

Cardiac Pacemaker Action Potential



PLAY PICMONIC

Phase 0

(0)

Phase 0 is characterized by depolarization.

Depolarization

D-polar-bear

Phase 0 is described by the upstroke, opening of voltage-gated calcium (Ca^{2+}) channels, which results in a rapid influx of calcium. This process will result in depolarization.

Rapid Influx of Calcium

Rapid-rabbit Brings in Calcium-cows

The opening of voltage-gated calcium (Ca^{2+}) channels results in a rapid influx of calcium. Permanent inactivation occurs in fast voltage-gated sodium (Na^+) channels due to these cells' less negative resting potential. This process will cause the AV node's slow conduction velocity to extend transmission from the atria to the ventricles.

Phase 3

(3) Tree

Phase 1 and 2 are absent. Phase 3 is characterized by repolarization.

Repolarization

Red-polar-bear

Phase 3 is described by the inactivation of the calcium (Ca^{2+}) channels and the increased activation of potassium (K^+) channels, resulting in the efflux of potassium. This process will result in repolarization.

Potassium Efflux

Bananas Head out

The inactivation of the calcium (Ca^{2+}) channels and the increased activation of potassium (K^+) channels cause an efflux of potassium.

Phase 4

(4) Fork

Phase 4 is characterized by depolarization.

Depolarization

D-polar-bear

Phase 4 is characterized by the presence of a funny current, which is responsible for the slow, mixed Na^+ inward/ K^+ outward current, resulting in a slow influx of sodium.

Slow Influx of Sodium

Slow-snail Salt-shakers Come in

The presence of a funny current, which is responsible for the slow, mixed Na^+ inward/ K^+ outward current, results in a slow influx of sodium.