Curriculum Vitae

Personal data:

Name: Ester Borroni
Place and date of birth: [redacted]
Citizenship: [redacted]
Address: [redacted]
Telephone: [redacted]
E-mail address: [redacted]

Affiliation Università del Piemonte Orientale,
Department of Health Sciences;
via Paolo Solaroli 17 - 28100, Novara (Italy)

Studies:

- 2010-2014: PhD student at Dipartimento di Scienze del Farmaco, XXVI course of doctorate in Pharmaceutical and Food Biotechnologies. 7th April 2014: Phd thesis defence.

- 2008-2010: Student in advanced courses (second level) of the School of Medical Biotechnology, Università del Piemonte Orientale "A. Avogadro", Novara (Italy). 11th October 2010: master degree in Medical and Pharmaceutical Biotechnology with a score of 110/110 cum laude.

- 2006-2008: Student at the School of Biotechnology, Università del Piemonte Orientale "A. Avogadro", Novara (Italy). 18th July 2008: Bachelor in Biotechnology with a score of 109/110, Università del Piemonte Orientale "A. Avogadro", Novara (Italy),

Research experience

September 2016 to date: post-doctoral fellowship in the Laboratory of Histology Prof. Antonia Follenzi, Dipartimento di Scienze della Salute, Novara, Italy. Project title: "Cell and Gene Therapy of Haemophilia A: characterization of FVIII promoter"

April 2014-September 2016: post-doctoral fellowship in the Laboratory of Histology Prof. Antonia Follenzi, Dipartimento di Scienze della Salute, Novara, Italy. Project title: "Assembly of Magnetic nanoparticles (MNPs) and Lentiviral Vector for cancer gene therapy"

November 2010-December 2013: PhD thesis internship in the Laboratory of Applied Biology, under the supervision of Prof. Laura Moro, Dipartimento di Scienze del Farmaco, Università del Piemonte Orientale "A. Avogadro", Novara, Italy. Topic of the research: AKT and its role in Malignant Mesothelioma. Project title: "Expression and distinct functional roles of AKT isoforms in Malignant Pleural Mesothelioma cells".

July 2009-September 2009: research experience as a visiting student in the laboratory of Prof. Nancy Carrasco, department of Molecular Pharmacology, Albert Einstein College of Medicine of Yeshiva University, New York (8 weeks period; field of investigation: sodium/iodide symporter (NIS) and transport phenomena across biological membranes. Aim of the study: to assess the role of individual amino acids in targeting to the plasma

membrane in mutant NIS proteins and analysis of their activity through iodide transport assays).

October 2008-October 2010: Master thesis internship in the laboratory Histology of Prof. Antonia Follenzi, Dipartimento di Scienze della Salute, Novara, Italy. Project title: "Iperexpression of human transferrin trough LV: a gene therapy approach for beta thalassemia". Aim of the study: (1) to generate lentiviral vectors with different tissue-specific promoters and to test them *in vitro*; (2) to induce a chronic overexpression in wt C57BL/6 mice by lentiviral vectors.

Field of investigations

- Engineering of iron oxide magnetic nanoparticles with lentiviral vector and characterization of these complexes, in vitro and in vivo.
- Study of tissue-specific promoters by Lentiviral Vectors in gene therapy approaches.
- Isolation, characterization and transplant of liver cells (resident macrophages, endothelial cells and hepatocytes) after liver perfusion in mice.

Developed technical skills

- Basal techniques and instruments used in chemical laboratories
- Eukaryotic and prokaryotic cell cultures
- IHC and immunochemical techniques (western blot, cell and tissue immunofluorescence, immunoprecipitation, cell surface biotinylation, histologic stainings)
- Molecular biology techniques (plasmid DNA amplification and isolation, vector cloning, PCR, site-directed mutagenesis)
- Flow cytometry
- Isolation of genomic DNA and RNA from cells and tissues, RT-PCR and qPCR
- Lentiviral vectors design and production. Gene transfer approaches by Lentiviral vectors.

From mice: isolation and culture of hepatocytes and non-parenchymal cells through liver perfusion with collagenase, isolation of peritoneal macrophages and bone marrow cells.

Didactic Experience:

- October 2016-November 2016: professor assistance in cell culture laboratory lessons for 2nd year students of Biotechnology
- March 2011-April 2011: professor assistance during molecular biology laboratory lessons for 3° year student of CTF (Chemical and Pharmaceutical technologies)
- May 2011: professor assistance during microbiology laboratory lessons for 3rd-year student of Pharmacy

Extra-didactic university activities.

- March 2010-July 2010: employee in the dean's secretary

Pubblications:

SIRT1 at the crossroads of AKT1 and ERβ in malignant pleural mesothelioma cells. Pinton G, Zonca S, Manente AG, Cavaletto M, **Borroni E**, Daga A, Jithesh PV, Fennell D, Nilsson S, Moro L., Oncotarget. 2016, 7,12, 14366-79

Lentiviral vector interactions with the host cell. Borsetti C., **Borroni E.**, Follenzi A., Current Opinion in Virology. 2016, 21:1-7. doi:

Tumor Targeting in Mice by Lentiviral Vectors Combined With Magnetic Nanoparticles. **Borroni E.**, Miola M., Ferraris S., Ricci G., Žužek Rožman K., Kostevšek N., Catizone A., Rimondini L., Prat M., Verné E. and Antonia Follenzi.
Article in submission (Acta Biomaterialia)

Targeting FVIII expression in endothelial and myeloid cells for Hemophilia A gene therapy in mice Merlin S., Cannizzo ES, **Borroni** E., Bruscaggin V., Schinco P., Arruda VR., Chuah M., Vandenddriessche T., Prat M., Valente G. and Antonia Follenzi.
Article under revision (Molecular Therapy)

Congress communications/poster:

Borroni E., Miola M., Ricci G., Oltolina F., Prat M., Novak S., Rimondini L. Vernè E. and Follenzi A. Development of Engineered Iron-Oxide Nanoparticles by Lentiviral Vectors for Target Cancer Therapy. **Basic on translational medicine focus on cancer. October 6/7 2016**, Novara, Italy.

Borroni E., Miola M., Cochis A., Ferraris S., Oltolina F., Rimondini L., Novak S., Vernè E., Prat M., Follenzi A. Development of Engineered Iron-Oxide Nanoparticles by Lentiviral Vectors for Target Cancer Therapy And Hyperthermia **International Conference on Molecular Oncology "From Signal Transduction to Cancer Precision Medicine"** June 5-6, 2015, Candiolo, Italy.

Borroni E., Ferraris S., Oltolina F., Miola M., Prat M., Novek 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**, New Orleans, USA

Catalano E., **Borroni E.** Ferraris S., Miola M., **Oltolina F.**, Verne E., Prat M., Maina G., Rimondini L., and Follenzi A. In vitro and in vivo evaluation of PEG and silica core-shell type iron oxide nanoparticles. **COST action**. [illegible] 2015, Venezia, Italy.

Borroni E., Catalano E., Ferraris S., Miola M., Oltolina F., Prat M., Novek S., Rimondini L., Vernè E., Follenzi A., Development of Engineered Iron-Oxide Nanoparticles by Lentiviral Vectors for Target Cancer Therapy And Hyperthermia. **Euro BioMAT 2015**, Weimar, Germany. **ORAL POSTER. 3° prize award for best Poster**

Pinton G, Manente AG, Gray SG, **Borroni E**, O'Byrne KJ, Mutti L, Moro L. Expression and post-translational modifications of AKT isoforms in Malignant pleural Mesothelioma cells. 2013 **15th World Conference on Lung Cancer**, Sydney, AU.

Pinton G, Manente AG, **Borroni E**, Murer B, De Marino E, Mutti L, and Moro L. PARP1 inhibition affects Pleural mesothelioma cell viability and uncouples AKT/mTOR axis via SIRT1. <u>2013</u> **XXV Italian Meeting on ADP-ribosylation reactions**, Pavia, IT.

Pinton G, Manente AG, **Borroni E**, Mutti L, Moro L. Expression and post-translational modifications of AKT isoforms in Malignant pleural Mesothelioma cells. <u>2013</u> **Keystone Symposia, PI3 kinase**, Keystone, CO, USA.

Pinton G, Manente AG, **Borroni E**, Mutti L, Moro L. Expression and post-translational modifications of AKT isoforms in Malignant pleural Mesothelioma cells. <u>2012</u> **XIV Convegno AIBG**, Assisi, IT.

Pinton G, Manente AG, **Borroni E**, Mutti L, Moro L. Expression and post-translational modifications of AKT isoforms in Malignant pleural Mesothelioma cells. <u>2012</u> **IMIG**, Boston, MA, USA.

<u>Foreign languages:</u>

English (written and spoke): very good
Portugues (written and spoke): very good
Spanish and French: basic

<u>Computer skills:</u>

Familiar with:

- Windows (98, 2000, XP,Vista,7, 8,10), Linux (Ubuntu 10.04 LTS)
- Microsoft Office (Word, Excel, PowerPoint) and similar
- Principal macromolecules analysis databases and programs;
  Molecular biology (Vector NTI, ApeX, GENtle)
  Flow cytometry software (Cell Quest, Flowing Software, FlowJ, Win MDI, Attune NxT)
  Imaging software (ImageJ, Photoshop, GIMP)
  Statistical Analyses (Prism, [illegible], Instat)