Electron Diffraction of Three-Dimensional Microcrystals using the MicroED method

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Crystallography has been an invaluable tool for studying the function of biomolecules on the atomic scale. Because creating large well-ordered crystals necessary for X-ray crystallography is still a major hurdle, there has been a great deal of interest in developing new methods that can provide diffraction data from microcrystals. Previously, we reported on a new data collection strategy, which was called MicroED, that uses electron diffraction in a cryo-transmission electron microscope (cryoTEM) to obtain structural data from extremely small three-dimensional microcrystals. This presentation will focus on the electron diffraction data collection techniques, the key structures determined, and the progress of the methodology in recent years, with focus on data collection on a Titan Krios cryoTEM.