

## HEALTH

## Top cancer hospital starts research wing

• The Institut Català d'Oncologia (ICO), Catalonia's main cancer treatment hospital, is setting up a new programme in cancer research. The programme, headed by local research standout Manel Esteller (below), will focus on the study of epigenetics, or how environmental factors, including nutrition and stress, can make small chemical changes to our DNA, leading to cancer.



"With this new programme the ICO will now cover basic research, essential to understanding the molecular roots of cancer," said Esteller, who had previously worked at the Centro Nacional de Investigaciones Oncológicas.

Esteller is picking 80 researchers who will take up their duties in a new 1,000-square-metre laboratory. Many of the recruits are Spaniards now working abroad, but 20-25% of the team will be foreign experts. Esteller plans to collaborate with top research institutions, both in Catalonia and overseas, including Memorial Sloan-Kettering Cancer Center in New York.

## Note to cola addicts: watch your kidneys

• It's well known that too much soda can increase the risk of diabetes and obesity, but do popular cola drinks have a risk of their own? According to a study conducted by the US National Institute of Health, the answer is yes. The study concluded that drinking two or more colas a day – artificially sweetened or not – was linked to a twofold risk of chronic kidney disease. The authors say more research is needed, but their findings support the prevalent opinion that something about cola – the phosphoric acid, or the ability of cola to pull calcium from bones – seems to increase the risk of renal problems.

DAVID BUENO I TORRENS. GENETICIST

## 'Artificial is not bad'

*David Bueno i Torrens, Professor of Genetics at the Universitat de Barcelona and author of Òrgans a la carta (Organs on Demand), specialises in the emerging field of regenerative medicine, based on the idea of repairing worn out tissues and organs with new ones grown in the lab. He talks about cultivating organs, exchanging DNA with cows, and Walt Disney's future*

LOUIS HEARN

• –Why are human embryos so important to regenerative medicine?

Because there's a moment in the embryo's development, about five days after fertilisation, when you find a group of cells called 'stem cells' that can develop into any type of adult cell. We can use these stem cells in the lab to generate tissues such as liver cells, pancreas cells, or neurons.

–What are some of the illnesses which can be cured by regenerative medicine?

The theory is that any illness owing to abnormal functioning of the cells can be cured. In practice, financial investment is often what sets the line research groups follow, so the primary illnesses addressed will be those that pose the greatest expense to governments. Heart attacks, diabetes, and neuro-degenerative illnesses such as Alzheimer's or Parkin-

son's generate a huge expenditure for public health care.

–Is there a lot of investment into this research in Spain?

There is a great deal of interest, since curing these diseases and diminishing that expenditure are priorities. About a year ago, a law was passed to permit the obtaining of stem cells from human embryos as long as those embryos have not been made specifically for research purposes. And just three weeks ago the first experiments with transplanting patients nuclei into the stem cells of embryos was approved. In many other countries it's still not legal to do experiments on human embryos, so Spain is one of the pioneers in creating this kind of legislation.

–Are there problems of transplant rejection with these techniques, like in current organ transplants?

If I take stem cells from an embryo, use them to make bone cells and then implant those cells, my body will reject them because that embryo is genetically different. That's where this technique of transplanting nuclei is useful. You remove the nuclei from stem cells and replace them with nuclei from your own cells. Since whatever tissue you generate from those cells now contains your genetic material, there is no rejection.

–Is it possible to use cells that don't come from humans in order to grow the tissues?

One way to avoid the legal and ethical debate is to use stem cells that come from other animals. For example, you can take stem cells from a cow embryo, remove the nucleus, and add a human nucleus to create what is called a 'hybrid' cell.

–A cow embryo? Does this



Bueno: this form of medicine will be more accepted as it is understood/LH

make you a 'hybrid' of man and cow?

[laughs] No, cow cells that are given human genetic material cease to be cow cells and become 100% human cells. Look, we eat lettuce, and our body converts that into human tissue. We don't become a lettuce just because we eat lettuce cells.

–This research makes some miraculous claims, but there are aspects some people seem to find difficult to accept.

It's difficult until you see the practical applications. The day when we can tell a patient, "You have this disease, and I can cure it," all reticence will disappear immediately. The problem is that people sometimes use the word "natural" as a synonym for "good" and "artificial" as a synonym for "bad." But many things that are artificial, such as medicine, are not bad, and many things that are natural, such as the AIDS virus, are not good.

–But what about those

photos of the rat with the human ear growing on its back? Aren't scientists doing some pretty strange stuff?

Ask the boy who got his cartilage back because of that experiment if it was beneficial. Information about a technique that can replace ears lost in an accident is good, but publicity skewed towards freakishness is bad. Publishing a picture of that mouse with a facetious comment turns it into a monster. But if you explain that this research helped a young boy born without cartilage, the perspective is very different.

–When we start manufacturing new organs, will we have to wake up all the cryogenically frozen people?

Like Walt Disney? I wonder ... if you're his doctor, you have to freeze him before he dies. So what happens if you thaw him and he doesn't resuscitate?

–You've just murdered Walt Disney.

Yeah, at the very minimum, it's homicide.

## Fighting female circumcision

CATALONIA TODAY

• Since 2003, the Generalitat has intervened in 223 cases where there was a high risk of female circumcision, reflecting the increase in migration, especially from Africa, where the practise is most prevalent.

Female circumcision involves various degrees of vaginal mutilation, a tradition practiced

partly to prevent sexual desire in girls. In addition, an uncircumcised girl holds less value on the marriage market in many places because she is perceived as being "impure."

Now, for the first time in Spain, the Barcelona clinic L'Institut Hospitalari Dexeus offers free reconstructive surgery to women who have suffered par-

tial circumcision. In 60% of surgeries conducted at Dexeus so far, women have regained clitoral sensitivity.

The Catalan government takes action to avert female circumcision in cases where the evidence provided by investigators is enough to seek a court order to prevent the mutilation.

The World Health Organiz-

ation (WHO) estimates that between 100 and 140 million women worldwide are circumcised. WHO distinguishes among four types of genital mutilation. In Sudan, Somalia and Djibouti, the most brutal circumcision is practised. In Mauritania, Mali, Niger, Chad, among others, a lesser, but no less barbaric, form is practised.