

Pumping action the heart

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Amazing Av

- Located subendocardially inferomedially region of the right atrium

- At the top of Koch region

external: Upper part SA node sulcus terminalis (superior and inferior)

Internal: crista terminalis

Posterior: sinus venarum (smooth)

triangular Koch boundaries

Infront of : Base of septal leaflet of tricuspid valve

behind anterior margin of opening of coronary sinus

above tendon of Todaro

Anterior: atrium proper (rough)

Traffic cope

- Atrial internodal pathway dumps electrical signals into fast tract
80% fast tract only
20% fast and slow tract (supraventricular tachycardia)

Physiological: Decremental conduction (slow down the action potential)

it takes 0.1 seconds ? Two microscopic reasons for this:

1. Fewer gap junction
2. Smaller diameter smaller velocity

Pathological condition: overstimulation (atrial fibrillation)

Big trouble for those has Atrial fibrillation and AV node is not working



Parasympathetic stimulation increase the decremental conduction and decrease heart speed



Sympathetic stimulation decrease the decremental conduction and speed up the heart

Bundel of his

- Four valvular ostia together with their fibrous ring united with very dense connective tissue

Aortic and two AV right triangle

Aortic and mitral left triangle

Pulmonary and aortic conus tendon

- Atrioventricular bundle, AV bundle, Common bundle
penetrating fibers arise from the distal portion of the AV node
- Only normal physiological passageway through the fibrous skeleton
- More than one-hole pathological supraventricular tachycardia
- Has a dual blood supply important in heart attack
- Purkinje cells , limited myocardial cells
- Has two component

Penetrating portion

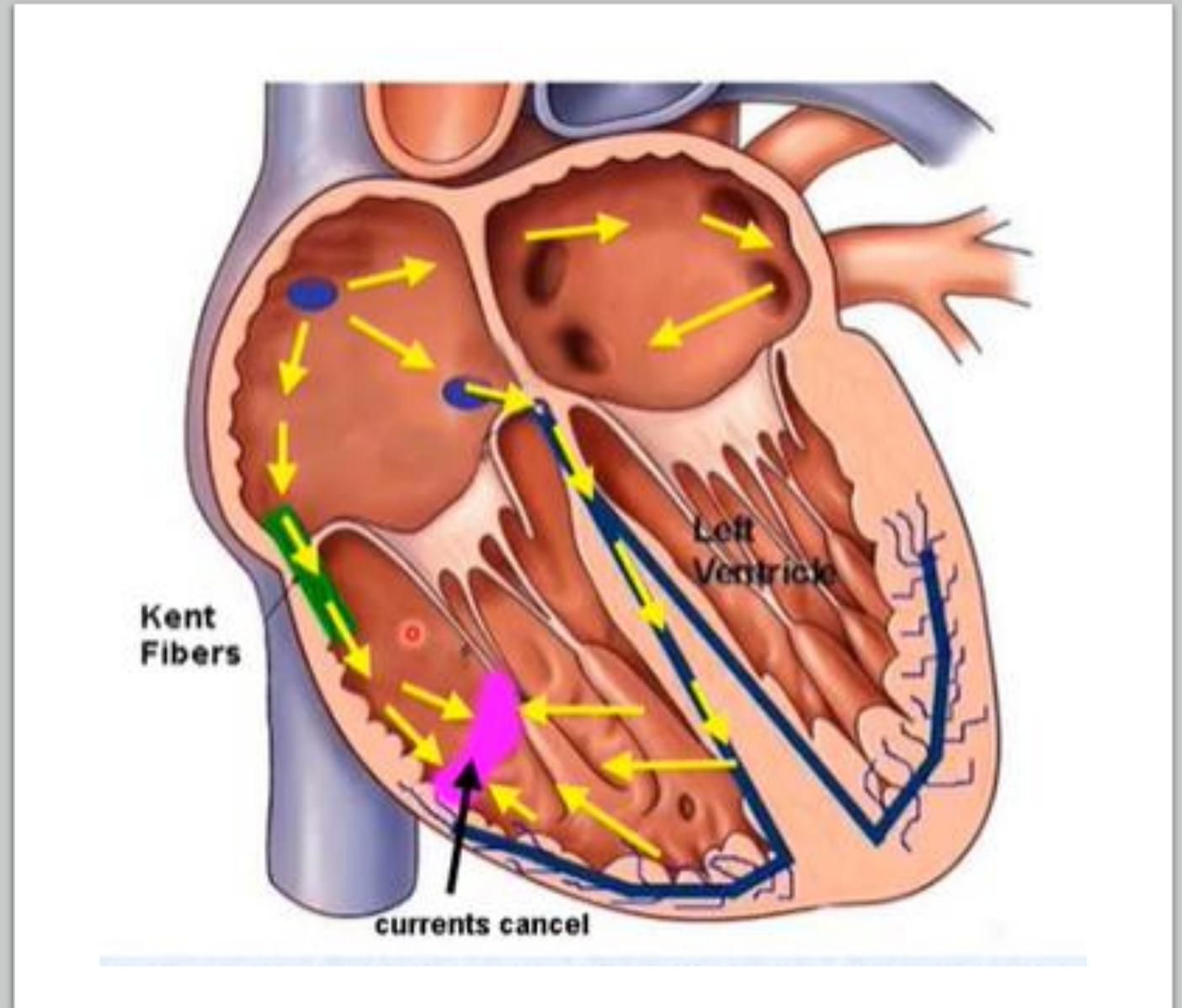
Distal portion

- “hand Off” from the AV
relays to the bundle branches

Wolf Parkinson- white syndrome

- Normal heartbeat with wolf Parkinson white syndrome
- Racetrack current 200 b/m
(atrioventricular reentry tachycardia)

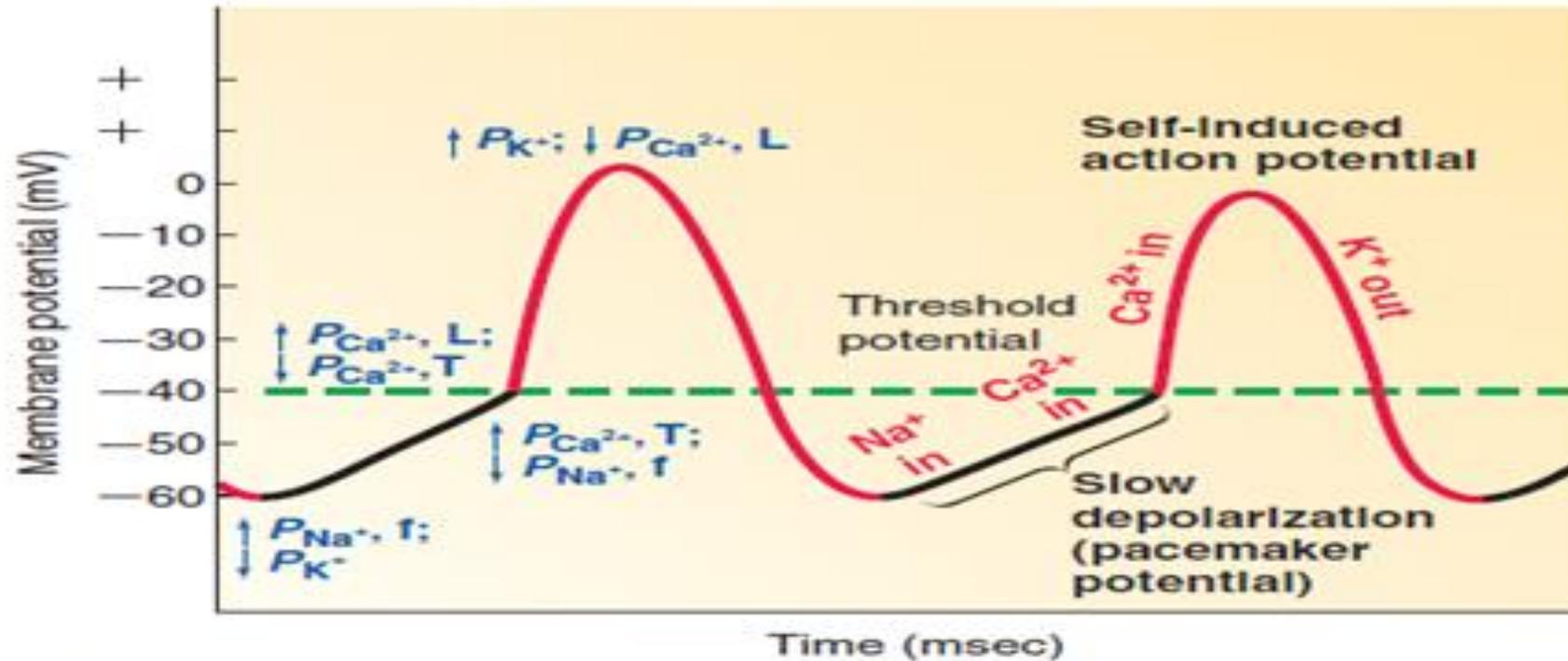
No decrementing



Bundel branches

- Right ang left
- buried deep endocardial in interventricular septum
- Behaves a single branch not like the left one has three branches

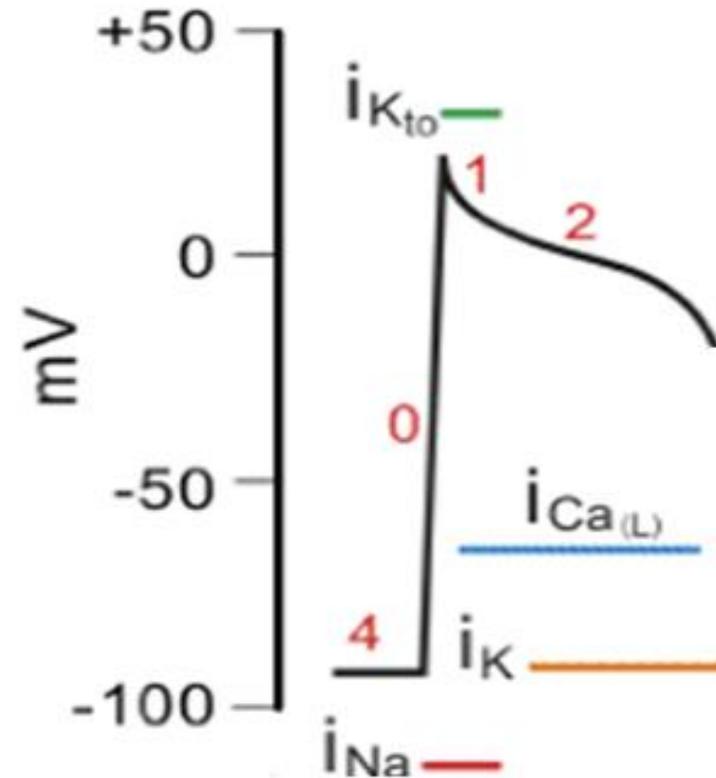
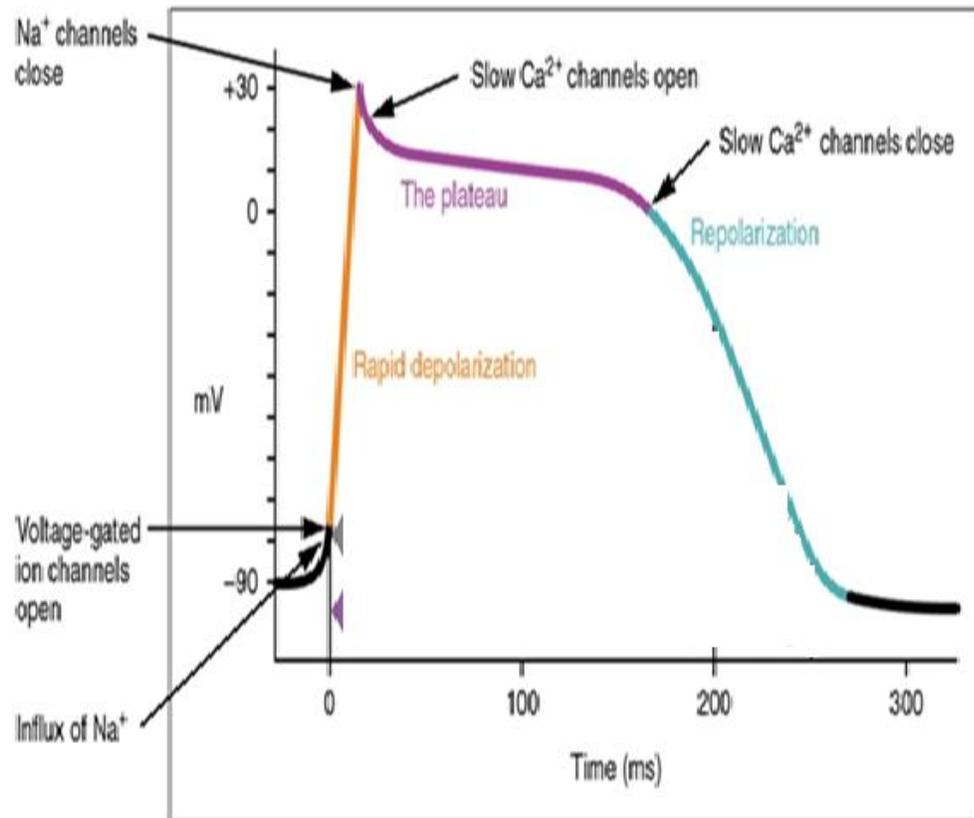
Depolarization and repolarization of nodal cells



KEY

- f = Funny channels
- T = Transient-type channels
- L = Long-lasting channels

Depolarization and Repolarization of contractile cells



functional syncytium

- Desmosomes is basically acting like adhesion and tighten molecules
- **Intercalated disks are basically a bunch of gap junctions and desmosomes connecting the actual cardiac cells together**

