

SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES



Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai
Approved by Pharmacy Council of India, New Delhi.
Coimbatore -641035

COURSE NAME : MEDICINAL CHEMISTRY II

B.PHARM/ III YEAR

TOPIC: CALCIUM CHANNEL BLOCKERS

DESIGN THINKING STAGES IN CLASSIFICATION

Empathize: Understand the users — in this case, students, pharmacists, or researchers who use the alphabetical classification system.

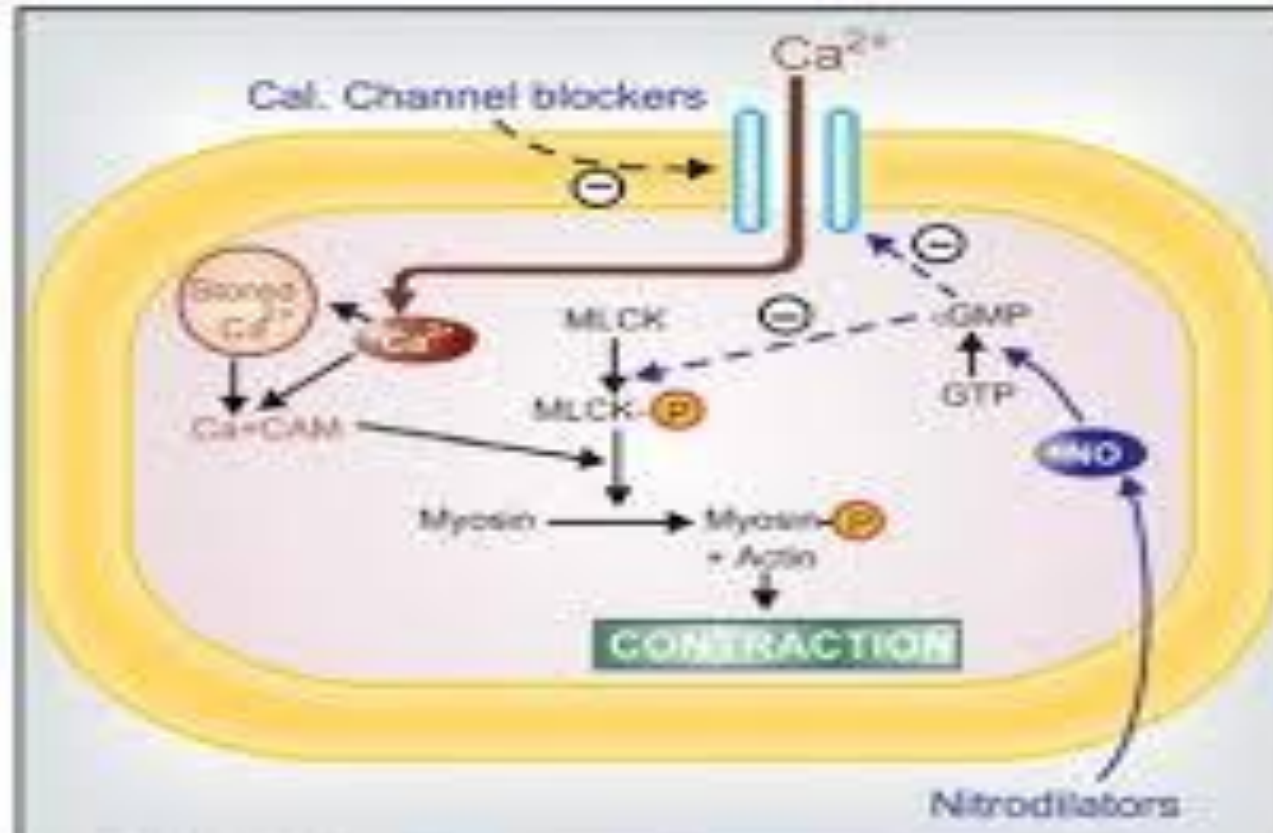
Define: Clearly define the problem based on the insights from the empathize stage.

Ideate: Generate possible solutions or improvements.

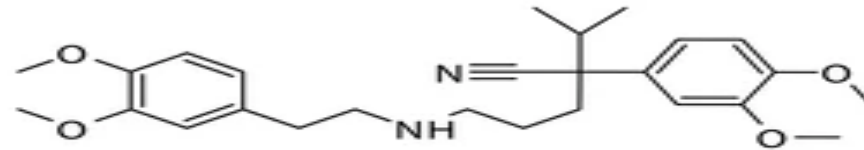
Prototype: Create a tangible version of your solution

Test: Evaluate the prototype with real users.

INTRODUCTION

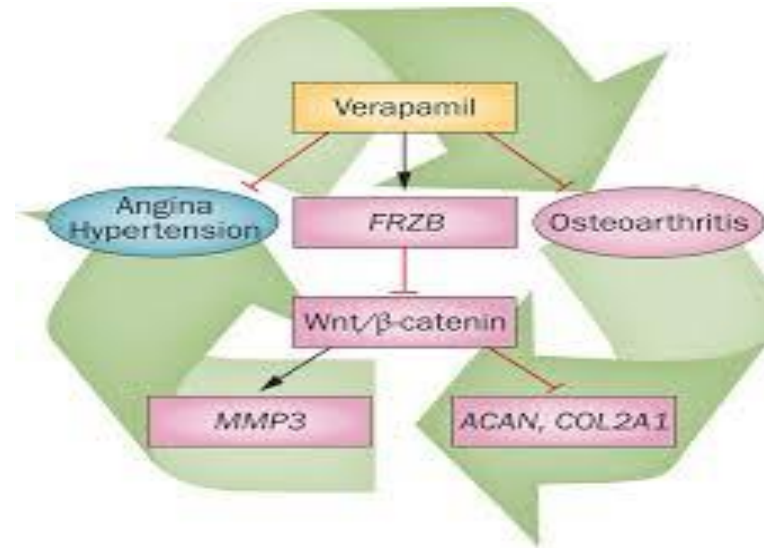


VERAPAMIL

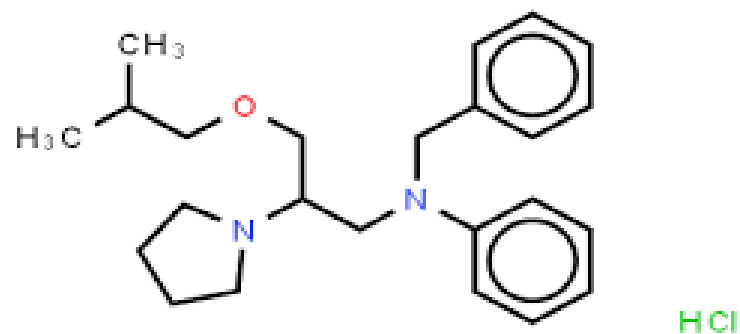


Verapamil

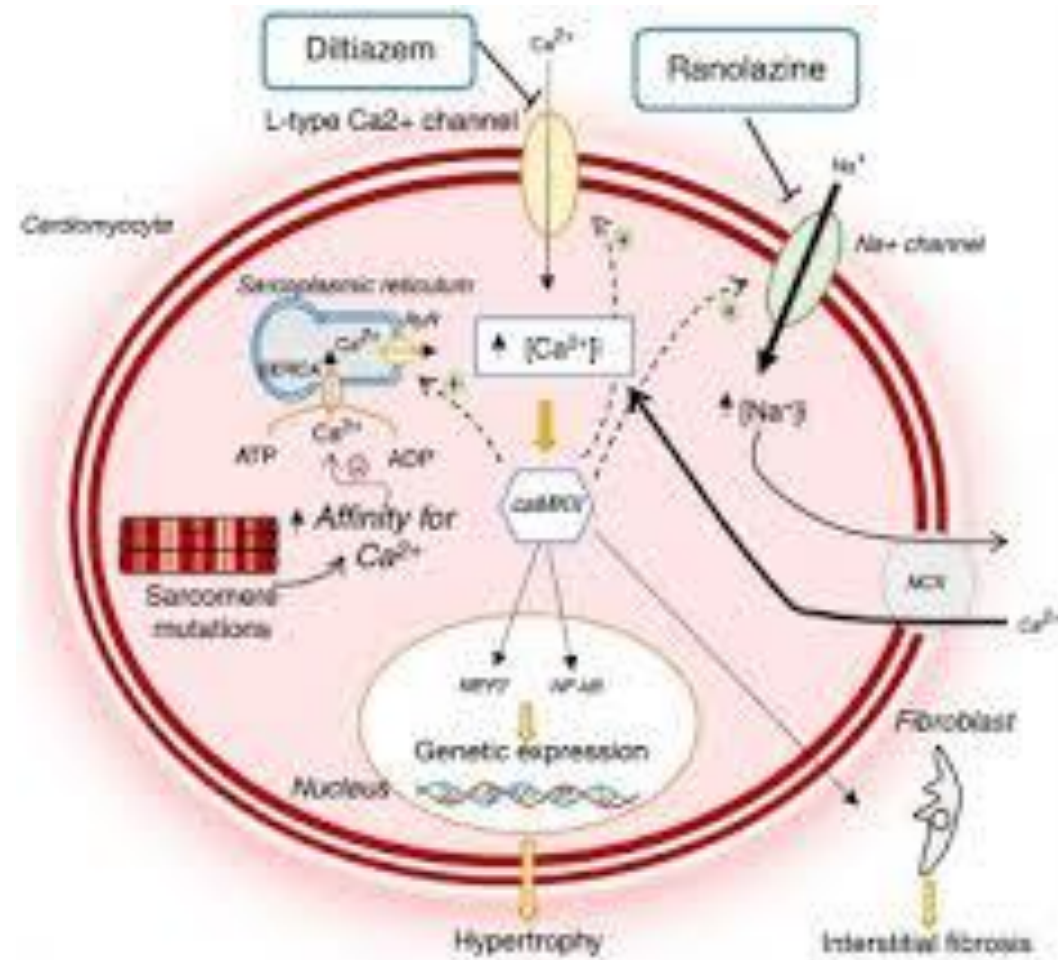
MECHANISM OF ACTION



BEPRIDIL HYDROCHLORIDE



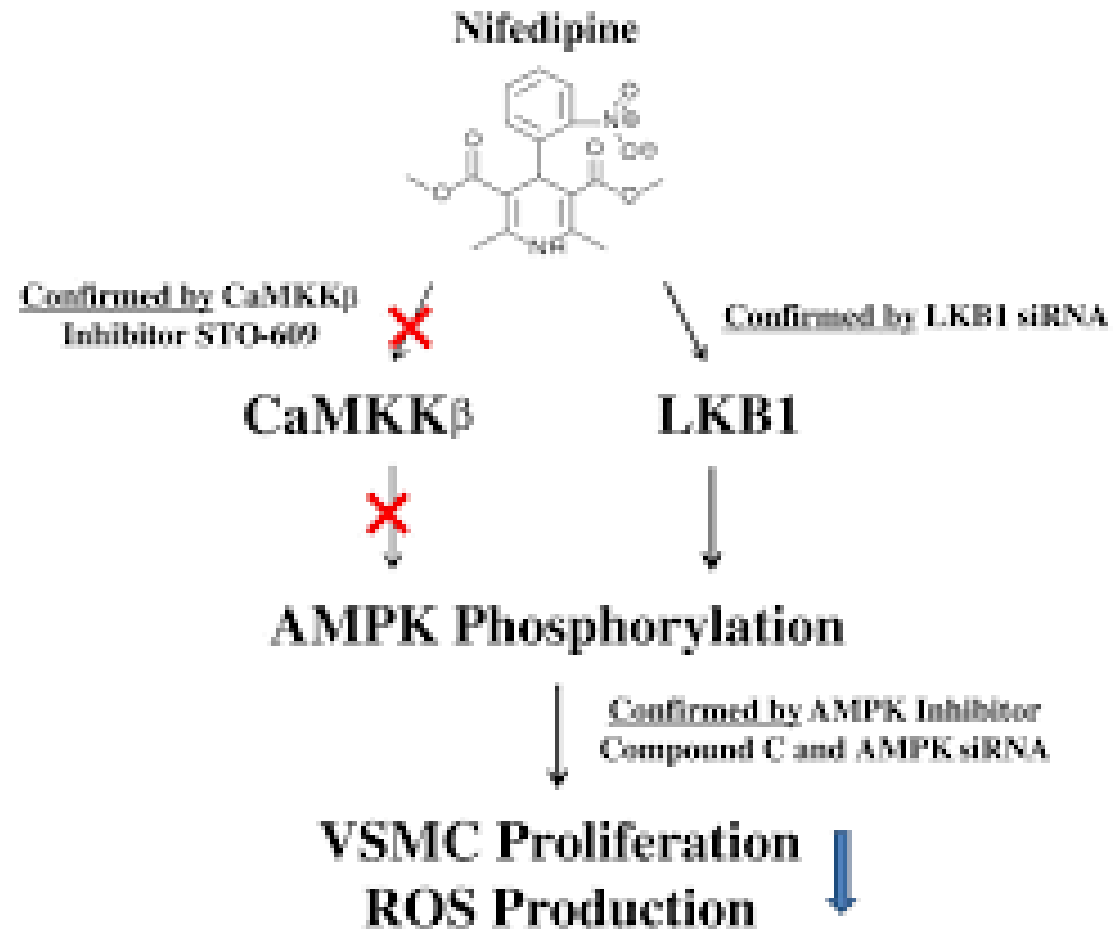
MECHANISM OF ACTION



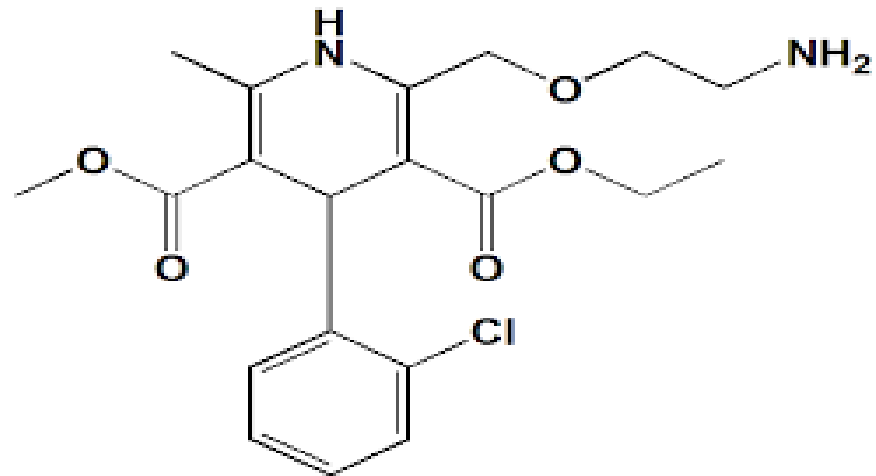
NIFEDIPINE



MECHANISM OF ACTION

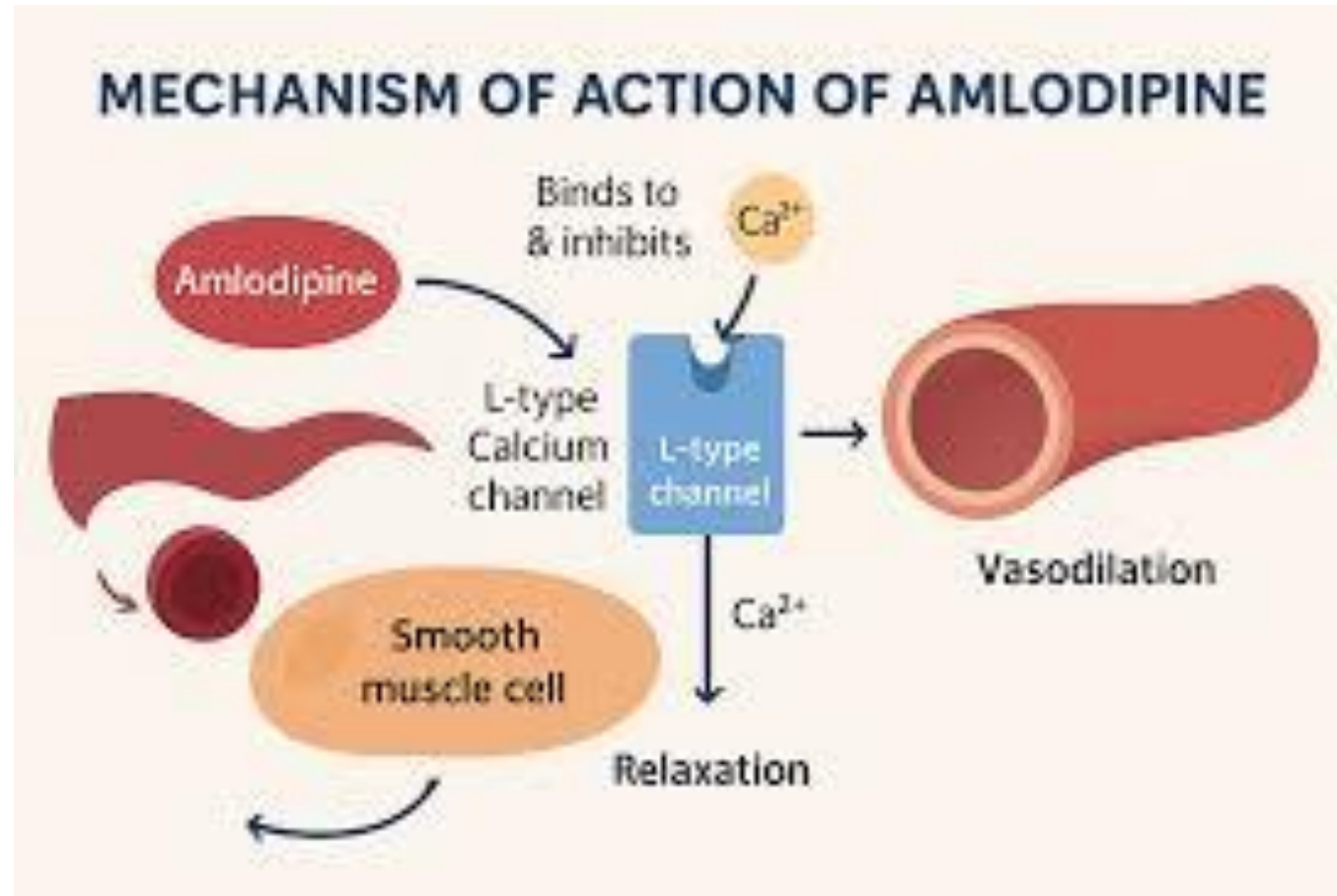


AMLODIPINE

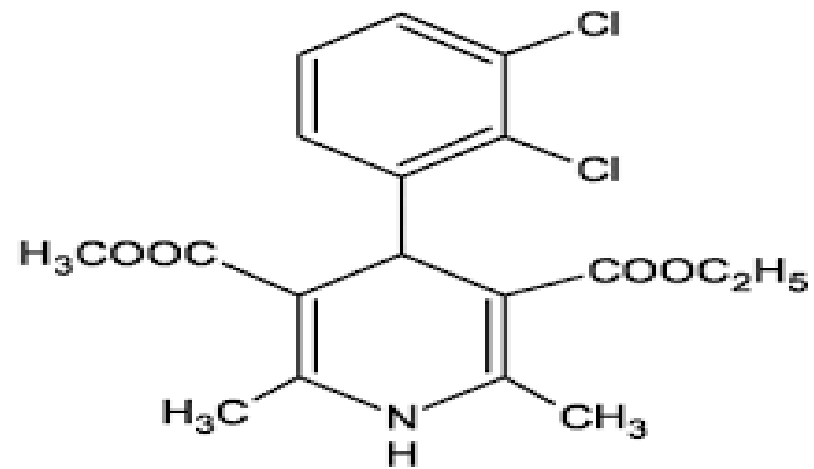


Amlodipine

MECHANISM OF ACTION



FELODIPINE



MECHANISM OF ACTION

Blocks L-type calcium channels in vascular smooth muscle

→

Decreases calcium entry

→

vasodilation

→

Decrease peripheral resistance

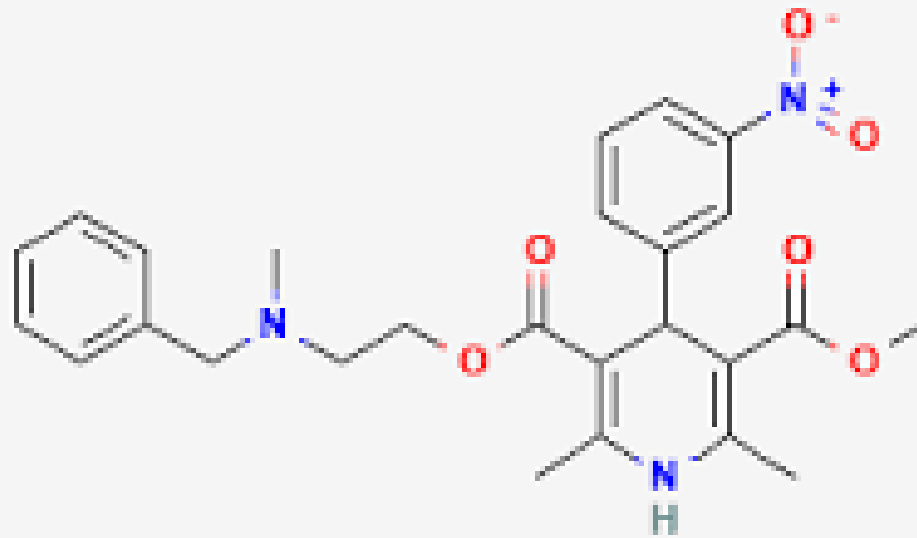
→

Decreases cardiac workload

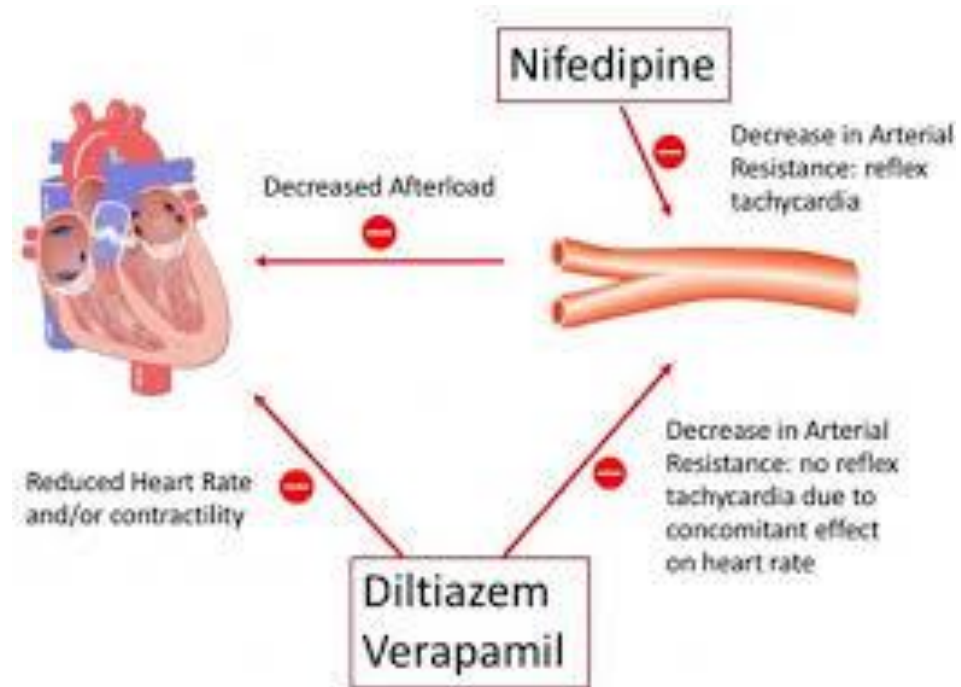
→

relief of angina

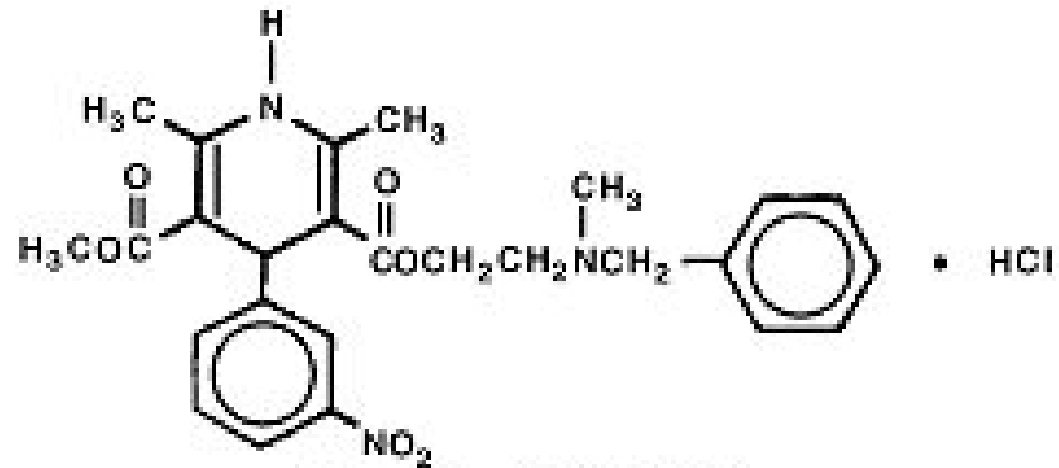
NICARDIPINE



MECHANISM OF ACTION

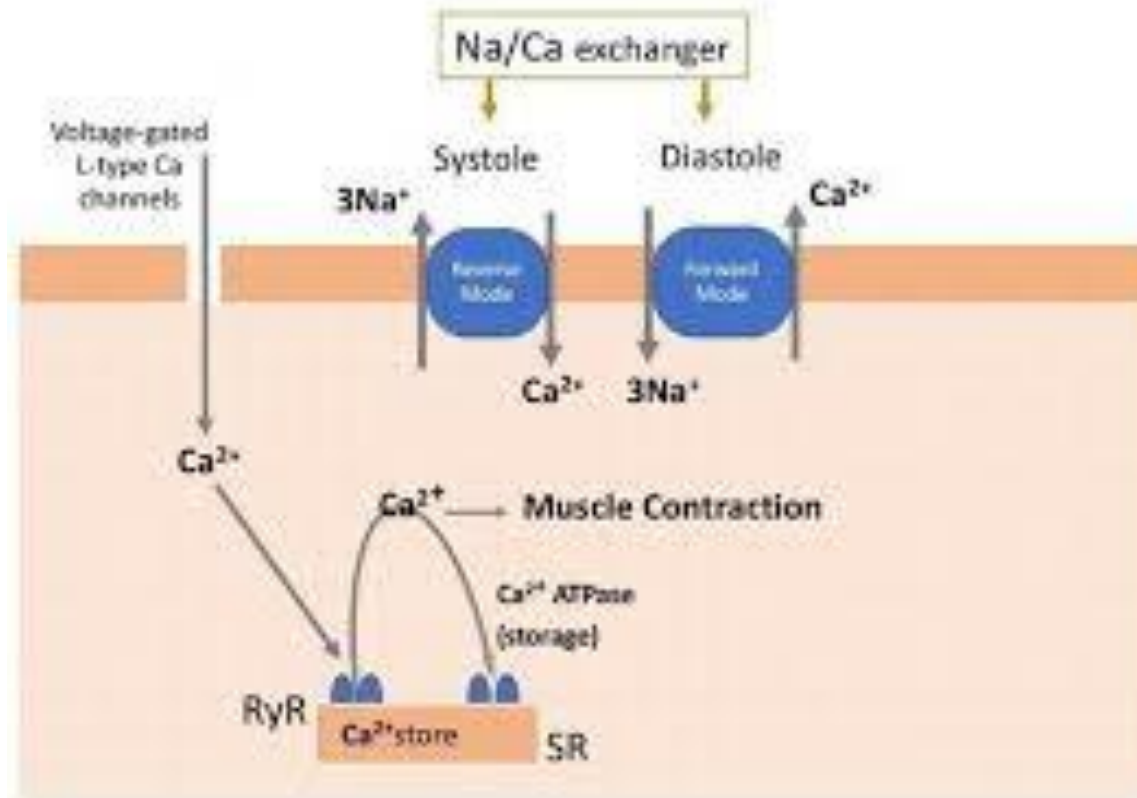


NICARDIPINE



Nicardipine Hydrochloride
Molecular Formula $C_{25}H_{29}N_3O_6 \cdot HCl$

MECHANISM OF ACTION



1. Which of the following calcium channel blockers is most selective for cardiac tissue?

- A) Nifedipine
- B) Verapamil
- C) Amlodipine
- D) Felodipine

2. Which calcium channel blocker is primarily used to prevent cerebral vasospasm after subarachnoid hemorrhage?

- A) Nicardipine
- B) Nimodipine
- C) Diltiazem
- D) Nifedipine

3. Which of the following is a dihydropyridine calcium channel blocker?

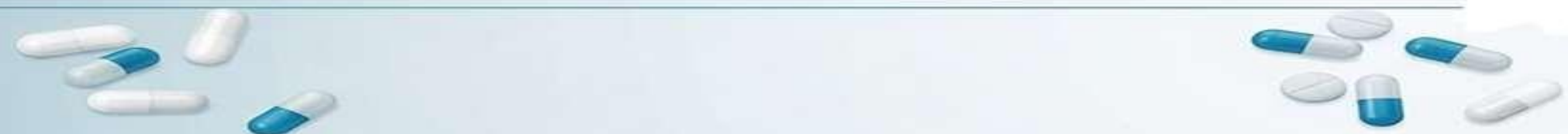
- A) Verapamil
- B) Diltiazem
- C) Amlodipine
- D) Bepridil

4. The main mechanism of action of calcium channel blockers in angina is:

- A) Increasing calcium influx into cardiac cells
- B) Blocking L-type calcium channels → ↓ myocardial oxygen demand
- C) Stimulating beta-adrenergic receptors
- D) Increasing heart rate

REFERENCES

1. Foye, W.O., Lemke, T.L., and Williams, D.A. *Foye's Principles of Medicinal Chemistry*, 7th Edition, Wolters Kluwer.
2. Wilson, C.O., Gisvold, O., and Block, J.H. *Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry*, 12th Edition, Lippincott Williams & Wilkins.
3. Patrick, G.L. *An Introduction to Medicinal Chemistry*, 7th Edition, Oxford University Press.
4. Thomas, G. *Fundamentals of Medicinal Chemistry*, John Wiley & Sons.
5. Singh, H. and Kapoor, V.K. *Medicinal and Pharmaceutical Chemistry*, Vallabh Prakashan, New Delhi.



Thank You

