Young BSC researcher is co-first author of two PanCancer Atlas articles

Today, *Cell* journal is publishing the results of the largest cancer project in the world, which studies 33 types of tumour using genomic data from 11,000 patients.

The prestigious scientific journal *Cell* has published a monograph of 26 articles dedicated to the PanCancer Atlas project, a research programme financed by the United States National Institutes of Health (NIH) in which nearly 1,000 scientists from around the world studied 33 types of cancer using genomic data from 11,000 patients.

Among these scientists is Eduard Porta, a researcher currently based in the life sciences department at Barcelona Supercomputing Center (BSC), who is the co-first author of two of the papers and who contributed to a third. Porta began his participation in the project as a postdoctoral research associate at SBP Medical Research Institute and continued working on it after joining BSC in May 2017. Eduard’s work has been funded by a Beatriu de Pinós fellowship. He has also recently obtained Junior Leader grant from the Obra Social la Caixa, the not-for-profit arm of CaixaBank, which will allow him to continue in this line of research at BSC.

In one of the papers in which he is named as co-first author, Porta publishes the most up-to-date list of the 299 genes involved in the development of cancer, including 59 genes that have been linked to cancer for the first time.
“This list of cancer genes was obtained thanks to the systematic application of the top bioinformatics tools, providing us with the most comprehensive study undertaken to date. In addition, in this project we used 12 other bioinformatics tools to identify around 3,200 mutations as those most likely to cause the development of tumours. All this new information provides greater precision when suggesting specific therapies for each patient,” explains Eduard Porta.

In the second publication where Porta is named as co-first author, the BSC researcher goes into further depth on the role of these genes in certain immune responses of the organism in fighting tumours and suggests routes towards the use of personalised immunology therapies.

“We have seen that the immune system has six main different types of response against tumours. These responses are, to a certain extent, independent of the type of cancer. We have also shown that some specific cancer genes are associated with a specific type of immune response. This information will allow new drug combinations to be put forward which, by attacking these genes, could prompt the patient’s immune system to attack cancerous cells,” Porta concludes.

**Expanding the study of cancer**

In October 2013, researchers involved in the creation of The Cancer Genome Atlas (TCGA) published the first ‘pancancer’ analysis, in which the cell and genome patterns of 12 different cancers were identified. Building on the success of this programme, in 2016 it was agreed to expand the study and include additional genomic information, such as ADN mutations, epigenetic data and gene expression data obtained systematically for 33 different cancers in 11,000 oncology patients.

The publication of this article series completes the second phase of the PanCancer Atlas project, concluding with the identification of genetic patterns providing a unified view of the commonalities and differences of the myriad types of cancer analysed. This information is the foundation for the development of strategies in personalized medicine, in which treatments are adapted to the genetic characteristics of each patient.

**About Eduard Porta**

Having obtained his PhD in bioinformatics from the University of Barcelona, Eduard Porta spent four years as a postdoctoral research associate at the Sanford Burnham Prebys Medical Discovery Institute under Adam Godzik, director of the centre’s Bioinformatics and Biology Systems Programme. During this time, he began working on the PanCancer Atlas project. Thanks to a Beatríu de Pinós postdoctoral grant, he joined BSC in May 2017 to continue participating in this project, as part of which he has contributed to various publications, including two as first author of the consortium. Porta has also been awarded a ‘Junior Leader’ grant by the Obra Social de la Caixa, the not-for-profit arm of CaixaBank, which is reserved for postdoctoral researchers at the most prestigious Spanish research centres.

**Authors**

Along with the BSC, other leading institutions around the world have contributed to this programme, including the SBP Medical Discovery Institute, the Washington University St. Louis, the Johns Hopkins University, the BROAD Institute, the Institute for Systems Biology and the MD Anderson Cancer Center among others.

This manuscript is part of The Cancer Genome Atlas (TCGA) Program, a joint effort of the National Cancer Institute (NCI) and the National Human Genome Research Institute (NHGRI).
Reference of the study

For the article *Comprehensive Characterization of Cancer Driver Genes and Mutations*


DOI: 10.1016/j.cell.2018.02.060

For the article *Perspective on Oncogenic Processes at the End of the Beginning of Cancer Genomics*


DOI: 10.1016/j.cell.2018.03.033

For the article *The Immune Landscape of Cancer*


DOI: 10.1016/j.immuni.2018.03.023

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