EDUCATION AND TRAINING

INT is strongly committed to educating future research 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 experience. 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 also the interdepartmental journal clubs, clinical case discussions, and grand rounds as well as other multidisciplinary activities aimed to create interspecialistic 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), Medical Statistics and Biometry (Prof Adriano Decarli), Anesthesiology (Prof Martin Langer), and Pathology (Prof Giuseppe Pelosi). A number of staff members have a joint appointment as professors at the University of Milan and contribute to the regular curriculum at this University. 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 of the University of Milan ("Hematology" and "Medical Biotechnology").

DOCTORAL (PHD) TRAINING PROGRAM AT INT

The INT is an Affiliated Research Centre of the Open University, Milton Keynes, UK, providing a PhD Program in Life and Biomolecular Sciences. The program run at INT 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. At present, 19 students are carrying out their training and working on their research projects.

In 2011, 8 students were awarded a PhD degree: Giulia Bertolini, Francesca Bianchi, Ileana Bortolomai, Francesca Colombo, Elisabetta Crippa, Elisa Frullanti, Marianna Perego, and Roberta Zappasodi.

MASTERS

• Academic Master in Epidemiology. This is a joint appointment with the Università di Torino, ISI Foundation and INT Division of Etiologic 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 Division of Palliative Care, Pain Therapy, and Rehabilitation is the scientific coordinator and is in charge of the educational activities, referred to the Medical Faculty of the Università degli Studi di Milano.

• Master of Palliative Medicine for Nurses. Under the direction of the Università degli Studi di Milano and in collaboration with INT, this academic course trains graduated nurses to provide palliative care to patients with cancer.

• A number of lecturers from INT contribute to the Advanced Master Course in Palliative Cares offered by the Università degli Studi di Milano.

• Master in Medical Statistics and Statistical Methods for Epidemiological Research. MSSME is aimed for graduate with Medicine, Biological Sciences, Physics or Statistics degree.

A postgraduate course in biostatistics is 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, hosts a number of residents/students, and organizes part of the formal 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 in Supportive Cancer Care, in Organization, Management and Care in Hospice and in INT Nursing School.

Within the Surgery Department, the Division of Colorectal Surgery is affiliated with the General Surgery Residency Programs of Milano-Bicocca and Pavia Universities; the Division of Gastrointestinal and Hepatopancreatobiliary Surgery and Liver

PHD STUDENTS AND THEIR RESEARCH TOPICS

Alessia Burocchi
Modulation of regulatory T cell suppression in tumors through OX40

Maria Chiara Anania
Role of genes differentially expressed in thyroid carcinogenesis

Maria Grazia Vizioli
Role of oncogene-induced senescence and DNA damage response in thyroid carcinogenesis

Giacomo Cossa
Modulation of sensitivity to platinum compounds in ovarian carcinoma cell systems

Mattia Boeri
Exploring the role of microRNA in early lung cancer

Irene Catucci
Identification of low penetrance alleles, genetic modifiers, and mutation analysis in familial breast cancer cases

Claudia Piovan
MicroRNAs in breast tissue biology and disease: involvement in development and tumorigenesis

Alessandra Santangelo
SPARC, a matricellular protein that protects tumors from therapy

Marianna Sasso
Biomarkers of aggressive phenotype in triple negative breast cancer

Alfonso Passafaro
Role of SPARC in inflammation and 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 to design a suitable reagent for therapy.

Daniele Lecis
Inhibitors of apoptosis proteins (IAPs) as targets for anti-cancer treatment

Ilaria Torselli
Matricellular proteins in osteosarcoma development and progression

Gaia Ghedini
Role of Δ16HER2 splice variant in response to drugs targeting HER2 receptor

Sara Ciceri
Molecular characterisation of Wilms tumor

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 weekly and 3-monthly surgery courses for Italian and foreign surgeons. The Gynecologic Oncology Division is chosen for clinical fellowships by many visiting surgeons from Italy and other countries every year. It also organizes a biennial international meeting, and a gynecologic oncology course with more than 50 participants three times a year. The Otorhinolaringology Surgery Division has close links with the University, and is involved in postgraduate teaching and supervising of junior medical staff. In collaboration with the Human Morphology Department of the University of Milan, this Division 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 Division 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 Division 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 Division that collaborates actively with several medical universities. The Senology Division collaborates with the University of Milan to 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 Milano-Bicocca in the Radiology, Radiotherapy, and Medical Oncology Specialization Schools, in the "Clinical Application of Nuclear Medicine", 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 2011, the INT ECM Provider has proposed 170 events in the main areas (clinical governance, learning on the job, risks prevention and emergency management, etc.) of ECM-CPD (137 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 26,452 formative credits, involving 3013 people.

SEMINARS AND CONFERENCES

JANUARY

Pier Luigi Lollini
(Department of Hematology and Oncology Sciences, University of Bologna, Bologna)
HER-2: mouse, humans and chimeras

Amedeo Columbano
(Medicine and Surgery Faculty, Department of Toxicology, Oncology and Molecular Pathology Unit, University of Cagliari, Cagliari)
Hippo Pathway and miRNAs: two critical players in HCC development

Enrico Garattini
(Molecular Biology Laboratory, Department of Biochemistry and Molecolar Pharmacology, Istituto di Ricerche Farmacologiche "Mario Negri", Milan)
RARA gene amplification in HER-2- positive breast cancer: definition of tumor subtype with potential sensitivity to retinoids and lapatinib combinations

Guido Kroemer
(Institut Gustave Roussy, Villejuif)
Molecular bases of the immunogenicity of cell death: implementations in cancer management and NKp30 isoforms: a novel biomarker in cancer

FEBRUARY

Furio Gramatica
(Department Polo Tecnologico, Fondazione Don Carlo Gnocchi ONLUS, Milan)
Nanomedicine: basic principles and applications in oncology

Luisa De Cola
(Westfälische Wilhelms - Universität Münster, Physikalisches Institut and Center for Nanotechnology, Munster)
Nanomaterials for in vitro and in vivo diagnostics

Kristin M. Braun
(Barts & The London School of Medicine and Dentistry, Centre of Cutaneous Research. Blizard Institute of Cell and Molecular Science, London)
Characterizing the epidermal stem cell compartment

Ian Mackenzie
(Stem Cell Science, Institute for Cell and Molecular Science, Whitechapel, London)
Patterns of stem cell behaviour in head and neck cancers

MARCH

Robert Clarke
(Breast Biology Group, Paterson Institute for Cancer Research, University of Manchester, Manchester)
Stem cells in breast cancer

Giuseppe Giaccone
(Medical Oncology Branch, National Cancer Institute, Bethesda)
Profiling thoracic malignancies

Francesco Pezzella
(Tumor Pathology, Nuffield Department of Clinical Laboratory Sciences, University of Oxford, John Radcliffe Hospital, Oxford)
Heat shock proteins deregulation in human cancer and TRAP1/HSP75 case study

APRIL

Alessandro Parodi
(Department of Nanomedicine, School of Medicine, The Methodist Hospital Houston)
Development of a new hybrid polymer-silica nanoparticle platform for cancer treatment through a biomimetic approach

Richard Houlston
(Molecular and Population Genetics, The Institute of Cancer Research, ICR, Sutton Surrey)
What have genome-wide association studies told us about identifying susceptibility to cancer?

Mauro Piacentini
(Department of Biology, Università "Tor Vergata", Roma)
Ambra1 an essential regulator of autophagy in mammals

Francesco Dazzi
(Stem Cell Biology, Department of Haematology, Imperial College, London)
Mesenchymal stem cells: innate tolerance and tissue repair

Roberto Cerbino *(Università degli Studi di Milano)* and **Bice Chini** *(Istituto di Neuroscienze del CNR)*
Reflective Phantom Interface: a new label-free method for the detection of biomolecular interactions

MAY

Giuseppe Testa
(Laboratory of Stem Cell Epigenetics, European Institute of Oncology; European School of Molecular Medicine. Milano)
Histone methylation in genome programming and reprogramming

OCTOBER

Carlos Caldas
(Cancer Medicine, Cambridge University; Breast Cancer Functional Genomics, Cambridge Research Institute)
The landscape of genomic aberrations in breast cancer

Carlos Malpica
(MLP Vision Biotech S.L. European Sales & Marketing, Metabolon Inc., Parque Tecnològico de Madrid. Madrid)
Global Metabolomic analysis applied to cancer research

Alessandra Cesano
(Medical Office, Nodality Inc. - San Francisco, Ca)
Functional Pathway Analysis Using Single Cell Network Profiling: technology and clinical applications in hematological cancer

Cecilia Balbi
(Urological Translational Unit, IST, Genova)
The nuclear matrix as a source of specific biomarkers for prostatic cancer

Valentina Bollati
(Department of Environmental and Occupational Health, Università di Milano, Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico, Milan)
Effects of metal-rich particulate matter exposures on microRNAs carried in plasma microvesicles

Christian Unger
(Centre for Stem Cell Biology, Department of Biomedical Science, The University of Sheffield)
Modeling developmental cancer with induced pluripotent stem (iPS) cells

NOVEMBER

Vincenza Dolo
(Clinical Pathology, Post-Graduate School of Clinical Pathology, Master Degree in Health Professions Sciences, Department of Health Science-School of Medicine, University of L'Aquila. L'Aquila)
Microvesicles and exosomes: different types for different roles or just an overlapping?

Mario Chiariello
(Istituto Toscano Tumori, Core Research Laboratory, Signal Transduction Unit, Siena)
Signaling by the ERK8 MAP kinase: a novel potential target for cancer therapy

Maria Rescigno
(Department of Experimental Oncology, Dendritic Cell Biology and Immunotherapy Unit – IFOM. Milano)
Intestinal immune homeostasis: a very complex affair

DECEMBER

Claudia Desiderio
(Consiglio Nazionale delle Ricerche, Istituto di Chimica del Riconoscimento Molecolare, Roma)
The proteomic analysis of cerebrospinal fluid of pediatric patients with posterior fossa cancer has highlighted the potential role of LVV- and VV-emorphine-7 as prognostic biomarkers

Stuart Forbes
(Transplantation & Regenerative Medicine, MRC Centre for Regenerative Medicine, The University of Edinburgh)
Stem cells in liver regeneration and therapy

Paolo Ciana
(Department of Pharmacological Sciences, Università degli Studi di Milano, Milano)
Molecular imaging and regulation of estrogen receptor activity in breast cancer: a story of SNPs and endocrine responsiveness

Ian James Stratford
(School of Pharmacy and Pharmaceutical Sciences, University of Manchester)
Computation screening of the NCI chemical database reveals a role for the oxidoreductase NQO2 in modulating NFkB transcriptional activity

Patrizia Paterlini Bréchot
(Faculté de Médecine Necker-Enfants Malades, Paris Cedex)

Christian Bréchot
(Institut Merieux, Lyon)
Isolation and characterization of Circulating Tumor Cells by ISET : Technical aspects and clinical impact

JUNE

Hua Eleanor YU
(Cancer Immunotherapeutics & Tumor Immunology City of Hope, Duarte, CA)
STAT3 in cancer inflammation and immunity

JULY

Davide Rossi
(Division of Hematology, Department of Clinical and Experimental Medicine Amedeo Avogadro, University of Eastern Piedmont, Novara)
Richter syndrome: from genetics to clinical management

Workshop, "The Methodist Hospital Research Institute"
Speakers: Elvin Blanco, PhD - Research Associate Department of Nanomedicine; Rebecca Hall, PhD - Scientific Communications; Jason Sakamoto, PhD - Co-Chair, Assistant Member Department of Nanomedicine; Ennio Tasciotti, PhD - Co-Chair, Associate Member Department of Nanomedicine Scientific, Director of The Spine Advanced Technology Laboratory and Interim Director of Regenerative Medicine Program

SEPTEMBER

Shuki Mizutani
(Department of Pediatrics and Developmental Biology, Tokyo Medical and Dental University, Tokyo)
Clinico-pathological features and dysregulation of DNA damage response network in childhood hemato-oncological diseases

Ciro Isidoro
(Cell Pathology, "Amedeo Avogadro" University, Laboratory of Molecular Pathology Department of Medical Sciences, Novara)
Autophagy, a Potential Target for Prevention and Therapy of Cancer

Rocco Piazza
(Department of Clinical Medicine, Bicocca University, Milano)
High-throughput sequencing approaches for the study and characterization of tumor genomes

Lisa Wiesmüller
(Gynaecological Oncology, Department of Obstetrics and Gynaecology, University of Ulm, Ulm)
The link between DNA repair and breast cancer/susceptibility genes

Chandrika J. Piyathilake
(Department of Nutrition Sciences, University of Alabama at Birmingham, Birmingham, Alabama)
Diet and epigenetic biomarkers