BIOGRAPHICAL SKETCH

NAME	**POSITION TITLE**
Maria Prat	Professore Ordinario di Istologia, Facoltà di Medicina, Università del Piemonte Orientale "A. Avogadro", Novara, Italia Presidente del CdL Biotecnologie, Università del Piemonte Orientale "A. Avogadro", Novara, Italia

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
-Facoltà di Scienze Biologiche, Università di Torino, Italia	Dr. Biology (M.Sci)	1969-1973	Biologia dei tumori
-National Institutes of Health, NCI, Bethesda, MD, USA	Post-doc	1975-1977	Biologia dei tumori
- Facoltà di Medicina, Università di Torino, Italia	Specializazzione	1977-1982	Patologia Generale

A. Positions and Honors.

Positions

1973-1983 Assegno di ricerca e didattica Cattedra di Istologia e Embriologia, Facoltà di Medicina, Università di Trieste, Italia.

1975-1977 Fellow del Centro Internazionale Fogarty, NIH, Bethesda, MD, USA.

1979 Visiting Scientist come assegnista del International Cancer Research Technology Transfer (ICRETT) al National Institutes of Health, NCI, Bethesda, MD, USA.

1981 Ricercatore, Deutsche Krebs Forschung Zentrum (DKFZ), Heidelberg, GFR.

1983-1998 Ricercatore confermato di Istologia, Dipartimento di Scienze Biomediche e Oncologia, Facoltà di Medicina, Università di Torino, Italia.

1994-1996 Ricercatore confermato di Istologia, Università di Torino, Facoltà di Medicina di S. Luigi Orbassano, Italia.

1995-1996 Ricercatore confermato di Istologia, Università di Torino, Facoltà di Odontoiatria, Italia.

1998-2001 Professore Associato di Istologia, Facoltà di Medicina, Dipartimento di Scienze Mediche, Università del Piemonte Orientale "A. Avogadro", Novara, Italia.

2002- Professore Ordinario di Istologia, Facoltà di Medicina, Dipartimento di Scienze Mediche- dal 2012 Dipartimento di Scienze della Salute- Università del Piemonte Orientale "A. Avogadro", Novara. Italia.

B. Publications and patents 2006-2015.

- Oltolina F, Zamperone A, Colangelo D, Gregoletto L, Reano S, Pietronave S, Merlin S, Talmon M, Novelli E, Diena M, Nicoletti C, Musarò A, Filigheddu N, Follenzi A, Prat M. *Human Cardiac Progenitor Spheroids Exhibit Enhanced Engraftment Potential.* **PLoS One** 2015;10(9):e0137999.

- Grasso G, Deriu MA, Prat M, Rimondini L, Vernè E, Follenzi A, Danani A. *Cell Penetrating Peptide Adsorption on Magnetite and Silica Surfaces: A Computational Investigation.* **J Phys Chem B**. 2015;119(26):8239-46.
- Zanolini D, Merlin S, Feola M, Ranaldo G, Amoruso A, Gaidano G, Zaffaroni M, Ferrero A, Brunelleschi S, Valente G, Gupta S, Prat M, Follenzi A. *Extrahepatic sources of factor VIII potentially contribute to the coagulation cascade correcting the bleeding phenotype of mice with hemophilia A.* **Haematologica** 2015 ;100(7):881-92.
- 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** 201510;31(5):1766-75.
- Prat M, Oltolina F, Basilico C. *Monoclonal antibodies against the Met/HGF receptor and its ligand: multitask tools with applications from basic research to therapy.* In G. Ricci, M. Prat, A. Catizone (Eds.) "New aspects of the Hepatocyte Growth Factor/c-Met System", special issue **Biomedicine** 2014;2:359-383.
- Prat M, Colangelo D. *Electrical stimuli in stem cell production and differentiation: an important factor?* **Pharmaceutical Bioprocessing** 2014; 2(6): 487-489.
- Prat M, Oltolina F, Gregoletto L, Delgado-López JM, Gómez-Morales J. (2014) *Nanocrystalline apatites functionalized with monoclonal antibodies for targeted cancer therapies.* In: M. Iafisco, J.M. Delgado López (Eds.) **Apatite: Synthesis, Structural Characterization and Biomedical Applications.** P. 201-223, Nova Science Publishers, ISBN: 978-1-63321-536-8.
- Di Scipio F, Sprio AE, Folino A, Carere ME, Salamone P, Yang Z, Berrone M, Prat M, Losano G, Rastaldo R, Berta GN. *Injured cardiomyocytes promote dental pulp mesenchymal stem cell homing.* **Biochim Biophys Acta** 2014;1840(7):2152-61.
- Pavesi A, Soncini M, Zamperone A, Pietronave S, Medico E, Redaelli A, Prat M, Fiore GB. *Electrical conditioning of adipose-derived stem cells in a multi-chamber culture platform.* **Biotechnol Bioeng.** 2014;111(7):1452-63.
- Pietronave S, Zamperone A, Oltolina F, Colangelo D, Follenzi A, Novelli E, Diena M, Pavesi 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;23(8):888-98.
- Zamperone A, Pietronave S, Merlin S, Colangelo D, Ranaldo G, Medico E, Di Scipio F, Berta GN, Follenzi A, Prat M. *Isolation and Characterization of a Spontaneously Immortalized Multipotent Mesenchymal Cell Line Derived from Mouse Subcutaneous Adipose Tissue.* **Stem Cells Dev.** 2013;22(21):2873-84.
- Rodríguez-Ruiz I, Delgado-López JM, Durán-Olivencia MA, Iafisco M, Tampieri A, Colangelo D, Prat M, Gómez-Morales J. *pH-responsive delivery of doxorubicin from citrate-apatite nanocrystals with tailored carbonate content.* **Langmuir** 2013;29(26):8213-21.
- Iafisco M, Delgado-Lopez JM, Varoni EM, Tampieri A, Rimondini L, Gomez-Morales J, Prat M. *Cell Surface Receptor Targeted Biomimetic Apatite Nanocrystals for Cancer Therapy.* **Small** 2013;9(22):3834-44.
- Cappellano G, Uberti F, Caimmi PP, Pietronave S, Mary DA, Dianzani C, Micalizzi E, Melensi M, Boldorini R, Nicosia G, Crosio E, Chiocchetti A, Aina F, Prat M, Dianzani U, Vacca G, Ariatti C, Grossini E. *Different expression and function of the endocannabinoid system in human epicardial adipose tissue in relation to heart disease.* **Can J Cardiol**. 2013;29(4):499-509.
- Iafisco M, Palazzo B, Ito T, Otsuka M, Senna M, Delgado-Lopez JM, Gomez-Morales J, Tampieri A, Prat M, Rimondini L. *Preparation of core-shell poly(L-lactic) acid-nanocrystalline apatite hollow microspheres for bone repairing applications.* **J Mater Sci Mater Med.** 2012;23(11):2659-69.

- Delgado-López JM, Iafisco M, Rodríguez I, Tampieri A, Prat M, Gómez-Morales J. *Crystallization of bioinspired citrate-functionalized nanoapatite with tailored carbonate content.* **Acta Biomater.** 2012;8(9):3491-9.
- Ito T, Saito M, Uchino T, Senna M, Iafisco M, Prat M, Rimondini L, Otsuka M. *Preparation of injectable auto-forming alginate gel containing simvastatin with amorphous calcium phosphate as a controlled release medium and their therapeutic effect in osteoporosis model rat.* **J Mater Sci Mater Med.** 2012;23(5):1291-7.
- Pietronave S, Prat M. *Advances and applications of induced pluripotent stem cells.* **Can J Physiol Pharmacol.** 2012;90(3):317-25.
- Iafisco M, Varoni E, Di Foggia M, Pietronave S, Fini M, Roveri N, Rimondini L, Prat M. *Conjugation of hydroxyapatite nanocrystals with human immunoglobulin G for nanomedical applications.* **Colloids Surf B Biointerfaces** 2012;90:1-7.
- Gomez-Morales J, Delgado-Lopez JM, Iafisco M, Hernandez-Hernandez A, Prat M. *Amino Acidic Control of Calcium Phosphate Precipitation by Using the Vapor Diffusion Method in Microdroplets.* **Crystal Growth and Design** 2011;11: 4802-09.
- Forte G, Pietronave S, Nardone G, Zamperone A, Magnani E, Pagliari S, Pagliari F, Giacinti C, Nicoletti C, Musaró A, Rinaldi M, Ribezzo M, Comoglio C, Traversa E, Okano T, Minieri M, Prat M, Di Nardo P. *Human cardiac progenitor cell grafts as unrestricted source of supernumerary cardiac cells in healthy murine hearts.* **Stem Cells** 2011;29(12):2051-61.
- Baldanzi G, Pietronave S, Locarno D, Merlin S, Porporato P, Chianale F, Filigheddu N, Cantelmo AR, Albini A, Graziani A, Prat M. *Diacylglycerol kinases are essential for hepatocyte growth factor-dependent proliferation and motility of Kaposi's sarcoma cells.* **Cancer Sci.** 2011;102(7):1329-36.
- Dal Ponte C, Alchera E, Follenzi A, Imarisio C, Prat M, Albano E, Carini R. *Pharmacological postconditioning protects against hepatic ischemia/reperfusion injury.* **Liver Transpl.** 2011;17(4):474-82.
- Pagliari S, Vilela-Silva AC, Forte G, Pagliari F, Mandoli C, Vozzi G, Pietronave S, Prat M, Licoccia S, Ahluwalia A, Traversa E, Minieri M, Di Nardo P. *Cooperation of biological and mechanical signals in cardiac progenitor cell differentiation.* **Adv Mater.** 2011;23(4):514-8.
- Iafisco M, Di Foggia M, Bonora S, Prat M, Roveri N. *Adsorption and spectroscopic characterization of lactoferrin on hydroxyapatite nanocrystals.* **Dalton Trans.** 2011;40(4):820-7.
- Iafisco M, Varoni E, Battistella E, Pietronave S, Prat M, Roveri N, Rimondini L. The cooperative effect of size and crystallinity degree on the resorption of biomimetic hydroxyapatite for soft tissue augmentation. **Int J Artif Organs**. 2010;33(11):765-74.
- Iafisco M, Sabatino P, Lesci IG, Prat M, Rimondini L, Roveri N. Conformational modifications of serum albumins adsorbed on different kinds of biomimetic hydroxyapatite nanocrystals. **Colloids Surf B Biointerfaces.** 2010;81(1):274-84.
- Cantelmo AR, Cammarota R, Noonan DM, Focaccetti C, Comoglio PM, Prat M, Albini A. Cell delivery of Met docking site peptides inhibit angiogenesis and vascular tumor growth. **Oncogene.** 2010;29(38):5286-98.
- Pietronave S, Forte G, Locarno D, Merlin S, Zamperone A, Nicotra G, Isidoro C, Nardo PD, Prat M. Agonist monoclonal antibodies against HGF receptor protect cardiac muscle cells from apoptosis. Am J Physiol Heart Circ Physiol. 2010;298(4):H1155-65.
- Pietronave S, Iafisco M, Locarno D, Rimondini L, Prat M. Functionalized nanomaterials for diagnosis and therapy of cancer. **Journal of Applied Biomaterials & Biomechanics** 2009; 7(2):77-89.

- Valente G, Nicotra G, Arrondini M, Castino R, Capparuccia L, Prat M, Kerim S, Tamagnone L, Isidoro C. Co-expression of plexin-B1 and Met in human breast and ovary tumours enhances the risk of progression. **Cell Oncol.** 2009;31(6):423-36.
- Merlin S, Pietronave S, Locarno D, Valente G, Follenzi A, Prat M. Deletion of the ectodomain unleashes the transforming, invasive, and tumorigenic potential of the MET oncogene. **Cancer Sci.** 2009;100(4):633-8.
- Forte G, Minieri M, Cossa P, Antenucci D, Sala M, Gnocchi V, Fiaccavento R, Carotenuto F, De Vito P, Baldini PM, Prat M, Di Nardo P. Hepatocyte growth factor effects on mesenchymal stem cells: proliferation, migration, and differentiation. **Stem Cells.** 2006;24(1):23-33.

- International patent: Prat M, Pietronave S, Zamperone A. *"Spontaneously immortalized multipotent mesenchymal cell lnederived from mouse subcutaneous adipose tissue: tool for regenerative medicine and bioactive molecules and/or drugs screening"* (**patent number US2012/0142002 A1,** published on June 7, 2012).
- International patent: Prat M, Pietronave S *"Cardiomyocytes anti-apoptotic molecules, products and compositions thereof"* (**patent number A61K39/395C1**, published in 2009).
- International patent: Di Nardo P, Forte G, Franzese O, Bonmassar E, Prat M. *"Immortalized cell line of murine mesenchymal stem cells, method for preparation and uses thereof"* (**patent number WO200904664**, published in 2008).
- Italian patent: Di Nardo P, Forte G, Franzese O, Bonmassar E, Prat M. "Linea cellulare immortalizzata di cellule staminali mesenchimali murine, metodo per la sua preparazione e relativi usi" (**patent number RM2007A000372**, published on July 3, 2007)

C. Grants 2006-2015

- Progetti di ricerca scientifica applicata; Italia-Spain Joint Cooperation Program on Advanced materials (NSAM) Grant from MIUR (Ministero Italiano Università e Ricerca): Multifunctional drug-loaded antibody-targeted inorganic nanoparticles for biomedical use, 10,520 Euro (2009-2013);
- Cariplo project 2008 (Nano-micro-structured polymeric matrices for engineering cardiac proto-tissues in the frame of the call "Ricerca scientifica e tecnologica sui materiali avanzati" Grant # 2008-2459), 200,000 Euro.
- Local Funds 2009-2010: project: ESTRAZIONE E CARATTERIZZAZIONE DI CELLULE PROGENITRICI CARDICHE (CPC) UMANE PER GENERARE FOGLIETTI CELLULARI PER INGEGNERIA TISSUTALE. 5,000 Euro.
- Local Funds 2007-2008: project: ANTICORPI MONOCLONALI AGONISTI DEL RECETTORE DEL FATTORE DI CRESCITA EPATOCITARIO (HFG-R), QUALI FATTORI PROTETTIVI PER EPATOCITI IN VITRO E IN VIVO. 8,000 Euro.
- Local Funds 2006: project: RIFORMATTAZIONE DI ANTICORPI MONOCLONALI AGONISTI DEL RECETTORE MET A scFv (single chain Fragment variable). 5,500 Euro.
- Local Funds 2016: project: HYDROXYAPATITE NANOPARTICLES AS MULTIFUNCTIONAL PLATFORMS FOR TARGETED DELIVERY OF hTERT siRNA TO TUMOR CELLS. 44,000 Euro.

Partecipa ufficialmente e attivamente ai seguenti progetti di ricerca:

- MICINN. Plan Nacional I+D (Spanish Ministry of Economy and Competitiveness), Grant n. MAT2011-28543: Crystallization and functionalization of nanocrystalline apatites. Relevance in the formation of bone nanostructure and therapeutic applications

(CRYSFUNBIO), 80.000 € (2012-2015), PI: Jaime Gómez Morales, Laboratorio de Estudios Cristalográficos. Instituto Andaluz de Ciencias de la Tierra (CSIC).

- CSP (Compagnia di San Paolo), Development of Engineered Magnetic Nanoparticles for Targeted Cancer Therapy, 100.000 Euro (2013-2014) PI: A. Follenzi, Università del Piemonte Orientale.
- AIRC Grant n. 13166: Development of engineered magnetic nanoparticles for cancer therapy, 360.000 Euro (2013-2015) PI: A. Follenzi, Università del Piemonte Orientale.
- Plan Nacional I+D, Retos (Spanish Ministry of Economy and Competitiveness), Grant n. MAT2014-60533-R: Bio-inspired mineralization routes for manufacturing apatite related bioactive hybrids composites, 36.300 € (2015-2017) PI: Jaime Gómez Morales, Laboratorio de Estudios Cristalográficos. Instituto Andaluz de Ciencias de la Tierra (CSIC).

D. Main fields of investigation, areas of interest and know how

- Nanoparticelle per il “targeted drug delivery” di cellule tumorali.
- Cellule staminali adulte e ingegneria tissutale applicata al miocardio.
- Effetti biologici di fattori di crescita e recettori ad attività tirosina chinasica.
- Marcatori tumorali associati e oncoproteine dei tumori umani.
- Anticorpi monoclonali come sonde e “strumenti” biomimetici.