

**UNIVERSITÀ DEGLI STUDI DEL PIEMONTE ORIENTALE**  
**“AMEDEO AVOGADRO”**

**DOTTORATO DI RICERCA**  
**IN**  
**MEDICINA MOLECOLARE**  
**XXVI CICLO**

**Candidato**

**Irene LOCATELLI**

**Tutor**

**Prof. Emanuele ALBANO**

**ANNO ACCADEMICO 2012/2013**

## **I Anno: 2010/2011**

### ***LEZIONI***

**Modulo 1:** Introduzione alle malattie degenerative sistemiche

Prof. Emanuele Albano

**Modulo 2:** Introduzione alle malattie neurodegenerative

Prof.ssa Lucia Corrado – Sclerosi Laterale Amiotrofica

Prof. Cristoforo Comi – Parkinson e Alzheimer

Partecipazione a Journal Club interni al Dipartimento.

### ***SEMINARI***

1. “Bone and DDS: development of bioactive artificial bone with drug delivery ability” - Prof. Makoto Otsuka – Musashino University, Research Institute of Pharmaceutical Sciences, Tokyo – 27 Gennaio 2011.
2. “DNA-complex releasing system by apatitic cement for gene therapy” – Dr. Tomoko Ito – Musashino University, Research Institute of Pharmaceutical Sciences, Tokyo – 28 Gennaio 2011.
3. “Human papillomavirus infection and other risk factors for skin cancer in organ transplant recipients” - Prof. J. N. Bouwes BAVINCK – Department of Dermatology, Leiden University, Olanda – 17 Febbraio 2011.
4. “Fluorescent mesoporous nanoparticles as tracer of the endocytic and exocytic pathway” e “Caveolae mediates endocytosis of mesoporous nanoparticle in ovarian cancer cells” - Dott.ssa Maneerat Ekkapongpisit – PostDOC Linea C, Laboratorio Patologia Molecolare – 1 Marzo 2011.
5. “Linfomi cutanei primitivi” – Prof. Emilio Berti – Istituto di Dermatologia, Università degli Studi Milano - Bicocca – 2 Marzo 2011.
6. “Ferritins: ancient proteins with novel unexpected features” – Prof. Sonia Levi – Università Vita Salute San Raffaele – 12 Aprile 2011.
7. “Metabolic syndrome: the gastroenterologist point of view” - Dott.ssa Elisabetta Bugianesi – Università di Torino – 13 Aprile 2011.
8. “Liver fibrosis in children affected by NASH: how to investigate that” - Valerio Nobili – 29 Aprile 2011.
9. “Reverse vaccination in autoimmune diseases” – Gilberto Filaci – Università di Genova – 3 Maggio 2011.
10. “Innate Immunity and the pathogenicity of inhaled microbial particles” - Henrik Wolff – Finnish Institute of Occupational Health – 9 Maggio 2011.
11. “Mechanisms and Models of TDP-43 Proteinopathies” – Dr. Leonard Petrucelli – Department of Neuroscience MAYO CLINIC Jacksonville (Florida),USA – 19 Maggio 2011.
12. “Iron Management in the Hecpidin Era” – Dr. Steven R. Ellis – University of Louisville Kentucky, USA – 25 Maggio 2011.
13. “Molecular pathogenesis and biomarkers of Parkinson’s disease” – Prof. Mauro Fasano – Laboratory of Biochemistry and Proteomics, Dept. of Structural & Functional Biology, Section of Human Biology, University of Insubria, Varese, Italy – 17 Giugno 2011.

14. “Frontotemporal Dementia: trying to solve a complex disorder” – Dott. Jonathan D. Rohrer – MRC Dementia Research Centre, Institute of Neurology, University College London, Queen Square, London – 24 Giugno 2011.

### ***CONGRESSI***

Per il primo anno di Dottorato ho partecipato al congresso: ‘EASL Monothematic Conference: IMLI – Immune Mediated Liver Injury’ tenutosi dal 19 al 21 Gennaio 2012 a Birmingham, UK.

## **II Anno: 2011/2012**

### ***LEZIONI***

- PhD Summer School on Molecular Biomedicine – Udine, 9-13 Luglio 2012
- Course on "Genetics and Molecular Medicine" – Prof. Steve Ellis – dal 21 Maggio 2012 al 1 Giugno 2012
- Operator Training on BD FACSCalibur TM and BD Cell Quest Software – Buccinasco (MI), 4-5 Aprile 2012

### ***SEMINARI***

1. "The resolution of inflammation: players and targets" – Prof. Mauro Perretti – 7 Novembre 2011 – William Harvey Research Institute, Barts and The London School of Medicine, Queen Mary University of London, London, UK
2. "Galectins-carbohydrate binding protein: sweet or sour?" – Prof. Mauro Perretti – 20 Dicembre 2011 - William Harvey Research Institute, Barts and The London School of Medicine, Queen Mary University of London, London, UK
3. "Next-generation DNA sequencing and target arrays in the clinics" – Dr. Paolo Fortina – 25 Gennaio 2012 – Department of Cancer Biology, Jefferson Genomics Laboratory, Kimmel Cancer Center, Thomas Jefferson University Jefferson Medical College, Philadelphia, PA, USA
4. "Signalling pathways controlling integrin trafficking during invasion" – Dr.ssa Elena Rainero – 8 Marzo 2012 – Beatson Institute for Cancer Research, Glasgow, UK
5. "Role of Diacylglycerol kinases in the control of Tcell activation and differentiation programs" – Prof.ssa Isabel Merida – 23 Marzo 2012 - Centro Nacional de Biotecnologia, Madrid
6. "Developing strategies for tissue specific targeting" – Prof. Costantino Pitzalis – 28 Marzo 2012 – Barts and the London School of Medicine, London
7. "The role of cutaneous HPV in skin cancer" – Prof. Ingo Nindl – 29 Marzo 2012 - DKFZ - Charité Cooperation, Viral Skin Carcinogenesis, Berlin
8. "Microparticles as novel effectors in inflammation" – Prof. Mauro Perretti – 15 Maggio 2012 – William Harvey Research Institute, Barts and The London School of Medicine, Queen Mary University of London, London, UK
9. "Resolvins and Omega-3 in inflammation" – Prof. Mauro Perretti – 16 Maggio 2012 – William Harvey Research Institute, Barts and The London School of Medicine, Queen Mary University of London, London, UK
10. "High-throughput Biochemical Target Investigation Unveils a Novel Function of miR-21 as a Negative Modulator of Signal Transduction in T-lymphocytes" – Prof. Pino Macino – 15 Giugno 2012 - University "La Sapienza", Rome
11. "Recent Advances in Hematopoietic Stem Cell Gene Therapy: from microRNA Regulation to Targeted Gene Transfer" – Prof. Luigi Naldini – 21 Giugno 2012 – San Raffaele Telethon Institute for Gene Therapy (HSR-TIGET), Milan, ITALY

## **CONGRESSI**

### **Partecipazione a congressi**

- **The International Liver Congress 2012 – Barcellona, 18-22 Aprile 2012**  
“NF-kB1 DEFICIENCY WORSENS NON-ALCOHOLIC STEATOHEPATITIS (NASH) IN MICE BY PROMOTING LYMPHOCYTE-MEDIATED RESPONSES”  
**Irene Locatelli**, Salvatore Sutti, Marco Vacchiano, Cristina Bozzola, Emanuele Albano
- **EASL Monothematic Conference “Immune mediated liver injury”, Stratford Upon Avon, 19-21 Gennaio 2012**  
“BIAS IN MACROPHAGE POLARIZATION INFLUENCES THE PROGRESSION OF NONALCOHOLIC STEATOHEPATITIS (NASH) IN MICE”  
Salvatore Sutti, Virginia Maina, **Irene Locatelli**, Matteo Vidali, Cristina Mombello, Cristina Bozzola, Emanuele Albano

### **Comunicazione orale**

- **EASL Monothematic Conference “Immune mediated liver injury”, Stratford Upon Avon, 19-21 Gennaio 2012**  
“NF-kB1 DEFICIENCY WORSENS NON-ALCOHOLIC STEATOHEPATITIS (NASH) IN MICE BY PROMOTING LYMPHOCYTE-MEDIATED RESPONSES”  
**Irene Locatelli**, Salvatore Sutti, Marco Vacchiano, Cristina Bozzola, Emanuele Albano

### **Abstract**

- **XXXI meeting of the Italian Society of Pathology and Translational Medicine – Udine, 12-15 Settembre 2012**  
“IMMUNE RESPONSES AGAINST OXIDATIVE STRESS-DERIVED ANTIGENS CONTRIBUTE TO HEPATIC INFLAMMATION IN NONALCOHOLIC STEATOHEPATITIS (NASH)”  
Salvatore Sutti, **Irene Locatelli**, Aastha Jindal, Marco Vacchiano, Cristina Bozzola, Emanuele Albano
- **Oxygen Club of California World Congress 2012 – Alba, 20-23 Giugno 2012**  
“OXIDATIVE STRESS DRIVEN IMMUNE RESPONSES CONTRIBUTES TO HEPATIC INFLAMMATION IN NONALCOHOLIC STEATOHEPATITIS (NASH)”  
Aastha Jindal, **Irene Locatelli**, Salvatore Sutti, Marco Vacchiano, Cristina Bozzola, Emanuele Albano

- **The International Liver Congress 2012 – Barcellona, 18-22 Aprile 2012**  
“THE GENETIC BACKGROUND DIFFERENTIALLY AFFECTS HEPATIC NECROINFLAMMATION IN RESPONSE TO CCL2 IN A MURINE MODEL OF STEATOHEPATITIS”  
S. Galastri, E. Zamara, S. Milani, E. Novo, A. Provenzano, S. Sutti, **I. Locatelli**, E. Vivoli, E. Albano, M. Parola, F. Marra
  
- **Annual Meeting 2012 - "45 th Annual Meeting of the Italian Association for the Study of the Liver - AISF" – Roma, 23-24 Febbraio 2012**  
“THE GENETIC BACKGROUND DIFFERENTIALLY AFFECTS HEPATIC NECROINFLAMMATION IN RESPONSE TO CCL2 IN A MURINE MODEL OF STEATOHEPATITIS”  
S. Galastri, E. Zamara, S. Milani, E. Novo, A. Provenzano, S. Sutti, **I. Locatelli**, E. Vivoli, E. Albano, M. Parola, F. Marra

### **III Anno: 2012/2013**

1 Novembre 2012 – 30 Aprile 2013: periodo di formazione presso il laboratorio del Prof. Mauro Perretti – Biochemical Pharmacology, William Harvey Research Institute, Barts and the London School of Medicine and Dentistry – Londra

#### ***SEMINARI***

1. "Autofagia e patologie umane; il modello Fibrosi Cistica" – Prof. Luigi Maiuri – 6 Maggio 2013 – Università degli Studi di Foggia, Istituto Europeo per la Ricerca nella Fibrosi Cistica, Divisione di Genetica e Biologia Cellulare, IRCCS S. Raffaele Milano
2. "Interleukin-33: a novel player in chronic intestinal inflammation?" – Dott. Luca Pastorelli – 22 Maggio 2013 – Dipartimento di Scienze Biomediche per la Salute, IRCCS Policlinico San Donato San Raffaele del Monte Tabor Foundation, Milan
3. "Red blood cells as carriers for magnetically targeted delivery of drugs" – Prof. Dr. Hans Baumler – 24 Maggio 2013 - Head of the Research Department, Institute of Transfusion Medicine Berlin-Brandenburg Center for Regenerative Therapies Charité – Universitätsmedizin Berlin
4. "Molluscum contagiosum virus: strategies for survival in the human epidermis" – Dr. Joachim Bugert – 30 Maggio 2013 - Cardiff University School of Medicine
5. "Cytotoxic potential of plasmacytoid dendritic cells in autoimmune diseases" – Prof. Silvano Sozzani – 13 Giugno 2013 – Dipartimento di Medicina Molecolare e Traslazionale, Università di Brescia
6. "Stem/progenitor cell transplantation in the rat: A powerful tool to study tissue replacement in the normal and diseased liver" – Michael Oertel – 12 Luglio 2013 – Assistant Professor, School of Medicine Dept. of Pathology, University of Pittsburgh (USA)

Master Class on "Single cell and single particle analysis for biomedical diagnostics and medical discovery" – Prof Steve Graves , Visiting Professor from the University of New Mexico, Albuquerque – 4, 5, 6 Giugno 2013 e 19, 20, 21 Giugno 2013

#### ***CONGRESSI***

##### **Partecipazione a congressi**

- **7th International Conference on Annexins – Londra, 9-11 Settembre 2013**  
"ANNEXIN A1 MODULATES THE PROGRESSION OF NONALCOHOLIC STEATOHEPATITIS (NASH) IN MICE"  
**Locatelli, S. Sutti, A. Jindal, M. Vacchiano, C. Bozzola, S. Bena, S. McArthur, M. Perretti, E. Albano**
- **The International Liver Congress 2013 – Amsterdam, 24-28 Aprile 2013**  
"MACROPHAGE EXPRESSION OF ANNEXIN A1 CHARACTERIZES THE PROGRESSION OF NONALCOHOLIC STEATOHEPATITIS (NASH) IN MICE"

**Irene Locatelli**, Salvatore Sutti, Aastha Jindal, Marco Vacchiano, Cristina Bozzola, Emanuele Albano

## **Abstract**

- **The International Liver Congress 2013 – Amsterdam, 24-28 Aprile 2013**  
“IMMUNE RESPONSES TRIGGERED BY OXIDATIVE STRESS CONTRIBUTE TO HEPATIC INFLAMMATION IN NONALCOHOLIC STEATOHEPATITIS (NASH)”  
Salvatore Sutti, **Irene Locatelli**, Aastha Jindal, Marco Vacchiano, Cristina Bozzola, Emanuele Albano
- **The International Liver Congress 2013 – Amsterdam, 24-28 Aprile 2013**  
“COMPLEX ROLE OF OSTEOPONTIN IN THE PROGRESSION OF NONALCOHOLIC STEATOHEPATITIS (NASH)”  
Aastha Jindal, Salvatore Sutti, **Irene Locatelli**, Annalisa Chiocchetti, Maria Felicia Soluri, Marco Vacchiano, Elena Maldì, Cristina Bozzola, Umberto Dianzani, Emanuele Albano

## ***PUBBLICAZIONI***

- Adaptive immune responses triggered by oxidative stress contribute to hepatic inflammation in NASH  
Sutti S, Jindal A, **Locatelli I**, Vacchiano M, Bozzola C, Albano E.  
Hepatology [Accepted and in press]
- NF- $\kappa$ B1 deficiency stimulates the progression of non-alcoholic steatohepatitis (NASH) in mice by promoting NKT-cell-mediated responses  
**Locatelli I**, Sutti S, Vacchiano M, Bozzola C, Albano E.  
Cli Sci (Lond). 2013 Feb; 124(4):279-87
- Lack of CC chemokine ligand 2 differentially affects inflammation and fibrosis according to the genetic background in a murine model of steatohepatitis  
Galastri S, Zamara E, Milani S, Novo E, Provenzano A, Delogu W, Vizzutti F, Sutti S, **Locatelli I**, Navari N, Vivoli E, Caligiuri A, Pinzani M, Albano E, Parola M, Marra F.  
Cli Sci (Lond). 2012 Oct; 123(7):459-71
- Bias in macrophage activation pattern influences non-alcoholic steatohepatitis (NASH) in mice  
Maina V, Sutti S, **Locatelli I**, Vidali M, Mombello C, Bozzola C, Albano E.  
Clin Sci (Lond). 2012 Jun 1; 122(11):545-53