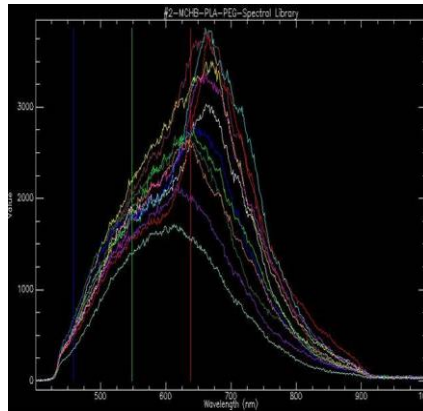


## Tracking Biopolymeric Nanoparticles in Cells

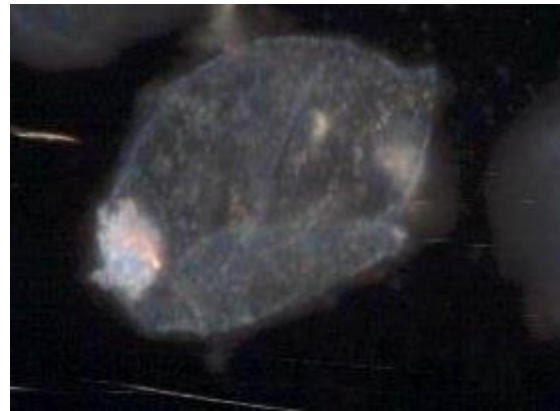
Biopolymers are biological chains produced from living organisms. These chains can be made up of polynucleotides (RNA or DNA), polypeptides (amino acids), or polysaccharides (carbohydrates). The natural biocompatibility of these polymers makes them ideal candidates for effective drug delivery vectors. Researchers are currently trying to determine the process of cell uptake of these particles. The CytoViva Hyperspectral Microscope System allows scientists to effectively evaluate the uptake of biopolymeric particles into cells.



**Figure 1:** Biopolymeric Particles in Solution

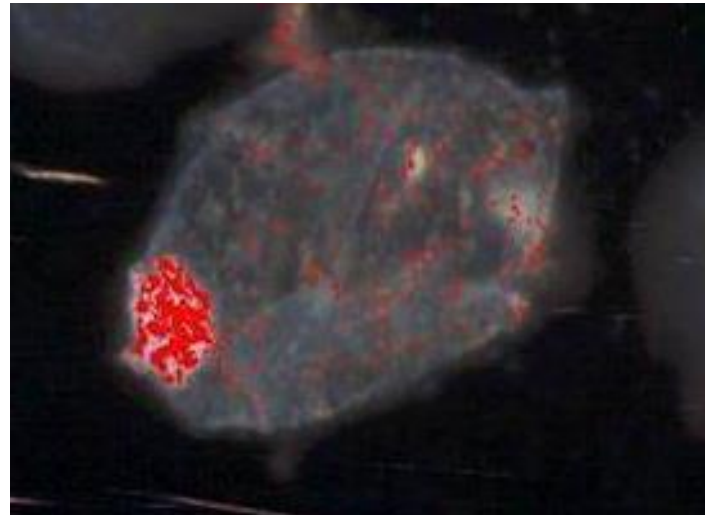


**Figure 2:** Biopolymeric Spectral Profiles



**Figure 3:** Epithelial Cell Incubated with Biopolymeric Nanoparticles

The CytoViva Hyperspectral Microscope System was used to capture a spectral image of cell penetrating peptides (CPPs) functionalized onto nanoparticles (Figure 1). From this spectral image, a reference spectral profile of the biopolymeric nanoparticles was created (Figure 2). The spectral library is then compared to an image of an epithelial cell incubated with biopolymeric nanoparticles (Figure 3). The red pixels in Figure 4 spectrally confirm the presence and location of biopolymeric nanoparticles in this cell. With the CytoViva Hyperspectral Microscope System, the researcher was able to validate the uptake of a biopolymeric nanoparticles in cells.



**Figure 4:** Red Pixels Confirm Presence of Biopolymeric Particles in Cell

The CytoViva Hyperspectral Microscope System allows researchers to spectrally confirm and spatially determine the location of biopolymeric nanoparticles in cells.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3607535/>