Overview of projects collected on the Helios FIB/SEM at the NYSBC

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The New York Structural Biology Center has had an FEI Helios Nanolab 650 in operation for just over a year. Work so far has concentrated on sectioning of biological samples embedded in resin. Projects collected include

- Ultrastructure analysis of filamentous bacteria in mouse intestine through FIB/SEM
- Use of EM to analyze how the morphology of dendritic and/or t cells are affected by presence of HIV virus
- Characterization of organelles in identified cells in the nematode, C. elegans
- Use of large scale tomographic imaging to study synapse morphology in rat amygdala
- Use of large scale tomographic imaging to quantify the total number of synapses into the different compartments of layer 4C of macaque primary visual cortex.
- EM tomography of macrophages interacting with aggregates of LDL.
- The microsporidia are a group of obligate intracellular parasitic protists that have been implicated as both human and veterinary pathogens. Attempts to build 3D models of these organisms through tomography via FIB/SEM.

Overviews of these projects, workflow strategy, and statistics of data collection will be presented.