



Methods to Study Virus Structure

Fill in the blanks:

- _____ is the most popular method for viral examination; it involves staining with an _____.
- _____, or viral surface projects and knobs, represent the main class of structures that can be identified via electron microscopy.
- A limitation of electron microscopy includes its _____, of which is limited to about 50-75 Å; therefore, molecular interpretation of _____ is limited.
- _____ is performed using rapidly frozen samples. Samples remain _____ and _____, or non-crystalline and glass-like, respectively.
- Unlike in traditional electron microscopy, samples used in cryo-EM are hydrated; therefore, the _____ of samples are preserved.
- Cryo-EM enables resolution at the _____ level.
- _____ enables samples to be imaged at different angles while frozen. A _____ can therefore be produced.
- _____ involves examining the atomic and molecular composition of a virus sample that has been crystallized.
- The repertoire of viruses that can be examined via X-ray crystallography is limited, since not all viruses can be _____.
- _____ involves examination of radiofrequency absorption by atoms following induction of a magnetic field.
- _____ involves examining X-ray diffraction patterns in crystallized samples.
- _____ involves exposing a crystalline structure to X-rays, electrons, or neutrons, and then examining the scattering pattern that develops as the sample is rotated about a _____.

Word bank:

Fiber axis X-ray diffraction
 Nuclear magnetic resonance spectroscopy
 Hydrated Resolution
 Morphological units
 Electron microscopy
 Cryo-electron tomography
 X-ray crystallography Atomic Vitrified
 Three-dimensional density map
 X-ray fiber diffraction Protein structures
 Electron dense material
 Cryo-electron microscopy
 Native structures Crystallized

