CV SIMONE SPRIO

Simone Sprio

Born on 1970, M.Sc. in Physics, Ph.D. in Chemistry.

WORKING CONTACTS

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CURRENT POSITION

- Senior Researcher at the Institute of Science and Technology for Ceramics, National Research Council, ISTEC-CNR
- Since 2008 he is responsible of the research activity on Bioceramics for Regenerative Medicine at ISTEC-CNR.
- Main fields of investigation are: Innovative nanomaterials and nanotechnologies applied to Regenerative Medicine and Theranostics: Ceramic-based biomaterials, nanoparticles, 3-D porous scaffolds and cements with cell-instructive properties.

SCIENTIFIC SKILLS

Development of multifunctional bioceramic materials for regenerative medicine: bioactive calcium phosphates: nanopowders and 3D solid scaffolds; antibacterial ceramics; ion-doping in bioactive hydroxyapatite and their biological relevance; injectable ceramic pastes for cements and solid scaffolds; magnetic bioceramics; design and optimization of fabrication processes for 3-D porous ceramic scaffolds (e.g. replica, direct foaming); bioactive ceramic composites; biomorphic transformation processes: from nature to hierarchically organized ceramics; heterogeneous gas-solid reactions; reactive sintering of functional ceramics, hot pressing, hot forging, hot isostatic pressing.

PUBLICATIONS

- Author of >100 peer-reviewed papers including 25 book chapters. h-index = 29 N. Citations: >3600 (*Source: Google Scholar*)
- Inventor of 9 funded international patents, 5 of which licensed or sold to companies, related to new materials and devices for health and energy.
- Relator or co-author of more than 100 communications and Relator of 22 Invited Lectures at International Conferences.

INVOLVEMENT IN NATIONAL AND INTERNATIONAL RESEARCH PROJECTS

- Scientific Responsible or WP Leader in EC-funded and National Projects (BIORIMA, BIO-INSPIRE, TEM-PLANT, OPHIS, SMILEY, NIPROGEN, NANOCOATINGS) (total budget CNR: ~4.000.000 EUR)
- Task leader in EC-funded and National Projects (MAGISTER, AUTOBONE, BIOBOS, DINAMICA, Invecchiamento, Medicina Personalizzata, Bioprotesi, NANOMAX)
- Scientific Responsible of Research Contracts with companies (total budget: ~1.200.000 EUR)

EDITORIAL ACTIVITIES

2020-2021: Guest Editor of the Special Issue: "Recent advances in bioceramics for health", Frontiers in Bioengineering and Biotechnology.
2020-2021: Guest Editor of the Special Issue "Bioceramic Composites" of the Open Access journal: Journal of Composite Sciences, MDPI.
2017-Today: Member of the Editorial Board of the Open Access Journal: Advanced Nano-Bio-Materials and Devices.
2016: Editor of the book: Bio-inspired Regenerative Medicine: Materials, Processes and Clinical Applications, Pan Stanford Publishing Pte. Ltd., 2016, Singapore
2013: Guest Editor of the special issue S.I.: MiMe conference 2013, J Mater Sci: Mater Med. 25(10), Oct 2014.

- Revisor of scientific papers for various journals (eg: •Scientific Reports, •Acta Biomaterialia, •Materials Science and Engineering B and C, •Journal of Material Science: Materials in Medicine, •Materials, •Journal of Biomedical Materials Research; •Journal of the Mechanical Behaviour of Biomedical Materials; •Journal of the European Ceramic Society; •Journal of the American Ceramic Society).

ORGANIZING ACTIVITIES

2019-2022: Co-Chair of the International Conference BIOCERAMICS32, 06-09 July 2021, Mestre (VE), Italy.

2020: Member of the Scientific Committee of the National Conference SIB 2020, 9-11 June 2021, Lecce, Italy.

2019: Organizer of the Symposium Focused Session 1: Bio-inspired Processing of Advanced Materials of the International Conference ICACC2020, 26-31 January 2020, Daytona Beach (FL), USA.

2019: Organizer of the Symposium: F5 Structural and bio-inspired bioceramic implants, of the International Conference EUROMAT 2019, 1-5 September 2019, Stocholm, Sweden.

2019: Member of the Scientific Committee of the National Conference SIB 2019, 5-7 June 2019, Caserta, Italy.

2019: Member of the Organizing Committee of the International Conference "Tissue regeneration: Advanced ceramics and composites" (TRACE-2), 3-5 April 2019, Villa Vigoni (CO), Italy.

2019: Track Chair del Track: "Regenerative medicine" 5th Biotechnology World Congress 2019", 13-15 February 2019, Bangkok, Thailand.

2018-2019: Organizer of the Symposium Focused Session 1: Bio-inspired Processing of Advanced Materials of the International Conference ICACC2019, 27 January-01 February 2019, Daytona Beach (FL), USA.

2018: Member of the Scientific Committee of the National Conference SIB 2018, 6-8 June 2018, Rende (CS), Italy.

2015: Chair of the International Workshop: *Nature inspires chemical engineers to develop smart nano-devices*, NanotechITALY 2015, 25 November 2015, Bologna, Italy.

2014: Member of the International Advisory Committee of the International Conference FRACTURE 2014: 9-11 August 2014, Kottayam (India).

2013: Member of the Organizing Committee of the International Conference MiMe: Materials in Medicine, 1st Edition: 8-11 October 2013, Faenza, Italia.

2009: Organizer of the Symposium: *Biomimetic Materials and Organic (Bio)sensors in Health and Diagnostics*, of the International Conference EUROMAT 200907-10 September 2009, Glasgow, UK.

TRAINING AND TEACHING ACTIVITIES

- Qualified as Associate Professor in Materials Science and Technology.

- Co-relator and Supervisor of 8 Ph.D. students, 1 M.Sc. student, 2 B.Sc. theses, Faculty of Chemistry, Material Science, Biomedical Engineering, Biomedical Sciences Universities of Bologna, Parma, Palermo.

- Delivered several Training Lectures in the frame of Courses for students in Chemistry, Biotechnology, Biomedical Engineering, and Medicine, about advanced biomaterials for bone regeneration and their applicability to specific clinical needs.

PARTICIPATION TO INTERNATIONAL WORKGROUPS AND CLUSTERS

- Since 2018 - Member of the Board of the Italian Society for Biomaterials (SIB).
- Since 2017 – Representative of ISTEC-CNR of the Workgroup BioMedTech, representing the Value Chain "New generation MedTech" Cluster of the Emilia Romagna Region: "Industries of Health and Wellbeing".
- 2014 - 4M2020 Foresight: Advanced Manufacturing of Multi-Material Multi-Functional Products Towards 2020 and Beyond
- 2015 - Engineering and Upscaling Cluster of the European Community – CIRCABC – Research

AWARDS

➢ Master in Bio-business applied to the Life Science as winner of the Special Prize of Innovation of Switzerland, Working Capital – National Prize of Innovation 2011, Torino 18.11.2011, project BONE-AID.

➢ Master in Entrepreneurship (Entrepreneurial Journey to Silicon Valley) as winner of the competition Start Cup CNR-Il Sole 24 Ore, North Italy, Genova 04.11.2010, project BONE-AID.

➢ Wooden Bones (i.e. the process to transform wood into bone scaffolds) awarded by TIME Magazine as the 30th most important invention in 2009.

LIST OF FUNDED PATENTS

1) System for chemical transformation of 3D state materials
Inventors: Ruffini A, Tampieri A, Sprio S
Registration date: 09/08/2018. N° 102018000007993.

2) Filter for the exchange of heat and moisture for application in the medical field and procedure for the production thereof
Inventors: Sandri M, Tampieri A, Sprio S
Registration date: 28/02/2017. CA3054489 (A1) — 2018-09-07

3) Composite material made of organic substrates and hydroxyapatite substituted with titanium and/or iron for use in dye sensitized solar cells
Inventors: Tampieri A, Sandri M, Sprio S, Sanson A.
Registration date: 07/03/2016. ITUA20161412 (A1) — 2017-09-07

4) WO/2017/153888. Physical solar filters consisting of substituted hydroxyapatite in an organic matrix
Inventors: Tampieri A, Sandri M, Sprio S.
Registration date: 07/03/2016. Serial: PCT/IB2017/051290.

5) MI-2015-0003155. Apatiti multisostituite e loro uso nella rimineralizzazione e riduzione della sensibilità dentinale
Inventors: Boiocchi LE, Tampieri A, Ruffini A, Sprio S
Priority date: 10/12/2015
Countries where filed: Italy

6) WO2017021894 (A1). Large 3D porous scaffolds made of active hydroxyapatite obtained by biomorphic transformation of natural structures and process for obtaining them
Inventors: Tampieri A, Sprio S, Ruffini A
Priority date: Registration date: 06/08/2015 Registration date: 03/08/2016 Serial: PCT/IB2016/054665
Countries where filed: EU, USA, Russia, China, San Marino, Australia, Hong Kong, India, Canada.

7) WO2015193836 (A1): Injectable apatitic cement ionically multi-substituted for regenerative vertebroplasty and kyphoplasty
Inventors: Sprio S, Tampieri A, Sandri M, Panseri S, Logroscino G.
Registration date: 19/06/2014 International publication date: 23/12/2015 Serial: PCT/IB2015/054594
Countries where filed: EU

8) WO 2012/063201 (A1): Implants for "load-bearing" bone substitutions having hierarchical organized architecture deriving from transformation of vegetal structures
Inventors: Tampieri A, Sprio S, Ruffini A, Martínez-Fernández J, Torres Raya C, Varela Feria FM, Ramírez Rico J, Harmand M-F.
Registration date: 08/11/2011 International publication date: 18/05/2012 Serial: PCT/IB2011/054980
Countries where filed: EU, USA, Russia, China, San Marino, Australia, Hong Kong, India, Canada.

9) WO 2007/045954: A plurisubstituted hydroxyapatite and the composite thereof with a natural and/or synthetic polymer, their preparation and uses thereof
Inventors: Landi E, Tampieri A, Celotti G, Sprio S, Pressato D, De Luca C.
Registration date: 12/10/2006 Serial: PCT/IB2006/002844
Countries where filed: EU, USA.

LIST OF PEER-REVIEWED PUBLICATIONS

h-index = 29

ISI Journals

1) Montesi M, Bassi G, Panseri S, Sandri M, Campodoni E, Dapporto M, Sprio S, Tampieri A. Scaffold-based 3D cellular models mimicking the heterogeneity of osteosarcoma stem cell niche. *Sci Rep*
2) Guerrieri AN, Montesi M, Sprio S, Laranga R, Mercatali L, Tampieri A, Donati DM, Lucarelli E. Innovative options for bone metastasis treatment: an extensive analysis on biomaterials-based strategies for orthopedic surgeons (2020). *Front. Bioeng Biotech* doi: 10.3389/fbioe.2020.589964
3) Fernandes Patrício TM, Mumcuoglu D, Montesi M, Panseri S, Witte-Bouma J, Fahmy Garcia S, Sandri M, Tampieri A, Farrell E, Sprio S. Bio-inspired polymeric iron-doped hydroxyapatite microspheres as a tunable carrier of rhBMP-2. doi: 10.1016/j.msec.2020.111410

4) Toni R, Di Conza G, Barbaro F, Zini N, Consolini E, Dallatana D, Antoniel M, Quarantini E, Maioli S, Bruni CA, Elviri L, Panseri S, Sprio S, Sandri M, Tampieri A. Three-dimensional bone organoids for studying immunobiology of osteoporosis and immunomodulatory role of endocrine disrupting chemicals on bone. *Front. Immunol. - Autoimm Autoinflam Disord.* doi: 10.3389/fimmu.2020.01737

5) Sprio S, Dapporto M, Preti L, Mazzoni E, Iaquinta MR, Martini F, Tognon M, Pugno NM, Restivo E, Visai L, Tampieri A. Enhancement of the biological and mechanical performances of sintered hydroxyapatite by multiple ions doping. *Front Mater doi.* 10.3389/fmats.2020.00224

6) Scialla S, Carella F, Dapporto M, Sprio S, Piancastelli A, Palazzo B, Adamiano A, Degli Esposti L, Iafisco M, Piccirillo C. (2020) Mussel shell-derived macroporous 3D scaffold: characterization and optimization study of a bioceramic from circular economy. *Mar Drugs* 18, 309; doi:10.3390/md18060309

7) Bigoni D, Cavuoto R, Misseroni D, Paggi M, Ruffini A, Sprio S, Tampieri A. (2020) Ceramics with the signature of wood. A mechanical insight. *Mater Today Bio.* 5, 100032. doi.org/10.1016/j.mtbio.2019.100032

8) Sprio S, Panseri S, Montesi M, Dapporto M, Ruffini A, Dozio SM, Cavuoto R, Misseroni D, Paggi M, Bigoni D, Tampieri A. (2020) Hierarchical porosity inherited by natural sources affects the mechanical and biological behaviour of bone scaffolds. *J Eur Ceram Soc* 40: 1717-1727. doi: 10.1016/j.jeurceramsoc.2019.11.015.

9) Iaquinta M R, Mazzoni E, Mazzoni I, Rotondo J C, Mazziotta C, Tampieri A, Sprio S, Montesi M, Tognon M, Martini F. (2019) Adult stem cells for bone regeneration and repair. *Front Cells Devel Biol* 7 *in press* https://doi.org/10.3389/fcell.2019.00268.

10) Tampieri A, Sandri M, Iafisco M, Panseri S, Montesi M, Adamiano A, Dapporto M, Campodoni E, Dozio, SM, Degli Esposti L, Sprio S. (2019) Nanotechnological approach and bio-inspired materials to face degenerative diseases in ageing. *Aging Clin Exper Res*, doi: 10.1007/s40520-019-01365-6

11) Sprio S, Preti L, Montesi M, Panseri S, Adamiano A, Vandini A, Pugno N, Tampieri A (2019). Surface phenomena enhancing the antibacterial and osteogenic ability of nanocrystalline hydroxyapatite, activated by multiple ions doping. *ACS Biomat Sci Eng* 5(11) 5947-5959. doi: 10.1021/acsbiomaterials.9b00893

12) Filardo G, Roffi A, Fey T, Fini M, Giavaresi G, Marcacci M, Martinez-Fernandez J, Martini L, Ramirez-Rico J, Salamanna F, Sandri M, Sprio S, Tampieri A, Kon E. (2019) Vegetable hierarchical structures as template for bone regeneration: new bio-ceramization process for the development of a bone scaffold applied to an experimental sheep model. *J Biomed Mater Res. Part B: Applied Biomaterials,* doi: 10.1002/jbm.b.34414.

13) Roffi A, Kon E, Perdisa F, Fini M, Di Martino A, Parrilli A, Salamanna F, Sandri M, Sartori M, Sprio S, Tampieri A, Marcacci M, Filardo G. (2019) A composite chitosan-based scaffold fails to provide osteochondral regeneration. *Int J Mol Sci,* 20(9): 2227.

14) Tampieri A, Ruffini A, Ballardini A, Montesi M, Panseri S, Salamanna F, Fini M, Sprio S (2019). Heterogeneous chemistry in the 3-D state: an original approach to generate bioactive, mechanically-competent bone scaffold. *Biomater Sci.*, 2019, 7, 307 – 321. doi: 10.1039/c8bm01145a

15) Fernandes Patricio TM, Panseri S, Montesi M, Iafisco M, Sandri M, Tampieri A, Sprio S (2019). Superparamagnetic hybrid microspheres affecting osteoblasts behaviour. *J Mater Sci Eng B* 96: 234-247. https://doi.org/10.1016/j.msec.2018.11.014

16) Sprio S, Campodoni E, Sandri M, Preti L, Keppler T, Mueller FA, Pugno N, Tampieri A (2018). Graded multifunctional hybrid scaffold with superparamagnetic ability for periodontal regeneration. *Int J Mol Sci*., 19(11): 3604-3621.

17) Bertoglio F, Bloise N, Oriano M, Petrini P, Sprio S, Imbriani M, Tampieri A, Visai L. (2018) Treatment of biofilm communities: an update on new tools from the nanosized world. *Appl. Sci.*, *8*(6), 845-864.

18) Piconi C, Sprio S. (2018) Zirconia Implants: Is There a Future? *Curr Oral Health Rep*. 1-8. https://doi.org/10.1007/s40496-018-0187-x

19) Russo A, Bianchi M, Sartori M, Boi M, Giavaresi G, Salter DM, Jelic M, Maltarello MC, Ortolani A, Sprio S, Fini M, Tampieri A, Marcacci M. (2018) Bone regeneration in a rabbit critical femoral defect by means of magnetic hydroxyapatite macroporous scaffolds. *J Biomed Mater Res B: Appl Biomater* 106(2):546-554. doi: 10.1002/jbm.b.33836.

20) Shankar KG, Gostynska N, Dapporto M, Campodoni E, Montesi M, Panseri S, Tampieri A, Kon E, Marcacci M, Sprio S, Sandri M. (2018) Evaluation of different crosslinking agents on hybrid biomimetic collagen-hydroxyapatite composites for regenerative medicine. *Int. J. Biol Macromol* 106, 739-748.

21) Ballardini A, Montesi M, Panseri S, Vandini A, Balboni PG, Tampieri A, Sprio S. (2018) New hydroxyapatite nanophases with enhanced osteogenic and antibacterial ability *J Biomed Mater Res*. 106(2):521-530. doi: 10.1002/jbm.a.36249.

22) Giorgi P, Capitani D, Sprio S, Sandri M, Tampieri A, Canella V, Nataloni A, Schirò GR. (2017) A new bioinspired collagen-hydroxyapatite composite as bone graft substitute in adult scoliosis surgery: results at 3-year follow-up. *J Appl Biomater Funct Mater* 15(3): e262-e270. doi: 10.5301/jabfm.5000366.

23) Adamiano A, Sangiorgi N, Ruffini A, Sandri M, Sanson A, Gras P, Grossin D, Francès C, Chatzipanagis K, Kroger R, Bilton M, Marzec B, Meldrum F, Varesano A, Sprio S, Tampieri A. (2017) Biomineralization of a titanium-doped hydroxyapatite semiconductor on conductive wool fibers. *J Mater Chem B* 5: 7608-7621.

24) Gostynska N, Gopal Shankar K, Campodoni E, Panseri S, Montesi M, Sprio S, Kon E, Marcacci M, Tampieri A, Sandri M. (2017) 3D porous collagen scaffolds reinforced by glycation with ribose for tissue engineering application. *Biomed Mater* 12(5):055002. doi: 10.1088/1748-605X/aa7694.

25) Ramírez-Rodríguez GB, Montesi M, Panseri S, Sprio S, Tampieri A, Sandri M. Biomineralized recombinant collagen-based scaffold mimicking native bone enhances mesenchymal stem cell interaction and differentiation (2017) *Tissue Eng part A*. 23(23-24):1423-1435. doi: 10.1089/ten.tea.2017.0028.

26) Bianchi M, Degli Esposti L, Ballardini A, Liscio F, Berni M, Gambardella A, Leeuwenburgh S, Sprio S, Tampieri A, Iafisco M. (2017) Strontium doped calcium phosphate coatings on poly(etheretherketone) (PEEK) by pulsed electron deposition. *Surf Coat Techn* 319: 191-199. doi.org/10.1016/j.surfcoat.2017.04.012.

27) Piccirillo C, Adamiano A, Tobaldi DM, Montalti M, Manzi J, Castro P, Panseri S, Montesi M, Sprio S, Tampieri A, Iafisco M. (2017) Luminescent calcium phosphate bioceramics doped with europium derived from fish industry by-products. *J Amer Ceram Soc* 100: 3402–3414. doi: 10.1111/jace.14884.

28) Iannotti V, Adamiano A, Ausanio G, Lanotte L, Aquilanti G, Coey JMD, Lantieri M, Spina G, Fittipaldi M, Margaris G, Trohidou K, Sprio S, Montesi M, Panseri S, Sandri M, Iafisco M, Tampieri A. (2017) Fe-doping induced magnetism in nano-hydroxyapatite. *Inorg Chem* 56(8):4447-4459. doi: 10.1021/acs.inorgchem.6b03143.

29) Sprio S, Panseri S, Adamiano A, Sandri M, Uhlarz M, Herrmannsdorfer T, Landi E, Pineiro-Remondo Y, and Tampieri A. (2017) Porous Hydroxyapatite-Magnetite composites as carriers for guided bone regeneration. *Front Nanosci Nanotech* 3(1): 1-9. doi: 10.15761/FNN.1000145.

30) Fernandes Patricio TM, Panseri S, Sandri M, Tampieri A, Sprio S. (2017) New bioactive bone-like microspheres with intrinsic magnetic properties obtained by bio-inspired mineralization process. *Mat Sci Eng C* 77: 613-623.

31) Shankar KG, Gostynska N, Campodoni E, Dapporto M, Montesi M, Panseri S, Tampieri A, Kon E, Marcacci M, Sprio S, Sandri M (2017). Ribose-mediated crosslinking of collagen-hydroxyapatite hybrid scaffolds for bone tissue regeneration using biomimetic strategies. *Mater Sci Eng C*, 77: 594-605.

32) Montesi M, Panseri S, Dapporto M, Tampieri A, Sprio S. (2017) Sr-substituted bone cements direct mesenchymal stem cells, osteoblasts and osteoclast fate, *Plos One*, 12(2): e0172100. doi: 10.1371/journal.pone.0172100.

33) Shankar KG, Gostynska N, Montesi M, Panseri S, Sprio S, Kon E, Marcacci M, Tampieri A, Sandri M. (2017) Investigation of different cross-linking approaches on 3D gelatin scaffold for tissue engineering application: a comparative analysis. *Int J Biol Macromol* 95, 1199-1209.

34) Chatzipanagis K, Baumann C, Sandri M, Sprio S, Tampieri A., Kroeger R. (2016) *In situ* mechanical and molecular investigations of collagen-apatite biomimetic composites combining Raman spectroscopy and stress-strain analysis. *Acta Biomater* 46: 278-285.

35) Sprio S, Dapporto M, Montesi M, Panseri S, Lattanzi W, Pola E, Logroscino G, Tampieri A. (2016) Novel osteointegrative Sr-substituted apatitic cements enriched with alginate. *Materials* 9: 763-780. doi:10.3390/ma9090763.

36) Campodoni E, Adamiano A, Dozio SM, Panseri S, Montesi M, Sprio S, Tampieri A, Sandri M. (2016) Development of innovative hybrid and intrinsically magnetic nanobeads as a drug delivery system. *Nanomedicine* 11(16): 2119-2130.

37) Ramírez-Rodríguez GB, Delgado-López JM, Iafisco M, Sandri M, Sprio S, Tampieri A. (2016) Biomimetic mineralization of recombinant collagen type I derived protein to obtain hybrid matrices for bone regeneration. *J Struct Biol*. 196(2) 138-146. doi: 10.1016/j.jsb.2016.06.025.

38) Sandri M, Filardo G, Kon E, Panseri S, Montesi M, Iafisco M, Savini E, Sprio S, Cunha C, Giavaresi G, Veronesi F, Fini M, Salvatore L, Sannino A, Marcacci M, Tampieri A. (2016) Fabrication and pilot in vivo study of a Collagen-BDDGE-elastin core-shell scaffold for tendon regeneration. *Front Bioeng Biotech* 4: 52. doi: http://dx.doi.org/10.3389/fbioe.2016.00052.

39) Sprio S, Fricia M, Maddalena G, Nataloni A, Tampieri A. (2016) Osteointegration in cranial bone reconstruction: a goal to achieve. *J Appl Biomater Funct Mater* 14(4): e470-e476. DOI: 10.5301/jabfm.5000293.

40) Dapporto M, Sprio S, Fabbi C, Figallo E. Tampieri A. (2016) A novel route for the synthesis of macroporous ceramics for bone regeneration. *J Eu Cer Soc* 36: 2383-2388. DOI: 10.1016/j.jeurceramsoc.2015.10.020.

41) Sprio S, Sandri M, Iafisco M, Panseri S, Adamiano A, Montesi M, Campodoni E, Tampieri A. (2016) Bio-inspired assembling/mineralization process as a flexible approach to develop new smart scaffolds for the regeneration of complex anatomical regions. *J Eu Cer Soc* 36(12): 2857–2867. DOI: 10.1016/j.jeurceramsoc.2016.01.005.

42) Dyson J, Rinaldi D, Barucca G, Albertini G, Sprio S, Tampieri A. (2015) Flux pinning in Y- and Ag-doped MgB_2. *Adv Mater Chem Phys*. 5: 426-438. DOI: 10.4236/ampc.2015.510043

43) Ramirez-Rodriguez GB, Delgado-Lopez JM, Montesi M, Panseri S, Sandri M, Sprio S, Tampieri A. Nanoscale design of bone scaffolds through biomineralization process modulating cell behaviour. (2015) *Tissue Eng Part A*; 21: S274-S274.

44) Fernandes Patricio TM, Sprio S, Sandri M, Montesi M, Panseri S, Tampieri A. Hybrid superparamagnetic collagen-like peptide microparticles applied on bone tissue regeneration. (2015) *Tissue Eng Part A*; 21: S152-S152.

45) Gostynska N, Krishnakumar G, Kon E, Sandri M, Sprio S, Panseri S, Montesi M, Marcacci M, Tampieri A. (2015) Hydrophilic crosslinking strategies of gelatin scaffolds for tissue engineering applications. Tissue Eng Part A; 21: S245-S245.

46) Zamparelli A, Zini N, Cattini L, Spaletta G, Dallatana D, Bassi E, Barbaro F, Iafisco M, Mosca S, Parrilli A, Fini M, Giardino R, Sandri M, Sprio S, Tampieri A, Maraldi NM, Toni R. (2014) Growth on poly(L-lactic acid) porous scaffold preserves CD73 and CD90 immunophenotype markers of rat bone marrow mesenchymal stromal cells. *J Mater Sci: Mater Med* 25: 2421-2436.

47) Tampieri A, Iafisco M, Sandri M, Panseri S, Cunha C, Sprio S, Savini E, Uhlarz M, Herrmannsdörfer T. (2014) Magnetic bio-inspired hybrid nanostructured collagen-hydroxyapatite scaffolds supporting cell proliferation and tuning regenerative process. *ACS Appl Mater Interf* 6(18): 15697-15707.

48) Filardo G, Kon E, Tampieri A, Cabezas-Rodríguez R, Di Martino A, Fini M, Giavaresi G, Lelli M, Martínez-Fernández J, Martini L, Ramírez-Rico J, Salamanna F, Sandri M, Sprio S, Marcacci M. (2014) New bio-ceramization process applied to vegetable hierarchical structures for bone regeneration: an experimental model in sheep. *Tissue Eng, Part A* 20(3-4): 763-773.

49) Barbanera A, Longo GP, Vitali M, Sprio S, Tampieri A. (2013) Potential application of synthetic bone graft substitute in spinal surgery. *Progr Neurosci* 1(1-4): 97-104.

50) Iafisco M, Ruffini A, Adamiano A, Sprio S, Tampieri A. Biomimetic magnesium-carbonate-apatite nanocrystals endowed with strontium ions as anti-osteoporotic trigger. (2013) *Mater Sci Eng C* 35(1): 212-219.

51) Ruffini A, Sprio S, Tampieri A. (2013) Study of the hydrothermal transformation of wood-derived calcium carbonate into 3D hierarchically organized hydroxyapatite. *Chem Eng J* 217: 150-158.

52) Bianchi M, Lopomo N, Boi M, Saltarello MC, Sprio S, Baracchi M, Russo A, Marcacci M. (2013) Pulsed plasma deposition of ZrO_2 thin films on UHMWPE substrate: proof of concept oriented new orthopaedic joint implants. *J Mater Chem B*. 1, 310-318.

53) Cunha C, Sprio S, Panseri S, Dapporto M, Marcacci M, Tampieri A. (2013) High biocompatibility and improved osteogenic potential of novel Ca-P/titania composite scaffolds designed for regeneration of load-bearing segmental bone defects. *J Biomed Mater Res: Part A.* 101A(6), 1612-1619.

54) Sprio S, Guicciardi S, Dapporto M, Melandri C, Tampieri A. (2013) Synthesis and mechanical behavior of beta-tricalcium phosphate/titania composites addressed to regeneration of long bone segments. *J Mech Behav Biomed Mater,* 17: 1-10.

55) Sprio S, Sandri M, Panseri S, Cunha C, Tampieri A. (2012) Hybrid scaffolds for tissue regeneration: chemotaxis and physical confinement as sources of biomimesis. *J. Nanomater*, Volume 2012 (2012), Article ID 418281, 10 pages.

56) Cunha C, Panseri S, Dapporto M, Sprio S, Tampieri A. (2012) Analysis of osteoblast viability and activity on ceramic beta TCP/TiO_2 biomimetic scaffolds. *J Tiss Eng Regen Med*, Vol. 6 S1: 15-15.

57) Tampieri A, D'Alessandro T, Sprio S, Sandri M. (2012) Intelligent bio-materials for tissue regeneration and nanomedicine. *J Tiss Eng Regen Med* 6 S1: 198-198.

58) Tampieri A, D'Alessandro T, Sandri M, Sprio S, Landi E, Bertinetti L, Panseri S, Pepponi G, Goettlicher J, Bañobre-López M, Rivas J. (2012) Intrinsic magnetism and hyperthermia in bioactive Fe-doped hydroxyapatite. *Acta Biomater* 8: 843-851.

59) Incerti Parenti S, Guicciardi S, Melandri C, Sprio S, Lafratta E, Tampieri A, Bonetti GA. (2012) Effect of soft drinks on the physical and chemical features of nickel-titanium-based orthodontic wires. *Acta Odont Sc* 70(1): 49-55.

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