Correspondence: Gabriel Capellá gcapella@idibell.cat

The Bellvitge Biomedical Research Institute (IDIBELL) is one of the most dynamic health research institutes in Spain with more than 1200 affiliated researchers in the fields of level basic, epidemiological, translational, clinical and health services research striving to attain significant improvements in human health.

Keywords: IDIBELL, Cancer, Neuroscience, Translational Medicine, Bellvitge.

Established in 2004, the institute is located in L'Hospitalet de Llobregat, south of Barcelona. In 2009, IDIBELL became one of the first five Spanish research centres accredited as a health research institute by the Institute of Health Carlos III being one of the most productive biomedical research institutions in Spain.

IDIBELL encompasses the research activity of the Campus of Bellvitge, including that of the Bellvitge University Hospital and the Viladecans hospital, belonging to the Catalan Institute of Health (ICS), the Catalan Institute of On-

Bellvitge Biomedical Research Institute: research centre for cancer, neurosciences and translational medicine

## **Gabriel Capellá**

Bellvitge Biomedical Research Institute (IDIBELL). Gran Via de l'Hospitalet 199, 08908 L'Hospitalet de Llobregat, Barcelona

Resum. L'Institut de Recerca Biomèdica de Bellvitge (IDI-BELL), establert l'any 2004 a l'Hospitalet de Llobregat, al sud de Barcelona, té el seu focus en càncer, neurociències i medicina translacional. Els seus socis locals són l'Hospital Universitari de Bellvitge Hospital (HUB) I l'Hospital de Viladecans, que són part de l'Institut Català de la Salut (ICS), l'Institut Català d'Oncologia (ICO), la Universitat de Barcelona (UB) i l'Ajuntament de l'Hospitalet de Llobregat. L'any 2009 es van convertir en un dels cinc primers instituts d'investigació sanitària acreditat per l'Institut de Salut Carlos III. Els investigadors de l'IDIBELL fan recerca bàsica, translacional, clínica i epidemiològica de qualitat que està organitzada en 3 àrees i 9 programes. Aquesta recerca té com a objectiu una aplicació efectiva dels avenços científics en la prevenció, diagnòstic, pronòstic i tractament dels problemes de Salut alhora que promouen la innovació en la recerca sanitària.

Abstract. The Bellvitge Biomedical Research Institute (IDIBELL) is a biomedical research center for cancer, neurosciences and translational medicine established in 2004 in L'Hospitalet de Llobregat, south of Barcelona. Its local partners are the Bellvitge University Hospital (HUB) and the Viladecans Hospital, both part of the Catalan Institute of Health (ICS), the Catalan Institute of Oncology (ICO), the University of Barcelona (UB) and the town council of L'Hospitalet de Llobregat. In 2009, it became one of the first five Spanish research centers accredited as a health research institute by the Carlos III Institute of Health. IDIBELL also carries out high-level basic, epidemiological, translational and clinical research though three areas and nine research programs, aiming at an effective translation of scientific advances into the prevention, diagnosis, prognosis and treatment of health problems and promoting innovation in health research.





cology (L'Hospitalet), the University of Barcelona (Bellvitge Campus). IDIBELL's mission is to develop state-of-the-art patient-oriented research that will help into the improvement of the quality of life of citizens. IDIBELL's vision is to become a global reference in health research while contributing to the development of the Bellvitge Health Area as a hub of excellence capable of attracting research talent in this area. The combination of comprehensive medical care, research capacity and unique economic environment are key assets in this endeavour. The values that inspire our daily task include integrity, commitment, passion, curiosity, transparency and trust. We want that our research has a true impact in society and we also aim at making research closer to society.

IDIBELL's research is structured into three Areas: Cancer, Neurosciences and Translational Medicine, with a total of 9 Research Programs: (Figure 1).

Each Research Program is composed of distinct research groups, directed by group leaders, that share a common technical framework or theme. Both single PI (principal investigators) and multiPI groups coexist within the Programs.

Research carried out at IDIBELL translates to remarkable scientific productivity; in 2016, IDIBELL's scientific production was of high quality, as exemplified by 1052 scientific publications indexed in PubMed (56% in Q1 and 22% in the D1), bringing the cumulative impact factor close to 4,291 points and a mean impact factor of 4.8 per article. Through the years IDIBELL has made a sustained effort in innovation and technology transfer in biomedicine, creating not only value for patients but economic impact as well. In the year 2016: 19 R&D contracts were signed, three active spin-off companies were active, 4 technology transfer agreements were closed and 12 new international patent applications were filed. In the same year, 911 clinical trials were ongoing, 182 having started in 2016).

With a total laboratory area of 5000 m2, IwDIBELL not only offers research laboratories but also hosts shared facilities for the support of Clinical Research and for Experimental Research. Clinical Research Support facilities include IDIBELL's biobank, the clinical trials unit (UICEC) and the biostatistics unit. Experimental Research Support facilities include state-of-the-art cell culture rooms, areas licensed for radioisotope use, unit for the study of molecular interactions, histology, microscopy (including confocal, time-lapse and electronic), flow cytometry, genomics and molecular biology, small animal and zebrafish housing facilities. The core facilities have benefited from the recent alliance with the CMRB (Center for the Regenerative Medicine) now installed in the Hospital i Duran Hospital.

In addition to the excellent scientific facilities available, IDIBELL offers researchers a strong network of support departments such as the Research Support Office, the Innovation and Technology Transfer Office, the Communications & Outreach Department, and a Human Resources Depart-



ment. Each department counts on experienced personnel in the relevant area and can be counted on to assist the researcher with the successful implementation of their projects.

Of note, IDIBELL has a longstanding track-record in the participation and successful coordination of European projects. The dedicated European and International Projects Unit in the Research Support Office has helped researchers in managing 41 projects in the FP7 program (3 as coordinators), including 2 ERC (1 Starting and 1 Advanced) as well as 2 IMI projects. So far, IDIBELL has been involved in 8 projects in H2020 (2 as coordinators). IDIBELL also manages 11 projects financed by various prestigious international organisations, including the National Institutes of Health (NIH) and Worldwide Cancer Research (formerly AICR). In addition, IDIBELL manages over 300 national grants.

Internationalization has been identified as a strategic objective for IDIBELL. Currently, IDIBELL accommodates international scientists on a regular basis and scientists of several nationalities hold permanent or temporary positions at the institute. IDIBELL endorses the "European Charter for Researchers" and the "Code of Conduct for the Recruitment of Researchers" as key elements to encourage the mobility of researchers and the harmonization of their work conditions across Europe. IDIBELL helps researchers settle in Barcelona and ensure that they can focus on research training and professional development.

IDIBELL is in a good position within the Catalan and the Spanish research systems that will help it in facing his main current challenges that include better promoting and executing cutting-edge clinical and translational research, to attract and retain talented researchers, to converge with the Center of Regenerative Medicine of Barcelona and to guarantee its economic sustainability.

## **Featured publications**

- Jiménez-Valerio G, Martínez-Lozano M, Bassani N, Vidal A, Ochoade-Olza M, Suárez C, García-del-Muro X, Carles J, *et al.* (2016) "Resistance to Antiangiogenic Therapies by Metabolic Symbiosis in Renal Cell Carcinoma PDX Models and Patients" Cell Reports, 15(6): 1134–1143.
- Mesía R, Rueda A, Vera R, Lozano A, Medina JA, Aguiar D, Árias F, Triana G, et al. (2013) Adjuvant therapy with cetuximab for locally advanced squamous cell carcinoma of the oropharynx: results from a randomized, phase II prospective trial. ANN ONCOL. 2013 Feb;24(2):448-53. Epub 2012 Oct 5.
- López-Luque J, Caballero-Díaz D, Martinez-Palacián A, Roncero C, Moreno-Càceres J, García-Bravo M, Grueso E, Fernández A, *et al.* (2016) Dissecting the role of epidermal growth factor receptor cat-

alytic activity during liver regeneration and hepatocarcinogenesis. Hepatology. 2016 Feb;63(2):604-19. Epub 2015 Oct 10.

- Salazar R, Roepman P, Capella G, Moreno V, Simon I, Dreezen C, Lopez-Doriga A, Santos C, *et al.* (2011) Gene Expression Signature to Improve Prognosis Prediction of Stage II and III Colorectal Cancer. J Clin Oncol. 2011 Jan 1;29(1):17-24. Epub 2010 Nov 22.
- Rodriguez-Garcia A, Gimenez Alejandre M, Rojas J, Moreno R, Bazan Peregrino M, Cascallo M, Alemany R. (2015) Safety and efficacy of VCN-01, an oncolytic adenovirus combining fiber HSG-binding domain replacement with RGD and hyaluronidase expression. Clin Cancer Res 21(6):1406-18.
- Moran S, Martínez-Cardús A, Sayols S, Musulén E, Balañá C, Estival-Gonzalez A, Moutinho C, Heyn H, et al. (2016) Epigenetic profiling to classify cancer of unknown primary: a multicentre, retrospective analysis. Lancet Oncology, 17, 1386-95.
- Vizoso M, Ferreira HJ, Lopez-Serra P, Carmona FJ, Martínez-Cardús A, Girotti MR, Villanueva A, Guil S, et al. (2015) Epigenetic activation of a cryptic TBC1D16 transcript enhances melanoma progression by targeting EGFR. Nature Medicine, 21, 741-50.
- Romero OA, Torres-Diz M, Pros E, Savola S, Gomez A, Moran S, Saez C, Iwakawa R, *et al.* (2014) MAX inactivation in small cell lung cancer disrupts MYC-SWI/SNF programs and is synthetic lethal with BRG1. Cancer Discovery, 4, 292-303.
- Borras JM, Lievens Y, Dunscombe P, Coffey M, Malicki J, Corral J, Gasparotto C, Defourny N, et al. (2015) The optimal utilization proportion of external beam radiotherapy in European countries: An ESTRO-HERO analysis. Radiother Oncol. 2015 Jul;116(1):38-44. Epub 2015 May 14.
- Fu M, Fernández E, Martínez-Sánchez JM, San Emeterio N, Quirós N, Sureda X, Ballbè M, Muñoz G, et al. (2016) Second-hand smoke exposure in indoor and outdoor areas of cafés and restaurants: Need for extending smoking regulation outdoors? Environ Res. 2016 Jul;148:421-428. Epub 2016 Apr 28.
- Halec G, Alemany L, Quiros B, Clavero O, Höfler D, Alejo M, Quint W, Pawlita M, et al. (2017) Biological relevance of human papillomaviruses in vulvar cancer. Mod Pathol. 2017 Apr;30(4):549-562. Doi: 10.1038/modpathol.2016.197. Epub 2017 Jan 6.
- Álvarez Z, Castaño O, Castells AA, Mateos-Timoneda MA, Planell JA, Engel E, Alcántara S. (2014) Neurogenesis and vascularization of the damaged brain using a lactate-releasing biomimetic scaffold. Biomaterials. 2014 Jun;35(17):4769-81.
- Ripollés P, Marco-Pallarés J, Alicart H, Tempelmann C, Rodríguez-Fornells A, Noesselt T. (2016) Intrinsic monitoring of learning success facilitates memory encoding via the activation of the SN/ VTA-Hippocampal loop. Elife. 2016 Sep 20;5.
- Font J, López-Cano M, Notartomaso S, Scarselli P, Di Pietro P, Bresolí-Obach R, Battaglia G, Malhaire F, et al. (2017) Optical control of pain in vivo with a photoactive mGlu5 receptor negative allosteric modulator. Elife. 2017 Apr 11;6.
- 15. Muthuri SG, Venkatesan S, Myles PR, Leonardi-Bee J, Al-Khuwaitir TSA, Al Mamun A, Anovadiya AP, Azziz-Baumgartner E, et al. (2014) Effectiveness of neuraminidase inhibitors in reducing mortality in patients admitted to hospital with influenza A H1N1pdm09 virus infection: a meta-analysis of individual participant data. Lancet Respir Med 2014; 2: 395-404.
- Imaz A, Martinez-Picado J, Niubó J, Kashuba AD, Ferrer E, Ouchi D, Sykes C, Rozas N, et al. (2016) HIV-1-RNA Decay and Dolutegravir Concentrations in Semen of Patients Starting a First Antiretroviral Regimen. J Infect Dis. 2016 Nov 15;214(10):1512-1519.
- Crespo E, Cravedi P, Martorell J, Luque S, Melilli E, Cruzado JM, Jarque M, Meneghini M, et al. (2017) Posttransplant peripheral blood donor-specific interferon-γ enzyme-linked immune spot

assay differentiates risk of subclinical rejection and de novo donor-specific alloantibodies in kidney transplant recipients. Kidney Int. 2017 Mar 5.

- Markmann JF, Bartlett ST, Johnson P, Korsgren O, Hering BJ, Scharp D, Kay TW, Bromberg J, et al. (2016) Report from IPITA-TTS Opinion Leaders Meeting on the Future of β-Cell Replacement. Transplantation. 2016, 100(Suppl 2): S1 - S44.
- Rodríguez-Carballo E, Gámez B, Méndez-Lucas A, Sánchez-Freutrie M, Zorzano A, Bartrons R, Alcántara S, Perales JC, et *al.* (2014) p38α function in osteoblasts influences adipose tissue homeostasis. FASEB J. 2015 Apr,29(4):1414-25. Epub 2014 Dec 30.
- 20. Tellez N, Vilaseca M, Marti Y, Pla A, Montanya E. (2016)  $\beta$ -cell dedifferentiation, reduced duct cell plasticity, and impaired  $\beta$ -cell mass regeneration in middle-aged rats. American Journal Physiology-Endocrinol Metabolism. 2016;311 554 563.
- Sabaté M, Cequier A, Iñiguez A, Serra A, Hernández-Antolín R, Mainar V, Valgimigli M, Tespili M, et al. "Everolimus-eluting stent versus bare-metal stent in ST-segment elevation myocardial infarction (EXAMINATION): 1 year results of a randomised controlled trial". Lancet. 2012 Oct 27; 380(9852):1482-90
- Montalescot G, van't Hof AW, Lapostolle F, Silvain J, Flensted Lassen J, Bolognese L, Cantor WJ, Cequier A, et al.(2014) "Prehospital Ticagrelor in ST-Segment Elevation Myocardial Infarction". N Engl J Med. 2014; 371(11):1016-1027.
- 23. Sabaté M, Brugaletta S, Cequier A, Iñiguez A, Serra A, Jiménez-Quevedo P, Mainar V, Campo G, et al. (2016) "Clinical outcomes in pa-

tients with ST-segment elevation myocardial infarction treated with everolimus-eluting stents versus bare-metal stents (EXAM-INATION): 5-year results of a randomised trial". Lancet. 2016 Jan 23;387(10016):357-66.

- Hoegg-Beiler MB, Sirisi S, Orozco IJ, Ferrer I, Hohense S, Auberson M, Gödde K, Vilches C, et al. (2014) Disrupting MLC1 and GlialCAM and CIC-2 interactions in leukodystropy entails glial chloride channel dysfunction. Nat Commun 19;5:3475.
- Pluvinet R, Olivar R, Krupinski J, Herrero-Fresneda I, Luque A, Torras J, Cruzado JM, Grinyó JM, et al. (2008) CD40, an upstream master switch for endothelial cell activation uncovered by RNAi- coupled transcriptional profiling. Blood 112: 3624-3637
- Fontrodona L, Porta de-la-Riva M, Morán T, Niu W, Díaz M, Aristizábal-Corrale S, Villanueva A, Schwartz S, et al. (2013) RSR-2, the Caenorhabditis elegans Ortholog of Human Spliceosomal Component SRm300/SRRM2, Regulates Development by Influencing the Transcriptional Machinery. PLoS Genetics. 9 6, pp. e1003543. 06/2013.
- Matsoukas MT, Aranguren-Ibañez A, Lozano T, Nunes V, Lasarte JJ, Pardo L, Pérez-Riba M. (2015) Identification of non-peptidic inhibitors of Calcineurin-NFATc signaling that mimic the PxIxIT motif of Calcineurin interactors. Science Signaling 10:e0134569.
- Muñoz X, Mata A, Bassas LI, Larriba S. (2015) Altered miRNA signature of developing germ-cells in infertile patients relates to the severity of spermatogenic failure and persists in spermatozoa. Scientific Reports 2015 Dec 9;5:17991.