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(71) Applicants (for all designated States except US):

CONSIGLIO NAZIONALE DELLE RICERCHE [IT/IT]; Piazzale Aldo Moro 7, I-00185 Roma (IT). **FIN-CERAMICA FAENZA S.P.A.** [IT/IT]; Via Granarolo 177/3, I-48018 Faenza (ravenna) (IT). **UNIVERSIDADE DE SANTIAGO DE COMPOSTELA** [ES/ES]; Edificio Emprendia - Campus Sur, E-15782 Santiago De Compostela (ES).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **TAMPIERI, Anna** [IT/IT]; Via Cavour 19, I-48018 Faenza (ravenna) (IT). **LANDI, Elena** [IT/IT]; Via Meluzza 32 - Frazione

Toscanello, I-40060 Dozza (bologna) (IT). **SANDRI, Monica** [IT/IT]; Via della Pace 4, I-42025 Cavriago (regio Emilia) (IT). **PRESSATO, Daniele** [IT/IT]; Via S. Rita 19, I-35036 Montegrotto Terme (padova) (IT). **RIVAS REY, José** [ES/ES]; c/o UNIVERSIDADE DE SANTIAGO DE, COMPOSTELA Edificio Emprendia - Campus Sur, E-15782 Santiago De Compostela (ES). **BANOBRE LOPEZ, Manuel** [ES/ES]; c/o UNIVERSIDADE DE SANTIAGO DE, COMPOSTELA Edificio Emprendia - Campus Sur, E-15782 Santiago De Compostela (ES). **MARCACCI, Maurilio** [IT/IT]; Via di Casaglia 67, I-40135 Bologna (IT).

(74) Agent: **BIGGI, Cristina**; c/o Bugnion S.p.A., Viale Lancetti 17, I-20158 Milano (IT).

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(54) Title: INTRINSICALLY MAGNETIC HYDROXYAPATITE

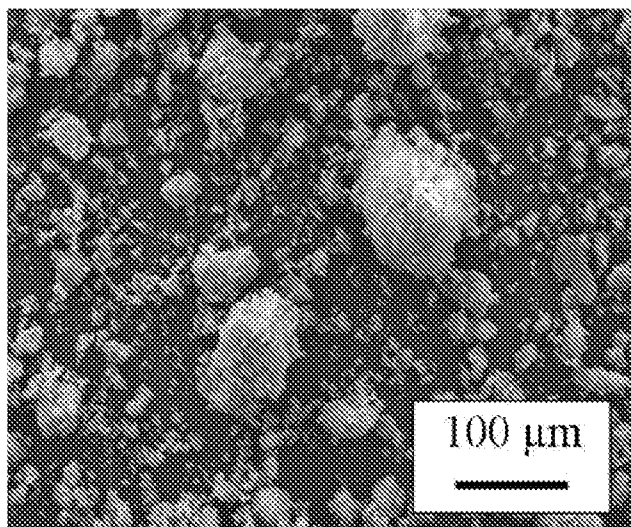


Fig. 1

(57) Abstract: The present invention relates to hydroxyapatite doped with Fe^{2+} ions and Fe^{3+} ions which partially substitute the calcium ions in the crystal lattice. The hydroxyapatite is characterized by an intrinsic magnetism of 0.05 to 8 emu/g, measured by applying a magnetic field of 34 Oe, due to the presence of magnetic nano-domains in the crystal lattice of HA, given the limited amount of magnetic secondary phases present, less than about 3% by volume. The intrinsically magnetic hydroxyapatite can be loaded with biological substances selected in the group consisting of proteins, genes, stem cells, growth factors, vascularization factors, active substances and drugs, under the control of an external magnetic field, as a carrier and release agent for biological substances or drugs, as a contrast agent in diagnostics or for bone or osteocartilage regeneration.



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