

SILVIA LOPA

SUMMARY

I am currently working at the Cell and Tissue Engineering Laboratory (IRCCS Istituto Ortopedico Galeazzi) as the Principal Investigator of a 3-year project funded by the Italian Ministry of Health and focused on the development of a microfluidic model mimicking the articular joint for the study of osteoarthritis.

I graduated in “Industrial Biotechnology” in 2009 and I received my PhD in “Biotechnology Applied to Medical Science” in 2014. During my Doctorate, I focused on musculoskeletal tissue engineering and on the establishment of advanced *in vitro* models for the study of biological processes. I participated to several projects in collaboration with academic and industrial partners and I joined Prof. van Osch’s group (Erasmus MC, Rotterdam, NL) and Prof. Mallein-Gerin’s group (University of Lyon, Lyon, FR) as a visiting PhD student.

In 2012, I was selected as one of the six members worldwide of the Tissue Engineering Young Investigator Council and, in 2016, I have been elected as one of the representatives of the Strategic Alliance Committee of the Tissue Engineering and Regenerative Medicine Society.



SKILLS

Communication skills, interpersonal and team-working skills, critical thinking, decision making and organizational skills, responsibility and reliability.

WORK EXPERIENCE

07/2016 – present **Principal Investigator**

Cell and Tissue Engineering Laboratory
IRCCS Istituto Ortopedico Galeazzi, Milan, Italy

Main tasks Research project management, grant application and scientific manuscript writing, experimental activity planning, data analysis, mentoring of PhD students

Research topics Inflammation, osteoarthritis, microfluidics

03/2014 – 06/2016 **Postdoctoral Research Fellow**

Cell and Tissue Engineering Laboratory
IRCCS Istituto Ortopedico Galeazzi, Milan, Italy

Main tasks Research project management, grant application and scientific manuscript writing, experimental activity planning and execution, data analysis, mentoring of Master and PhD students

Research topics Adult stem cells, biomaterials, inflammation, bioreactors, biofabrication

01/2010 – 02/2014	PhD Student
	Cell and Tissue Engineering Laboratory IRCCS Istituto Ortopedico Galeazzi, Milan, Italy
Main tasks	Research project management, scientific manuscript writing, experimental activity planning and execution, data analysis, mentoring of Master students
Research topics	Adult stem cells, biomaterials, inflammation, bioreactors, prostheses
04/2013 – 10/2013	PhD Visiting Student
	Erasmus University Medical Center, Rotterdam, The Netherlands
Main tasks	Experimental activity planning and execution, data analysis, scientific manuscript writing
Research topics	Adult stem cells, inflammation
05/2012 – 06/2012	PhD Visiting Student
	Institut de Biologie et Chimie des Protéines, Lyon, France
Main tasks	Experimental activity planning and execution, data analysis, scientific manuscript writing
Research topics	Biomaterials, bioreactors
04/2009 – 12/2009	Postgraduate Research Fellow
	Dipartimento di Biotecnologie Mediche e Medicina Traslazionale Università degli Studi di Milano, Milan, Italy
Main tasks	Experimental activity planning and execution, data analysis, scientific manuscript writing
Research topics	Adult stem cells, biomaterials
11/2007 – 03/2009	Master Student (<i>internship</i>)
	Dipartimento di Biotecnologie Mediche e Medicina Traslazionale Università degli Studi di Milano, Milan, Italy
Main tasks	Experimental activity planning and execution, data analysis
Research topics	Adult stem cells, biomaterials

MENTORING EXPERIENCE

- 1 PhD Student in Veterinary and Animal Science (Università degli Studi di Milano, Milan, IT)
- 1 PhD Student in Bioengineering (Politecnico di Milano, Milan, IT)
- 1 visiting PhD Student from the Dept. of Orthopaedics of Erasmus MC (Erasmus MC, Rotterdam, NL)
- 6 Master Students in Biomedical Engineering (Politecnico di Milano, Milan, IT; University of Twente, Twente, NL; MIT Massachusetts Institute of Technology, Boston, MA, USA)
- 1 Master Student in Biology (Università degli Studi di Milano, Milan, IT)
- 1 Master Student in Veterinary Biotechnology Science (Università degli Studi di Milano, Milan, IT)
- 1 Master Student in Industrial Biotechnology (Università degli Studi di Milano-Bicocca, Milan, IT)

EDUCATION

- 2014** **PhD**
Biotechnology Applied to Medical Science, Università degli Studi di Milano
- 2011** **TERMIS Summer School**
Biomaterials and Regenerative Medicine: from molecular and cell biology to tissues and organs repair, Università degli Studi di Trento
- 2010** **TERMIS Summer School**
Making an impact: the preparation of high quality papers in Tissue Engineering & Regenerative Medicine, University of Sheffield
- 2009** **MSc**
Industrial Biotechnology (110/110), Università degli Studi di Milano-Bicocca
The study course included an internship (18 months) in a research laboratory (Dipartimento di Biotecnologie Mediche e Medicina Traslazionale, Università degli Studi di Milano)
- 2006** **BSc**
Molecular Biotechnology (106/110), Università degli Studi di Milano-Bicocca
The study course included an internship (6 months) in a research laboratory (Dipartimento di Biotecnologie e Bioscienze, Università degli Studi di Milano-Bicocca)

LANGUAGES

- English** **Highly proficient in spoken and written English**
(Common European Framework C1)
- Spanish** **Basic communication skills in Spanish**
(Common European Framework A1)

AWARDS AND HONORS**Strategic Alliance Committee TERMIS (2016 - present)**

Elected as one of the representatives of the Strategic Alliance Committee of the Tissue Engineering and Regenerative Medicine Society

Tissue Engineering Young Investigator Council (2012-2013)

Selected as one of the six members worldwide of the Tissue Engineering Young Investigator Council

Tissue Engineering and Regenerative Medicine Society Summer School Grant (2011)

Scholarship assigned to PhD students based on their work experience and scientific production

SCIENTIFIC PUBLICATIONS

Bottagisio M, **Lopa S**, Granata V, Talò G, Bazzocchi C, Moretti M, Barbara Lovati A. Different combinations of growth factors for the tenogenic differentiation of bone marrow mesenchymal stem cells in monolayer culture and in fibrin-based three-dimensional constructs. *Differentiation*. **2017**

Bersini S, Arrigoni C*, **Lopa S***, Bongio M*, Martin I, Moretti M. Engineered miniaturized models of musculoskeletal diseases. *Drug Discov Today*. **2016**

Mayer N*, **Lopa S***, Talò G, Lovati AB, Padeloup M, Riboldi SA, Moretti M, Mallein-Gerin F. Interstitial Perfusion Culture with Specific Soluble Factors Inhibits Type I Collagen Production from Human Osteoarthritic Chondrocytes in Clinical-Grade Collagen Sponges. *PLoS One*. **2016**

Lovati AB, **Lopa S**, Recordati C, Talò G, Turrisi C, Bottagisio M, Losa M, Scanziani E, Moretti M. In Vivo bone formation within engineered hydroxyapatite scaffolds in a sheep model. *Calcif Tissue Int*. **2016**

Gerges I, Tamplenizza M, **Lopa S**, Recordati C, Martello F, Tocchio A, Ricotti L, Arrigoni C, Milani P, Moretti M, Lenardi C. Creep-resistant dextran-based polyurethane foam as a candidate scaffold for bone tissue engineering: synthesis, chemico-physical characterization, and in vitro and in vivo biocompatibility. *Int J Polym Mater*. **2016**

Lopa S*, Ceriani C*, Cecchinato R, Zagra L, Moretti M, Colombini A. Stability of housekeeping genes in human intervertebral disc, endplate and articular cartilage cells in multiple conditions for reliable transcriptional analysis. *Eur Cell Mater*. **2016**

Bongio M*, **Lopa S***, Gilardi M, Bersini S, Moretti M. A 3D vascularized bone remodeling model combining osteoblasts and osteoclasts in a CaP nanoparticle-enriched matrix. *Nanomedicine (Lond)*. **2016**

Lopa S, Leijs MJ, Moretti M, Lubberts E, van Osch GJ, Bastiaansen-Jenniskens YM. Arthritic and non-arthritic synovial fluids modulate IL10 and IL1RA gene expression in differentially activated primary human monocytes. *Osteoarthritis Cartilage*. **2015**

Bottagisio M, Lovati AB, **Lopa S**, Moretti M. Osteogenic differentiation of human and ovine bone marrow stromal cells in response to β -glycerophosphate and monosodium phosphate. *Cell Reprogram*. **2015**

Lopa S*, Piraino F*, Kemp RJ, Di Caro C, Lovati AB, Di Giancamillo A, Moroni L, Peretti GM, Rasponi M, Moretti M. Fabrication of multi-well chips for spheroid cultures and implantable constructs through rapid prototyping techniques. *Biotechnol Bioeng*. **2015**

Lovati AB, **Lopa S**, Talò G, Previdi S, Recordati C, Mercuri D, Segatti F, Zagra L, Moretti M. In vivo evaluation of bone deposition in macroporous titanium implants loaded with mesenchymal stem cells and strontium-enriched hydrogel. *J Biomed Mater Res B Appl Biomater*. **2015**

Colombini A, **Lopa S**, Ceriani C, Lovati AB, Croiset SJ, Di Giancamillo A, Lombardi G, Banfi G, Moretti M. In vitro characterization and in vivo behavior of human nucleus pulposus and annulus fibrosus cells in clinical-grade fibrin and collagen-enriched fibrin gels. *Tissue Eng Part A*. **2015**

Lopa S, Colombini A, Stanco D, de Girolamo L, Sansone V, Moretti M. Donor-matched mesenchymal stem cells from knee infrapatellar and subcutaneous adipose tissue of osteoarthritic donors display differential chondrogenic and osteogenic commitment. *Eur Cell Mater.* **2014**

Lopa S, Madry H. Bioinspired scaffolds for osteochondral regeneration. *Tissue Eng Part A.* **2014**

Laganà M, Arrigoni C, **Lopa S**, Sansone V, Zagra L, Moretti M, Raimondi MT. Characterization of articular chondrocytes isolated from 211 osteoarthritic patients. *Cell Tissue Bank.* **2014**

Lopa S, Colombini A, Sansone V, Preis FW, Moretti M. Influence on chondrogenesis of human osteoarthritic chondrocytes in co-culture with donor-matched mesenchymal stem cells from infrapatellar fat pad and subcutaneous adipose tissue. *Int J Immunopathol Pharmacol.* **2013**

Lopa S, Mercuri D, Colombini A, De Conti G, Segatti F, Zagra L, Moretti M. Orthopedic bioactive implants: Hydrogel enrichment of macroporous titanium for the delivery of mesenchymal stem cells and strontium. *J Biomed Mater Res A.* **2013**

Lopa S, Colombini A, de Girolamo L, Sansone V, Moretti M. New strategies in cartilage tissue engineering for osteoarthritic patients: Infrapatellar fat pad as an alternative source of progenitor cells. *J Biomater Tissue Eng.* **2011**

Lopa S, De Girolamo L, Arrigoni E, Stanco D, Rimondini L, Baruffaldi Preis FW, Lanfranchi L, Ghigo M, Chiesa R, Brini AT. Enhanced biological performance of human adipose-derived stem cells cultured on titanium-based biomaterials and silicon carbide sheets for orthopaedic applications. *J Biol Regul Homeost Agents.* **2011**

Conforti E, Arrigoni E, Piccoli M, **Lopa S**, de Girolamo L, Ibatizi A, Di Matteo A, Tettamanti G, Brini AT, Anastasia L. Reversine increases multipotent human mesenchymal cells differentiation potential. *J Biol Regul Homeost Agents.* **2011**

de Girolamo L, Arrigoni E, Stanco D, **Lopa S**, Di Giancamillo A, Addis A, Borgonovo S, Dellavia C, Domeneghini C, Brini AT. Role of autologous rabbit adipose-derived stem cells in the early phases of the repairing process of critical bone defects. *J Orthop Res.* **2011**

Quirici N, Scavullo C, de Girolamo L, **Lopa S**, Arrigoni E, Deliliers GL, Brini AT. Anti-L-NGFR and -CD34 monoclonal antibodies identify multipotent mesenchymal stem cells in human adipose tissue. *Stem Cells Dev.* **2010**

Arrigoni E, **Lopa S**, de Girolamo L, Stanco D, Brini AT. Isolation, characterization and osteogenic differentiation of adipose-derived stem cells: from small to large animal models. *Cell Tissue Res.* **2009**

de Girolamo L, **Lopa S**, Arrigoni E, Sartori MF, Baruffaldi Preis FW, Brini AT. Human adipose-derived stem cells isolated from young and elderly women: their differentiation potential and scaffold interaction during in vitro osteoblastic differentiation. *Cytotherapy.* **2009**

** Equally contributing authors*

PARTICIPATION TO INTERNATIONAL CONGRESSES

- 2016** **TERMIS (Tissue Engineering and Regenerative Medicine Society)**
Uppsala, Sweden
- 2015** **TERMIS World Congress (Tissue Engineering and Regenerative Medicine Society)**
Boston, MA, USA
- 2014** **OARSI (Osteoarthritis Research International Society)**
Paris, France
- 2013** **TERMIS (Tissue Engineering and Regenerative Medicine Society)**
Istanbul, Turkey
- 2012** **ICRS (International Cartilage Repair Society)**
Montreal, Canada
- 2011** **WRM (World Conference on Regenerative Medicine)**
Leipzig, Germany
- 2011** **TERMIS (Tissue Engineering and Regenerative Medicine Society)**
Granada, Spain
- 2011** **ORS (Orthopedic Research Society)**
Long Beach, CA, USA

I authorize the use of my personal data according to the Italian Legislative Decree 196/03 and subsequent amendments