

CURRICULUM VITAE

FORMATO EUROPEO/EUROPEAN FORMAT

INFORMAZIONI PERSONALI/ PERSONAL INFORMATION

Nome, Cognome/Name, Surname	Tirella Annalisa
Indirizzo/Address	Via Rosellini 13/B
Via, numero civico, c.a.p., città, nazione/ House number, street name, postcode, city, country	56124 Pisa
Telefono/Telephone	Italy
Fax	+39 339 8183524
E-mail	a.tirella@ifc.cnr.it
Sito web/Website	
Nazionalità/Nationality	Italian
Luogo e data di nascita/ Place and Date of birth	Pisa (Italy) 14/04/1983

ESPERIENZA PROFESSIONALE /WORK EXPERIENCE

Se dipendente CNR indicare:

N. MATRICOLA 15238
QUALIFICA RICERCATORE
LIVELLO III

Data /Dates (from – to)	20 th February 2013 → today
Nome e indirizzo del datore di lavoro / Name and address of employer	IFC-CNR (Pisa, Italy)
Tipo o settore di attività / Type of business or sector	Research and Management
Funzione o posto occupato / Occupation or position held	Researcher
Principali mansioni e responsabilità / Main activities and responsibilities	Research and development of methods for the mechanical and ultra-structural characterization of the hepatic tissue and fabrication of micro-spherical hydrogel organoids encapsulating hepatic cells and microfibers/nanosensors.
Data /Dates (from – to)	November 2012 → today
Nome e indirizzo del datore di lavoro / Name and address of employer	University of Cagliari (Cagliari, Italy)
Tipo o settore di attività / Type of business or sector	Academic
Funzione o posto occupato / Occupation or position held	Professor of Biomaterials
Principali mansioni e responsabilità / Main activities and responsibilities	Teaching
Data /Dates (from – to)	October 2012 → February 2013
Nome e indirizzo del datore di lavoro / Name and address of employer	Interdepartmental Research Center “E. Piaggio”, University of Pisa, Pisa, Italy
Tipo o settore di attività / Type of business or sector	Temporary Research Associate Position in Biomaterials and micro-environments
Funzione o posto occupato / Occupation or position held	Research and Management
Principali mansioni e responsabilità / Main activities and responsibilities	Development of mechanical and ultrastructural methods for the quantitative characterization of soft tissues and scaffolds and scientific and technical leadership of EU project workpackage (Re-Liver).

Data /Dates (from – to)	April 2011 → October 2012
Nome e indirizzo del datore di lavoro / Name and address of employer	Department of Chemical Engineering Industrial Chemistry and Materials Science, University of Pisa, Pisa, Italy
Tipo o settore di attività / Type of business or sector	Research
Funzione o posto occupato / Occupation or position held	Postdoctoral Research Position on Biomaterials and micro-environments
Principali mansioni e responsabilità / Main activities and responsibilities	Design and modeling of systems containing nano-particles for biomedical and sensing applications.
Data /Dates (from – to)	November 2010 → April 2011
Nome e indirizzo del datore di lavoro / Name and address of employer	Department of Chemical Engineering Industrial Chemistry and Materials Science, University of Pisa, Pisa, Italy
Tipo o settore di attività / Type of business or sector	Research
Funzione o posto occupato / Occupation or position held	Temporary Research Position on Biofabrication
Principali mansioni e responsabilità / Main activities and responsibilities	Microfabrication systems for the realisation of hydrogel constructs containing cells and nanoparticles
Data /Dates (from – to)	September 2009 → April 2010
Nome e indirizzo del datore di lavoro / Name and address of employer	Laboratory of Polymers and Hydrogels, School of Pharmacy, University of Manchester, Manchester, UK
Tipo o settore di attività / Type of business or sector	Research
Funzione o posto occupato / Occupation or position held	Visitor guest with research activity based on Biomaterials
Principali mansioni e responsabilità / Main activities and responsibilities	Design of responsive hydrogels for inflammatory models in soft tissues for biomedical applications.

ISTRUZIONE E FORMAZIONE / EDUCATION AND TRAINING

In ordine di data /Dates (from – to)	25 February 2011
Nome e tipo d'istituto di istruzione o formazione / Name and type of organisation providing education and training	University of Rome "Tor Vergata", Rome, Italy
Principali materie e competenze professionali apprese / Principal subjects occupational skills covered	Development of a modular microfabrication system to engineer complex tissues: of material characterization, 3D spatially controlled fabrication of shaped controlled hydrogel microstructures, design of graphical user interfaces, cell culture and <i>in vitro</i> systems
Certificato o diploma ottenuto /Title of qualification awarded	PhD in Materials for Environment and Energy
Livello nella classificazione nazionale o internazionale / Level in National classification	
In ordine di data /Dates (from – to)	29 February 2008
Nome e tipo d'istituto di istruzione o formazione / Name and type of organisation providing education and training	Faculty of Engineering, University of Pisa
Principali materie e competenze professionali apprese / Principal subjects occupational skills covered	
Certificato o diploma ottenuto /Title of qualification awarded	Abilitation for engineering profession (section A).
Livello nella classificazione nazionale o internazionale / Level in National classification	
In ordine di data /Dates (from – to)	26 July 2007
Nome e tipo d'istituto di istruzione o formazione / Name and type of	University of Pisa, Faculty of Engineering, Pisa, Italy,

organisation providing education and training	
Principali materie e competenze professionali apprese / Principal subjects occupational skills covered	Modeling and characterisation of a microfabrication technique for the realisation of hydrogel structures: hydrogel mechanical characterisation, finite element modelling, biofabrication and cell culture system
Certificato o diploma ottenuto /Title of qualification awarded	Master Degree in Biomedical Engineering
Livello nella classificazione nazionale o internazionale / Level in National classification	110/110L
In ordine di data /Dates (from – to)	11 October 2005
Nome e tipo d'istituto di istruzione o formazione / Name and type of organisation providing education and training	University of Pisa, Faculty of Engineering, Pisa, Italy
Principali materie e competenze professionali apprese / Principal subjects occupational skills covered	A concentration gradient chamber for neuronal cell differentiation: design, modeling and fabrication: bioreactor design, finite element modelling, image analysis and cell culture.
Certificato o diploma ottenuto /Title of qualification awarded	Bachelor Degree in Biomedical Engineering
Livello nella classificazione nazionale o internazionale / Level in National classification	110/110L

ATTIVITA' DI RICERCA / RESEARCH ACTIVITIES

Attuali campi di ricerca / Research sectors

Biofabrication of micro-sized 3D biomaterials, mechanical characterization and architectural analysis of biomaterials and tissue derivatives, image analysis and use of fluorescence sensing nanoparticles, design of defined and monitorable *in vitro* systems

Recenti attività scientifiche/ Recent Scientific Activities.

Member of the WP1 of ReLiver EU-funded research project.

Honors and Awards.

Title	PhD awards from GNB & Patron Editore
Date	21/09/2011
Institution	Italian National Group of Bioengineering (GNB)

<u>Seminars.</u>	
Date	May/June 2012
Institution	Interdepartmental Research Center "E. Piaggio", Faculty of Engineering, University of Pisa
Subject	"Soft biomaterials characterisation and interaction with biological components in a defined and predicted manner"

- Pubblicazioni/ Books and Articles
1. Tirella, A, G Mattei, and A Ahluwalia. 2013. "Strain Rate Viscoelastic Analysis of Soft and Highly Hydrated Biomaterials." *Journal of Biomedical Materials Research. Part A* (August 14). doi:10.1002/jbm.a.34914. <http://www.ncbi.nlm.nih.gov/pubmed/23946054>.
 2. Ucciferri, Nadia, Eva-Marie Collnot, Birgit Gaiser, Annalisa Tirella, Vicki Stone, Claudio Domenici, Claus-Michael Lehr, and Arti Ahluwalia. 2013. "In Vitro Toxicological Screening of Nanoparticles on Primary Human Endothelial Cells and the Role of Flow in Modulating Cell Response." *Nanotoxicology* (August 5). doi:10.3109/17435390.2013.831500. <http://www.ncbi.nlm.nih.gov/pubmed/23909703>.
 3. Tirella, A, T Liberto, and A Ahluwalia. 2012. "Riboflavin and Collagen: New Crosslinking Methods to Tailor the Stiffness of Hydrogels." *Materials Letters* 74 (January): 58–61. doi:10.1016/j.matlet.2012.01.036. <http://dx.doi.org/10.1016/j.matlet.2012.01.036>.
 4. Mattei, G, A Tirella, and A Ahluwalia. 2012. "Functionally Graded Materials (FGMs) with Predictable and Controlled Gradient Profiles: Computational Modelling and Realisation." *International Journal for Computational Methods in Engineering Science & Mechanics (CMES)* (Mechanical characterization and modeling of tissues and biomedical materials at all length scales).

5. Tirella, A, and A Ahluwalia. 2012. "The Impact of Fabrication Parameters and Substrate Stiffness in Direct Writing of Living Constructs." *Biotechnology Progress* 28 (5) (June 26): 1315–1320. doi:10.1002/btpr.1586. <http://www.ncbi.nlm.nih.gov/pubmed/22736619>.
6. Tirella, A, C De Maria, G Criscenti, G Vozzi, and A Ahluwalia. 2012. "The PAM2 System: a Multilevel Approach for Fabrication of Complex Three-dimensional Microstructures." *Rapid Prototyping Journal* 18 (4): 299–307. doi:10.1108/1352541211231725.
7. Spinelli, A, B Vinci, A Tirella, M Matteucci, L Gargani, A Ahluwalia, C Domenici, E Picano, and P Chiarelli. 2012. "Realization of a Poro-elastic Ultrasound Replica of Pulmonary Tissue." *Biomatter* 2 (1) (January 1): 27–26. <http://www.landesbioscience.com/journals/biomatter/article/19835/>.
8. Vozzi, G, A Tirella, and A Ahluwalia. 2012. "Rapid Prototyping Composite and Complex Scaffolds with PAM2." *Methods in Molecular Biology* 868: 57–69.
9. Tirella, A, F Vozzi, C De Maria, G Vozzi, T Sandri, D Sassano, L Cognolato, and A Ahluwalia. 2011. "Substrate Stiffness Influences High Resolution Printing of Living Cells with an Ink-jet System." *Journal of Bioscience and Bioengineering* 112 (1) (July): 79–85. doi:10.1016/j.jbiosc.2011.03.019. <http://www.ncbi.nlm.nih.gov/pubmed/21497548>.
10. Di Nardo, P, M Minieri, A Tirella, G Forte, and A Ahluwalia. 2011. "Inherently Bio-Active Scaffolds: Intelligent Constructs to Model the Stem Cell Niche." In *Myocardial Tissue Engineering*, edited by AR Boccaccini and SE Harding, 6:29–47. Berlin, Heidelberg: Springer Berlin Heidelberg. doi:10.1007/978-3-642-18056-9. <http://www.springerlink.com/content/j3k541113233424/>.
11. Tirella, A, F Vozzi, G Vozzi, and A Ahluwalia. 2011. "PAM2 (Piston Assisted Microsyringe): A New Rapid Prototyping Technique for Biofabrication of Cell Incorporated Scaffolds." *October* 17 (2). doi:10.1089/ten.tec.2010.0195.
12. Vozzi, G, D Mazzei, A Tirella, F Vozzi, and A Ahluwalia. 2010. "Finite Element Modelling and Design of a Concentration Gradient Generating Bioreactor: Application to Biological Pattern Formation and Toxicology." *Toxicology in Vitro* 24 (6) (September): 1828–1837. doi:10.1016/j.tiv.2010.05.010. <http://www.ncbi.nlm.nih.gov/pubmed/20580814>.
13. Tirella, A, A Orsini, G Vozzi, and A Ahluwalia. 2009. "A Phase Diagram for Microfabrication of Geometrically Controlled Hydrogel Scaffolds." *Biofabrication* 1 (4) (December): 045002. doi:10.1088/1758-5082/1/4/045002. <http://www.ncbi.nlm.nih.gov/pubmed/20811111>.
14. Tirella, A, M Marano, F Vozzi, and A Ahluwalia. 2008. "A Microfluidic Gradient Maker for Toxicity Testing of Bupivacaine and Lidocaine." *Toxicology in Vitro* 22 (8) (December): 1957–64. doi:10.1016/j.tiv.2008.09.016. <http://www.ncbi.nlm.nih.gov/pubmed/18940244>.

ULTERIORI INFORMAZIONI / ADDITIONAL INFORMATION

Supervision of Master Thesis and Doctoral students; Laboratory and Instrumental management; Current research and studies on: cell-scaffold interaction (mechanical properties and tridimensional architecture); characterisation and control of hydrogel gelation phase (rheological properties and mechanical properties measurements); and design micro-environments for tissue engineering and regenerative medicine applications and in-vitro models, controlling chemo-physical properties, mechanical properties, 3D architecture; Fluorescent image processing and analysis for quantitative evaluations and measurements.

Knowledge/Design/Use of: micro-fabrication techniques (e.g. photo-lithography, soft-lithography, systems with controlled extrusion phase, electro-spinning, ink-jet); ink-jet systems for the printing of cells, nanoparticles and biomolecules for surface functionalization.

Use of: rheometers and devices for the mechanical characterisation of biomaterials; spectrophotometer, spectro-fluorometer, optical and fluorescent microscope, confocal microscope
Experience on: human and animal cell culture (i.e. endothelial cells, hepatocytes, fibroblasts); colorimetric and fluorimetric assays for the evaluation of cell activity, adhesion, proliferation, differentiation and metabolic activity

TRATTAMENTO DEI DATI PERSONALI, INFORMATIVA E CONSENSO

Il D.Lgs. 30/6/2003, n. 196 "Codice in materia di protezione dei dati personali" regola il trattamento dei dati personali, con particolare riferimento alla riservatezza, all'identità personale e al diritto di protezione dei dati personali; l'interessato deve essere previamente informato del trattamento.

La norma in considerazione intende come "trattamento" qualunque operazione o complesso di operazioni concernenti la raccolta, la registrazione, l'organizzazione, la conservazione, la consultazione, l'elaborazione, la modifica, la selezione, l'estrazione, il raffronto, l'utilizzo, l'interconnessione, il blocco, la comunicazione, la diffusione, la cancellazione e la distruzione di dati, anche se non registrati in una banca dati.

In relazione a quanto riportato, autorizzo il CNR al trattamento dei dati contenuti nel presente *curriculum vitae* e nella documentazione della quale fa parte integrante

(barrare la casella) Sì, acconsento

