INT is strongly committed to educating future scientists and clinicians and is directly engaged in quality education and training. INT offers a wide range of educational activities for clinical and experimental researchers at different stages of their professional careers. PhD studentships, postdoctoral research fellowships, graduate student training, medical residency training, psychology, and social work training, as well as continuing medical education are all included in the portfolio of educational opportunities offered to staff and external participants.

Invited lectures, seminars and workshops in a variety of research disciplines related to cancer are regularly arranged. Participants in education and training programs are encouraged to attend interdepartmental journal clubs, clinical case discussions, and grand rounds as well as other multidisciplinary activities aimed to create cross-specialty knowledge.

ACADEMIC PROGRAMS

INT provides education and training at various levels, including undergraduate, graduate as well as postgraduate medical and biotechnology students, physicians, nursing students, and nurses. On the basis of formal agreements with the University of Milan, INT hosts the Chairs of Medical Oncology (Prof Alessandro M. Gianni), Hematology (Prof Paolo Corradini, Coordinator of the Experimental Hematology Doctoral Program at the University of Milan), Medical Statistics and Biometry (Prof Adriano Decarli), Anesthesiology (Prof Martin Langer), and Pathology (Prof Giuseppe Pelosi). A number of staff members have joint appointments as professors at the University of Milan. INT hosts the “Postgraduate School in Oncology”, the “Postgraduate Medical School in Pathology”, and the 3-year degree in “Nursing Sciences” of the University of Milan. Additionally, INT participates in the degree in “Biotechnology and Molecular Medicine in Oncology”, as well as in two PhD programs at the University of Milan (Hematology and Medical Biotechnology). Every year INT offers a range of highly specialized Master Courses.

DOCTORAL (PHD) TRAINING PROGRAM AT INT

The INT is an Affiliated Research Center of the Open University, Milton Keynes, UK, providing a PhD Program in Life and Biomolecular Sciences. The program run at INT is regularly monitored to ensure that it meets the requirements of the Quality Assurance Agency (QAA) for Higher Education Code of Practice. INT provides direct support for these training positions and offers fellowship/grants to European Community postgraduate students holding a degree in Medicine, Biological Sciences or Pharmacy. Students are involved in several activities, including induction courses, generic skills training, journal club meetings, and seminars.
OPEN UNIVERSITY PHD STUDENTS AND THEIR RESEARCH TOPICS

Mattia Boeri
Exploring the Role of microRNA in Early Lung Cancer

Alessandra Santangelo
SPARC, a Matricellular Protein that Protect Tumors from Therapy

Marianna Sasso
Biomarkers of Aggressive Phenotype in Triple Negative Breast Cancer

Alice Rigoni
Mast Cells at the Interface between External Challenges and Immune Regulation in Colitis and Colorectal Cancer

Davide Bernareggi
Conversion of AFRA Fab into a Fully Human Monoclonal Antibody directed against α Folate Receptor: in vitro and in vivo Studies

Daniele Lecis
Inhibitors of Apoptosis Proteins (IAPs) as Targets for Anti-Cancer Treatment

Ilaria Torselli
The Influence of Tumor Microenvironment on Osteosarcoma

Gaia Ghedini
Role of Δ16HER2 Splice Variant in Response to Drug Targeting HER2 Receptor

Sara Ciceri
Molecular Characterisation of Wilms Tumor

Alice Dassano
Expression Networks and Effectors of Genetic Susceptibility to Lung Cancer in Mice

Elvira D’Ippolito
The Role of microRNAs in Triple Negative Breast Cancer

Emanuela Fina
Biological and Clinical Significance of Circulating Tumor Cells in Breast Cancer

Olga Kuchuk
Interference of pH Regulators as an Immunomodulating Therapeutic Strategy for Liver Cancer

Emanuela Minna
miRNA Deregulation in Thyroid Carcinogenesis: in vitro Models to Study Molecular Mechanisms and Functional Effects.

Valentina Profumo
The Role of microRNAs in Triple Negative Breast Cancer

Andrea Tomirotti
Identification of Early Biomarkers of Neoplastic Transformation in Mouse Tumor Models of Breast and Prostate Carcinogenesis

Emanuela Fina
Biological and Clinical Significance of Circulating Tumor Cells in Breast Cancer

Valeria Maiorana
Analysis of in vitro and in vivo Effects of Metformin Alone or in Combined Treatments in Colorectal Cancer

Martina Magni
Functional Characterization of the Human Protein Deleted in Breast Cancer 1 (DBC1) Involvement in the DNA Damage Response

Matteo Dugo
Investigation of Microenvironment Changes in Breast Cancer Patients through Genomic Approaches and Assessment of their Prognostic Value
In addition to the students enrolled in the Open University Program, INT hosts PhD students from diverse institutional and disciplinary backgrounds, mainly registered in PhD Courses with Italian Universities:

The Preventive and Predictive Medicine Department hosts PhD Students enrolled in the School of Biomedical, Clinical and Experimental Sciences, UNIMI: Laura Angelici, Marco Centola, Chiara Ciniselli, Maria Filomeno, Maria Ghazanfar, Teresa Greco, Elena Landoni, Alessandra Lugo, Elisabetta Marzo, Valentina Rosato, Annalisa Orenti, Delphine Praud, Tiziana Rosso, Maria Giovanna Scarale, Antonella Zucchetto.

Attending the Hematology and Pediatric Onco-Hematology Department is Sara Rizzitano (Experimental Medicine and Medical Biotechnologies).

The Surgery Department hosts PhD Students from the UNIMI PhD Program in Physiopathological Sciences: Leonardo Duranti, Andrea Billè, and Nicola Rocco (fellowship granted by the Fondazione Adele e Bruno Onlus).

The Palliative Care, Pain Therapy, and Rehabilitation Unit hosts Cinzia Brunelli, a PhD student registered in a Program in Palliative Care at the Norwegian University of Science and Technology (Trondheim).

The Department of Experimental Oncology and Molecular Medicine hosts the following PhD students: Elena Fusar Poli (Dept BICOM and Neuroscience Center, Insubria University of Varese), Chiara Alberti, Barbara Frigerio, Anna Granata, Katia Rea, Alessandro Satta, and Marcella Tazzari (all registered with the UNIMI Ph.D. School in Biological and Molecular Sciences), Annalisa Conti, Giulia Grazia, Valentina Uva (School of Clinical and Experimental Biomedical Sciences, UNIMI), Maurizio Callari, (PhD School in Biomedical Sciences and Oncology, University of Turin), Valeria Musella (School of Clinical and Experimental Biomedical Sciences, UNIMI).

MASTERS

- **Academic Master in Epidemiology.** This is a joint appointment with the University of Turin, ISI Foundation, and INT Unit of Epidemiology and Prevention.
- **Master in Rectal Surgery.** INT and ARECO (Association for the European Research in Surgical Oncology) offer a Rectal Surgery Master for medical doctors with a surgery degree.
- **Academic Course in Oncologic Lymphology.** The course is designed for physicians and students graduating in lymphology and oncologic lymphology. The Unit of Palliative Care, Pain Therapy, and Rehabilitation is the scientific coordinator and is in charge of educational activities, referred to the Medical Faculty of the University of Milan.
- **Master of Palliative Medicine for Nurses.** Under the direction of the University of Milan and in collaboration with INT, this academic course trains graduated nurses to provide palliative care to patients with cancer diseases.
- **Master in Medical Statistics and Statistical Methods for Epidemiological Research.** MSSME is aimed for graduate with Medicine, Biological Sciences, Physics or Statistics degree. Postgraduate course in biostatistics are also provided. Postgraduate students are often directly involved in research projects coordinated by MSBB members.

OTHER COURSES

The Pathology Department is involved in the training programs of the Postgraduate Medical Schools of Pathology, Endocrinology, and Respiratory Medicine (University of Milan) and of the Soft Tissue Pathology, Postgraduate School of Pathology (Insubria University of Varese). The Anesthesia Department is involved in the training program and residency of the Postgraduate School for Anesthesia and Intensive Care, hosting a number of residents/students and organizing part of teaching in the program of the postgraduate course of the Medical School, University of Milan. Residents in Anesthesia and Intensive
Care, Cardiology, Nutritional Support (University of Milan and Milano-Bicocca) work within all the Units of the Department. Many staff members have teaching positions or are tutors in postgraduate medical schools or in national/international master programs. Within the Surgery Department, the Unit of Colorectal Surgery is affiliated with the General Surgery Residency Programs of the Milano-Bicocca and Pavia Universities; the Unit of Gastrointestinal and Hepatopancreatobiliary Surgery and Liver Transplantation is a training center for the University of Milan and the Italian College of Surgeons and is chosen for clinical fellowships by many visiting clinicians and surgeons every year. In the area of clinical and training activities, the Plastic and Reconstructive Surgery Unit holds very sought-after weekly and 3-monthly surgery courses for Italian and foreign surgeons. The Gynecologic Oncology Unit is chosen for clinical fellowships by many visiting surgeons from Italy and abroad every year. It also organizes a biennial international meeting and a gynecologic oncology course with more than 50 participants three times a year. The Otorhinolaryngology Surgery Unit has close links with the University, and is involved in postgraduate teaching and supervision of junior medical staff. In collaboration with the Human Morphology Department of the University of Milan, this Unit activated two research doctoral degrees to develop a new non-invasive method to evaluate the functionality of the mimetic musculature after iatrogenic damage to the facial nerve. The Unit also collaborates with the Otorhinolaryngoiatric School of Specialization of the University of Milan, hosting students for practical training and organizing lessons and courses. The Thoracic Surgery Unit collaborates with the General Surgery and Thoracic Surgery School of Specialization of the University of Milan, hosting students for practical training. Many postdoctoral fellows attend the Melanoma and Sarcoma Unit that collaborates actively with several medical universities. The Senology Unit collaborates with the University of Milan in teaching and research projects. The Medical Staff of the Diagnostic Imaging and Radiotherapy Department is involved in educational activities cooperating with the University of Milan and Milan-Bicocca in the Radiology, Radiotherapy, and Medical Oncology Specialization Schools, in the Clinical Application of Nuclear Medicine of the Nuclear Medicine School of Specialization. The Radiotherapy Unit also provides tutoring of radiography and radiation technician students.

CONTINUING MEDICAL EDUCATION PROGRAM

The educational and training program promotes professional, cultural and human growth of INT employees. During 2013, the INT ECM Provider has proposed 196 events in the main areas (clinical governance, on the job learning, risks prevention, and emergency management, etc.) of ECM-CPD (174 were accredited), attracting the interest and the participation of resident and visiting health professionals. In particular, the educational initiatives included in the Business Formation Plan (BFP) have achieved a total amount of 37,886 formative credits, involving 4,750 individuals.
SEMINARS AND CONFERENCES

JANUARY
Giovanni Capranico
Department of Pharmacy and Biotechnology, University of Bologna
Topoisomerase I functions at promoters and genome stability

Rosanna Piccirillo
Laboratory of Cancer Cachexia, AIRC Start-Up, Oncology Department, Istituto di Ricerche Farmacologiche Mario Negri, Milan
The p97/VCP ATPase complex is critical in muscle atrophy and for the accelerated degradation of most muscle proteins

FEBRUARY
CONTRIBUTION OF NEW TOOLS TO “OMICS” ANALYSIS IN CANCER RESEARCH
Chair: Silvana Canevari, Molecular Therapies, Istituto Nazionale dei Tumori, Milan
Evaluation of a NGS technologic platform with Health Technology Assessment (HTA) tools
Cecilia Melani, Scientific Directorate, Istituto Nazionale dei Tumori, Milan
BRCA 1-2 genes target re-sequencing: comparison between Sanger methodology and Ion Semiconductor Sequencing
Loris Bernard, IFOM-IEO Campus, Milan
New software tools for studying the role of miRNAs in complex regulatory circuits
Andrea Bisognin, Laboratory of Computational Genomics, Department of Biology, University of Padova

Andy Silver
Colorectal Cancer Genetics, Centre for Digestive Diseases, Blizard Institute of Cell and Molecular Science, Barts and The London School of Medicine and Dentistry, London
A role for Dual oxygenase 2 in intestinal tumourigenesis

Mahvash Tavassoli
Molecular Oncology, Guy’s Hospital, Kings College, London
Stratification biomarkers for the treatment of head and neck cancers

Elia M. Biganzoli
Biostatistics, Section of Medical Statistics, Biometry and Bioinformatics « Giulio A. Maccacaro », Department of Clinical Sciences and Community Health, University of Milan, Campus Cascina Rosa, Istituto Nazionale dei Tumori, Milan
The statistical bioinformatics in the era of “big data”

Raimo Tanzi
NGS Business Development, LifeTechnologies, Europe
Solid Widfire INT users meeting: introduction to the technology, the presentation of applications and protocols available on the SOLiD 5500FW, feasibility studies and cost

microRNA Workshop
Chair: Franco Martinez, EuroClone, Pero, Milan
Analysis of circulating microRNA biomarkers for cancer
Hazel Pinheiro, Exiqon, Denmark
The miRNA workflow
Laura Monti, EuroClone, Pero, Milan

MARCH
Mario Ciocca
Unit of Medical Physics, CNAO Foundation, Pavia
Hadrontherapy, new infallible weapon: another election promise?
MAY

Evi Lianidou
Laboratory of Analytical Chemistry, Analysis of Circulating Tumor Cells (ACTC) Lab. Department of Chemistry – University of Athens, Athens, Greece

Circulating Tumor Cells: Recent advances in their detection and molecular characterization

Uppugunduri Srinivas
Department of Clinical Chemistry, University Hospital, Linköping, Sweden

Novel anti-inflammatory drug candidates

Robert Clarke
Breast Biology Group, Institute of Cancer Sciences, Paterson Building, University of Manchester, Wilmslow Road, Manchester

Signalling pathways regulating breast cancer stem cells

Peter K. Rogan
Canada Research Chair in Genome Bioinformatics, Tier I, Biochemistry & Computer Science, University of Western Ontario

Discovery and predicting impact of non-coding sequence variants that affect gene expression on a genome scale and in inherited breast cancer

JUNE

Michele Visentin
Department of Molecular Pharmacology, Albert Einstein College of Medicine, New York

Insight the cellular pharmacology of pralatrexate - a new weapon against the Non-Hodgkin lymphomas

Stefano Cairo
Laboratory of Head R&D Xentech – France

Patient-derived xenografts to assist basic research and clinical practice

Stephanie Dorman
Department of Biochemistry, Schulich School of Medicine and Dentistry Western University, London, Canada

Graduate studies in cancer genetics: exchanging experiences between Canadian and Italian Institutions

Augusto Pessina
Department of Biomedical, Surgical and Dental Sciences, University of Milan

Mesenchymal stromal cells for the transportation of paclitaxel: potential applications

Workshop: “Mast cells: host defense or offence?”
Stephen J. Galli - Department of Pathology, Stanford University, CA
Rosetta Pedotti - Neuroimmunology Unit, Istituto Neurologico Besta, Milan
Mario P. Colombo - Molecular Immunology Unit, Experimental Oncology and Molecular Medicine Department, Istituto Nazionale dei Tumori, Milan
Claudio Tripodo – Department of Human Pathology, University of Palermo
Carlo Pucillo - Department of Biomedical Science and Technology, University of Udine

JULY

Yosef Yarden
Department of Biological Regulation - Weizmann Institute of Science - Rehovot, Israel

HER2 and EGFR: Signalling mechanisms and next generation cancer therapies

Jörg Mages
Field Application Scientist at Partek, Inc

The Ease of Flow: Intuitive and Sophisticated Analysis of Tumor Cell lines using Partek Software
Anil K. Sood  
Ovarian Cancer Research, Department of Gynecologic Oncology, University; Center for RNA Interference and Non-Coding RNA, The University of Texas. MD Anderson Cancer Center, Houston, TX

**About Trouseau, Platelets and Ovarian Cancer**

Anna Saran  
Laboratorio di Biologia delle Radiazioni e Biomedicina, Agenzia Nazionale per le Nuove Tecnologie, l’Energia e lo Sviluppo Economico Sostenibile (ENEA) CR-Casaccia, Roma

**New paradigms in radiobiology: Evidence for radiation induced bystander effects**

Diana Eccles  
Cancer Genetic Faculty of Medicine Academic Unit of Cancer Sciences, University of Southampton, University of Southampton Clinical Trials Unit, Clinical Genetics University Hospital Southampton Foundation Trust – UK

**Genetic background determines breast cancer sub-types and prognosis**

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**SEPTEMBER**

GENOMICS IN ONCOLOGY: UNDERSTANDING THE PATHOBIOLOGY AND DEVELOPMENT OF INFORMATIVE ESSAYS FROM THE CLINICAL POINT OF VIEW

Chair: Silvana Canevari, Molecular Therapies, Experimental Oncology and Molecular Medicine Department, Istituto Nazionale dei Tumori, Milan

Maria Grazia Daidone, Biomarkers, Experimental Oncology and Molecular Medicine Department, Istituto Nazionale dei Tumori, Milan

Giampaolo Bianchini, Department of Medical Oncology, Ospedale San Raffaele, Milan

Francesca De Michielis, Center for Integrative Biology (CIBIO), University of Trento

Antonino Neri, Department of Clinical Sciences and Community, University of Milan, Hematology CTMO, Fondazione Cà Granda IRCCS Ospedale Policlinico, Milan

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**OCTOBER**

Andrew R. Reynolds  
Tumor Biology Team. The Breakthrough Breast Cancer Research Centre The Institute of Cancer Research, London

**Vessel co-option: an under-appreciated phenomenon with profound consequences for the clinical translation of anti-angiogenic therapy and Anti-angiogenic therapy: from bench to bedside and back again**

Alessandro Santin  
Department of Obstetrics, Gynecology & Reproductive Sciences, Yale University School of Medicine, New Haven, CT-USA

**Homing Devices and Microscopic Shuttles-Iron Oxide Nanoparticles functionalized with Clostridium Perfringens Enterotoxin (CPE) as Novel Agents for Ovarian Cancer Diagnosis and Therapy**

Désirée Bonci  
Department of Hematology, Oncology and Molecular Medicine. ISS, Rome

**Role of microRNA in primary and metastatic prostate cancer**

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**NOVEMBER**

MASS SPECTROMETRY IN THE FIELD OF EXPERIMENTAL AND CLINICAL ONCOLOGY

Chairs: Italia Bongarzone, Rosaria Orlandi, Maria Grazia Daidone, Experimental Oncology and Molecular Medicine Department, Istituto Nazionale dei Tumori, Milan

**Mass spectrometry in the field of proteomics: recent discoveries and projects in progress**

Italia Bongarzone, Cancer Proteomics

**Mass spectrometry at low and high resolution to analyze peptide and metabolomic profiles of plasma and breath of patients with breast cancer**

Rosaria Orlandi, Molecular Targeting

**The new platforms: potential and applications**

Giulia Garrone, Samuele Pedraglio e Adalberto Cavalleri, Preventive and Predictive Medicine Department
Metabolomics diagnosis by GCMS and LC-MS/MS
Valerio Leoni, Laboratorio di Patologia Clinica e Genetica Medica, Istituto Neurologico “Carlo Besta”
Interpretation of metabolomic profiles in experimental models
Silvana Canevari, Molecular Therapies, Istituto Nazionale dei Tumori, Milan
Matteo Bellone, Cellular Immunology Unit, Istituto Scientifico San Raffaele, Milan &
Maria Grazia Daidone, Experimental Oncology and Molecular Medicine Department, Istituto
Nazionale dei Tumori, Milan
Circulating tumor cells, “not everything that can be counted counts, and not everything that
counts can be counted”

DECEMBER
Massimo Gadina
Translational Immunology Section, Office of Science and Technology, National Institute of Arthritis
Musculoskeletal and Skin diseases, National Institutes of Health, Bethesda
Janus Kinase Inhibitors: from autoimmunity, to inflammation to malignancies