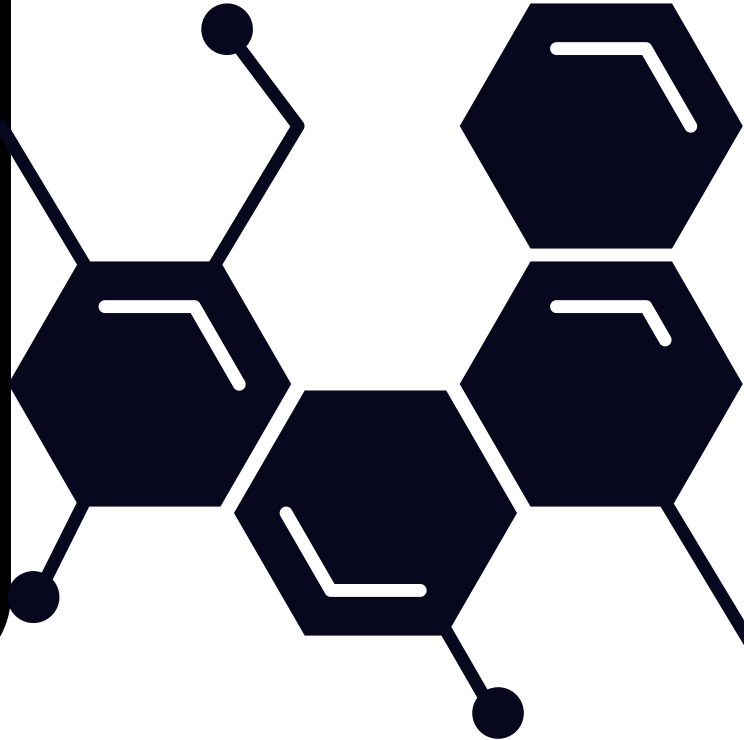
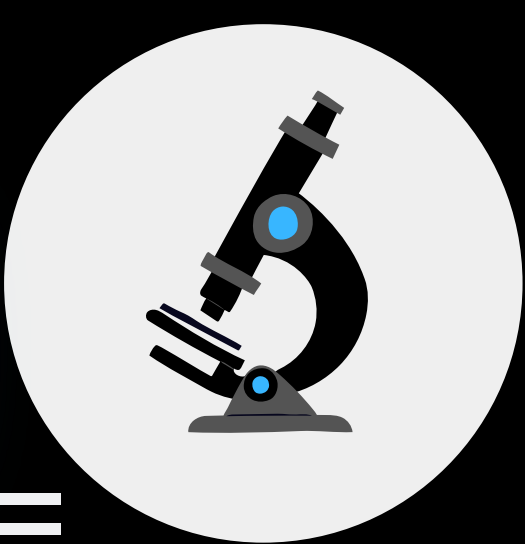


INNOVATION IN MICROSCOPE

EDM POSTER



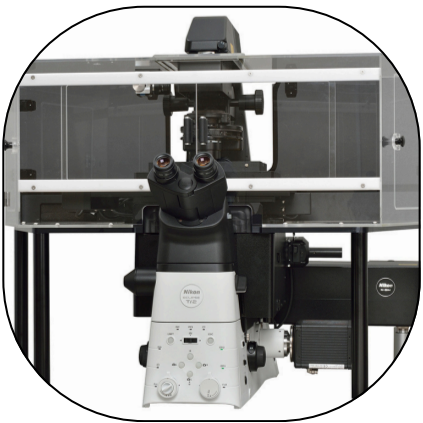
10. DIGITAL AND SMARTPHONE MICROSCOPY (2010S-PRESENT)

Modern Innovations: Digital microscopy and the integration of smartphone technology have made microscopes more accessible and portable. These innovations have democratized microscopy, allowing for fieldwork, education, and remote diagnostics. Impact and Future Directions



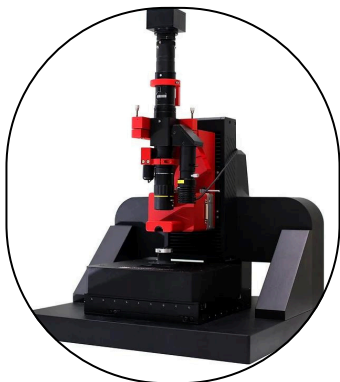
9. SUPER-RESOLUTION MICROSCOPY (2000S)

STED, PALM, and STORM: Techniques like Stimulated Emission Depletion (STED) and Photoactivated Localization Microscopy (PALM) broke the diffraction limit of light microscopy, enabling visualization of structures at the nanometer scale.



8. ATOMIC FORCE MICROSCOPE (AFM) (1986)

Gerd Binnig, Calvin Quate, and Christoph Gerber: Invented the AFM, which measures forces between a sharp probe and the sample surface, allowing visualization of surfaces at the atomic level. This innovation was pivotal for nanotechnology.



7. CONFOCAL LASER SCANNING MICROSCOPE (1980S)

Marvin Minsky: Developed a confocal microscope, which uses laser light to scan samples and produce high-resolution images with improved depth. It is widely used in biological research.



6. SCANNING ELECTRON MICROSCOPE (1965)

Manfred von Ardenne: Invented the SEM, which provides detailed 3D images of sample surfaces. SEM became an essential tool for material science, biology, and nanotechnology.



1. EARLY MICROSCOPES (1590S)



The first compound microscope is attributed to Dutch spectacle makers Zacharias Janssen and his father Hans around 1590. It had two lenses and could magnify objects 3 to 9 times their actual size.



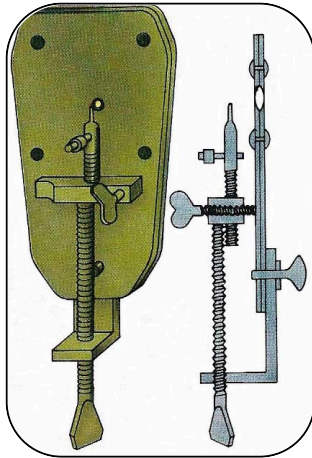
2. IMPROVEMENT BY ROBERT HOOKE (1665)



Micrographia: Robert Hooke, an English scientist, significantly improved the design and functionality of microscopes. He published Micrographia in 1665, which included detailed observations of plant cells, coined the term "cell," and popularized the use of microscopes in scientific research.



3. ANTON VAN LEEUWENHOEK (1670S)



Single-Lens Microscope: Dutch scientist Anton van Leeuwenhoek developed powerful single-lens microscopes that could magnify up to 200 times. He used these to observe bacteria, protozoa, and sperm cells, making him a pioneer in microbiology.



4. ACHROMATIC LENS (1729)



Chester Moore Hall: Introduced the achromatic lens, reducing color distortion (chromatic aberration) and allowing clearer and more accurate images. This innovation was crucial for the advancement of microscopy.



5. ELECTRON MICROSCOPE (1931)



Ernst Ruska and Max Knoll: Developed the first electron microscope, which uses beams of electrons instead of light to achieve much higher magnifications (up to millions of times). This allowed scientists to observe structures at the molecular and atomic levels.

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