



The

BioScope Initiative

The Living Cell – Content Outline

1. More on Cell Structure
2. More on Cell Function
3. Scientists at Work

1. Cell Structure

- a. Specialised cells
 - i. Red blood cell
 - ii. White blood cell
- b. Plasma
- c. Platelet
- d. Cellular components
 - i. Nutrients
 1. anabolic pathways
 2. catabolic pathways
 - ii. Carbohydrates
 1. saccharides
 - iii. Lipids
 1. fatty acids
 2. triglycerols
 3. cholesterol
 4. fat-soluble vitamins
 - iv. Proteins
 1. amino acids
 - v. Minerals elements
 - vi. Vitamins
 - vii. RDA

2. Cellular Function and Processes

- a. Cellular Transport
 - i. Passive Transport
 1. diffusion
 2. facilitated diffusion
 3. osmosis
 - ii. Active Transport
 1. concentration gradient
 2. carrier proteins
 3. endocytosis
 4. exocytosis
 5. sodium potassium pump
- b. Organelle Responses & Cell Damage
 - i. Organelle Diseases
 1. Cystic Fibrosis
 2. Multiple Sclerosis
 3. Familial Hypercholesterolemia
 4. Kearns-Sayre Syndrome
 5. Laber's Hereditary Optic Neuropathy
 6. Ragged Muscle Fibre Disease
 7. Lou Gehrig's Disease
 8. Tay Sachs Disease
 9. Gaucher's Disease
 10. Hurler's Syndrome
 11. Pompe's Disease

3. Scientists at Work

- a. Onion Root Tip Preparation
- b. RT-PCR
- c. Gel Electrophoresis
- d. Histology
 1. Sectioning
 2. Tissue Staining Techniques
- e. Egg Osmosis
- f. Pipetting

12. Retinoblastoma
13. Duchenne Muscular Dystrophy
14. Defective Cells

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