



3-4 December 2024. Barcelona, Spain

EPIC Technology Meeting on Photonics
Technologies for Medical Diagnosis and
Treatments– Welcome words by ICFO





ICFO at a glance

- **Founded in 2002**
- **450 People**
- **25 Research Teams**
- **18000 m²**
- **80 Research labs**
- **Research, Grad Education, KTT**
 - **25000+ citations/year**
 - **300+ PhD Thesis**
 - **50+ Industrial projects**
 - **47 ERC Grants**
 - **11 spin-off companies**



Applications: Focus Programs



Light for Health



Light for Energy



Light for
Information

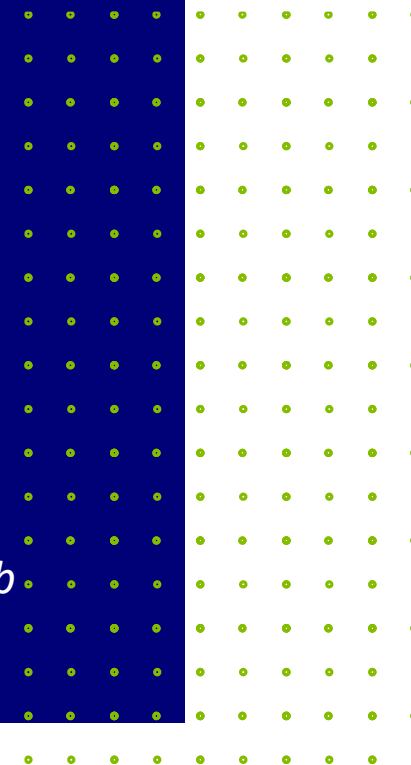




Dr. Ariadna Martínez
*KTT Portfolio
Manager (Health)
and Light for Health
Program Coordinator*



Dr. Miguel Ángel
Moreno
*KTT Project Manager
(Health)
and ICFO-SJD Joint Lab
Coordinator*

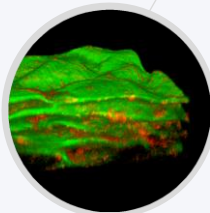
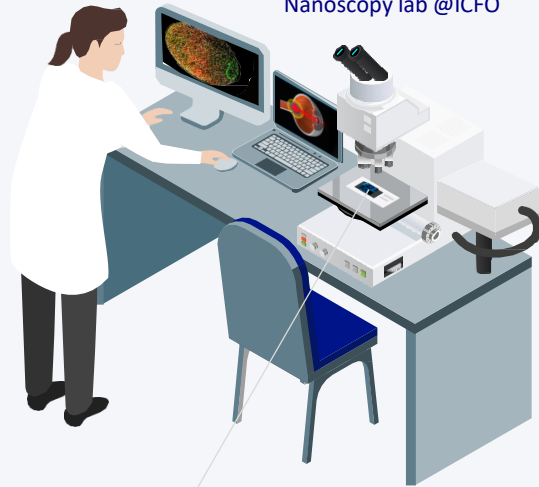


ICFO Medical Technologies



Advanced Imaging Ex-and In-Vivo

Super-resolution
Light Microscopy and
Nanoscopy lab @ICFO

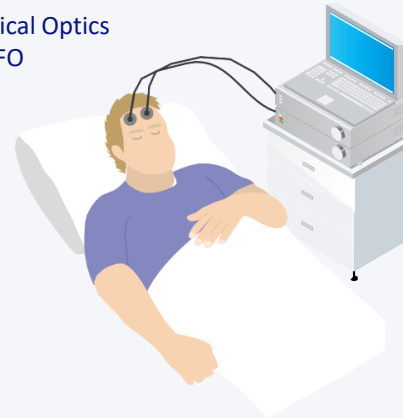


- Raman molecular profiling
- Ophthalmic microscopy
- Fast dynamics imaging
- 3D imaging of living samples
- Cell and sub-cell level visualisation



Diffuse optics for non-invasive deep tissue monitoring & imaging

Medical Optics
@ICFO



What does it measure?



Blood
flow



Blood
oxygenation



Structure



1-2cm below
surface



Macrovasculature
(tinest vessels)



Other Technologies

Other biomedical and health-
related technological capabilities
for **DIAGNOSTICS, THERAPY,**
MONITORING and **PROGNOSIS:**

Optogenetic tools

High-throughput, versatile phase
imaging tools for drug discovery

Ultra-precise and portable
atomic sensors for magnetic
resonance diagnostics.



Photonics for better healthcare

Photonics plays an increasing role in a variety of medical techniques and practices, including non-invasive diagnosis, advanced imaging and therapies.

The mission of the Barcelona Medical Photonics (BMP) Network is to promote the research and development activities in photonics being carried out in the Barcelona region through long-standing collaborations between ICFO and its biomedical and clinical partners.

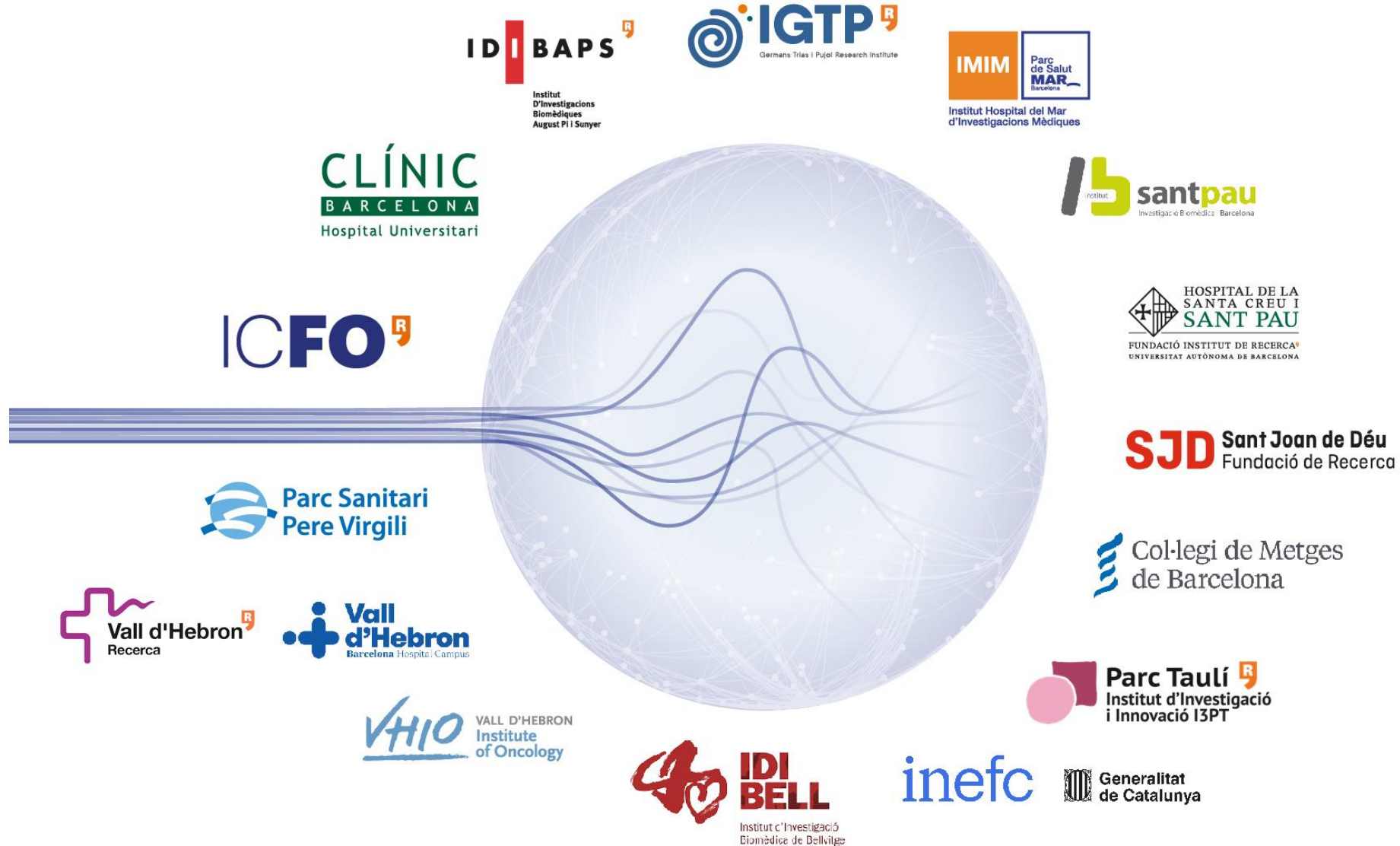
<https://barcelonamedicalphotonics.icfo.eu/>

Funding



Network Partners

Photonics and Medicine come together to create new clinical technologies



Featured projects

SJD Sant Joan de Déu
Fundació de Recerca



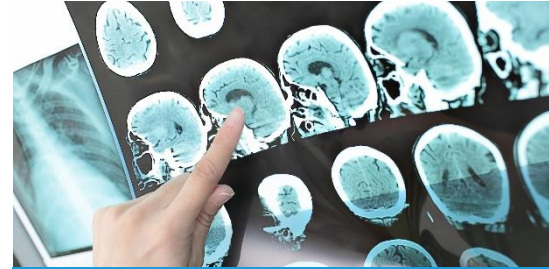
**Diagnose and monitor
paediatric diseases**

Vall d'Hebron^R Recerca
Parc Sanitari
Pere Virgili



**Understanding the
aging brain**

HOSPITAL DE LA
SANTA CREU I
SANT PAU
FUNDACIÓ INSTITUT DE RECERCA^R
UNIVERSITAT AUTÒNOMA DE BARCELONA
Institut **santpau**
Investigació Biomèdica | Barcelona



**Ischemic Stroke
management**

Vall d'Hebron^R Recerca
Vall d'Hebron
Barcelona Hospital Campus



**Theranostics for
traumatic brain injury**

IDIBAPS^R



**Thyroid cancer
screening**

IGTP^R
Institut de Recerca Germans Trias i Pujol

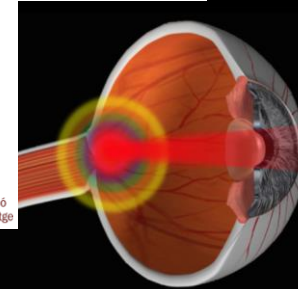


**Molecular profiling of
breast cancer**

SJD Sant Joan de Déu
Fundació de Recerca

CLÍNIC
BARCELONA

IDI BELL
Institut d'Investigació
Biomèdica de Bellvitge



**Advanced Ophthalmic
imaging**

Parc Taulí^R
Institut d'Investigació
i Innovació I3PT
Vall d'Hebron
Barcelona Hospital Campus
CLÍNIC
BARCELONA



**Optimizing intensive
care procedures with
optical monitoring**

FLIGHT

Fostering research careers in **PHOTONICS**



Light for Health

CLINICAL TRACK

(7 PhD fellowships)

SJD Sant Joan de Déu
Institut de Recerca



Parc Sanitari
Pere Virgili



Parc Taulí
Institut d'Investigació i
Innovació I3PT



Vall d'Hebron
Recerca

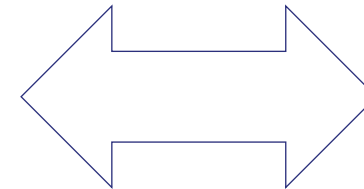
CLÍNIC
BARCELONA
Hospital Universitari

inefc



Shared PhD students between ICFO and BMPN partners

- ✓ *Multidisciplinarity*
- ✓ *Translational medicine*
- ✓ *High impact on society*
- ✓ *New applications and knowledge*
- ✓ *Innovation*
- ✓ *New challenges and synergies*



ICFO

With the support of:



Grant Agreement
Marie Skłodowska-Curie
num. 10108144



Joint Lab ICFO-Sant Joan de Déu

jointlab-sjd.icfo.eu



Retinoblastoma patient stratification for a personalized and effective treatment



Accelerate therapy development for neuromuscular diseases



Protect the development of neonatal brains in babies with congenital heart disease



Neuro-protection of the neonate and the young child during seizures

BARCELONA MEDICAL PHOTONICS NETWORK

An ICFO  Light for
Health Initiative



Perspectives on **Photonics in Neurology and Neurocritical Care**

7 April, 2022 9-15h CET · @ CosmoCaixa: C. d'Isaac Newton, 26 · 08022 Barcelona

Web: <https://barcelonamedicalphotonics.icfo.eu/>

Registration



Microcirculation in health and disease

Annual Meeting

Friday 28 April, 2023 9h-16h CET

📍 Auditori Hospital Universitari Parc Taulí

Parc Taulí, 1, 08208 Sabadell, Barcelona

Keynote speaker: Prof. Dr. Daniel De Backer

Program:



BARCELONA MEDICAL PHOTONICS NETWORK

An ICFO  Light for
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Photonics for Pediatrics

BMPN Annual Meeting

Wednesday 17th April, 2024

Event from 9.30h to 13.30h CET + networking lunch

Auditori Plaza, Hospital Sant Joan de Déu

**📍 Carrer Santa Rosa, 39-57, L'Hospitalet de Llobregat
(Barcelona)**

**BARCELONA MEDICAL
PHOTONICS NETWORK**

An ICFO  **Light for
Health** Initiative

Registration will open soon:

<https://barcelonamedicalphotonics.icfo.eu/>



J O I N T L A B

Co-organized by:



SJD

Sant Joan de Déu
Institut de Recerca 





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