Electron Microscopy Methods for Diagnosis of Infectious Agents

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Transmission electron microscopy has historically been indispensable for virology research, as it offers unique insight into virus function. One of the major advantages of using electron microscopy to diagnose an emerging infectious agent is that a simple preparation of the biological sample could lead to a clinical decision in a very short time. However, expertise is needed to avoid confusing cell-derived nanostructures with viruses. In the past decade, as cryo-electron microscopy (cryo-EM) has matured and become more accessible, we have been able to peer into the structure of viruses at the atomic level and understand how they interact with the host cell, with drugs or with antibodies.