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**Sala de Conferencias del Edificio I+D+i**  
**Universidad de Zaragoza - Campus Río Ebro**

## **Nanoparticles of Prussian Blue and analogs: a versatile tool for biomedical applications**

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The use of nanomaterials as tools for biomedicine is one of the main field in modern material chemistry. Nowadays, a large variety of nanosystems made from various material (gold, iron oxydes, silica) have been designed for imaging or cure different diseases, especially cancer, and some of these systems are already approved and used on humans.<sup>1</sup>

Among all the materials used, one appears as really promising to be used as nanomaterial for biomedical applications: Prussian Blue and its Analogues (PBAs). Prussian Blue is a coordination polymer made of iron (II) and (III) bridged by cyanide molecules. Because of its various properties (magnetic, optic, adsorption), its strong stability and its easy way to produce at the nanoscale, this coordination polymer revealed able to be used for decontamination, imaging or therapy applications.<sup>2</sup>

On other hand, the new step in the development of biomedical nanosystems consists in combining different materials to reach multifunctionality, in order to use a single nano-object for different purposes, as to make both imaging and therapy or multimodal imaging for examples. In this optic, PBAs appear also as excellent candidates because of their ability to be combined with various materials to design such intricate nanosystems able to be used for multimodal biomedical applications.<sup>3</sup>

After introducing what are PBAs and the way to produce PBAs nanoparticles, the presentation will give an overview of the use of these nano-objects for biomedical applications. A particular attention will be given on the way to combine PBAs with other materials to obtain multifunctional nanosystems, and their related multimodal biomedical applications.

1. Hergt, R.; Dutz, S.; Müller, R.; Zeisberger, M., *Journal of Physics: Condensed Matter* **2006**, *18* (38), S2919-S2934.
2. a) Maurin-Pasturel, G.; Rascol, E.; Busson, M.; Sevestre, S.; laikeehim, j.; Bron, P.; Long, J.; Chopineau, J. C.; Devoisselle, J.-M.; Guari, Y.; Larionova, J., *Inorganic Chemistry Frontiers*, **2017**; b) Hoffman, H. A.; Chakrabarti, L.; Dumont, M. F.; Sandler, A. D.; Fernandes, R., *RSC Advances* **2014**, *4* (56), 29729-29734.
3. Catala, L.; Mallah, T., *Coordination Chemistry Reviews*, **2017**, *346*, 32-61,