

Javier Menéndez-Begoña Martín

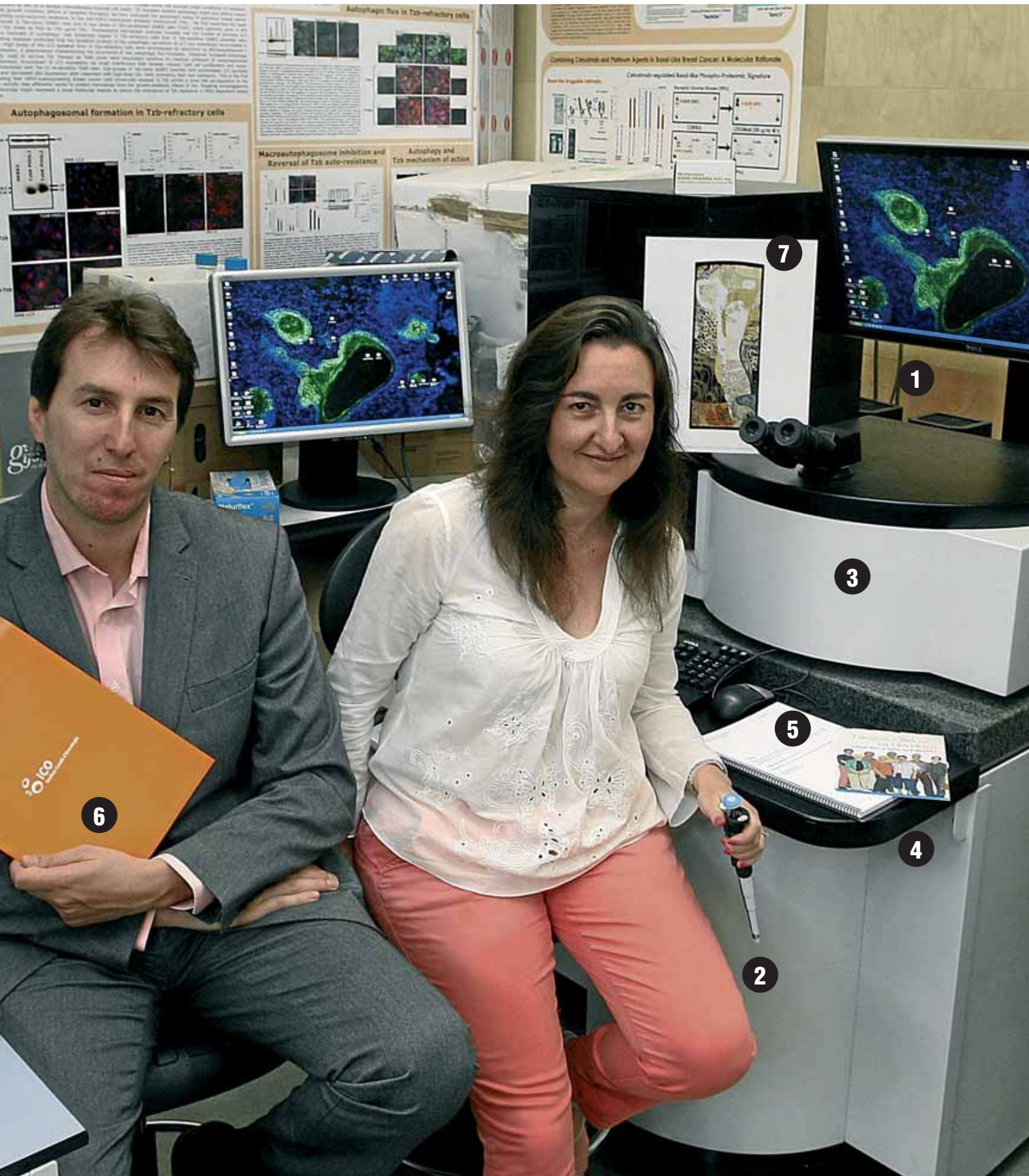
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Begoña and Javier share their passion for science and work as a team fighting cancer: while she deals with patients, he works on the 'dark side', the cells. We visited Javier's lab at IDIBGI.

1. **Tumoral cell.** Our enemy, yes, and at the same time our friend, because it's our work. It's a love-hate relationship. In the lab we talk to them, take care of them, we need to understand them and know their secrets. Only then we can fight them.
2. **Pipette.** For us, it's like a chef's knife. Sometimes in the US I used to calculate how many times I used one a day: between 7,000-10,000 times, Javier says.
3. **Microscope.** As children, my brother and I were fascinated by birds and we studied their behaviour. We sent the reports to the Spanish ornithological association and they thought we were adults. I was 12 when I first saw the world through a microscope. When the teacher put tissue from a liver tumour under the microscope, I was so fascinated I realised I wanted to do biology.
4. **Clinical trial.** The indispensable tool for scientific progress. All anti-tumour treatments need to pass safety and efficiency trials thorough a process that we could define as controlled experiments on people; it's the fastest and most efficient way for patients to benefit from a new treatment. The number and type of clinical studies done by a centre is indicative of its prestige and quality of care.
5. **Protocol of the clinical trial.** It's the Bible of all clinical research. It details the why, how and when of the procedures to be followed during research on a new drug.
6. **Institut Català d'Oncologia (ICO).** Since 1995 it has dealt with cancer in a comprehensive way, approaching all its complexities: treatment, prevention, training and investigation. It's the only centre in Spain and among the few in Europe which follow the Comprehensive Cancer Centre model in the US, which guarantees that a patient from a small village in Alt Empordà, for instance, has the same type of oncological treatment as a patient from Barcelona. Having the ICO here, there's no need to go to M D Anderson in Houston, the most famous centre in the world.
7. **Klimt painting.** I am a humanist and I look at science from a Renaissance point of view, says Javier. Our love of art and research goes hand in hand. Research is an art and art is investigation.
8. **Travelling.** We see journeys in the same way as research: a discovery: it's all about learning, observing, discovering... The places we most loved: Austria, the Maldives, Paris, Guatemala, Cuba, the Seychelles.
9. **Our children.** The best experiment we've ever done!

Photo: LLUÍS SERRAT





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JAVIER MENÉNDEZ Head of the Translational Research Unit at the ICO

Demystifying the c-word

The head of a pioneering oncology research unit in Girona says that breast cancer is about to become a chronic disease and finding a cure against old age is only a matter of time

MARCELA TOPOR

Only a few years ago, breast cancer was thought of as a terminal disease. Today, spectacular progress in medicine has brought new hopes: "Cancer is about to become a chronic disease, like Aids, which was considered fatal 25 years ago. Today patients with cancer can live as long, and with the same quality of life as a healthy person", says Dr. Javier Menéndez, head of the Unitat de Recerca Translacional of the ICO (Institut Català d'Oncologia) in Girona.

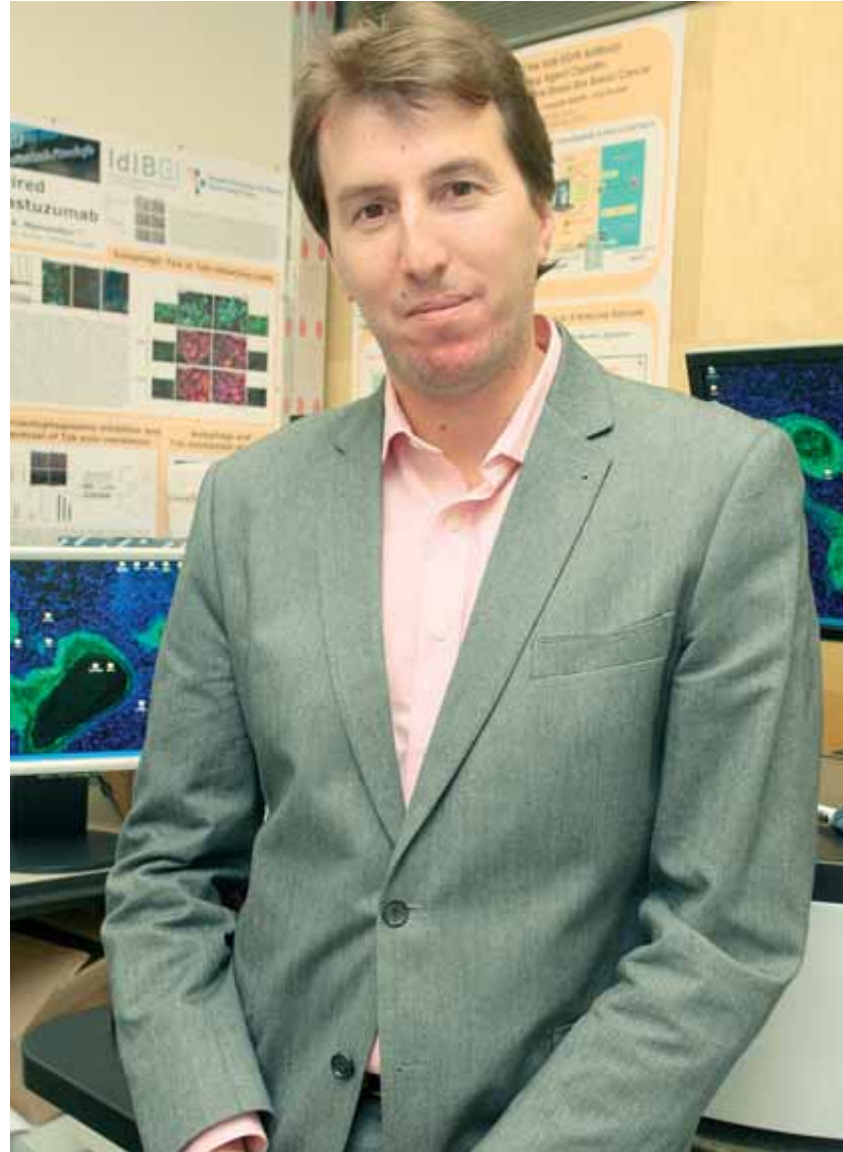
A pioneering clinical trial headed by Menéndez and Begoña Martín – who coordinates the Unitat d'Investigació Clínica at ICO – aims to determine if Metformin, the most commonly used drug in diabetes treatment, may be used on breast cancer. Menéndez, who spent years at research centres in Berkeley (California) and Chicago, explains how the project began: "When I came back from the US, I joined Begoña in Girona's ICO and together we developed a clinical trial to demonstrate that Metformin is effective against cancer cells, more specifically in an especially aggressive subtype of breast cancer called HER 2 positive."

"Clinical testing for a new drug can easily take 15 years and

cost 10 billion dollars. We didn't have that. So we chose a replacement, using Metformin, that had been previously tested on other pathologies. We demonstrated that it attacks the root of cancer, the tumor-initiating stem cells, and then we took it to a clinical level through the unit coordinated by Begoña. And we did this in three years. There are now patients taking this treatment, combined with Trastuzumab, an antibody commonly used in cancer treatment, and chemotherapy."

Girona's ICO and another centre in Canada are the two most important centres on an international level researching the use of Metformin to stop cancer through molecular therapy, but the study also involves some 16 other hospitals in Spain. "This a dream come true", Menéndez and Martín say proudly. "We have placed Girona on the map of oncologic research. If this study is successful, Metformin could become a cheap weapon in the fight against cancer. Things might be easier than we thought."

Apparently, living in the Mediterranean has an advantage, as there is a lower breast cancer rate than in countries such as Sweden or Holland. Olive oil might have something to do with this, he points out.



Dr. Menéndez at the Institut d'Investigació Biomèdica (IDIBGI)./L. S.

However, the countries with the lowest rates of breast cancer are under-developed countries. "Cancer is a western disease, it's more common in developed countries. Indeed, it seems that a low calorific intake could offer protection from cancer. What's more, the best protector against any disease—cancer included—is a low calorie intake: eating little, but adequately, keeps us healthier," he concludes.

He points out a relationship between cancer and old age: "Growing old should be seen as a disease. At a molecular level we are not programmed to grow old. In 50 years, we will not be doing research on separate diseases, but on the ageing process. All diseases are related to a certain age, when there is a change at a metabolic level. If we understood those changes, then we would have the key for cancer and old age."

Menéndez points out that life expectancy increases every year:

"Since the second world war, life expectancy has increased 30 years. In 50 years, it will be 120, now it's over 80."

"In any case, he warns, our society needs to start preparing for a future with a population which will live much longer, which is a challenge for the health system and pensions. The question is: will the future see centenarians working or being dependent? And the unavoidable philosophical question is whether we have the right to decide whether we can live more years or not?"

Menéndez's work, however, is limited to research. "In the future, one out of every eight women who are born today will develop breast cancer, and two out of three people will have cancer during their lives. We have to understand that we cannot change this; it is part of the risk of living. That's why research is so important, it is vital for our future", he concludes.