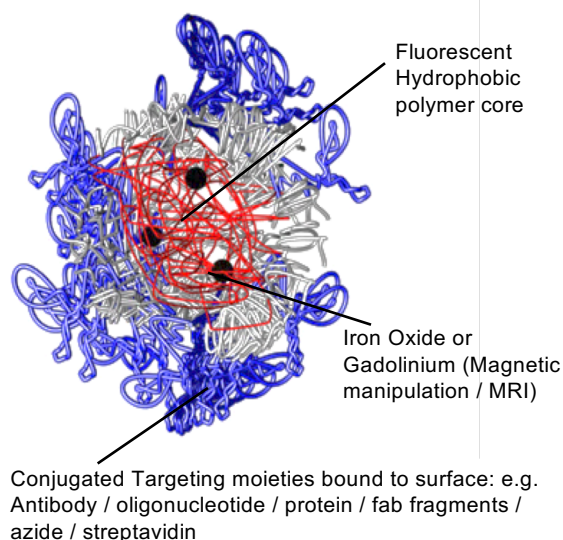


# CPN™ 680 & CPN™ 680 Streptavidin Conjugate

## Conjugated Polymer Nanoparticles (CPNs™)

CPNs™ are highly fluorescent nanoparticles containing semiconductor light emitting polymer cores encapsulated within a surfactant. CPNs™ have fluorescent properties significantly exceeding those of other in vitro labelling agents, intense brightness due to exceptional extinction coefficients and outstanding photo-, thermo- and chemical stability. CPNs™ have shown no toxicity and are ideal for use with live cell systems. CPNs™ are enabled with surface accessible carboxylic groups for the conjugation of a wide range of molecules including antibodies, streptavidin and nucleic acids. This allows CPNs™ to be used in a diverse array of binding and targeting applications, such as flow cytometry, immunohistochemistry, immunocytochemistry, and high content screening. CPNs™ also incorporate iron oxide, allowing their magnetic manipulation and the purification and quantification of bound molecules or cells. Further, the iron oxide allows CPNs™ to be used as contrast agents in Magnetic Resonance Imaging (MRI). CPNs™ range in fluorescence emission wavelengths covering the spectrum, including the near infra-red



## Applications

- Flow cytometry – Cell surface, low abundance targets
- Cell imaging/tracking – CPNs loaded in to by endocytosis
- Immunohistochemistry – Readily linked to secondary Ab
- Fluorescent ELISA – Signal is time independent
- Fluorescent In Situ Hybridisation
- Western blotting - Allows linear quantification of signal

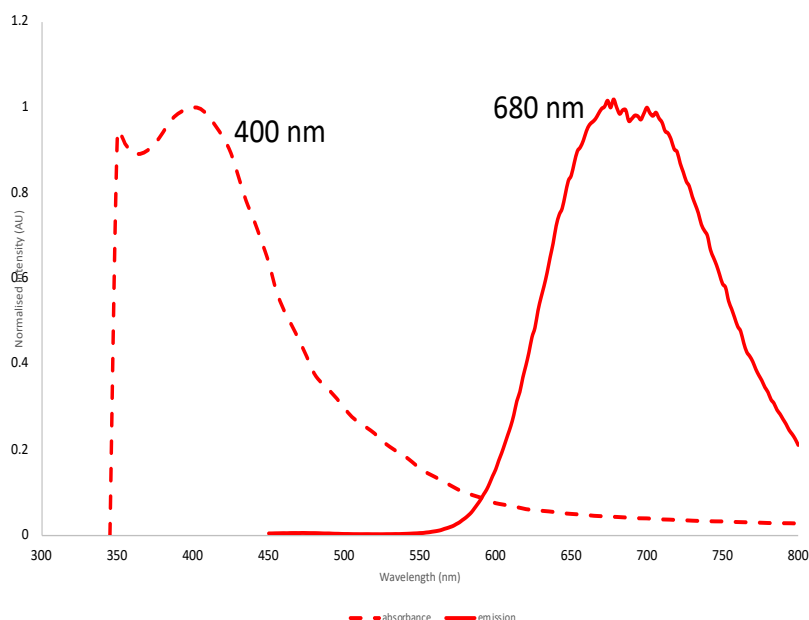
Excitation maximum 400 nm

Emission maximum 680 nm

Concentration 0.1mg/ml

## Storage

- CPN store at ambient temp
- CPN + Streptavidin / Antibody store at 4 °C



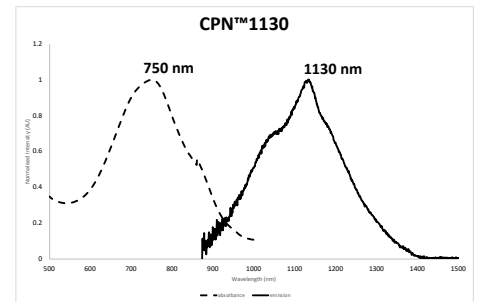
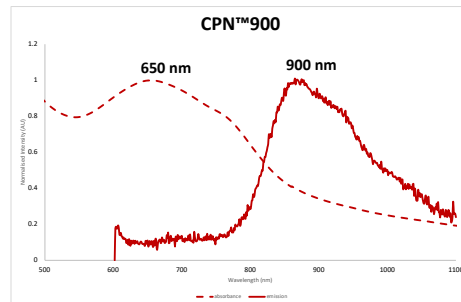
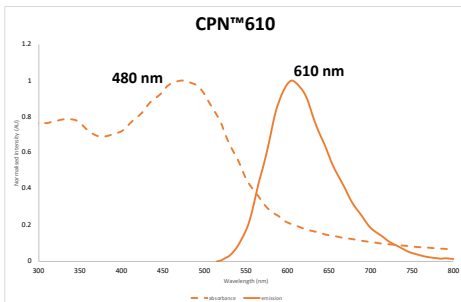
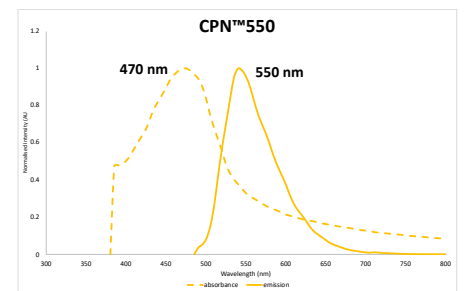
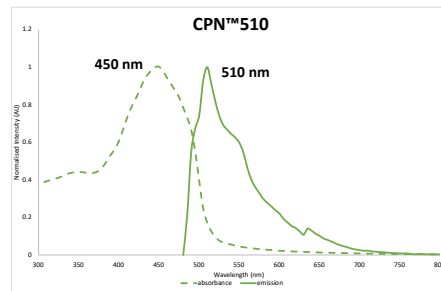
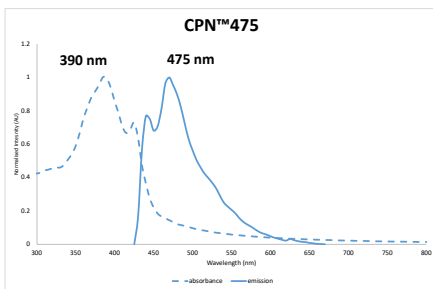
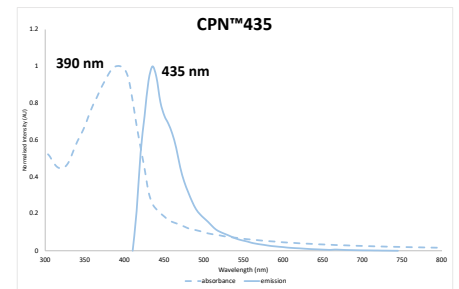
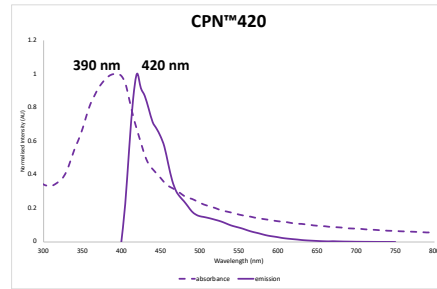
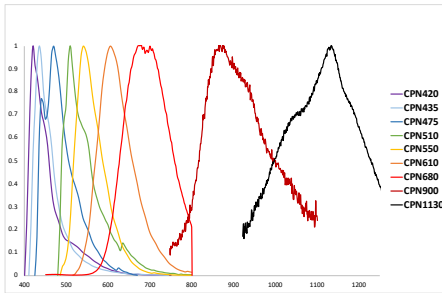
## Biological Properties:

CPNs™ readily conjugate to biomolecules such as antibodies or streptavidin. The intense brightness of CPNs™ dramatically increases sensitivity with single nanoparticles detectable in flow cytometry and immunocytochemistry. Streptavidin & antibodies are covalently conjugated via carboxylic acid groups using N-ethyl-N'-dimethylaminopropyl-carbodiimide (EDC) chemistry. CPN™ conjugates can be used in 'end user' assays at concentrations matching those of other conjugated fluorophores. Due to differences in assay systems working dilutions should be determined by titration assay. CPNs™ are both thermal and photostable, however once conjugated to biological materials, they should be stored at 2-6° C.

## Structural Properties:

CPNs™ are water-soluble micelles comprising of a Light Emitting Polymer and are around 70-80 nm in size encapsulated within a biocompatible surfactant, increasing the hydrophilicity and allowing them to form micelles. This 'core-shell' structure, consisting of the polymer forming the core and the surfactant the surrounding shell, provides a ready base on which to covalently bond functionalising molecules, such as streptavidin, antibodies, targeting proteins or nucleic acids. CPNs™ also incorporate iron oxide into their core. This allows CPNs™, and the molecules or cells to which they are attached, to be manipulated using magnets to direct movement and facilitate purification. The iron oxide can be also be visualised using Magnetic Resonance Imaging (MRI), acting as a contrast reagent

## CPN™ Spectral Range



## Magnetically enhanced assay signal:

Standard fluorescent assays can be enhanced through the use of a magnet to locally increase the concentration CPN linked antibodies at their target and then to improve them during washing steps to reduce non-specific binding.

