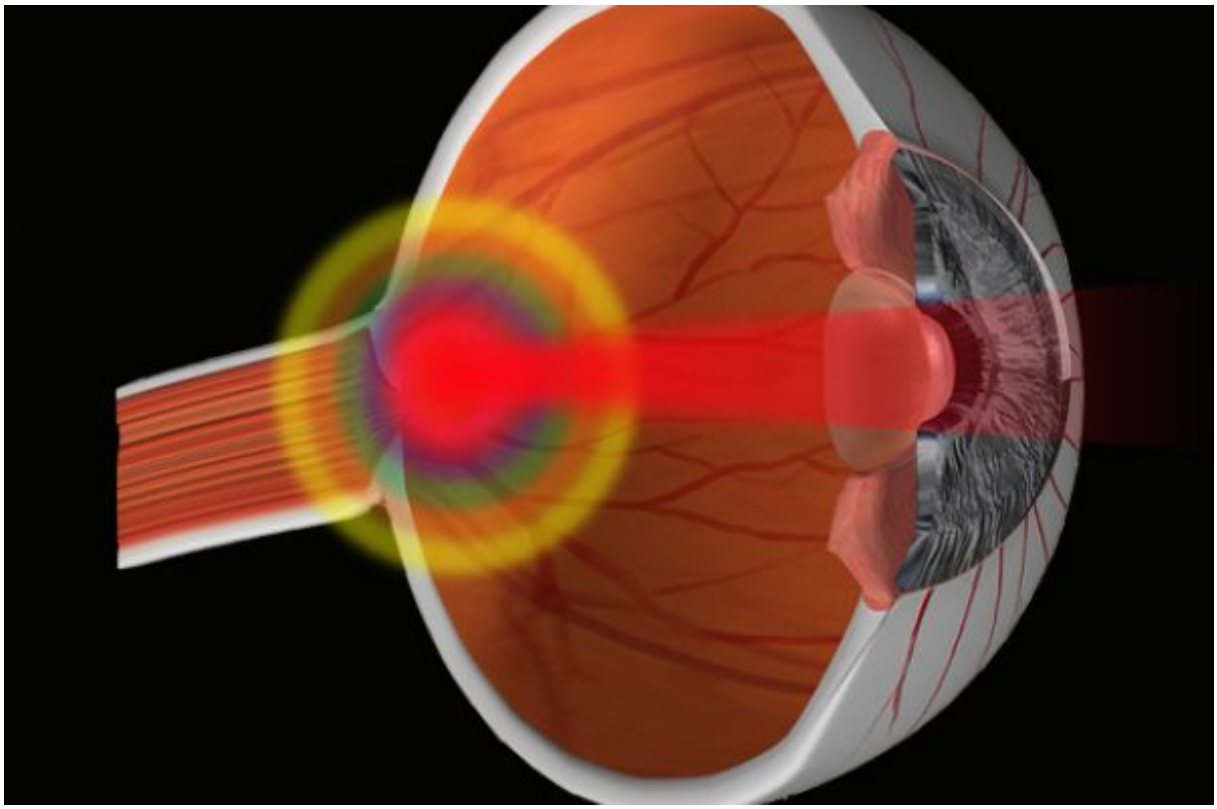

Monitoring Retinal Inflammation by Raman Spectroscopy

Journal of Biophotonics highlights ICFO study.

October 01, 2014

Although the incidence of neuroinflammatory diseases is high, there are no non-invasive detection tools in existence. The retina is a distinctive component of the central nervous system and is damaged in neuroinflammatory diseases such as Multiple Sclerosis (MS). Photonics has made the retina accessible, and studying the retina by Raman spectroscopy represents a promising tool to non-invasively monitor its molecular composition.

Recently, the journal of Biophotonics has selected the study "Dynamic molecular monitoring of retina inflammation by *in vivo* Raman Spectroscopy coupled with multivariate analysis" as the editor?s choice for a special issue focusing on Raman Spectroscopy.

In this study, ICFO researchers Dr. Monica Marro and the late Prof. Dmitri Petrov, in

collaboration with researchers from IDIBAPS, reported on the use of Raman Spectroscopy of organotypic retinal cultures as a molecular imaging tool to study diseases of the retina. By combining Raman spectroscopy and advanced statistical analysis, they were able to achieve an in-depth and detailed analysis of the temporal evolution of molecules involved in neuro-inflammation processes. Raman Spectroscopy permitted the detection and quantification of biomolecules in the retina with high specificity.

The results obtained from this study show that Raman Spectroscopy is a promising tool for applications and studies in vivo regarding retina diseases. Specifically, it offers a novel non-invasive tool to detect and monitor neuroinflammation in early stages.