Bioinorganic chemistry of polyoxometalates: from artificial photosynthesis to the modulation of amyloid beta-peptides aggregation.

Sébastien Blanchard, Sorbonne Université.

In this talk, I will first present how we have been using POMs in thecontext of artificial photosynthesis. While transition metal substitutedPOMs have shown modest ability to directly catalyse the electro-assistedreduction of CO_2, their use as electron reservoir/mediators as provenmuch more encouraging. A focus on the photoaccumulation of reducingequivalents on an hybrid Dawson type derivative and it use in catalysis will close this first part. Then, the second part of my presentation will describe how polyoxometalates, as all inorganic models of biologically relevant polyphosphate anions, can modulate the aggregation of amyloid beta peptides. The latter plays a critical role in various diseases, and finding tools that help understanding this process is needed. In depth spectroscopic characterization, especially using NMR spectroscopy, allowed us to gain insight into this interaction.