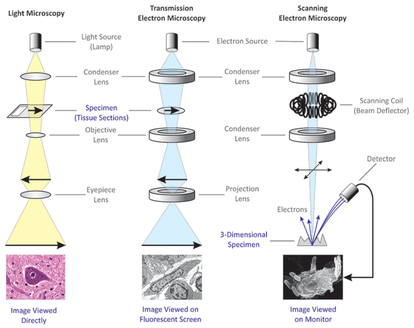
Electron and Light microscopes comparison

Max Sepulveda
LVS Ascot

Introduction

A microscope is an instrument that magnifies objects otherwise too small to be seen, producing an image in which the object appears larger. Most photographs of cells are taken using a microscope, and these pictures can also be called *micrographs*.

Light microscopes use light, electron microscopes use beams of electrons light controls image formation via glass lenses while beams of electrons can be focused using electromagnets this is because electrons have a negative charge



Light Microscope:

.Use light to provide magnification.
.Image is coloured.
.Controls image formation via glass lenses.
.No radiation risk.
.**Magnification** from 500x to 1500x.
.The **specimen** can be dead or alive.
.It is used for the study of detailed gross internal structure.
.No **filament** is used.

Electron Microscope:

.Use beams of electrons to work.
.Image is in black and white.
.Beams of electrons can be focused using electromagnets.
.Risk of radiation leakage.
.Magnification of 100000x to 300000x.
.Specimen must be dead or dried.
.Used for external surface, ultra structure of cell and very small organisms.
.A tungsten filament is used to produce electrons.

Glossary

- Filament: A conducting wire or thread with a high melting point, forming part of an electric bulb or thermionic valve and heated or made incandescent by an electric current.
- Specimen: An individual animal, plant, piece of a mineral, etc. used as an example of its species or type for scientific study or display.
- Magnification: Enlarging the size of an object in an image so you can observe in greater detail.

References

- Khan Academy, Microscopy. https://www.khanacademy.org/science/high-school-biology/hs-cells/hs-introduction-to-cells/a/microscopy
- Microbiology Info, Differences between Light Microscope and Electron Microscope. https://microbiologyinfo.com/differences-between-light-microscope-and-electron-microscope