PhD position for development of new superparamagnetic bone scaffolds (ESR3)

A Marie Curie Initial Training Network
BIO-INSPIRE is a Marie Curie Initial Training Network (ITN) on bone regenerative therapies. In BIO-INSPIRE, a technology platform will be developed for full tissue regeneration of a range of critical sized bone defect types and patient characteristics. This platform consists of a new recombinant collagen biomaterial scaffold, that will be used (1) as a bio-mimetic mineralised scaffold, (2) as a local delivery system for growth factors and (3) as a delivery system for (autologous) cells.

The consortium consists of a unique alliance of careful selected partners with a high reputation in a set of complementary disciplines consisting of Fraunhofer, Medicyte (cell therapy), Fujifilm Life Science (biomaterials), ISTEC (bone mineralisation), Erasmus MC (growth factors), University of Bologna, Bone Therapeutics (orthopaedic therapy). The network offers a total of 11 Early Stage Research (ESR) PhD positions for 36 months and 5 Experienced Researcher (ER) post-doctoral positions for 14 to 24 months.

Job description
The repair of bone tissue is based on the implantation of 3D biomimetic scaffolds enabling and promoting new bone formation. In vitro biomineralisation is a biologically-inspired procedure, mimicking the processes of formation of new bone in mammals, that allows the self-assembling and mineralization of collagen-based matrices with nanocrystals of apatite, thus resulting in the formation of 3D hybrid constructs with very high chemico-physical, morphological and structural mimicry of human bone. In this study the process will be adapted to be applied to matrices based on recombinant collagen and to introduce iron ions in the lattice of the nucleating apatite thus conferring intrinsic superparamagnetic behavior to the final device. Superaramagnetic bone and osteochondral scaffolds will be thus endowed with enhanced ability of yielding bone regeneration and also as new smart drug delivery systems.

Profile candidate
You should have a concluded Masters Degree in the field of Chemistry, Materials Science or Biomedical Engineering. Experience with set-up and evaluation of biomaterials is preferred. Knowledge of polymers science is preferred. Good communication skills and proficiency in english are required.

Job characterisation
It concerns a PhD position for 36 months at Institute of Science and Technology for Ceramics, of the National Research Council of Italy (ISTEC-CNR), Faenza, Italy with intervals at Fujifilm Tilburg dept of Life Sciences, the Netherlands and at Rizzoli Orthopaedic Institute, Bologna, Italy (in total 25%). Scientific job coach: Dr. Monica Sandri (ISTEC-CNR).

Eligibility criteria
Please note that the eligibility requirements of the Early Stage Research (ESR) PhD positions are very rigid. Please ensure that you qualify before applying as ineligible candidates cannot be considered. The network encourages particularly women to apply.

- Applicants should not have resided or performed their main activity in the country of the host institution for more than 12 months in the 3 year period immediately prior to the start date of the fellowship.
- Applicants for the Early Stage Research (ESR) PhD fellowships should be in the first 4 years (full-time equivalent) of their research careers, including the period of research training, starting at the date of obtaining the degree which would formally entitle them to embark on a doctorate.

How to apply
Applications should submit a personal statement explaining their motivation, a CV and possible references. The project will start from Octobre 1 2013 onwards. The envisioned starting date for this position is April 1 2014. Applications can be sent to simone.sprio@istec.cnr.it.