

**Comprehensive CAncer IMmunotherapy and Immunology (CAIMI) programme**

# **VHIO and the BBVA Foundation launch a comprehensive research and early drug development programme in cancer immunotherapy and immunology**

- A previous collaboration between VHIO and the BBVA Foundation focused on tumour biomarkers has not only contributed to advancing precision medicine against cancer but also led to this newly launched research project in immunotherapy
- Powered by a total budget of 2.5 million EUR, the comprehensive CAncer IMmunotherapy and Immunology four-year programme (CAIMI) will investigate the natural mechanisms by which T lymphocytes – the white blood cells that mediate immune response – respond to cancer. This project will also focus on early clinical drug development
- Immunotherapy is becoming increasingly powerful anti-cancer armoury since it triggers the immune system to recall and attack tumour cells. It has also proven effective in the treatment of different tumour types and is generally better tolerated by patients when compared with conventional treatments
- VHIO's molecular prescreening program, a reference nationally, facilitates the prediction of anti-tumour response to more precisely match immunotherapies tailored to individual patients
- CAIMI will combine the expertise of VHIO's Early Clinical Drug Development Group headed by Elena Garralda and its Tumor Immunology & Immunotherapy Group directed by Alena Gros

**Madrid, December 14, 2017.** - The Vall d'Hebron Institute of Oncology (VHIO) and the BBVA Foundation today announced the launch of their newly created comprehensive CAncer IMmunotherapy and Immunology (CAIMI) four-year programme with a budget totalling at 2.500.000 EUR. This project will investigate the natural mechanisms by which T lymphocytes – the white blood cells that mediate immune response - respond to cancer and the ways in which these insights can be used to better predict anti-tumour responses in order to develop more precise and tailored treatments. An immunomics programme using avant-garde genomics applications and technologies will also be set up to study mechanisms of resistance to immune-based therapies.

The CAIMI programme will combine the expertise of VHIO's Early Clinical Drug Development Group, headed by Elena Garralda, and Tumour Immunology & Immunotherapy Group, directed by Alena Gros. "Our purely multidisciplinary teams comprised of clinical investigators and translational scientists with grounded expertise within these well-established fields at VHIO, will lead CAIMI towards advancing immunotherapeutics against cancer and in so doing, improve outcomes for patients", observes Josep Tabernero, Director of VHIO and Head of the Medical Oncology Department, the Vall d'Hebron University of Hospital (HUVH).

VHIO and the BBVA Foundation first partnered in 2013 with their Tumour Biomarkers Research Programme, led in Barcelona by Josep Tabernero, and José Baselga, Physician-in-Chief at the Memorial Sloan Kettering Cancer Center (MSKCC), New York. The project, which successfully concluded in June 2017, firmly established VHIO as a reference in personalised medicine by consolidating its research in developing molecular therapies, above all in molecular prescreening, and various technology platforms that have led VHIO to mark several important milestones in progressing precision medicine in oncology through the molecular profiling of individual patients. Building on these successes, with a view to rendering immunotherapies more precise, the two institutions are renewing their collaboration through the Foundation Comprehensive Cancer Immunotherapy and Immunology Programme, centred on one of the most promising and novel treatment approaches in the fight against cancer.

During today's presentation Francisco González, President of the BBVA Foundation, firmly positioned this newly launched collaboration as part of the Foundation's programmes aimed at promoting biomedical research in collaboration with research institutes of excellence, with various established within Catalonia, "this collaboration will further spur the essential flow of knowledge from bench to bedside and back, as well as drive the necessary insights into therapies and translate them into benefits for patients".

## The immune system: an ally against cancer

Instead of attacking cancer cells, immunotherapy “stimulates the immune system's own capacity for distinguishing tumour cells from healthy cells, potentiating its capacity to eliminate cancer cells in a highly specific manner”, explains Josep Tabernero.

One of its particular advantages is that it generates a ‘memory’ response in which the immune system recognises tumour cells should they appear in the future and remembers to attack them. For this reason, “Immunotherapy can generate long-lasting responses and, in some patients, the complete disappearance of the tumour, even in highly advanced disease. In addition, since treatment with immunotherapeutics can stimulate the patients' own immune systems as opposed to treating a specific type of tumour cell, it has been shown to be effective in treating very different types of cancer, such as melanoma, kidney cancer, bladder cancer and lung cancer”, adds Tabernero. Another of its advantages is that patients generally tolerate immunotherapy better than conventional treatments.

This efficacy paired with long-lasting action has led to significant, yet until very recently inconceivable, advances in particularly virulent forms of cancer such as melanoma, in which “thanks to immunotherapy, mean survival in advanced disease has increased from nine months to approximately two years, and we hope that this will extend further with the introduction of new therapies. Most importantly, we are witnessing a significant increase in patient survival”, highlights Elena Garralda, who will direct CAIMI’s clinical research.

However, the efficacy of immunotherapy varies since some tumours manage to block immune system defence or even slip straight past undetected, and the response to immunotherapy cannot always be predicted.

One focus of the CAIMI programme will be agents that inhibit checkpoint regulation of the immune system, that is, the mechanism by which the immune system is controlled and avoids attacking its own organism when healthy. “The strategies that tumour cells employ include blocking this function so that they are free to multiply. Checkpoint inhibitors release the brakes and allow immune cells to attack tumours”, comments Alena Gros, who will lead CAIMI’s translational research.

Drugs inhibiting immune system checkpoints “represent a genuine revolution in oncology and have led to new therapeutic avenues for the treatment of lung, kidney, skin, bladder, and head and neck cancers”, observes Alena Gros. VHIO has actively contributed to developing atezolizumab. In 2016, this drug became the first therapeutic advance to be approved for bladder cancer in two decades. Recent studies have shown it to improve survival in non-small-cell lung cancer. “This is another advantage of immunotherapy: by stimulating the immune system's own capacity for destroying cancer cells as opposed to

eliminating a specific type of tumour cell directly, we are often finding that immunotherapy treatments can be used to treat multiple types of cancer”, says Elena Garralda.

### **State-of-the-art technology in the search for therapies**

At present, VHIO is conducting 30 early phase studies with experimental immunotherapies aimed at new therapeutic targets or in combination with other treatments. To potentiate these efforts, CAIMI will implement a programme to investigate mechanisms of resistance and response to these therapies and prioritise the early development of the most promising drugs. One key goal will be to characterise the antigens that contribute to tumour regression following treatment with checkpoint inhibitors.

In parallel, the programme will search for predictive response biomarkers that will help to determine which patients would be most likely to benefit from immune-based therapies, and in so doing, render treatments more precise given that some patients do not respond to immunotherapy and others ultimately develop resistance. To this end, and thanks to this to VHIO-BBVA Foundation collaboration, CAIMI will benefit from a cutting-edge tool of international reference: a molecular prescreening platform that in 2016 alone was used to analyse tumours in 1,200 patients and detect mutations and other alterations in order to more precisely select the most suitable treatments for them. “The data generated over the last few years on biomarkers for personalised cancer therapies will be at the disposal of CAIMI. Research findings, such as the identification of new markers of response to experimental immunotherapies, will then be translated to our prescreening programme”, says Tabernero.

As with the previous joint programme, the VHIO-BBVA Foundation Comprehensive Cancer Immunotherapy and Immunology Programme will closely interact with other research centres and clinical sites. “VHIO’s model is based on collaboration”, remarks Alejandro Piris, head of Coordination and Scientific Management for CAIMI. “Many of the clinical studies from which we obtain samples and data are conducted in partnership with other centres and cooperative groups both in Spain and across Europe, including those involving the Gastrointestinal Tumour Treatment (GTT) Group, and the SOLTI Breast Cancer Research Group, to name but a few. Advancements in our prescreening technologies including pathology and genomics have an equally positive impact on our partner institutions, and this platform is often selected as a central laboratory for the analysis of samples from clinical trials throughout Spain”, concludes Piris.

Fundación **BBVA**

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Para más información, puede ponerse en contacto con el Dpto. de Comunicación y Relaciones Institucionales de la Fundación BBVA (91 374 52 10 / 629175147) o con la Oficina de Prensa de VHIO (626 52 30 34)