

The background of the entire page is a fluorescence microscopy image of cells. The cells are stained with various dyes, showing bright green and red cytoplasm and blue nuclei. The cells are densely packed and appear to be in a tissue-like arrangement.

2021

Annual Report

Back to exceptional

Research

This year, we have produced significant breakthroughs in cancer and metastasis research, as well as other ageing and metabolism-related conditions. The caliber of our research is reflected by publications in journals with the highest impact.



188
Total number
of publications



88%
Q1 Publications
SJR 2021



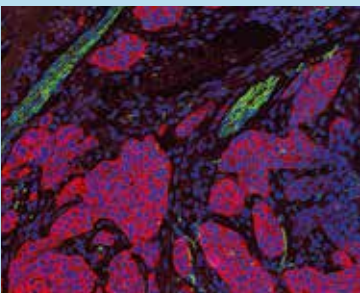
75%
D1 Publications
SJR 2021



Machine learning fuels personalised cancer medicine.

Boost DM is a computational tool that identifies cancer driver mutations for each tumour type.

Nature DOI: [10.1038/s41586-021-03771-1](https://doi.org/10.1038/s41586-021-03771-1)

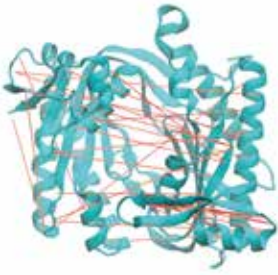


Palmitic acid promotes cancer metastasis and leaves a more aggressive “memory” in tumour cells.

This more aggressive profile drives the activation Schwann cells.

Nature DOI: [10.1038/s41586-021-04075-0](https://doi.org/10.1038/s41586-021-04075-0)

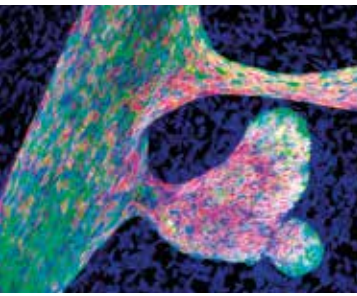
Research



A new method to understand protein dynamics and the regulation of cellular processes.

This is a new approach based on co-evolutionary information, multi-scale molecular simulations and free-energy methods.

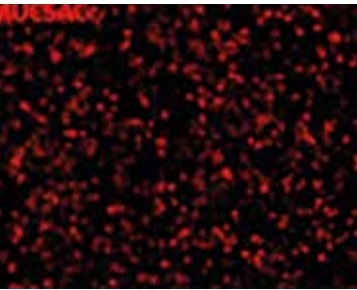
Science Advances DOI: [10.1126/sciadv.abj0786](https://doi.org/10.1126/sciadv.abj0786)



The importance of DNA compaction in tissue formation

The expression of ancestral fragments of viral DNA results in a strong inflammatory response and causes breast tissue dysfunction.

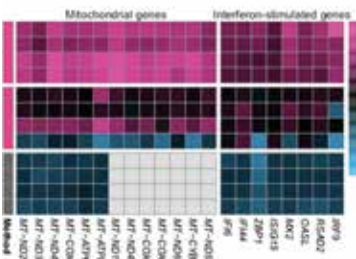
Cell Stem Cell DOI: [10.1016/j.stem.2021.04.030](https://doi.org/10.1016/j.stem.2021.04.030)



A tRNA-modifying enzyme is essential to produce major protein components of the extracellular environment.

It played a key role in the evolution from unicellular organisms to more complex forms of life.

Nucleic Acids Research DOI: [10.1093/nar/gk-ab461](https://doi.org/10.1093/nar/gk-ab461)



Fungal species causing candidiasis use distinct infection strategies

Researchers studied four *Candida* species, which account for 90% of candidiasis cases.

Nature Microbiology DOI: [10.1038/s41564-021-00875-2](https://doi.org/10.1038/s41564-021-00875-2)

Scientific Projects

Funded by public and private entities, through competitive and non-competitive calls, the projects granted this year uphold the Institute's commitment to excellence in research.



DECIDER: diagnostics and treatment of ovarian cancer.

The 5-year research project involves 14 organisations in seven EU countries and is funded by the EU.



Two CaixaResearch projects in the call for Health Research.

One will focus on understanding obesity to combat non-alcoholic fatty liver and the other in the search of new drugs against candidiasis.



PERSIST-SEQ: overcoming resistance to cancer treatments.

The consortium is an international public-private sector collaboration involving reference cancer research centres and leading pharmaceutical companies.



Seven research projects backed by the Spanish Association Against Cancer.

The projects seek to advance research into cancer, with a focus on the cancer patient and increasing survival rates.

Innovation

Our market-potential discoveries have given rise to a new spin-off, agreements and licenses, as well as new patents filed. We currently have 6 active spin-offs.



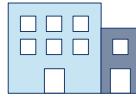
3

Priority patent applications and extensions



21

New technologies scouted



6

Active spin-offs



1

Active internal accelerator programme



33

Research Agreements with public and private entities



9

Competitive PoC grants awarded



5

Translational projects awarded in the 8th BiomedTec call



Nuage Therapeutics was launched with the support of Asabys.

Nuage Therapeutics, a spin-off of IRB Barcelona and ICREA, focuses on the discovery of new drugs aimed at therapeutic targets that are currently considered “undrug-gable”.



New project to study senolytic drug targets in inflammation and fibrosis.

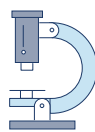
IRB Barcelona and the European biotech company Galapagos NV, established a scientific collaboration to identify and validate a series of senolytic drug targets.

People & Talent



28

Research Groups



8

Core Facilities



New Labs

We attract outstanding international scientists. This year, three new young, brilliant PIs have joined the Institute.



Dr. Cristina Mayor-Ruiz

TARGETED PROTEIN DEGRADATION
& DRUG DISCOVERY LAB

Joined from: Research Center for
Molecular Medicine [CeMM] in
Vienna, Austria.



Dr. Alejo Rodríguez-Fraticelli

QUANTITATIVE STEM CELL
DYNAMICS LAB

Joined from: Harvard University
and Boston Children's Hospital in
Boston, US.



Dr. Direna Alonso-Curbelo

INFLAMMATION, TISSUE
PLASTICITY & CANCER LAB

Joined from: Memorial Sloan
Kettering Cancer Center [MSKCC]
in New York, US.

Funding

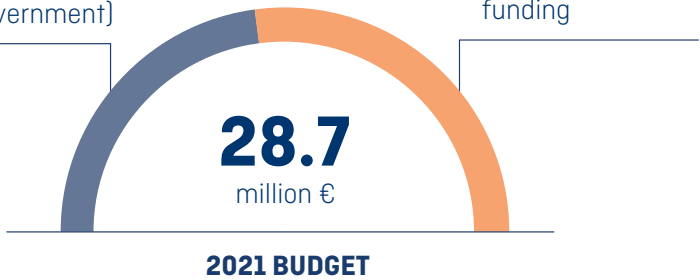
215

**National and international
research projects and networks**



13.2 Core funding
(Catalan Government)

15.5 External
funding



85.43%

of all expenses
devoted to research

Communication & Fundraising



3.4 M

Million citizens
reached through
the #fuckcancer
campaign



€2.2 M

Raised since the
beginning of
the metastasis
challenge



2,952

Impacts in the
media

Thank you!

Through the **#MetastasisChallenge**, IRB Barcelona calls citizens, patients, organisations, public administration, companies and foundations to participate in raising €5 M. This will allow us to accelerate research, recruit new talent, purchase cutting-edge technology and equip new laboratories.

We believe that only through research can we beat cancer.



www.metastasischallenge.com

Thank you to all the people and organisations that have already joined our challenge.

CENTER



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