

Residential Training Course (RES1)

NEUROSCOPY: Multimodal and multiscale imaging techniques for neuroscientists

1st edition

ID 216632.1

Biblioteca Scientifica “Renato Boeri”

Fondazione IRCCS Istituto Neurologico Carlo Besta

19 – 23 October 2026

AIM OF THE COURSE

The course offers a comprehensive introduction to high-end optical and electron microscopy, focusing on fundamental principles, sample preparation, and advanced methodologies; it shows how to analyze neuronal microenvironments and applying imaging techniques to the study of neurodegenerative events or neurobiology of tumors. The course offers a snapshot of approaches that are relevant to neuroscience, such as magnetic resonance (MRI) and multimodal imaging. Although this course is primarily designed for neurobiologists who already uses imaging techniques, it provides participants with the theoretical foundation to visualize cellular and subcellular structures that can be applied to any field of research, including but not limited to vascular and cancer biology.

PROGRAM

Monday, 19 October 2026

09.30 – 11.00	Welcome & Course Introduction
11.00 – 11.30	Coffee Break
11.30 – 13.00	Sample preparation for light and electron microscopy: similarities amid differences
13.00 – 14.30	Lunch
14.30 – 17.30	Hands on sessions

Tuesday, 20 October 2026

09.30 – 11.00	Principles of Confocal Microscopy and its applications in Neuroscience
11.00 – 11.30	Coffee Break
11.30 – 13.00	Super-resolution microscopy for novel insights into the neuroscience context
13.00 – 14.30	Lunch
14.30 – 17.30	Hands on sessions

Wednesday, 21 October 2026

09.30 – 11.00	Applications of Electron Microscopy and Tomography in Neuroscience Research
11.00 – 11.30	Coffee Break
11.30 – 13.00	Correlative light and volume electron microscopy to study neuronal network
13.00 – 14.30	Lunch
14.30 – 17.30	Hands on sessions

Thursday, 22 October 2026

09.30 – 11.00	MRI 7T: multiscale characterization of embryos, preclinical models and human tissues
11.00 – 11.30	Coffee Break
11.30 – 13.00	AI-enhanced Multimodal Imaging for Translational Research
13.00 – 14.30	Lunch
14.30 – 17.30	Hands on sessions

Friday, 23 October 2026

09.30 – 11.00	Basis of image analyses
11.00 – 11.30	Coffee Break
11.30 – 13.00	Q&A
	Closing remarks

SCIENTIFIC BOARD

Daniele Cartelli – Neuroalgology Unit and Vision@Besta – Fondazione IRCCS Istituto Neurologico Carlo Besta

Maria Nicol Colombo – Medical Genetics and Neurogenetics Unit and Vision@Besta – Fondazione IRCCS Istituto Neurologico Carlo Besta

FACULTY

Domenico Aquino – Neuroradiology Unit and Data Science Center – Fondazione IRCCS Istituto Neurologico Carlo Besta

Daniele Cartelli – Neuroalgology Unit and Vision@Besta – Fondazione IRCCS Istituto Neurologico Carlo Besta

Francesca Casagrande – National Facility for Light Imaging – Human Technopole

Francesca Cella Zancchi – Department of Physics E. Fermi University of Pisa

Flavio Cognini – Carl Zeiss S.p.A.

Maria Nicol Colombo – Medical Genetics and Neurogenetics Unit and Vision@Besta – Fondazione IRCCS Istituto Neurologico Carlo Besta

Maura Francolini – Dipartimento di Biotecnologie Mediche e Medicina Traslazionale – Facoltà di Medicina e Chirurgia, Università degli Studi di Milano

Andrea Raimondi – IRB, Institute for Research in Biomedicine - Università della Svizzera Italiana (USI)

Lucrezia Scandella – Dipartimento di Biotecnologie Mediche e Medicina Traslazionale – Università degli Studi di Milano and ZEISS Research Microscopy Solutions

PARTICIPATION & REGISTRATION FEE

Due to space constraints for the hands-on sessions, the number of participants is limited to 16. Applicants should send a motivation letter (max 500 words) explaining their background, with particular attention to microscopy skills, projects they are working on and expectations from the course. This information will be used to compose homogenous groups to make the sessions helpful for everyone. Applicants who want to bring their own samples are welcome and should include a brief description of the sample; upon acceptance of their application, participants will be contacted to discuss sample characteristics, preparation and particular needs.

All information should be sent to **Vision@istituto-besta.it** by 31st July 2026, with “Neuroscopy-1st edition” as object. Selected participants will receive an email with all the necessary information by 24th July 2026.

Registration fee: € 650.00, which includes:

- attendance at all sessions
- coffee breaks and lunches throughout the course
- social dinner

Travel and accommodation expenses are the responsibility of the participants

The course will commence once the minimum number of participants has been reached (8 participants).

ECM–CPD ACCREDITATION

Objective No. 37 (technical professional): Methodologies, techniques, and procedures for analytical, diagnostic, and screening investigations—including in environmental, territorial, artistic, and cultural heritage contexts. Data and information collection, processing, and analysis.

Regional theme: not included

The minimum attendance requirement is 80% of total course hours.

According to regional guidelines, the training event accredited for ECM–CPD has been assigned **43.2 credits** (including 16.2 bonus credits). The ECM certificate will be issued only to participants who:

- attend at least 80% of the total hours (attendance verified via daily signatures);
- pass the learning assessment test (minimum score: 80%) and successfully complete the skill test, with competency assessment carried out by the Scientific Board;
- complete the satisfaction questionnaire.

Con il contributo incondizionato di:



SEGRETERIA ORGANIZZATIVA

Provider ECM-CPD ID 3259

Formazione e Aggiornamento Personale – Fondazione IRCCS Istituto Neurologico Carlo Besta

Tel. 02/23942547 – Mail formazione@istituto-besta.it