



iBrain

Imaging, Brain and
Neuropsychiatry
U 1253



DIRECTOR
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Our Unit develops diagnostic tools and innovative therapies for psychiatric diseases. Our unit brings together researchers, research professors, clinicians, engineers and technicians with complementary expertise in clinical research: psychiatry, neuroscience, genetics and medical imaging; as well as in basic and clinical research: physics, chemistry, radiochemistry, acoustics, mathematics, psychiatry, neurosciences, genetics and medical imaging.

RESEARCH TOPICS

- Neurophysiology and cognition and cognition of autism spectrum disorder
- Neurobiological basis of antidepressant resistance
- Post-traumatic stress disorder
- Genomics and neuronal physiopathology of intellectual disabilities and amyotrophic lateral disorder
- Development of molecular imaging methods and of new biomarkers
- In-vitro and in-vivo metabolomics
- Ultrasound imaging and therapy
- Neuromodulation
- Data analysis
- Post-traumatic stress disorder
- Ground truth and Brain atlas

EQUIPMENT AND TECHNOLOGY

- Technical platform for cell biology: Primary cell culture room; Miltenyi Biotech, GentleMACS Dissociator; Leica MZ95 stereomicroscope; Leica CTR 5500 B confocal microscope; Evos M5000 microscope with onstage incubator;
- Aixplorer ultrasound system (Supersonic imagine);
- MicroPET/CT imaging (IRIS and IRIS-XL, Inviscan);
- Radiotelemetry devices for locomotor activity, ECG, Arterial blood pressure, EMG;
- Behavioral testing for cognition and emotion: Videotracking (Ethovision);
- Stereotaxic surgery;
- Optogenetic devices (Prizmatix);
- In vivo Calcium imaging (nVoke)
- 32 channels in-vivo electrophysiology (Axona);
- Transcranial magnetic stimulation (TMS, Animal), MagVenture;
- Image/signal processing tools;
- Eye tracking systems (3 TOBII PRO FUSION, 1 Eye Link);
- Mobile eye tracking glasses (SMI);

ACADEMIC PARTNERSHIP

Inserm : CEPR UMR1100, LabTau UMR1032, Creatis UMR1206, LaTIM UMR1101, SMN UMR 692, IGBMC UMR 7104, Institut Cochin UMR1016, GCMN UMR 1079, IMBL UMR 1028, NIMH UMR 1077, I2BM UMR 1000, LIB UMR 7371.
CNRS : GREMAN UMR 7347, CeRCA UMR 7295, CBM UPR 4301, CIPA UPS 44 TAAM, IGPS UMR 8612, IRIT, IPBS UMR 5089, LAUM UMR 6613, LE2I UMR 6306, LMA UPR 7051, IMB UMR 5251, CRN2M UMR 7286, CIRID UMR 5164, PPD UMR 8246, INCI UPR 3212, IPMC UMR 7275, IBD UMR 6216, INEM UMR 7355, BioMaps UMR 1281

CEA : Neurospin.

INRAe : PCR UMR 6175.

Institut/Fondation : Cosmetic Valley, Medicen, AFNOR, GDR Psychiatrie 3557.

Hôpitaux : CIC-IT Tours, CHRU de Tours, Lyon, Brest, Nancy, Amiens, Montpellier, La Pitié Salpêtrière, Lille, Caen, Rennes, Toulouse, Saint-Anne.

Université : Polytech Tours, LMR/EA2640, NMS/EA6294, INSA-CVdl, PRISME/EA4229, Universités de Lyon, Nantes, Aix-Marseille, Caen, Orléans, Poitiers, Rouen, Bordeaux, Toulouse, Paris 5, 6, 11.

INDUSTRIAL COLLABORATIONS

Fundations/Charities: Orange, Planiol, Fondation de France, Ligue Contre le Cancer, ARLSA, ADN.

Multinational companies: Carestream, Supersonic Imagine, IRLynx, Artann Laboratories, Knowm Inc., Juvitec Ltd, Acoustical Technologies Singapore Ltd, IT Nardoni, Philips Research Europe, Bracco Research SA, Storz Medical, Trust-Biosonics, Sanofi-Aventis, Roche, Merck, Siemens

SMBs: Cyclopharma, Vermon, ENCEFA

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EQUIPMENT AND TECHNOLOGY (SUITE)

- EEG-ERPs (64-channels recording systems, Compumedics Curry 7, Biosemi ActiveTwo);
- A neuro-vegetative recording system (Biopac MP36);
- An ecological neuro-vegetative recording system (Phymep);
- Emotional response recording system using Experience Sampling Method (ESM, Ipod);
- A video network acquisition system connected to every unit of the department (12 HD cameras, video database, Povitech Archive);
- A bioclinical database (Oracle database);
- 3D printers;
- Access to equipment of animal facilities platform and Analysis of biological systems platform;
- Access to CIRE/INRA equipment;
- Access to CIC-IT/CHU Tours equipment;
- Access to CERRP equipment;
- Time slots for research on the 3T MRI at the CHU Tours.

INTERNATIONAL COOPERATIONS

USA: Martinos Center MGH, Drexel University, University of Washington, University of Pittsburgh, Center for Addiction and Mental Health, Columbia University, University of California, University of Pennsylvania, Rutgers University, SUNY Upstate Medical University, University of New-York, Northern Navajo Medical Center, Ohio State University.

Hungary: Semmelweis University, Hungarian Academy of Sciences.

Czech Republic: University of Prague, Institute of Thermomechanics ASCR, Brno University, University of Morgantown.

Spain: Polytechnical University of Valencia, Gandia University.

Estonia: Tallinn University of Technology.

Italy: University of L'Aquila, IRCCS San Giovanni Di Dio Center, European Institute of Oncology, University of Palermo, Biomedical University of Roma, University of Parma, Siena University, University of Urbino.

Japan: Teikyo University; Hokkaido University.

China: Yanshan University, Xi'an University.

Roumania: Technical University of Cluj-Napoca.

Germany: BAM, Johannes Gutenberg University, Free University of Berlin, Max Planck Institute of Psychiatry, Carl von Ossietzky University of Oldenburg, Westphalian Wilhelms University, Postdam University, Max Planck Institute of Berlin, Medical Faculty Mannheim, University of Heidelberg,

Poland: Poznań University of Technology.

NL: Erasmus MC, University of Twente, UMC Utrecht, Amsterdam Medical Center, Maastricht University, Radboud University Nijmegen Medical Center, Technical University Eindhoven.

Belgium: Gent University, Katholieke Uni-

versiteit Leuven, University Hospital of Leuven. **GB:** University of London, University of Sheffield, Cambridgeshire and Peterborough NHS Foundation Trust, King's College of London, Kingshill Research Centre, University of Wales, University of Cambridge, Southampton University Hospital NHS Trust, Institute of Psychiatry, University of Swansea, University of Reading.

Australia: CISRO, Melbourne University, University of Sydney, Women's and Children's Hospital, University of Adelaide.

Algeria: USTHB University, University of Houari Boumediene.

Lithuania: Vytautas Magnus University.

Liban: Saint Joseph University, Beyroun University, University of Saint Esprit de Kaklik, University of Al Hadath.

Brazil: Universidad Federal do ABC.

Argentina: Universidad del Centro de la Provincia de Buenos Aires.

Greece: Aristotle University of Thessaloniki.

Mexico: National Polytechnic Institute.

Canada: McGill University, Center for Addiction and Mental Health, Toronto Sickkids Hospital, University of Ottawa.

Palestine: An-Najah National University.

Turkey: Hacettepe University, University of Koaceli.

Morocco: University of Hassan I.

Denmark: University of Aarhus.

Sweden: Karolinska Institute, University of Umea.

Chile: Universidad Catolica del Maule; Universidad Diego Portales.

Austria: Institute of Veterinary Sciences.

Cyprus: University of Cyprus.

Norway: University of Bergen.

Portugal: University of Lisbon.

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