NANOCAPSULES AS BULK SYSTEM FOR FLUOROPHORES TO MONITOR PHOTOLYSIS OF O-NITROBENZALDEHYDE PROTON CAGES UNDER TWO-PHOTON EXCITATION.

Alberto Diaspro\textsuperscript{1}, Federico Federici\textsuperscript{1}, Silke Krol\textsuperscript{1}, Giberto Chirico\textsuperscript{2}, Fabio Cannone\textsuperscript{2}, Cristiano Viappiani\textsuperscript{3}, Alessandra Gliozzi\textsuperscript{1}

\textsuperscript{1}INFM-Genoa University, Via Dodecaneso 33, Genoa, 16146 Italy, \textsuperscript{2}INFM- Milan Bicocca University, Piazza delle Scienze 3, Milan, 20126 Italy, \textsuperscript{3}INFM - Parma University, Parco Area delle Scienze 7A, Parma, 43100 Italy

The increasing interest in photoactivatable caged compounds of biological interest is leading to the development of new experimental techniques for in vivo uncaging. We carried on experiments using o-Nitrobenzaldehyde (o-NBA, PM=151.1) proton caged compound. This compound undergoes 1-photon absorption within 320-360 nm range and its uncaging shows strict analogies with Ca\textsuperscript{2+} caged compounds. Since the use of UV excitation could induce biological damage, we moved to two-photon absorption uncaging processes. We used two-photon excitation microscopy to monitor the uncaging process using as indicator. We used a nanostructured system, i.e. nanocapsule, as bulk system for fluorescein. Its utilization allowed to couple two-photon uncaging with two-photon imaging in a very efficient and promising experimental scheme. We also introduced an original image processing method to quantitate the uncaging.