

Curriculum Vitae et Studiorum

Name:

Francesca Oltrolina

Place and date of birth:

Citizenship:

Address:

Telephone:

E-mail address:

Education:

June 2016: PhD in Biotechnologies for Human Health - cycle XVIII.

Thesis title: Multifunctionalized Hydroxyapatite and Magnetic Nanoparticles as Carriers for Cancer Targeted Therapy.

Scuola di Medicina, Università del Piemonte Orientale, Via Solaroli 17, 28100, Novara, Italy

October 2012: Master in Medical Biotechnology with a score of 110/110 *cum laude*, Scuola di Medicina, Università del Piemonte Orientale, Via Solaroli 17, 28100, Novara, Italy

July 2010: Bachelor in Biotechnology with a score of 97/110, Scuola di Medicina, Università del Piemonte Orientale, Via Solaroli 17, 28100, Novara, Italy

Research experience:

November 2015 - October 2016: post-doctoral fellowship “Terapia Genica dell’Emofilia A”, under the supervision of Prof. Antonia Follenzi, Scuola di Medicina, Università del Piemonte Orientale, Via Solaroli 17, 28100, Novara, Italy.

June 2013: Traineeship, “Preparation of nanocrystalline apatite nanoparticles, nanoparticles functionalization and characterization: Dynamic light scattering, X-ray diffraction” in the Laboratorio de Estudios Cristalográficos IACT (CSIC-UGR), Armilla - Granada, Spain.

Advisor: Dr. Jaime Gómez Morales IACT (CSIC-UGR), Armilla - Granada, Spain.

October 2012 - June 2016: PhD Student, “Engineered nanoparticles as drug delivery system for tumor targeting and imaging” in the Laboratory of Histology, Department of Health Sciences at Università del Piemonte Orientale, Novara, Italy.

Advisor: Prof. Maria Prat (Università del Piemonte Orientale, Novara, Italy).

October 2010 - October 2012: Research internship, “Effects of electrical currents on proliferation and differentiation of MSC isolated from human auricles” in the Laboratory of Histology, Department of Health Sciences at Università del Piemonte Orientale, Novara, Italy.

Advisor: Prof. Maria Prat (Università del Piemonte Orientale, Novara, Italy).

October 2006 - July 2010: Research internship, “Production of a Lentiviral Vector (LV) for the green fluorescent protein (GFP) expression under the control of the alpha myosin heavy chain (α -MyHC) promoter, specific for mature muscle tissue” in the Laboratory of Histology, Department of Health Sciences at Università del Piemonte Orientale, Novara, Italy.

Advisor: Prof. Maria Prat (Università del Piemonte Orientale, Novara, Italy).

Didactic experience:

May 2014 - April 2015: Part-time collaboration fellowship, “Assistenza disciplina Biologia Applicata - Support to students and assistance during exams”, under the supervision of Dr. Chiarella Bozzo, Scuola di Medicina, Università del Piemonte Orientale, Via Solaroli 17, 28100, Novara, Italy.

August 2013-October 2013: Part-time collaboration fellowship, “Assistenza e tutoraggio attività didattiche Istologia - Support to students and assistance during exams” under the supervision of Prof. Maria Prat, Scuola di Medicina, Università del Piemonte Orientale, Via Solaroli 17, 28100, Novara, Italy.

Technical skills:

- Cellular biology (culture of established cell lines, isolation and culture of primary cells including human adult stem/progenitor cells, *in vitro* differentiation of human adult stem cells)
- Monoclonal antibodies production
- Functionalization of nanoparticles with different types of molecules (chemotherapeutic agent, monoclonal antibodies, cell penetrating peptides - CPP, fluorophores);
- Molecular biology techniques (DNA extraction, RNA extraction, PCR, RT-PCR, enzyme digestion, plasmid construction and purification, cloning, design and production of lentiviral vectors);
- Basal techniques and instruments used in chemical laboratories;
- Immunochemical techniques (immunofluorescence, Immunoprecipitation, SDS-PAGE, Western Blot, ELISA, Flow Cytometry);
- Biological assays (MTT, Wound Healing, Zymographic Assay, Array);
- Cryomicrotome cutting of frozen samples and hematoxylin and eosin staining;
- Handling and basic microsurgery techniques in experimental animals (mice).

Personal skills:

- Mother language: Italian.
- Other languages: English, French and German.

Computer skills:

- PC operating systems - Windows (all versions up to and including 8);
- Competent with Microsoft Office programmes (Word, Excel, PowerPoint, Publisher);
- Good Internet surfing and browsers (Explorer, Chrome) knowledge;
- Principal databases (PubMed, Medline);
- Reference manager and PDF organizer (Mendeley);
- Image processing (ImageJ, JMicroVision, Leica Confocal Software, Adobe Photoshop);
- Cytometry data analysis software (CellQuest Pro, Cyflogic);
- Vector graphic editor software (Inkscape);

Awards:

- Prof. Andrea Facchini Young Investigator Award for the oral presentation entitled: “Human Cardiac Progenitor Cells Spheroids exhibit enhances engraftment potential”. VII meeting Stem Cell Research Italy, Bologna, June 21-23, 2016;
- ImmunoTools special Award 2014;
- 1st Prize Poster Competition and accommodation grant at 4th International School on Biological Crystallization, Granada, Spain 2013.

Publications:

- Martínez-Casado FJ*, Gómez Morales J*, Delgado López JM, Iafisco M, Martínez Benito C, Ruiz Pérez C, Colangelo D, Oltolina F, Prat M. *Bio-inspired citrate-apatite nanocrystals doped with divalent transition metal ions*. Crystal Growth & Design 2016, 16 (1), pp 145-153. DOI: 10.1021/acs.cgd.5b01045
- Oltolina F*, Zamperone A*, Colangelo D, Gregoletto L, Reano S, Pietronave S, Merlin S, Talmon M, Nicoletti E, Diena M, Nicoletti C, Musarò A, Filigheddu N, Follenzi A, Prat M. *Human Cardiac Progenitor Cell Spheroids Exhibit Enhanced Engraftment Potential*. PLOS ONE 2015 Sep 16;10(9):e0137999. doi: 10.1371/journal.pone.0137999. eCollection 2015.
- Oltolina F*, Gregoletto L*, Colangelo D, Gómez-Morales J, Delgado-López JM, Prat M. *Monoclonal antibody-targeted fluorescein-5-isothiocyanate-labeled biomimetic nanoapatites: a promising fluorescent probe for imaging applications*. Langmuir. 2015 Feb 10;31(5):1766-75. doi: 10.1021/la503747s. Epub 2015 Jan 30. PMID: 25602940
- Prat M, Oltolina F, Basílico C. *Monoclonal Antibodies against the MET/HGF Receptor and Its Ligand: Multitask Tools with Applications from Basic Research to Therapy*. Biomedicines 2014, 2(4), 359-383; doi:10.3390/biomedicines2040359 - published 3 December 2014
- Pietronave S*, Zamperone A*, Oltolina F, Colangelo D, Follenzi A, Novelli E, Diena M, Pavese A, Consolo F, Fiore GB, Soncini M, Prat M. *Monophasic and biphasic electrical stimulation induces a precardiac differentiation in progenitor cells isolated from human heart*. Stem Cells Dev. 2014 Apr 15;23(8):888-98. doi: 10.1089/scd.2013.0375. Epub 2014 Jan 24. PMID: 24328510

Text Book:

Nanocrystalline Apatites Functionalized with Monoclonal Antibodies for Targeted Cancer Therapies (Maria Prat, Francesca Oltolina, Luca Gregoletto, José M. Delgado-López and Jaime Gómez-Morales, Dipartimento di Scienze della Salute, Università del Piemonte Orientale, Novara, Italy). Apatite: Synthesis, Structural Characterization and Biomedical Applications (Michele Iafisco and José Manuel Delgado-López), Nova Publisher, 2014; ISBN: 978-1-6332-536-8

Abstracts/Congresses participation:

Oltolina F, Delgado-López JM, Colangelo D, Antonini S, Gómez-Morales J, Prat M. TARGETED DRUG DELIVERY THROUGH MULTIFUNCTIONAL HYDROXYAPATITE NANOPARTICLES. *Basic to Translational Medicine 2016 focus on Cancer*, October 6-7, 2016, Novara, Italy.

Oltolina F, Zamperone A, Colangelo D, Gregoletto L, Reano S, Merlin S, Talmon M, Novelli E, Diena M, Nicoletti C, Musarò A, Filigheddu N, Follenzi A, Prat M. HUMAN CARDIAC PROGENITOR CELLS SPHEROIDS EXHIBIT ENHANCES ENGRAFTMENT POTENTIAL. *VII meeting Stem Cell Research Italy*, June 21-23, 2016, Bologna, Italy (Oral presentation).

Oltolina F, Gregoletto L, Gómez Morales J, Delgado-López JM, Viano I, Prat M, Colangelo D. TRASPORTO E TARGETING SELETTIVO DELLA DOXORUBICINA MEDIANTE NANOPARTICELLE DI IDROSSIAPATITE FUNZIONALIZZATE CON ANTICORPI. *28° Congresso Nazionale della Società Italiana di Chemioterapia*, November 26-28, 2015, Firenze, Italy.

Martínez-Casado FJ, Gómez Morales J, Delgado-López JM, Iafisco M, Oltolina F, Prat M. BIOMIMETIC NANOCRYSTALLINE DOPED APATITES: MICROSTRUCTURAL AND BIOCOMPATIBILITY CHARACTERIZATION. *13th International Symposium on Biomineralization*, September 16-19, 2015, Granada, Spain.

Colangelo D, Oltolina F, Gregoletto L, Zamperone A, Novelli E, Diena M, Nicoletti C, Musarò A, Follenzi A, Prat M. HUMAN CARDIAC PROGENITOR CELL SPHEROIDS EXHIBIT ENHANCED ENGRAFTMENT POTENTIAL. *International Spring Research Day*, June 19, 2015, Lugano-Vezia, Switzerland.

Borroni E, Talmon M, Miola M, Cochis A, Ferraris S, Oltolina F, Catalano E, Rimondini L, Novak S, Vernè E, Prat M, Follenzi A. ENGINEERED IRON-OXIDE NANOPARTICLES BY LENTIVIRAL VECTORS FOR CANCER THERAPY AND HYPERTHERMIA. *International Conference on Molecular Oncology "From Signal Transduction to Cancer Precision Medicine"*, June 5-6, 2015, Candiolo, Italy.

Oltolina F, Gregoletto L, Colangelo D, Iafisco M, Gómez-Morales J, Delgado-López JM, Prat M. MULTIFUNCTIONAL FLUORESCENT-LABELLED HYDROXYAPATITE NANOPARTICLES FOR MONOCLONAL ANTIBODY-TARGETED DELIVERY OF DOXORUBICIN TO CANCER CELLS. *International Conference on Molecular Oncology "From Signal Transduction to Cancer Precision Medicine"*, June 5-6, 2015, Candiolo, Italy.

Borroni E, Catalano E, Ferraris S, Cochis A, Miola M, Oltolina F, Vernè E, Prat M, Novak S, Rimondini L, Follenzi A. DEVELOPMENT OF ENGINEERED IRON-OXIDE NANOPARTICLES BY LENTIVIRAL VECTORS FOR TARGET CANCER THERAPY AND HYPERTHERMIA. *EURO BioMAT 2015*, April 21-22, 2015, Weimar, Germany.

Borroni E, Catalano E, Ferraris S, Cochis A, Oltolina F, Miola M, Prat M, Novak S, Rimondini L, Vernè E, Follenzi A. DEVELOPMENT OF ENGINEERED IRON-OXIDE NANOPARTICLES BY LENTIVIRAL VECTORS FOR TARGET CANCER THERAPY AND HYPERTHERMIA. *ASGCT 2015 Annual Meeting*, 2015, New Orleans, USA.

Catalano E, Borroni E, Ferraris S, Cochis A, Miola M, Oltolina F, Vernè E, Prat M, Maina G, Rimondini L, and Follenzi A. IN VITRO AND IN VIVO EVALUATION OF NAKED AND SILICA CORE-SHELL TYPE IRON OXIDE NANOPARTICLES. *COST action*, March 25-27, 2015, Venezia, Italy.

Delgado-Lopez JM, Iafisco M, Oltolina F, Gregoletto L, Tampieri A, Gómez-Morales J and Prat M. BIOINSPIRED NANOAPATITES COUPLED WITH MONOCLONAL ANTIBODY FOR TARGETED CANCER THERAPIES. *26th Symposium and Annual Meeting of the International Society for Ceramics in Medicine (BIOCERAMICS 26)*, November 6-8, 2014, Barcelona, Spain.

Oltolina F, Zamperone A, Gregoletto L, Antonini S, Novelli E, Diena M, Nicoletti C, Musarò A and Prat M. QUICK GENERATION OF SPHERICAL AGGREGATES OF HUMAN CARDIAC PROGENITOR CELLS FOR SCAFFOLD-LESS CARDIAC TISSUE ENGINEERING BY MEANS OF A SMART METHYLCELLULOSE HYDROGEL. *Cardiac growth and regeneration: visualizing the future*, June 22-26, 2014, Viterbo, Italy.

Catalano E, Cochis A, Ferraris S, Miola M, Vernè E, Oltolina F, Prat M, Novak S, Rimondini L and Follenzi A. STATIC AND DYNAMIC IN VITRO CYTOTOXICITY EVALUATION OF IRON-OXIDE NANOPARTICLES. *TERMIS EU 2014*, June 10-13, 2014, Genova, Italy.

Oltolina F, Zamperone A, Gregoletto L, Antonini S, Novelli E, Diena M, Nicoletti C, Musarò A and Prat M. GENERATION AND CHARACTERIZATION OF IMPLANTABLE SPHEROIDS MADE OF HUMAN CARDIAC PROGENITORS CELLS BY A NOVEL METHYLCELLULOSE HYDROGEL-BASED SYSTEM. *TERMIS EU 2014*, June 10-13, 2014, Genova, Italy.

Oltolina F, Zamperone A, Antonini S, Gregoletto L, Novelli E, Diena M, Nicoletti C, Musarò A, Prat M. QUICK PRODUCTION OF SPHERICAL AGGREGATES OF HUMAN CARDIAC PROGENITOR CELLS FOR SCAFFOLD-LESS TISSUE ENGINEERING BY MEANS OF A NOVEL METHYLCELLULOSE HYDROGEL BASED SYSTEM. *Stem Cells, Development, and Regenerative Medicine*, June 6-7, 2014, Salerno, Italy.

Catalano E, Ferraris S, Miola M, Vernè E, Oltolina F, Prat M, Rimondini L, Follenzi A. LABELLING OF LIVING CELLS WITH MAGNETIC NANOPARTICLES FOR APPLICATIONS OF CELL PATTERNING AND STEM CELL TRACKING. *Congresso della Società Italiana dei Biomateriali*, June 3-5, 2014, Palermo, Italy.

Catalano E, Ferraris S, Miola M, Vernè E, Oltolina F, Prat M, Rimondini L and Follenzi A. DEVELOPMENT OF IRON-OXIDE NANOPARTICLES' APPROACHES TO LOCALLY TARGET CANCER GENE THERAPY. *MiMe - Materials in Medicine International Conference*, October 8-11, 2013, Faenza (RA), Italy.

Oltolina F, Zamperone A, Pietronave S, Gregoletto L, Novelli E, Diena M, Nicoletti C, Musarò A and Prat M. A METHYLCELLULOSE HYDROGEL-BASED SYSTEM TO GENERATE IMPLANTABLE HUMAN CARDIAC PROGENITOR CELL SPHEROIDS. *MiMe - Materials in Medicine International Conference*, October 8-11, 2013, Faenza (RA), Italy.

Oltolina F, Pietronave S, Pavese A, Zamperone A, Colangelo D, Follenzi A, Novelli E, Diena M, Consolo F, Fiore GB, Soncini, Prat M. PRE-CARDIAC DIFFERENTIATION IN PROGENITOR CELLS ISOLATED FROM HUMAN HEART INDUCED BY MONO AND BIPHASIC ELECTRICAL STIMULATION. *Mime - Materials in Medicine International Conference*, October 8-11, 2013, Faenza (RA), Italy.

Prat M, Iafisco M, Varone E, Delgado-Lopez JM, Tampieri A, Oltolina F, Rimondini L, Gomez-Morales J. FUNCTIONALIZED BIOMIMETIC APATITE NANOCRYSTALS FOR TARGETED CANCER THERAPY. *8th NANOSMAT 2013*, September 22-25, Granada, Spain.

Oltolina F, Ferraris S, Miola M, Vernè E, Bruno M, Catalano E, Rimondini L, Prat M and Follenzi A. DEVELOPMENT OF ENGINEERED MAGNETIC NANOPARTICLES FOR CANCER THERAPY. *8th NANOSMAT 2013*, September 22-25, Granada, Spain.

Prat M, Iafisco M, Delgado-Lopez JM, Tampieri A, Oltolina F, Rimondini L, Gomez-Morales J. MULTIFUNCTIONAL BIOMIMETIC APATITE NANOCRYSTALS FOR TARGETED CANCER THERAPY. *30th European Materials Research Society*, September 16, 2013, Warsaw, Poland.

Delgado-Lopez JM, Ramirez-Rodriguez B, Oltolina F, Gregoletto L, Prat M, Cervellino A, Masciocchi N, Frison R, Guagliardi A, Gomez-Morales J. BIOINSPIRED APATITE NANOCRYSTALS FUNCTIONALIZED WITH MONOCLONAL ANTIBODIES FOR TARGETED CANCER THERAPY. *Meeting of the Italian, Spanish and Swiss Crystallographic Associations*, September 9-12, 2013, Como, Italy.

Pietronave S, Zamperone A, Gregoletto L, Oltolina F, Novelli E, Diena M and Prat M. CARDIAC MUSCLE ENGINEERING: STRATEGIES FOR CELL DIFFERENTIATION AND DELIVERY.: *Recent Advances in Cardiac Repair: From Stem Cells to Biomaterials and Small Molecules*, June 20-21, 2013, Torino, Italy.

Pietronave S, Zamperone A, Oltolina F, Colangelo D, Follenzi A, Novelli E, Diena M, Pavese A, Consolo F, Fiore GB, Soncini M, Prat M. MONO AND BIPHASIC ELECTRICAL STIMULATION INDUCES A PRE-CARDIAC DIFFERENTIATION IN PROGENITOR CELLS ISOLATED FROM HUMAN HEART. *International Meeting: Recent advances in cardiac repair: from stem cells to biomaterials and small molecules*, June 20-21, 2013, Torino, Italy.

Zamperone A, Pietronave S, Oltolina F, Novelli E, Diena M, Coisson JD, Travaglia F, Locatelli M, Arlorio M, Prat M. PROTECTIVE EFFECTS OF CLOVAMIDE AGAINST H2O2-INDUCED APOPTOSIS IN CARDIAC PROGENITOR CELLS. *International Meeting: Recent advances in cardiac repair: from stem cells to biomaterials and small molecules*, June 20-21, 2013, Torino, Italy.

Catalano E, Ferraris S, Miola M, Vernè E, Oltolina F, Prat M, Rimondini L and Follenzi A. MAGNETIC NANOPARTICLES-BASED APPROACHES TO LOCALLY TARGET CANCER AND GENE THERAPY. *Congresso della Società Italiana Biomateriali*, June 2013, Baveno, Italy.

Oltolina F, Pietronave S, Zamperone A, Colangelo D, Follenzi A, Novelli E, Diena M, Pavese A, Consolo F, Fiore GB, Soncini M and Prat M. MONO AND BIPHASIC ELECTRICAL STIMULATION INDUCES A PRE-CARDIAC DIFFERENTIATION IN PROGENITOR CELLS ISOLATED FROM HUMAN HEART. *Congresso della Società Italiana Biomateriali*, June 2013, Baveno, Italy.

Oltolina F, Gregoletto L, Delgado-Lopez JM, Gomez-Morales J and Prat M. FUNCTIONALIZED BIOMIMETIC APATITE NANOCRYSTALS FOR TARGETED CANCER THERAPY. (1st Prize Poster Competition) *International School on Biological Crystallization*, May 26-31, 2013, Granada, Spain.

Pietronave S, Cochis A, Zamperone A, Oltolina F, Carletta A, Altomare L, Farè S, Novelli E, Diena M, Rimondini L and Prat M. APPLICATION OF THERMO-RESPONSIVE HYDROGEL FOR THE GENERATION OF IMPLANTABLE CARDIAC PROGENITOR CELL (CPCs) SHEETS FOR SCAFFOLD-LESS TISSUE ENGINEERING. *TERMIS*, September 2012, Vien.

Zamperone A, Pietronave S, Oltolina F, Pavese A, Consolo F, Redaelli A, Fiore G.B, Soncini M, Novelli E, Diena M, Redaelli A, and Prat M. DEVELOPMENT OF AN ELECTRICAL STIMULATION-BASED BIOREACTOR FOR CARDIOMYOGENIC DIFFERENTIATION OF HUMAN ADULT STEM CELLS. *TERMIS*, September 2012, Vien.

Zamperone A, Pietronave S, Pavesi A, Oltolina F, Diena M, Fiore G B, Soncini M and Prat M. EFFECT OF ELECTRIC STIMULATION ON HUMAN AND MOUSE STEM/PROGENITOR CELLS FROM DIFFERENT SOURCES. *ABCD Stem Cells and Differentiation Congress*, May 2012, Torino, Italy.

Pietronave S, Zamperone A, Oltolina F, Cochis A, Carletta A, Altomare L, Faré S, Novelli E, Diena M, Rimondini L and Prat M. THERMO-RESPONSIVE METHYLCELLULOSE HYDRO-GEL FOR ENGINEERED HUMAN CARDIAC PROGENITOR CELL (hCPCs) SHEETS. *XVIII Congresso Nazionale della Società Italiana di Ricerche Cardiovascolari*, October 2011, Imola, Italy.

Student co-supervision:

- Nareshnaik Ramavath: Master in Medical Biotechnology, Università Del Piemonte Orientale Novara, Italy. Thesis Title: Functionalization of Hydroxyapatite Nanoparticles with Cell Penetrating Antennapedia Peptide on Tumor cells.
- Mattia Torchio: Bachelor in Biotechnology, Università Del Piemonte Orientale Novara, Italy. Thesis Title: Magnetic nanoparticles functionalised with monoclonal antibodies for targeting of tumour cells.
- Luca Gregoletto: Master in Medical Biotechnology, Università Del Piemonte Orientale Novara, Italy. Thesis Title: Carbonated Apatite Nanocrystals: A Promising Tool for Targeted Drug Delivery.
- Barbara Sorrentino: Bachelor in Biotechnology, Università Del Piemonte Orientale Novara, Italy. Thesis Title: Production and evaluation of hydroxyapatite nanoparticles for tumour cells targeting.

Nº, 29/09/2016

Francesca Obaldone