

BIONAND 2016 CONFERENCE SERIES

“Mesenchymal Stromal/Stem Cells as a Delivery Platform for Cancer Therapy”

Dr. Enrico Lucarelli

*(Unit of Orthopaedic Pathology and Osteoarticular Tissue Regeneration,
Istituto Ortopedico Rizzoli, Bologna, Italy)*

Host:

Leonor Santos/José Becerra

Collaboration:

ciber-66n
Centro Investigación Biomédica en Red
Biotecnología, Biomateriales y Nanomedicina

ESCUELA DE DOCTORADO

Programa de Doctorado de Biotecnología Avanzada
Universidad de Málaga

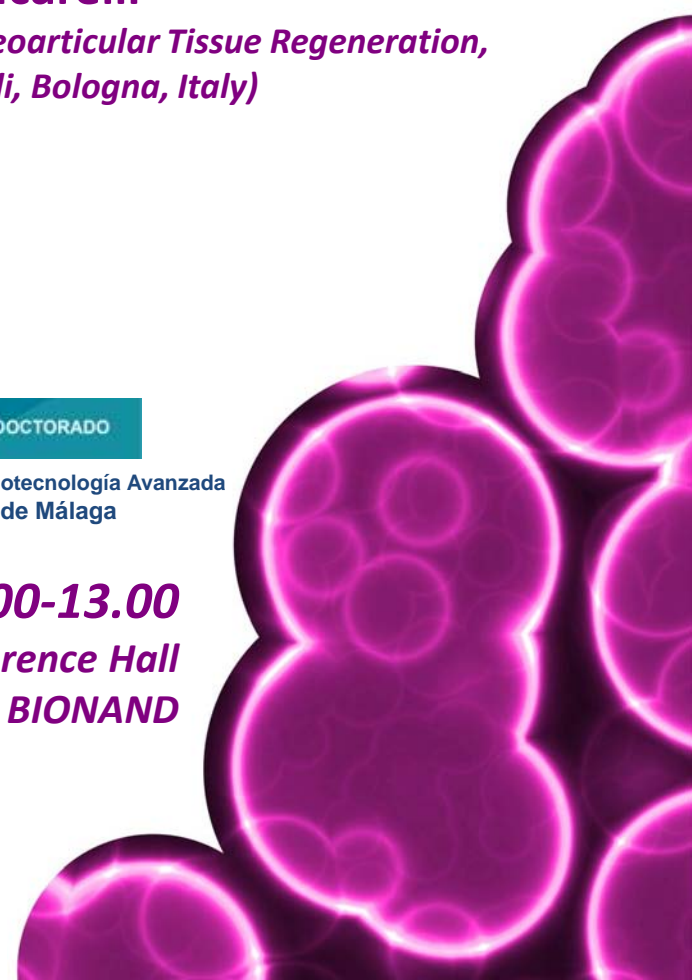
March 4, 12.00-13.00

**Richard Feynman Conference Hall
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<http://www.ior.it/en/curarsi-al-rizzoli/unit-orthopaedic-pathology-and-osteoarticular-tissue-regeneration>

The regenerative potential attributed to Mesenchymal Stem/Stromal cells (MSC) is mainly due to their ability to migrate to sites of injury/inflammation and to support tissue repair through the release of bioactive soluble factors that inhibit the inflammatory and immune response, induce angiogenesis and promote cell proliferation. For these properties MSC are used in regenerative medicine to treat a vast array of diseases. Today there are more than 500 clinical trials employing MSC registered at the site clinicaltrials.gov.

Rapidly growing tumors cause tissue disorganization and inflammation. The change in tissue architecture caused by tumors is sensed by MSC, which migrate toward the tumors and infiltrate the tumor stroma. MSC tumor-specific tropism has supported the idea of using MSC as a vector to selectively deliver anti-cancer agents only to the tumor site, thus eluding side effects to healthy tissues. Research is currently underway to use MSC as tumor-targeted vehicles for gene induced factors, chemotherapeutic agents, radionucleotides, toxic and radioactive agents, and nanoparticles.

References

1. Duchi S, Sotgiu G, Lucarelli E, Ballestri M, Dozza B, Santi S, Guerrini A, Dambruoso P, Giannini S, Donati D, Ferroni C, Varchi G. Mesenchymal stem cells as delivery vehicle of porphyrin loaded nanoparticles: effective photoinduced in vitro killing of osteosarcoma. *J Control Release*. 2013 Jun 10;168(2):225-37. doi: 10.1016/j.jconrel.2013.03.012
2. Duchi S, Dambruoso P, Martella E, Sotgiu G, Guerrini A, Lucarelli E, Pessina A, Coccè V, Bonomi A, Varchi G. Thiophene-based compounds as fluorescent tags to study mesenchymal stem cell uptake and release of taxanes. *Bioconj Chem*. 2014 Apr 16;25(4):649-55. doi: 10.1021/bc5000498