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## Summary



I am Associate Professor at the Department of Chemistry, Materials and Chemical Engineering “Giulio Natta” at Politecnico di Milano (Milano, Italy). I was born in 1984 and received Master Degree in Chemical Engineering from Politecnico di Milano, in 2007, with an experimental thesis on formulated hydrogels able to probe and direct cell fate. In February 2011 I received Ph.D. in Chemical Engineering at Politecnico di Milano with an experimental thesis on polymeric devices able to control and sustain the release of cells and drugs in spinal cord injury treatment. I also spend research period in 2009 as visiting Ph.D. student at Imperial College London (Prof. Boccaccini group), in 2012 as Post-Doc at Uppsala University (Prof. Hilborn group) and from 2018 as Visiting Professor at Keio University. From 2015 I worked as Assistant Professor and then from 2019 as Associate Professor at Politecnico di Milano in the framework of Applied Physical Chemistry and as Guest Researcher at Istituto di Ricerche Farmacologiche Mario Negri. My main research interests are in the field of innovative polymeric materials for nanomedicine, drug delivery and tissue engineering with experimental and model studies. For my research activities I have been awarded with several international prizes and appointed as Fellow of the Global Young Academy. The results of my research were also featured in *Chemical & Engineering News* and *Neuro Central*. I am author of 83 ISI papers, 2 books, 7 book chapters and 6 applications of international patents. Among them 2 *ACS Nano*, 2 *Biomaterials*, 5 *Journal of Controlled Release*, 1 *Acta Biomaterialia*, and 2 *Expert Opinion on Drug Delivery*. I also contributed with several invited communications to international conferences. I serve as Reviewer for about 40 international journals and I have served as Young Editor for *Tissue Engineering Parts A, B & C* (Mary Ann Liebert). I am now serving as Editorial Board Member for *Advances in Polymer Technology* (Wiley), *Current Pharmaceutical Biotechnology* (Bentham Science), *Frontiers in Bioengineering and Biotechnology* (Frontiers), *Journal of Functional Biomaterials* (MDPI), *Gels* (MDPI) and *Sci* (MDPI).

## **Education**

- 2011 Ph.D. in Industrial Chemistry and Chemical Engineering at Politecnico di Milano (Italy) with the thesis: "Formulated hydrogels for cell housing and drug delivery"
- 2008 Professional habilitation as Industrial Engineer
- 2007 M.Sc. in Chemical Engineering at Politecnico di Milano
- 2005 B.Sc. in Chemical Engineering at Politecnico di Milano

## **Scientific experience**

- 2019 – present Associate Professor at the Department of Chemistry, Materials and Chemical Engineering "Giulio Natta" of Politecnico di Milano in Applied Physical Chemistry (ING/IND-23)
- 2016 – 2019 Assistant Professor (tenure track) at the Department of Chemistry, Materials and Chemical Engineering "Giulio Natta" of Politecnico di Milano in Applied Physical Chemistry (ING/IND-23)
- 2018 – present Visiting associate Professor at the Department of Mechanical Engineering of Keio University
- 2016 – present Visiting Researcher at the Department of Neuroscience of IRCCS Istituto di Ricerche Farmacologiche Mario Negri
- 2015 – 2016 Assistant Professor (untentured track) at the Department of Chemistry, Materials and Chemical Engineering "Giulio Natta" of Politecnico di Milano in Applied Physical Chemistry (ING/IND-23)
- 2012 Post-Doc at the Department of Materials Chemistry, Division of Polymer Chemistry, of Uppsala University with the research project "Polymer post-functionalization strategies to improve scaffold performances". Team Leader Prof. Jöns Hilborn
- 2011 – 2015 Post-Doc at the Department of Chemistry, Materials and Chemical Engineering "Giulio Natta" of Politecnico di Milano with the research project "Smart hydrogels for biomedical applications: experimental and model study". Team Leader Prof. Maurizio Masi
- 2009 Visiting Ph.D. Student at Department of Materials (Royal School of Mines) of Imperial College London with the research project "Smart hydrogels for biomedical applications". Team Leader Prof. Aldo R. Boccaccini
- 2008 – 2011 Ph.D. Student in Industrial Chemistry and Chemical Engineering at the Department of Chemistry, Materials and Chemical Engineering "Giulio Natta" of Politecnico di Milano with the research project "Formulated hydrogels for cell housing and drug delivery". Advisors Dr. Davide Moscatelli and Dr. Giuseppe Perale

## **Membership of scientific societies**

- 2018 – present Member of Royal Society of Chemistry;
- 2018 – present Member of Controlled Release Society – Italy Chapter;
- 2015 – present Member of EuMat (European Technology Platform for Advanced Engineering Materials and Technologies).
- 2015 – present Member of GRICU (Gruppo di Ingegneria Chimica dell'Università).

### **International and national collaborations**

- “Development of novel techniques for polymer emulsification” in collaboration with Prof. Hiroaki Onoe at Keio University (Japan);
- “Viscoelastic characterization of hydrogels and colloids” in collaboration with Prof. Alberto Rainer and Dr. Emanuele Mauri at Università Campus-Biomedico Roma (Italy);
- “Novel strategies for hydrogel synthesis and functionalization” in collaboration with Prof. Jöns Hilborn and Dr. Dmitri Ossipov at Uppsala University (Sweden);
- “Hydrogel-base treatment for cancer treatment” in collaboration with Dr. Giovanni Sitia at IRCCS Ospedale San Raffaele;
- “Novel hydrogel to probe and direct stem cell fate” in collaboration with Prof. Stefano Pluchino at University of Cambridge (UK);
- “Novel selective nanostructures for drug delivery applications” in collaboration with Prof. Massimo Morbidelli at ETH Zurich (Switzerland);
- “Diffusion through hydrogels: a new understanding of transport phenomena” in collaboration with Prof. Andrea Mele at Politecnico di Milano (Italy);
- “Novel drug and cell delivery strategies in spinal cord injury treatment” in collaboration with Dr. Pietro Veglianesi at IRCCS Istituto di Ricerche Farmacologiche Mario Negri (Italy).

### **International and national awards**

- Elsa Piana Tessile e Salute Award 2019 - shortlisted project and *particular mention*;
- G7 Young Scientists Representative, Tsukuba Conference for Future Shapers 2019;
- Fellow of the Global Young Academy (GYA);
- Cover image of issue 6, March 2020, *Gels*;
- Cover image of issue 12, 28<sup>th</sup> December 2018, *ACS Applied Nano Materials*;
- Cover image of issue 278, 28<sup>th</sup> May 2018, *Journal of Controlled Release*;
- Oral Presentation Award at International Conference TERMIS-AP 2013 in Wuzhen (China);
- Outstanding Young Scientist Delegate at 2013 World Summit of Regenerative Medicine in Xi'an (China) (10 winners / 500 applicants);
- Tissue Engineering Young Investigator Council Award 2012 (5 winners / 500 applicants);
- Young Scientist Award given by the World's Biomaterials Societies 2012 (10 winners / 500 applicants);
- European Doctoral Award given by the European Society for Biomaterials 2011.

### **Grants and Projects**

- CARIPLO 2019, 300 kEur – Head of Unit (Nanoparticle optimization);
- AIRC 2019, 500 kEur – Head of Unit (Hydrogel optimization);
- FOODTECH, Regione Lombardia, 800 KEur – Member of Unit (Formulation unit);
- Italian Ministry of Health 2013, 420 kEur – Head of Unit (Hydrogel synthesis and characterization);
- GNEO-Colloids, Alta Scuola Politecnica grant (Research grant between Politecnico di Milano and Politecnico di Torino for teaching research to the best students of both universities), 20 kEur – Head of Unit (Nanogel optimization);
- FoRST Research foundation, 2016, 100 kEur – Co-PI.

### **International scientific activities**

- 2019 – present Editorial Board Member of *Journal of Functional Biomaterials* - MDPI;
- 2018 – present External Advisory Board Member (polymer characterization) – Industrie Biomediche Insubri SA (biomedical private company);
- 2018 – present Editorial Board Member of *Advances in Polymer Technology* - Wiley;
- 2018 – present Editorial Board Member of *Sci* - MDPI;
- 2018 – present Editorial Board Member of *Gels* - MDPI;
- 2018 – present Editorial Board Member of *Current Pharmaceutical Biotechnology* – Bentham Science;
- 2018 – present Editorial Board Member of *Frontiers in Bioengineering and Biotechnology*;
- 2020 Special Issue Editor of “Nanogels”, *Gels* – MDPI together with Prof. Chien-Chi Lin (Purdue) and Prof. Emanuele Mauri (Campus Bio-medico);
- 2020 Special Issue Editor of “Bioactive 3D Scaffolds: Design, Materials and Processes”, *Journal of Functional Biomaterials* – MDPI together with Prof. Alberto Rainer (Campus Bio-medico);
- 2019 Special Issue Editor of “Recent progress of polymer nanocomposite in biomedical applications”, *Advances in Polymer Technology* - Wiley;
- 2018 Special Issue Editor of “Mathematical modeling of hydrogels: gelation, physical properties and drug delivery”, *Gels* – MDPI together with Prof. Mark W. Tibbitt (ETH);
- 2011 – 2012 Young Editorial Board Member of *Tissue Engineering Parts A, B & C* – Mary Ann Liebert, Inc. publishers (IF = 3.485);
- Referee for about 40 international journals (20 papers / year) among which: *Advanced Materials*, *Advanced Science*, *Biomaterials*, *ACS Applied Materials & Interfaces*, *Chemistry of Materials*, *Journal of Controlled Release* and *Nano Letters*;
  - Referee for international grant proposals: *Swiss National Science Foundation*, *Czech Science Foundation*, *National Science Center Poland*, *Fundação para a Ciência e a Tecnologia (Portugal)*.

### **Academic appointments**

- Lecturer in Formulation Technology and Chemical Product Design at Politecnico di Milano (Master of Science in Chemical Engineering);
- Lecturer in Polymer processes at Master ALBE;
- Assistant Lecturer in Fluid Mechanics, Chemical Engineering Thermodynamics, Applied Physical Chemistry and Chemical Engineering Principles;
- Associate guest professor at Keio University with lectures in Polymer Chemistry;
- Visiting Professor at Dar es Salaam Institute of Technology in 2014 with lectures in Chemical Engineering Thermodynamics and Transport Phenomena (30 hours);
- Supervisor of undergraduate (20) and graduate (3) students in Chemical Engineering.

### **Academic activity**

- 2020-2022 Member of the Scientific Board of the Department of Chemistry, Materials and Chemical Engineering “Giulio Natta”, Politecnico di Milano, Italy;
- 2015 - present Safety and Research Officer of the Laboratory of Functional Nanostructured Polymers (lab. 8.335), Politecnico di Milano, Italy.

### **Invited talks/presentations at international conferences**

1. "G7 Young Scientist Meeting: Citizen science for updating "science" in the SDG era" oral presentation to Tsukuba Conference for Future Shapers 2019, 2 – 4 October, Tsukuba (Japan);
2. "How perfect is the SDGs? - Reconsideration of SDGs from the viewpoint of inclusiveness and "immiscible" science advices" oral presentation to Tsukuba Conference for Future Shapers 2019, 2 – 4 October, Tsukuba (Japan);
3. "Formulated hydrogels and nanoparticles for spinal cord injury repair" oral presentation to Global Young Academy Annual Meeting 2019, 27 April – 4 May, Halle (Germany);
4. "Three dimensional biomimetic hydrogel to deliver factors secreted by human mesenchymal stem cells in spinal cord injury" oral presentation to Milan Polymer Days 2019, 11-13 March, Milan (Italy);
5. "Three dimensional biomimetic hydrogel to deliver factors secreted by human mesenchymal stem cells in spinal cord injury" oral presentation to Biomaterials International 2018, 22-26 July, Tokyo (Japan);
6. "Three dimensional biomimetic hydrogel to deliver factors secreted by human mesenchymal stem cells in spinal cord injury" oral presentation to Polymers: Design, Function and Applications 2018, 21-23 March, Barcelona (Spain);
7. "Selective nanovector mediated treatment of activated microglia as promising tool in spinal cord injury" keynote presentation to Nanomedicine Symposium CEN 2016, 18 October, Milan (Italy);
8. "Three dimensional biomimetic hydrogel to deliver factors secreted by human mesenchymal stem cells in spinal cord injury" oral presentation to TERMIS-EU Annual Conference 2016, 28 June – 1 July, Uppsala (Sweden);
9. "Selective nanovector mediated treatment of activated microglia in spinal cord injury" oral presentation to 10<sup>th</sup> World Biomaterials Congress 2016, 17-22 May, Montreal (Canada);
10. "Selective nanovector mediated treatment of activated microglia in spinal cord injury" oral presentation to Advanced Functional Polymers for Medicine 2015, 23-25 March, Galway (Ireland);
11. "Selective nanovector mediated treatment of activated microglia in spinal cord injury" oral presentation to TERMIS-EU Annual Conference 2014, 10-13 June, Genova (Italy);
12. "Multiple drug delivery hydrogel system for spinal cord injury repair strategies" keynote presentation to EMN Open Week Conference 2014, 22-25 September, Chengdu (China);
13. "A novel hydrogel-based system as a flexible tool for spinal cord repair strategies" oral presentation to TERMIS-AP Annual Conference 2013, 23-26 October, Shanghai & Wuzhen (China);
14. "Young Investigator Council 2013" oral presentation to TERMIS-AP Annual Conference 2013, 23-26 October, Shanghai & Wuzhen (China);
15. "Injectable Drug Delivery Hydrogel for Sustained Combination Therapies" oral presentation to BioFuture 2011, 16-18 November, Ghent (Belgium).

### **Invited lectures**

1. "Injectable hydrogels and nanoparticles for spinal cord repair", Università Campus Bio-Medico di Roma, 13/05/2020 Roma (Italy);
2. "Functionalized fabrics with antibacterial properties", Premio 2019 Elsa Piana – Tessile e Salute, 22/11/2019 Biella (Italy);

3. "Multiple drug delivery hydrogel system for spinal cord injury repair strategies", Ludwig Boltzmann Institute, 06/06/2019 Vienna (Austria);
4. "Injectable biopolymers for cell and drug delivery in the central nervous system", Italian Institute of Technology (IIT@SSSA), 11/10/2018 Pisa (Italy);
5. "Injectable biopolymers for cell and drug delivery in the central nervous system", Keio University, Keio University Global Research Institute Lecture series, 03/08/2018 Tokyo (Japan);
6. "Injectable materials for central nervous system", Università Campus Bio-Medico di Roma, 26/04/2018 Roma (Italy);
7. "Formulation chemistry e industria 4.0", Workshop AVISA at Federchimica, 27/04/2017, Milan (Italy);
8. "Industria 4.0: opportunità e sfide per il mondo dei formulati", 5<sup>th</sup> Formulation Day at Federchimica, 5/04/2017, Milan (Italy);
9. "Introduction to colloid chemistry", Lecture in "Content and Language in Science Matters", I.S.I.S. Paolo Carcano, 4/04/2017, Como (Italy);
10. "Selective nanoparticles-mediated treatment using nano-objects", Workshop on new technologies for biomedical research, Università Campus Bio-Medico Roma, 10/12/2015, Rome (Italy);
11. "Formulated hydrogels for cell and drug delivery in the central nervous system", Università Campus Bio-Medico di Roma, 21/05/2015 Roma (Italy);
12. "Formulated hydrogels for drug delivery in the central nervous system", University of East Anglia, 17/04/2013 Norwich (UK);
13. "Formulated hydrogels for cell and drug delivery in the central nervous system", Department of Physics, Italian Institute of Technology (IIT@POLIMI), 21/12/2011 Milano (Italy).

#### **Other talks/presentations**

1. "Drug transport in charged polymeric hydrogels for drug delivery" oral presentation to Diffusion in Solids and Liquids 2015, 22-26 June, Munchen (Germany);
2. "A novel hydrogel-based system as a flexible tool for spinal cord repair strategies" oral awarded presentation to 9<sup>th</sup> World Biomaterials Congress 2012, 1-5 June, Chengdu (China);
3. "Formulated hydrogels for cell housing and drug delivery" invited presentation ESB-EDA winner to ESB 2011 – 24<sup>th</sup> European Conference on Biomaterials, 5-8 September, Dublin (Ireland);
4. "A Novel Hydrogel-Based System As A Flexible Tool For Spinal Cord Injury Repair Strategies" oral presentation to ESB 2010 - 23<sup>rd</sup> European Conference on Biomaterials, 11-15 September 2010, Tampere (Finland);
5. "A novel hydrogel formulation as promising cell carrier", poster and oral presentation to World Conference on Regenerative Medicine, 29-31 October 2009, Leipzig (Germany);
6. "New Hydrogel for Neuroglial Cell Housing", oral presentation to AES – ATEMA 2009 International Conference on Advances and Trends of Engineering Materials, 1-6 July 2009, Montreal (Canada).

## Publication list

**h-index:** 21 (ISI Web of Knowledge & Scopus), 24 (Google Scholar)

### ISI journals

<sup>1</sup> equal contribution

\* corresponding author

1. Chiozzi V.; **Rossi F.\*** “Inorganic-organic core/shell nanoparticles: progress and applications”, *Nanoscale Advances*, 2020, accepted, in press; DOI:10.1039/D0NA00411A;
2. Pinelli F.; Magagnin L.; **Rossi F.\*** “Progress in hydrogels for sensing applications: a review”, *Materials Today Chemistry*, 2020, 17, 100317;
3. Ehrbar M.; **Rossi F.\***; Cellesi F. “Nanosized Drug Delivery Systems: Colloids and Gels for Site Specific Targeting”, *Frontiers in Bioengineering and Biotechnology*, 2020, 8, 803;
4. Makvandi P.; Iftekhhar S.; Pizzetti F.; Zarepour A.; Zare E. N.; Ashrafizadeh T.; Padil V. V. T.; Mohammadinejad R.; Sillanpaa M.; Maiti T. K.; Perale G. Zarrabi A.; **Rossi F.\*** “Advances in Functionalization of Polymers and Nanomaterials: Water Treatment, Food Packaging, Textile, and Biomedical Applications”, *Environmental Chemistry Letters*, 2020, accepted, in press; DOI: 10.1007/s10311-020-01089-4;
5. Vismara I.; Papa S.; Veneruso V.; Mauri E.; Mariani A.; De Paola M.; Affatato R.; Rossetti A.; Sponchioni M.; Moscatelli D.; Sacchetti A.; **Rossi F.**; Forloni G.; Veglianese P. “Selective modulation of A1 astrocytes by drug-loaded nano-structured gel in spinal cord injury”, *ACS Nano*, 2020, 14(1), 360-371;
6. Papa S.; Pizzetti F.; Perale G.; Veglianese P.; **Rossi F.\*** “Regenerative Medicine for Spinal Cord Injury: Focus on Stem Cells and Biomaterials”, *Expert Opinion on Biological Therapy*, 2020, 6, 1-11;
7. Pinelli F.; Sacchetti A.; Perale G.; **Rossi F.\*** “Is nanoparticle functionalization a versatile approach to meet challenges of drug and gene delivery?”, *Therapeutic Delivery*, 2020, 11(7), 401-404;
8. Rossetti A.; Pizzetti F.; **Rossi F.**; Mauri E.; Borghi E.; Ottaviano E.; Borghi E.; Sacchetti S. “Synthesis and characterization of Carbomer-based hydrogels for drug delivery applications”, *International Journal of Polymeric Materials and Polymeric Biomaterials*, 2020, accepted, in press; DOI:10.1080/00914037.2020.1760275;
9. Cingolani A.; Casalini T.; Binelli M. R.; Cignoli E.; Di Gialluca L.; Zambon F.; Villa T.; Grottoli C. F.; Klaue K.; **Rossi F.**; Perale G. “Optimized Design and Development of a Bioresorbable High Rotational Stability Fixation System for Small Bone Fragments”, *Advanced Engineering Materials*, 2020, 22(5), 1901505;
10. Pinelli F.; Perale G.; **Rossi F.\*** “Coating and functionalization strategies for nanogels and nanoparticles for selective drug delivery”, *Gels*, 2020, 6, 6;  
This article appears in the cover of the March 2020 issue of *Gels*
11. Mauri E.; Rosetti A.; Mozetic P.; Schiavon C.; Sacchetti A.; Rainer A.; **Rossi F.\*** “Synthesis of ibuprofen-functionalized hydrogels as an anti-inflammatory drug delivery system”, *European Journal of Pharmaceutics and Biopharmaceutics*, 2020, 146, 143-149;
12. Mauri E.; Veglianese P.; Papa S.; Rossetti A.; De Paola M.; Mariani A.; Posel Z.; Posocco P.; Sacchetti A.; **Rossi F.\*** “Effects of primary amine-based coatings on microglia internalization of nanogels”, *Colloids and Surface B: Biointerfaces*, 2020, 185, 110574;

13. **Rossi F.\***; Papa S.; Perale G.; Veglianese P. "How can nanovectors be used to treat spinal cord injury?", *Nanomedicine*, 2019, 14(24), 3123-3125;  
[Featured in Neuro Central](#)
14. Pizzetti F.; Granata V.; Riva U.; **Rossi F.\***; Masi M. "A mathematical model of a slurry reactor for the direct synthesis of hydrogen peroxide", *Reaction Chemistry & Engineering*, 2019, 4, 2117-2128;
15. **Rossi F.\***; Masi M. "On the ability of chromatographic mass balance to predict solute diffusivity in drug delivery systems", *AIChE Journal*, 2019, 65(10), e16709;
16. Zare E. N.; Makvandi P.; **Rossi F.**; Ashtari K.; Motahari A.; Perale G. "Progress in conductive polyaniline-based nanocomposites for biomedical applications: a review", *Journal of Medicinal Chemistry*, 2020, 63(1), 1-22;
17. Casalini T.; **Rossi F.**; Castrovinci A.; Perale G. "A perspective on polylactic acid-based polymers use in nanomedicine", *Frontiers in Bioengineering and Biotechnology*, 2019, 7, 259, 1-16;
18. Mauri E.; Naso D.; Rossetti A.; Borghi E.; Ottaviano E.; Griffini G.; Masi M.; Sacchetti A.; **Rossi F.\*** "Design of polymer-based antimicrobial hydrogels through physico-chemical transition", *Materials Science and Engineering: C* 2019, 103, 109791;
19. **Rossi F.**<sup>1</sup> & Veneruso V.<sup>1</sup>; Vilella A.; Forloni G.; Veglianese P. "Stem cell paracrine effect and delivery strategy for spinal cord regeneration", *Journal of Controlled Release* 2019, 300(4), 141-153;
20. Castiglione F.; Casalegno M.; Ferro M.; **Rossi F.**; Raos G.; Mele A. "Evidence of superdiffusive nanoscale motion in anionic polymeric hydrogels: Analysis of PGSE- NMR data and comparison with drug release properties", *Journal of Controlled Release* 2019, 305(7), 110-119;
21. Papa S.; **Rossi F.**; Vismara I.; Forloni G.; Veglianese P. "Nanovector-mediated drug delivery in spinal cord injury", *ACS Chemical Neuroscience* 2019, 10(3), 1173-1182;
22. Elsami P.; **Rossi F.**; Fedeli S. "Hybrid nanogels: stealth and biocompatible structures for drug delivery applications", *Pharmaceutics* 2019, 11, 71;
23. Mauri E.; Perale G.; **Rossi F.\*** "Nanogel functionalization: a versatile approach to meet the challenges of drug and gene delivery", *ACS Applied Nano Materials* 2018, 1(12), 6525-6541;  
This article appears in the cover of the December 2018 issue of *ACS Applied Nano Materials*
24. Mauri E.; Negri A.; Rebellato E.; Masi M.; Perale G.; **Rossi F.\*** "Hydrogel-nanoparticles composite system for controlled drug delivery", *Gels* 2018, 4, 74;
25. Casalini T.; **Rossi F.**; Brizielli R.; Perale G. "Theoretical investigation of design space for multi layer drug eluting bioresorbable suture threads" *Current Pharmaceutical Biotechnology* 2019, 20(4), 332-345;
26. Cingolani A.; Casalini T.; Caimi S.; Klaue A.; Sponchioni M.; **Rossi F.**<sup>1\*</sup> & Perale G.<sup>1</sup> "A methodologic approach for the selection of bio-resorbable polymers in the development of medical devices: the case of poly(L-lactide-co-ε-caprolactone)", *Polymers* 2018, 10, 851;
27. Haugen H. J.; Lyngstadaas S. P.; **Rossi F.**; Perale G. "Bone replacement grafts: which is the ideal biomaterial?" *Journal of Clinical Periodontology* 2019, 46(S1), 92-102; "Highly cited paper";
28. Cingolani A.; Grottoli C. F.; Esposito R.; Villa T.; **Rossi F.**; Perale G. "Improving bovine bone mechanical characteristics for the development of xenohybrid bone grafts" *Current Pharmaceutical Biotechnology* 2018, 19(12), 1015-1013;
29. Panzeri G.; Muller D.; Accogli A.; Gibertini E.; Mauri E.; **Rossi F.**; Nobili L.; Magagnin L. "Zinc electrodeposition from a chloride-free non-aqueous solution based on ethylene glycol and acetates salts" *Electrochimica Acta* 2019, 296, 465-472;



30. Ferracini R.; Herreros I. M.; Russo A.; Casalini T.; **Rossi F.**; Perale G. "Scaffolds as structural tools for bone targeted drug delivery", *Pharmaceutics* 2018, 10, 122;
31. Mauri E.; Sacchetti A.; Vicario N.; Peruzzotti-Jametti L.; Pluchino S.<sup>1</sup> & **Rossi F.**<sup>1</sup> "Evaluation of RGD functionalization in hybrid hydrogels as 3D neural stem cell culture systems", *Biomaterials Science* 2018, 6, 501-510;
32. Mauri E.; Micotti E.; Rossetti A.; Melone L.; Papa S.; Azzolini G.; Rimondo S.; Veglianese P.; Punta C.; **Rossi F.\***; Sacchetti A. "Microwave-assisted synthesis of TEMPO-labeled hydrogels traceable with MRI", *Soft Matter*, 2018, 14, 558-565;
33. Mauri E.; Cappella F.; Masi M.; **Rossi F.\*** "PEGylation influences drug delivery from nanogels", *Journal of Drug Delivery Science and Technology*, 2018, 46(8), 87-92;
34. Papa S.; Vismara I.; Mariani A.; Barilani, M.; Rimondo S.; De Paola M.; Panini N.; Erba E.; Mauri E.; **Rossi F.**; Forloni G.; Lazzari L.; Veglianese P. "Mesenchymal stem cells encapsulated into biomimetic hydrogel scaffold gradually release CCL2 chemokine in situ preserving cytoarchitecture and promoting functional recovery in spinal cord injury", *Journal of Controlled Release*, 2018, 278, 49-56;  
This article appears in the cover of the May 2018 issue of *Journal of Controlled Release*
35. Mauri E.; Veglianese P.; Papa S.; Mariani A.; De Paola M.; Rigamonti R.; Chincarini G. M. F.; Rimondo S.; Sacchetti A.; **Rossi F.\*** "Chemoselective functionalization of nanogels for microglia treatment", *European Polymer Journal*, 2017, 94, 143-151;
36. Vismara I.; Papa S.; **Rossi F.**; Forloni G.; Veglianese P. "Current options for cell therapy in spinal cord injury", *Trends in Molecular Medicine*, 2017, 23(9), 831-849;
37. Mauri E.; Veglianese P.; Papa S.; Mariani A.; De Paola M.; Rigamonti R.; Chincarini G. M. F.; Vismara I.; Rimondo S.; Sacchetti A.; **Rossi F.\*** "Double conjugated nanogels for selective intracellular drug delivery", *RSC Advances*, 2017, 7, 30345-30356;
38. **Rossi F.**<sup>1\*</sup> & Castiglione F.<sup>1</sup>; Salvalaglio M.; Ferro M.; Moioli M.; Mauri E.; Masi M.; Mele A. "On the parallelism between the mechanisms behind chromatography and drug delivery: the role of interactions with stationary phase", *Physical Chemistry Chemical Physics*, 2017, 19, 11518-11528;  
This article was shortlisted for the 2017 *Emerging Investigator Lectureship* of the journal PCCP;
39. Bisotti F.; Licordari F.; **Rossi F.\***; Masi M. "In silico study of polymer sheet drying process" *International Polymer Processing*, 2017, 4, 474-482;
40. Mauri E.; Papa S.; Masi M.; Veglianese P.; **Rossi F.\*** "Novel functionalization strategies to improve drug delivery from polymers", *Expert Opinion on Drug Delivery*, 2017, 14(11), 1305-1313;
41. Oberto, S.; Cetta, F.; Trabattoni, P.; Zoli, S.; Tavano, D.; **Rossi, F.**; Clerici, G.; Airoidi, F.; Spirito, R.; Losa, S. "Comparision of SFA lesion treatment with Zilver PTX in diabetics vs non-diabetics: 2-year clinical and functional results", *The Journal of Cardiovascular Surgery*, 2017, 58(4), 565-573;
42. Mauri E.; Chincarini G. M. F.; Rigamonti R.; Magagnin L.; Sacchetti A.; **Rossi F.\*** "Modulation of electrostatic interactions to improve controlled drug delivery from nanogels", *Material Science and Engineering C*, 2017, 72, 308-315;
43. Mauri E.; Moroni I.; Magagnin L.; Masi M.; Sacchetti A.; **Rossi F.\*** "Comparison between two different click strategies to synthesize fluorescent nanogels for therapeutic applications", *Reactive and Functional Polymers*, 2016, 105(8), 35-44;

44. **Rossi F.**<sup>1\*</sup> & Castiglione F.<sup>1</sup>; Ferro M.; Moioli M.; Mele A.; Masi M. "The role of drug-drug interactions in hydrogel-based drug delivery systems: Experimental and Theoretical Study", *ChemPhysChem*, 2016, 17(11), 1615-1622;
45. Mauri E.; Sacchetti A.; **Rossi F.**\* "Synthesis of RGD-functionalized hydrogels as a tool for therapeutic applications", *Journal of Visualized Experiments*, 2016, 116, e54445;
46. Mauri E.; **Rossi F.**\*; Sacchetti A. "Tunable drug delivery using chemoselective functionalization of hydrogels", *Material Science and Engineering C*, 2016, 61(4), 851-857;
47. **Rossi F.**<sup>1\*</sup> & Zhang Y.<sup>1</sup>; Papa S.; Violatto M. B.; Bigini P.; Sorbona M.; Redaelli F.; Veglianesse P.; Hilborn J.; Ossipov D. A. "Non-invasive *in vitro* and *in vivo* monitoring of degradation of fluorescently labeled hyaluronan hydrogels for tissue engineering applications", *Acta Biomaterialia*, 2016, 30(2), 188-198;
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### **Patents**

104. "Sistema composito comprendente idrogelo e nano-particella/e per il contenimento, la veicolazione e il rilascio multiplo di farmaco/i e cellula/e"  
Assignee: Politecnico di Milano  
Inventors: Moscatelli D., Perale G.; Masi M., **Rossi F.**, Sacchetti A.; Veglianese P.
105. "Reattore rotante per la cattura di composti chimici all'interno di una miscela liquida"  
Assignee: Politecnico di Milano  
Inventors: Di Stanislao M., Masi M., **Rossi F.**
106. "Processo intensificato di concia"  
Assignee: Politecnico di Milano  
Inventors: Gibertini E., Magagnin L., Masi M., **Rossi F.**, Rovere G.
107. "Poliestere modificato con proprietà antibatteriche e suoi usi" Patent Application WO2018IB50726  
Assignee: Golden Lady Company SpA  
Inventors: Grassi N., Masi M., **Rossi F.**, Zaltieri M.
108. "Idrogelo idoneo a contenere e veicolare cellule neuronali" IT priority MI2008A-001000  
Assignee: Politecnico di Milano  
Inventors: Daniele F., Giordano C., Masi M., Perale G., **Rossi F.**
109. "Hydrogel capable of containing and conveying cells" Patent Application PCT/IB2009/005767  
Assignee: Politecnico di Milano  
Inventors: Daniele F., Giordano C., Masi M., Perale G., **Rossi F.**, Tunesi M.