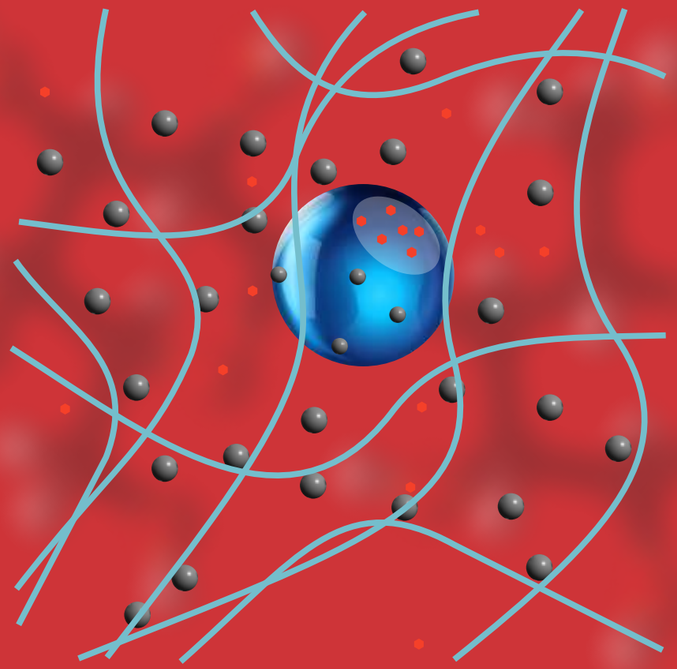
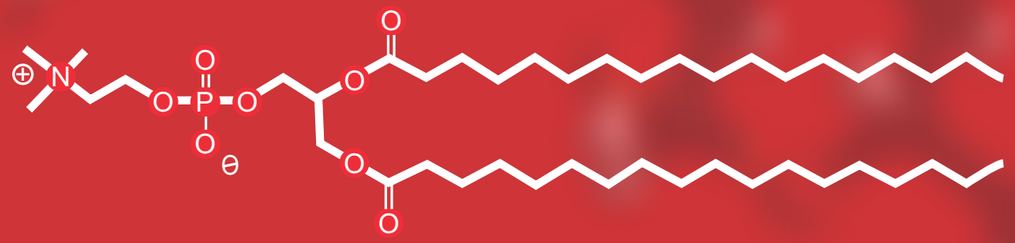
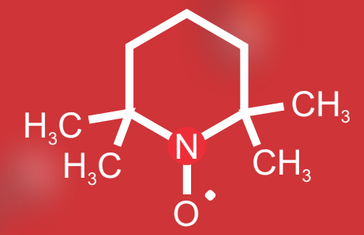


Conference:

SUPERPARAMAGNETIC NANOPARTICLES IN BIOLOGY AND MEDICINE





Dr. MARIE-LOUISE SABOUNGI

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Septiembre 15 y 16 de 2015: 2:00 p.m.
Universidad del Valle, Aud. Michel Valero, Edif. 320 (piso 2)
Transmisión Video-Streaming http://ciencias.univalle.edu.co

Medellín: 21-22 septiembre 2015 UDEA / **Bogotá**: 23 septiembre 2015 ACCEFYN

SUPERPARAMAGNETIC NANOPARTICLES IN BIOLOGY AND MEDICINE

Recent years have seen heightened applications of magnetic nanoparticles (NPs) in biomedicine. Most of these involve iron oxide nanoparticles in the superparamagnetic (SPM) state, in which the particles behave as paramagnets with a huge magnetic moment.1-5 The applications can be roughly divided into three groups:

1. Imaging using magnetic nanoparticles, where SPM NPs are used as contrast agents in magnetic resonance imaging because of their large magnetic moments in a static magnetic field.

2. Magnetic targeting for drug and gene delivery, which can be effected in a number of different ways: a) thermomagnetic activation, in which fast relaxation of SPM NPs leads to local heating and hence drug or gene release; b) Direct magnetic activation with a rotating magnetic field; and c) magnetic guiding to critical locations with an strong external magnetic field.

3. Hyperthermia therapy, which, between 40 and 43° C, stimulates the immune system of the patient for an anticancer response, generally associated with radiotherapy or chemotherapy. In this talk I will briefly summarize progress in these areas and proceed to a more detailed discussion of two avenues recently explored.

Invita:

Facultad de Ciencias Naturales y Exactas
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