Characterizing Nanoparticles in Biological and Physiological Media through Dynamic Light Scattering

Nanomedicine addresses some of the most important and current challenges in diagnosis and treatment by exploiting the unique properties of nanoparticles (NPs). These can be designed to target certain cells to deliver drugs, genetic material, or sensors. Understanding NP behavior in biological media is thus of utmost importance for developing any kind of nanomaterial with medical applications.
Dynamic Light Scattering (DLS) is particularly popular among NP characterization methods thanks to its in-situ, qualitative approach and straightforward use. However, when NPs are mixed in a biological medium, the scattering signal measured by DLS will contain contributions from both the NPs and the biological medium, which are impossible to separate. Classical DLS is thus unable to characterize NP systems dissolved in a biological medium typical of nanomedicine applications.

The problem can be elegantly circumvented by performing a DLS measurement on the depolarized signal, i.e. by performing a so-called Depolarized DLS which provides a reliable and non-invasive solution to retrieve the desired scattering signal despite the presence of a complex biological matrix. Scattering signals from dissolved free biomolecules can be completely suppressed. In addition, multiangle depolarized DLS measurements enable a straightforward characterization of the shape of NPs.

In this webinar, Dr. Sandor Balog (Adolphe Merkle Institute, Fribourg, Switzerland) will be presenting the principle of Depolarized DLS and its applications in nanomedicine. There will be time reserved for a Q&A session.

Please register for this event using this link.