

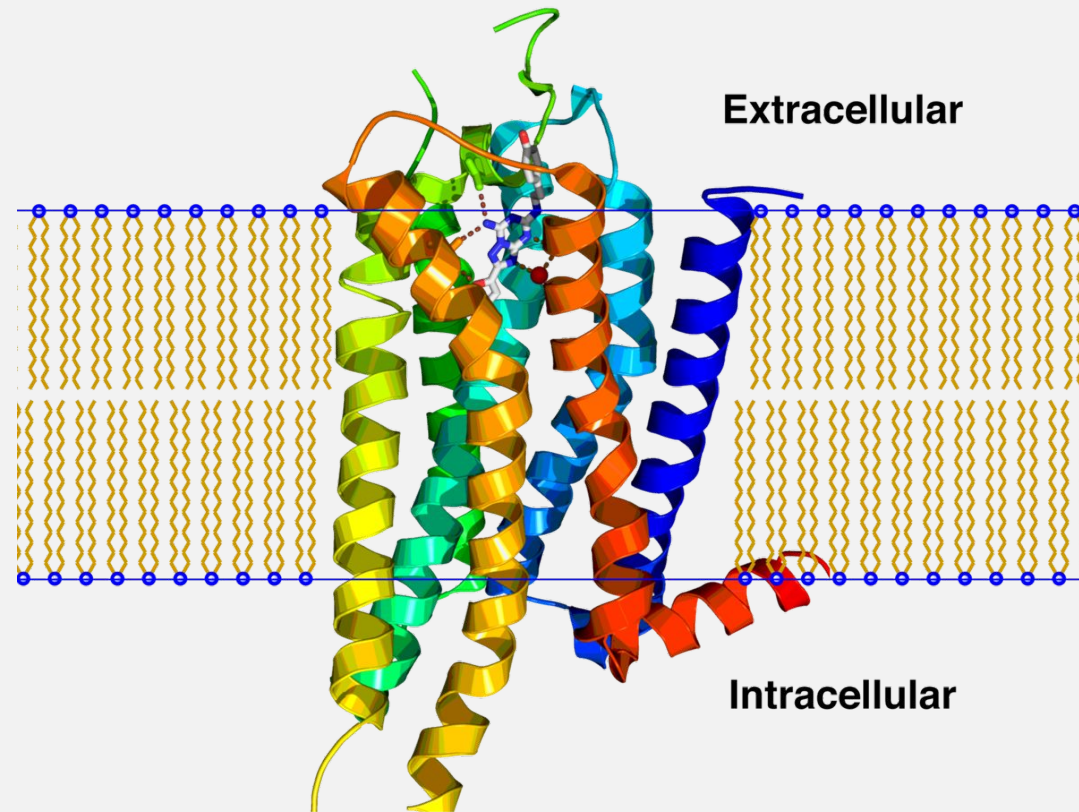
ALPHA-1 ADRENERGIC RECEPTOR

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PROPERTIES

- A member of the Gq protein-coupled receptor family
- Triggered by norepinephrine, epinephrine and isoprenaline in decreasing potency
- Effects level of Calcium in cells when activated
- Mechanism: PLC activated

STRUCTURE



SIGNAL CASCADE

Heterotrimeric G protein activates phospholipase C (PLC)



IP3 and Calcium

IP3 moves into cytosol, activates receptor on ER

Calcium is released from stores



WHAT DOES IT DO?

- Present in high numbers in vascular smooth muscle
 - Activation results in vasoconstriction which increases venous resistance and raises blood pressure
 - Typically activated upon postural change to keep blood in your brain
- Smooth muscular contraction
 - GI sphincters
 - Urinary bladder
 - Pupil dilation
 - Kidney
 - Brain

NOTABLE PHARMACEUTICALS

Agonists

- Midodrine (Antihypotensive)
- Phenylpephrine (decongestant)
- Pseudophedrine (decongestant)

Antagonists

- Labetolol (Antihypertensive)
- Risperidone (mood disorder treatment)
- Trazodone (sleep aid)

EXERCISE

- Muscles being worked will 'back burner' the Alpha-1 adrenergic receptor and allow vasodilation to take place
- Muscles not performing work will be dominated by Alpha-1 adrenergic receptors
 - Net result is vasoconstriction, this allows you to stay conscious during exertion