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Conferencia: Singlet oxygen photosensitisation in the nanobiotech era

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Marrugat**

Instituto Químico de Sarriá – Univ. Ramón
Llull - Barcelona

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Santi Nonell is Professor of Physical Chemistry at the Institut Químic de Sarrià (IQS), University Ramon Llull, Barcelona, Spain and *Fellow* of the Royal Society of Chemistry. He earned his PhD for work carried out at the Max-Planck-Institut für Strahlenchemie and conducted postdoctoral research at the Arizona State University and the University of California Los Angeles. His core research interests lie in the area of biological photochemistry, with a focus on singlet oxygen and the photochemical aspects of photodynamic therapy, where he has published more than 140 papers and numerous book chapters. He serves currently as Editor-in-Chief of the journal *Photochemical & Photobiological Sciences* and is President-Elect of the European Society of Photobiology.

Singlet oxygen photosensitisation in the nanobiotech era

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Production of singlet molecular oxygen by photosensitisation remains the most common and convenient means of producing this non-radical yet highly-reactive oxygen species that participates in many chemical and biological processes. The details of singlet oxygen photosensitisation by small molecules are well understood as well as its limitations. Novel nano- and biomaterials with unprecedented optical, photophysical, and biological properties have recently emerged that provide new opportunities for the controlled spatio-temporal generation and delivery of singlet oxygen in biological media as well as for its detection and monitoring. This presentation will summarise such novel contributions, ranging from stimulus-responsive switchable molecular photosensitisers to proteins as novel photoactive biological drugs and to metallic nanostructures as plasmonic antennas for enhancing the production of singlet oxygen.

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