



MONOGRAPH

IN LIGHT OF EVOLUTION

Making Sense of Biotech Applications

Monograph coordinated by Fernando González Candelas

Evolutionary biologist Theodosius Dobzhansky reflected on the place held by evolutionary theory in modern biology in the title of his famous article: «Nothing in biology makes sense except in the light of evolution». Published in the early seventies, at the dawn of a revolution sparked by new genetic engineering techniques, his message still holds weight; perhaps even more so.

Since then, technological advances and methodological and conceptual developments in biology have led evolution to hold a prominent place among scientific disciplines, having applications and consequences in our daily lives. Ranging from discoveries about the genome and promises to provide personalized medicine, to obtaining organisms with properties chosen *à la carte*, the myriad applications of biology span many areas and issues. And while molecular biology is the driving force behind this progress, more and more often we find that evolution and evolutionary theory are essential tools to interpret, organize and control the new products of (bio)technology. Thus, we cannot change the genetic composition of a species without understanding the laws that govern the fate of new variants in a population, nor can we understand the dynamics of a cell population growing uncontrollably, as occurs in tumours, without referring to the ecological and evolutionary processes governing population growth or the expansion of new lineages.

This issue of *MÈTODE* deals with some of these applications of evolutionary theory, looking at diverse fields of biology which are similar in that, rather than being basic science, they have a direct impact on health (individual or collective), food or even justice.

Fernando González Candelas. Full Professor of Genetics at the University of Valencia (Spain).

This monograph is accompanied by the work of artist Tania Blanco (Valencia, 1978). Her work calls for the humanization of science, blending various elements. Some act as a wake-up call – where are the bounds of scientific application? – while others are more hopeful, portraying science as a medium capable of improving our lives in many ways. Science at the service of people, showing a wide range of applications, some of which are discussed in the following pages.

On the left, Tania Blanco. *Hummingbird Song* (detail), 2010. Acrylic on canvas, 180 cm in diameter.