

ELECTRONIC MICROSCOPE

- Uses a light source whose wavelength of electrons is 0,05 Å
- The image of the subject is obtained with the help of an electromagnetic lens
- The maximum magnifying power is 1.000.000 times
- The resolution power is 1-2 Å

COMPONENTS

1. The body of the microscope
 - The vacuum system
 - The electron source (tungsten filaments or wolfram)
 - Anode which creates the potential difference
 - The electromagnetic lens system
 - The box of the slide
2. The fluorescent screen for viewing the image
3. The camera
4. The command module

TYPES OF E.M

- The transmission E.M
- The scanning E.M
- STEM
- High voltage E.M

Live cells, where it allows a better study of the structure of the nucleus, the distribution of intracytoplasmic organelles.

Through the attachment of a micro camera, it allows a good study of the dynamic aspects of the cell (division, endo & exocytosis, movements of the organelles in the cytoplasm etc).

Preparing the specimen for an Electronic Microscope

1. The reaping from a live organism – 1 mm tissue sample;
2. The fixing-glutaraldehyde 2,5% and osmic acid 1% for $\frac{1}{2}$ an hour to 12 hrs

3. Washing in a buffer solution
4. Dehydration with ethanol, acetone or propylene oxide
5. Inclusion???
6. Ultra ?? cryotomy sectioning - approx. 50Å
7. The ??
8. Contrasting with phosphotungstic acid, uranyl acetate, lead citrate.

Information offered by electronic microscopy

1. The ultrastructure of different types of cells
2. The ultrastructure of cytoplasmic organelles
3. Macromolecule structure and configuration
4. The study of protein synthesis, translation and transcription
5. The study of the mechanism of infection
6. The way different substances act on cellular structures (pesticides, chemical therapy)
7. The localization of immunological the membrane
8. The image of a gene and other aspects of genetic engineering etc.