

Why you should take a stand on biotech

Local scientist Lluís Ribas explains exactly why the general public must be prepared to take an interest in the great biotechnology debate.

Biotechnology is the one branch of science guaranteed to cause a heated argument. This is hardly surprising. This area already touches on our lives in ways we may not be aware of, and, as science moves on, its impact will only increase. There is clearly a need for public debate. However few of us can find anything to say or even seem to care about the issue. True, this is a complicated subject but it is up to all of us to decide where and how far we want biotechnology to go.

For the sake of argument I will simply ignore the extreme positions of those who favour either a total ban or complete free rein for the advance of biotechnology. For those willing to compromise, here are several examples worth discussing.

We might, for instance, consider the manipulation of the genes of a wild plant that regulate the shape of its flowers, producing a new vegetable which is both delicious and nutritious. Would you support this project? In fact, this experiment has already been done and it turned a useless herb into our beloved cauliflower. Foul!, you scream, cauliflowers were selected naturally! Indeed, I reply, but there is no scientific difference between that kind of mutation and those that we perform



The natural mutations that produced the well-loved cauliflower are not so different from modern day manipulations in the lab

in the laboratory. Does that mean that laboratory selections are equivalent to those performed by farmers over generations? Of course not, but why should modern manipulations be more worrying than traditional ones? You should have an opinion on this because you are probably already a regular consumer of genetically-modified foods.

Some examples on human genetics. Let's consider the case of Sarah, a young Ashkenazi girl who knows that she could be a carrier of the mutation responsible for cystic fibrosis. Sarah decides to check her and her husband's genome to determine the risk to their children of suffering this terrible disease. Is this a positive outcome of genetic re-

search or an intolerable interference in a natural process?

Let's now assume Sarah is pregnant and the foetus carries the combination of genes that will predispose the child to CF. Future gene therapy techniques will probably allow us to correct this defect in the child and to erase the CF mutation from his genes, freeing him and his

own children from the menace of that disease. Would you consider this a legitimate manipulation of a human genetic imprint?

It gets trickier. How about genes that are not, strictly speaking, linked to disease? As gene therapy techniques improve, parents might be able to manipulate essential characteristics of their children. Thus, if you knew that your poor memory seriously impaired your academic success, you might be tempted to take your kids to a clinic where their memory would be substantially improved by implanting a certain gene. Indecent? Aberrant? What if we treated all children in the same way? Would this be an acceptable improvement of the population?

If we go back to therapy and use these methods to relieve the symptoms of Alzheimer's disease or diabetes, are we playing Dr. Frankenstein? Should we put a limit to our research on neurobiology or gene therapy?

Genetic engineering techniques are used for these and hundreds of other applications.

Some of these uses may seem banal but others have huge potential for improving human health. Thus, banning research on these topics across the board is impossible and we need an intense public debate to set (or not) limits to the boundless potential of biotech.

Scientists can not define these limits alone. Scientific discovery requires the frame of a civilized society to prevent misuse of the technology that comes out of our laboratories. You should have your say on the matter because you will be the ultimate user of this research.

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“Yellow Manifesto” exhibition opens

The Fundació Joan Miró and the KRTU section of the Catalan government's department of culture are presenting *The Yellow Manifesto*, an exhibition curated by Joan Minguet Batllori, as part of the programme of events to mark the Any de Dalí.

The Yellow Manifesto, also known as the anti-art manifesto, was signed by Dalí, then 24, the art critic Sebastià Gasch and the literary critic Lluís Montanyà and published in March 1928. It was to become the most important manifesto of the avant-garde movement in Catalonia and probably Spain, too.

Addressed to young Catalans, it denounced the rotten state of cultural life and set out a robust defence of modernity and the Futurist and Cubist legacy as well as aspects of Dada.

The exhibition will show the

leading role that Dalí played in the preparation of the manifesto, its deliberately provocative attack on convention and official culture inherited from *noucentisme*, as well as the reactions it produced. The exhibition will reveal the background to the manifesto and the effect it had when it was published.

The manifesto provoked outrage, especially as it attacked such sacred cows as the Àngel Guimerà and l'Orfeó Català, and served the young Dalí perfectly as a calling card of an iconoclastic artist.

The Fundació Miró is the perfect setting for the exhibition and the catalogue is magnificent. In fact, it is more than a catalogue. It is a complete study of the origins of the manifesto, and reproduces much previously unpublished material. A replica of the manifesto is on sale at the museum.



The exhibition at the Fundació Miró explores the origins and the impact of the notorious “anti-art” manifesto