

LECTURES 1-2

IONIC BASIS OF THE RESTING MEMBRANE POTENTIAL

OBJECTIVES

1. Understand the characteristics of electrical components and how they carry current in electrical circuit, in solutions and through cell membrane.
2. Understand the principle of equilibrium.
3. Understand the difference between osmolarity and tonicity and their importance on cell volume when the composition of the extracellular milieu is changed.
4. Understand the principle behind the following equations
 - Nernst equation
 - Hodgkin/Huxley equation
 - Gibbs-Donnan Equilibrium
5. Understand how membrane conductance is measured under:
 - Current clamp conditions
 - Voltage clamp conditions
 - Patch clamp conditions