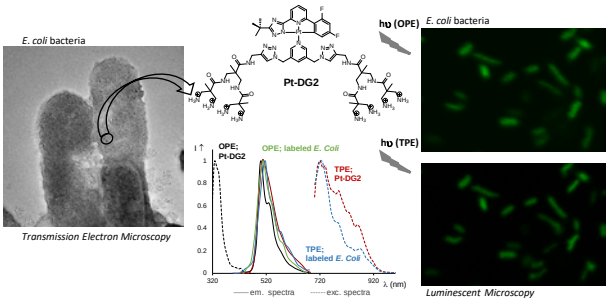
Pt(II)-dendrimers as bio-imaging marker for bacteria in two-photon excitation microscopy

Noemi Molina,[1,2] Marvin Cnudde,[3] Juan A. Guadix,[4,2] Jose M. Perez-Pomares,[4,2] Cristian A. Strassert, [3] Ezequiel Perez-Inestrosa[1,2] & Yolanda Vida[1,2]

[1] Departamento de Química Orgánica, Facultad de Ciencias, Universidad de Málaga - IBIMA, Campus de Teatinos s/n, 29071 Málaga, Spain. nmolina@uma.es; inestrosa@uma.es; yolvida@uma.es.
[2] Centro Andaluz de Nanomedicina y Biotecnología (BIONAND), Junta de Andalucía, Universidad de Málaga, C/ Severo Ochoa 35, 29590 Campanillas (Málaga), Spain.
[3] CeNTech – CiMIC - Institut für Anorganische und Analytische Chemie, W. W.-Universität Münster, Heisenbergstr. 11, D-48149 Münster, Germany. m_cnud01@wwu.de; ca.s@wwu.de.
[4] Departamento de Biología Animal, Facultad de Ciencias, Universidad de Málaga - IBIMA, Campus de Teatinos s/n, 29071 Málaga, Spain. jaguadix@uma.es; jmperezp@uma.es.

The use of luminescent markers based on metal complexes in two-photon excitation microscopy techniques are of great interest in the field of bioimaging. However, despite the excellent luminescent properties of Pt(II) complexes, their application in this field is still limited, due to their poor solubility and quenching problems in aqueous media [1]. The insertion of a Pt(II) complex into a dendritic structure, gives as a result an unique luminescent marker soluble in biological media. Dendrimers provides excellent properties to the metal complex such as solubility in aqueous media, protection against quenching processes and binding to bacterial surfaces. The new probe can be used as bacteria cells marker in luminescent microscopy, operating under one or two-photon excitation (OPE/TPE) conditions, as well as in electron microscopy, thus providing a powerful tool in the field of bioimaging.



References

[1] Ma, D.-L.; Ma, V. P.-Y.; Chan, D. S.-H.; Leung, K.-H.; He, H.-Z.; Leung, C.-H. *Coord. Chem. Rev.* **2012**, *256* (23–24), 3087–3113.