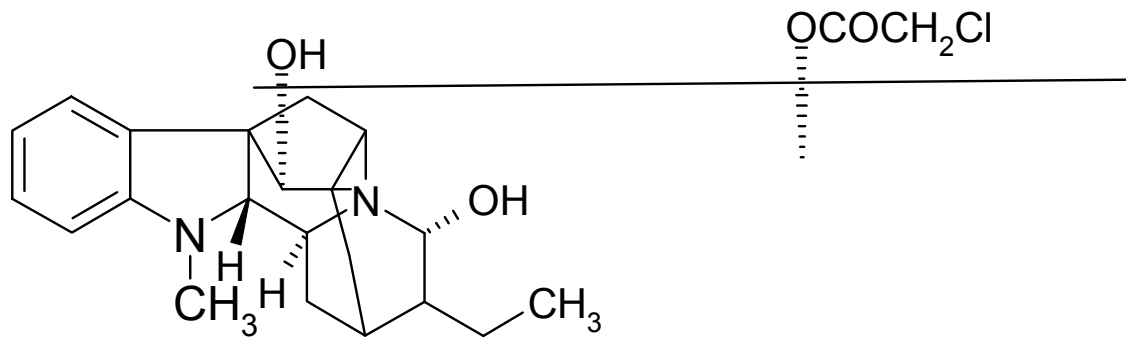


QUINIDINE



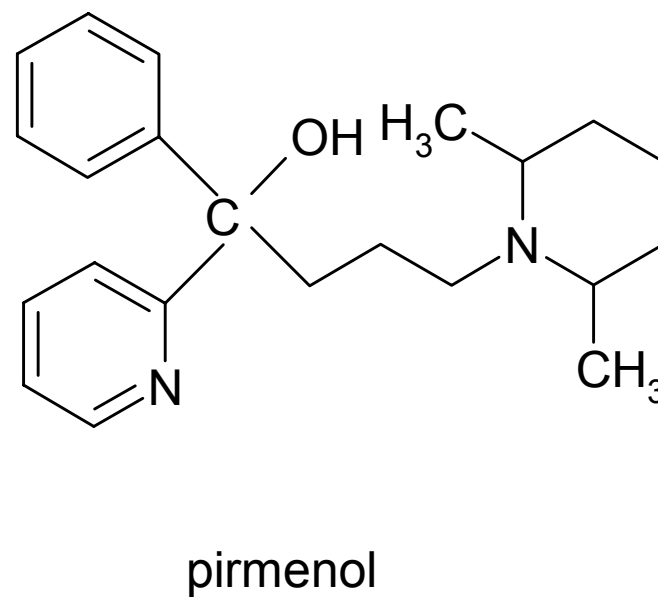
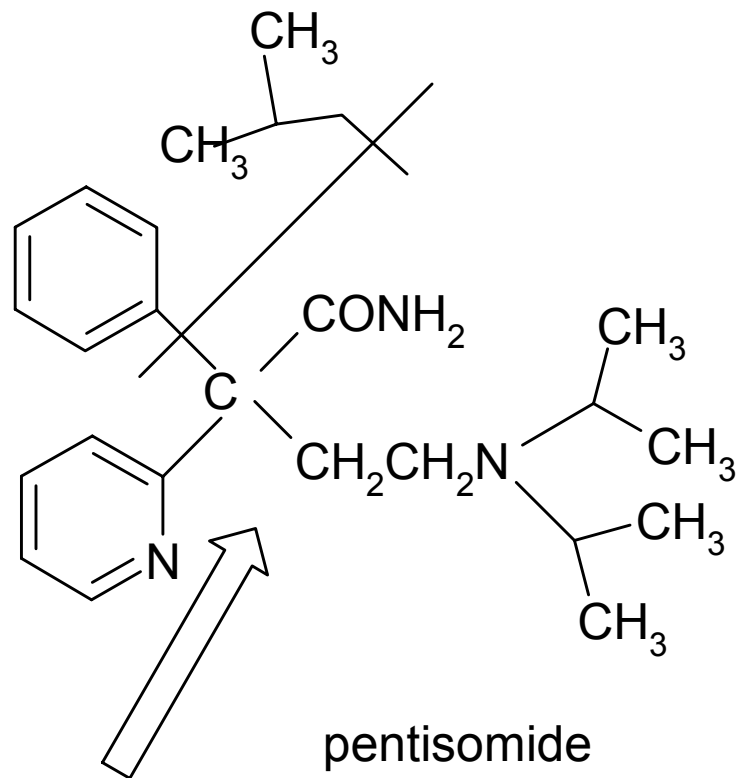
ACEKAINIDE

# Class I A.

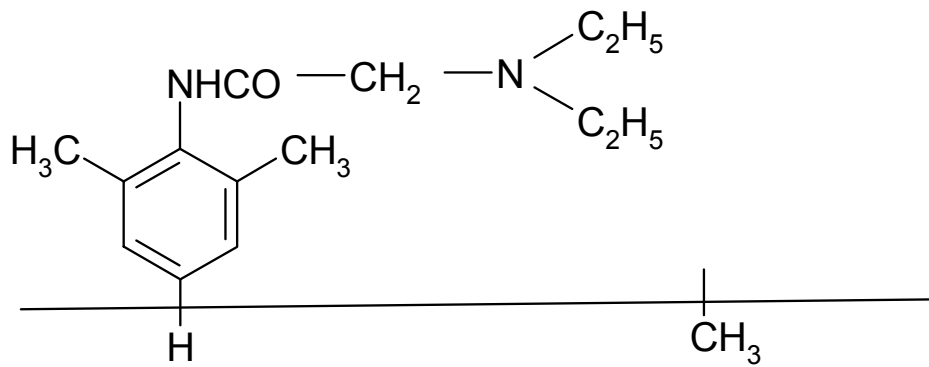




# Class I A.

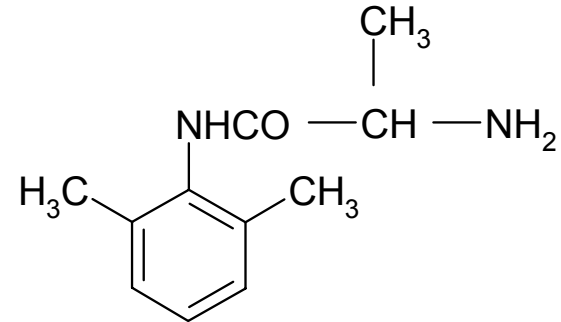


# Class I B.

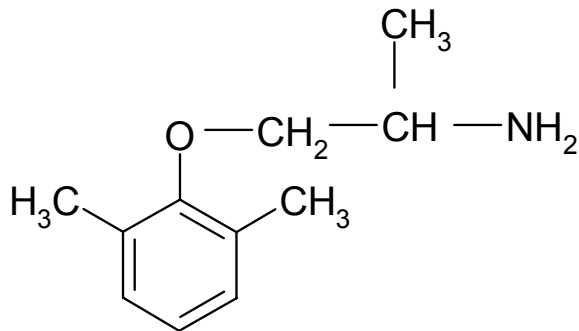


lidocain

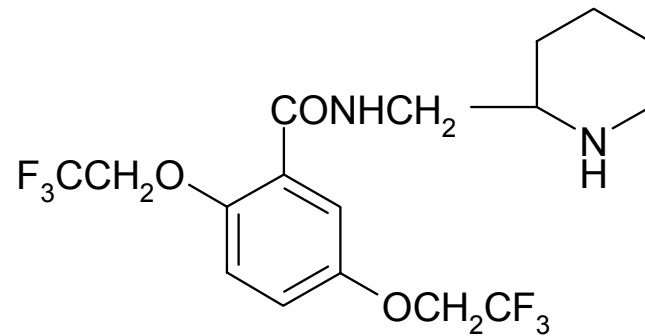
trimecain



tocainid



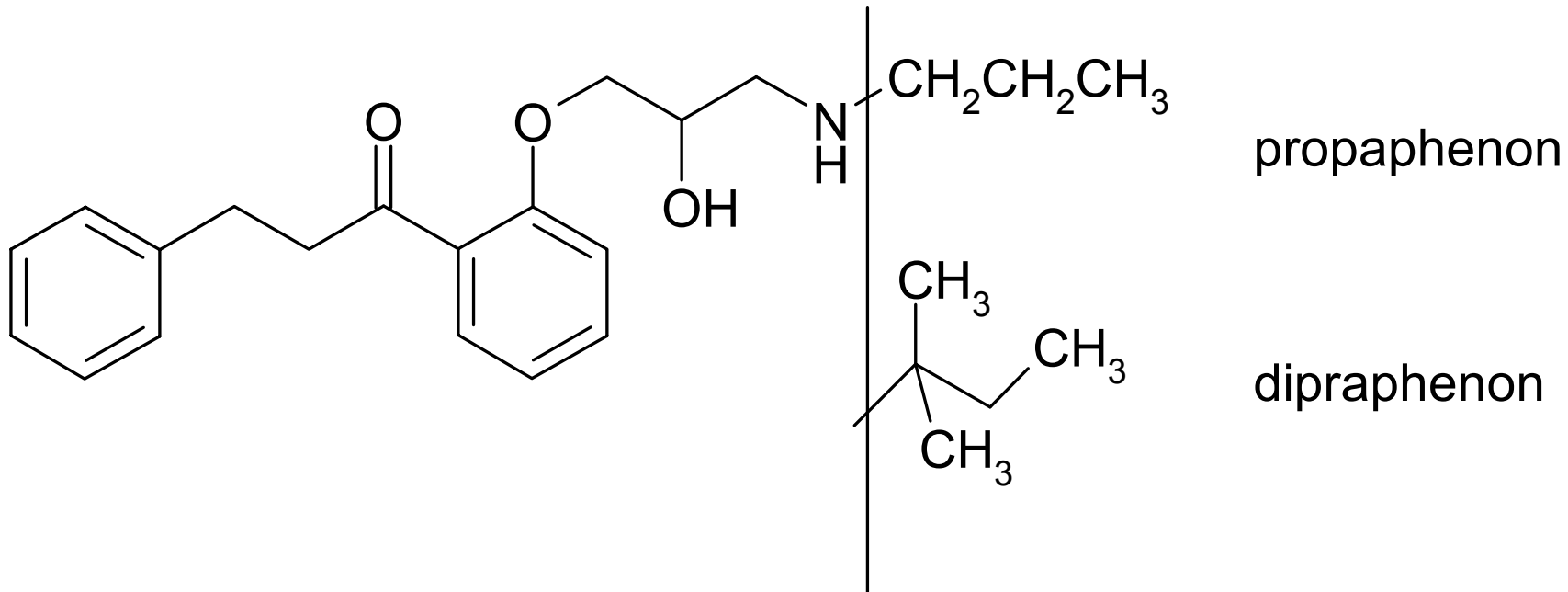
mexiletine



flecainid

# Class I C.

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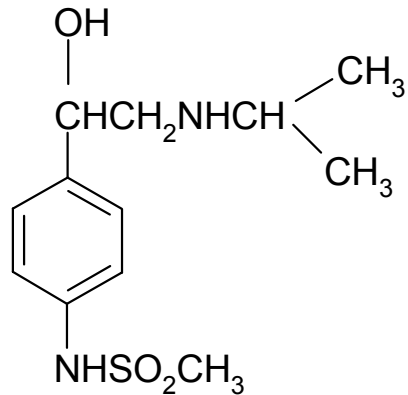
## Class II.

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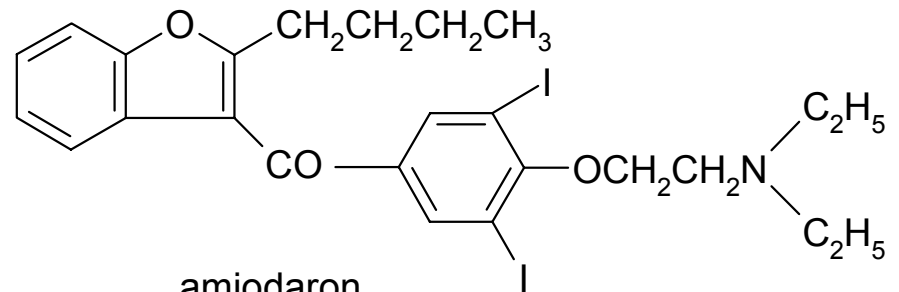
- $\beta$ -adrenergic receptor antagonists, used as antihypertensives
- as antiarrhythmics used mainly: atenolol, acebutolol, bisoprolol, metipranolol, metoprolol, pindolol, oxprenolol, karteolol, penbutolol, talindolol, esmolol (ultra-short action), nadoxolol

# Class III.

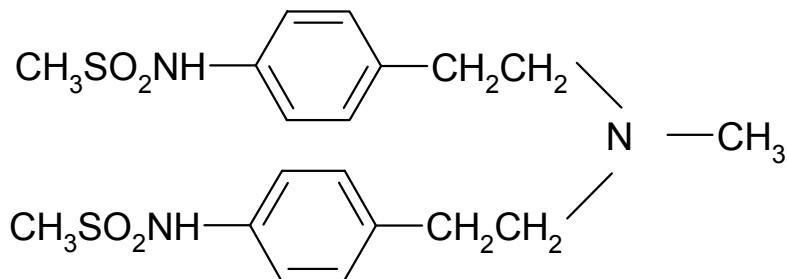
## □ K<sup>+</sup> channel inhibitors



sotalol

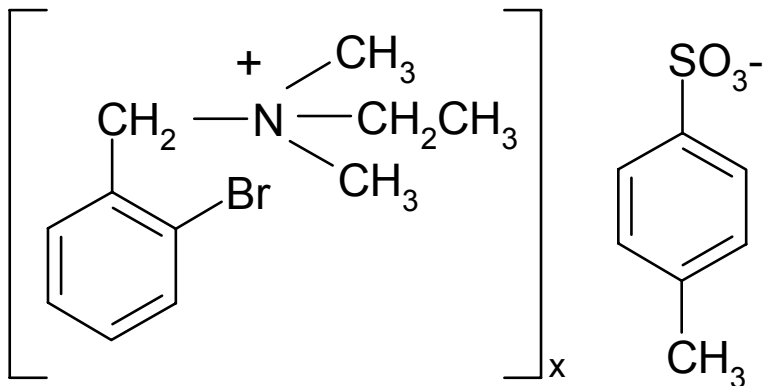


amiodaron

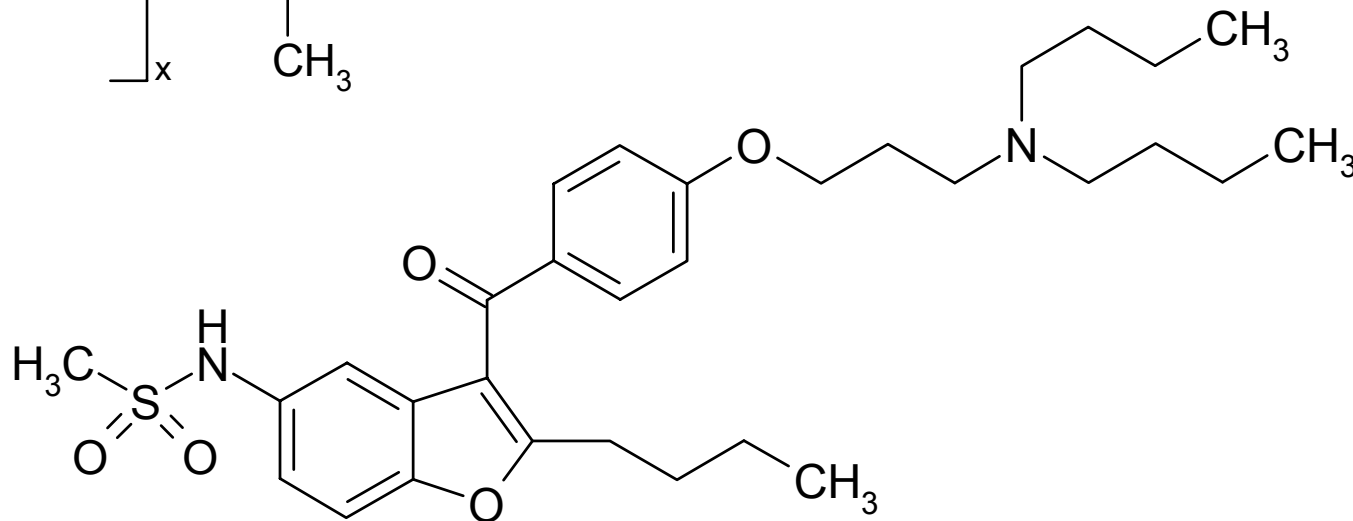


dofetilid

# Class III.



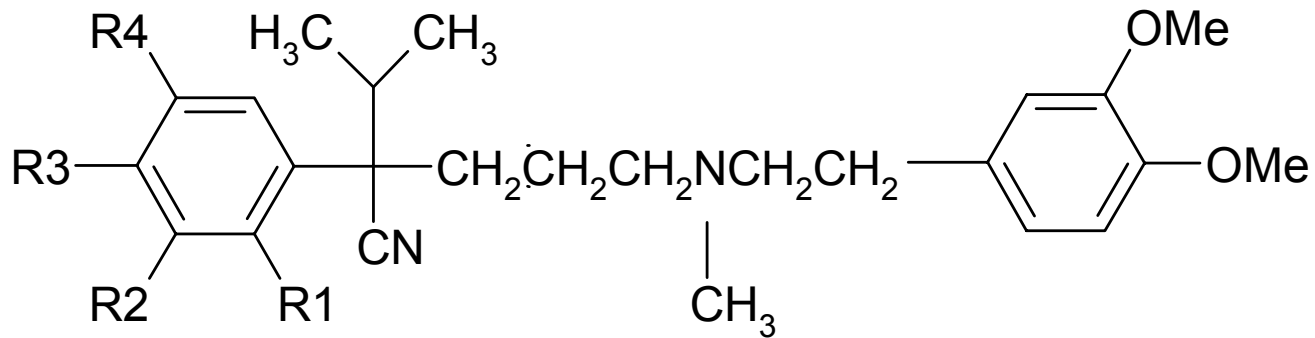
BRETYLIUM  
TOSYLATE



dronedaron

# Class IV.

## □ $\text{Ca}^{2+}$ channel blockers



$R_1, R_4 = \text{H}, R_2, R_3, R_5, R_6 = \text{OCH}_3$  verapamil

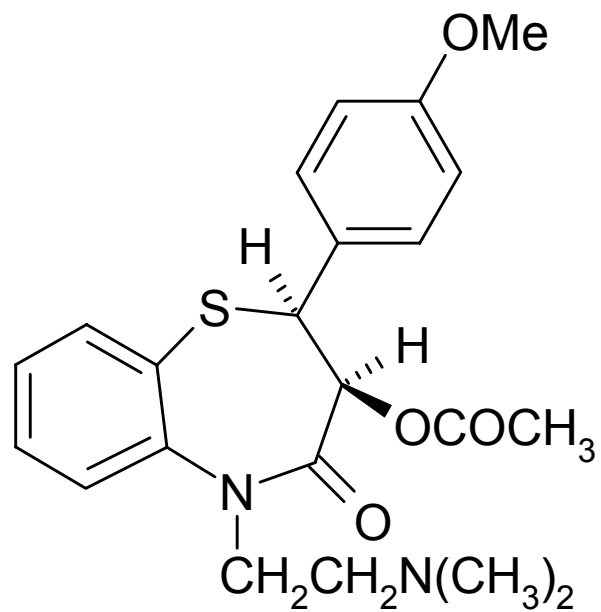
$R_1 = \text{H}, R_2-R_6 = \text{OCH}_3$  gallopamil

$R_1 - R_6 = \text{H}$  emopamil

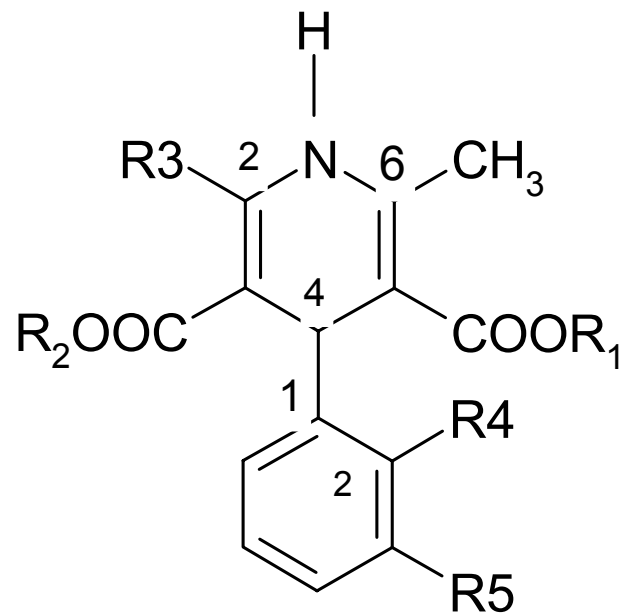
levemopamil

# Class IV.

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diltiazem



DIHYDROPYRIDINES





# Drugs within classification

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- digoxin
- adenosine
- both prolongs duration of action potential