CONSIGLIO NAZIONALE DELLE RICERCHE
ISTITUTO NAZIONALE DI OTTICA

AVVISO DI SEMINARIO

Il giorno giovedi 19 giugno 2014 alle ore 11,00
presso l'Area della Ricerca CNR di Pisa
Aula 44, primo piano, Edificio "A"

il Dr. ***Riccardo GOTTARDI***

Center for Cellular and Molecular Biology, Department of Orthopaedic Surgery, University of Pittsburgh, USA and Fondazione Ri.MED, Palermo

RIG10@pitt.edu

terrà un seminario sul tema:

Platforms to study cartilage degeneration and repair strategies

Control of stem cells migration. Directing cell migration (stem cells, regulatory T cells, etc.) to areas of the body that have suffered from damage or for an operation, and directing locally cell differentiation and proliferation offer a great potential for regenerative medicine. Riccardo is validating microparticles for the controlled release of PDGF, one of the chemokines more effective in inducing the migration of mesenchymal stem cells for cartilage repair.

Microtissue bioreactor. The development of new drugs require extensive testing on animal models and humans with great impact on drug development costs and animal and human well-being. The NIH jointly with DARPA has launched a new initiative to create "organs on a chip", microtissue replicates of animal and human organs that could be used for high throughput screening of new drugs. The bioreactor systems for each organ platform can then be used individually, to assess a specific compound, or jointly to assess cross reactivity and side effects. Riccardo is working within the Center for Cellular and Molecular Engineering team to develop a compression based microtissue bioreactor array for osteochondral tissue culture.

Cartilage collagen fibrils structure. The collagen fibrils in articular cartilage are responsible for the maintenance of tissue structural integrity. Riccardo has identified a specific multiscale organization of collagen fibrils that is progressively destroyed during development of osteoarthritis causing a weakening and progressive damage of the tissue. His research is now focused on identifying the processes responsible for the fibril disassembly in order to find markers for early diagnosis and potential molecular targets for chondroprotective and reparative therapies.