



## Antonio García-Bellido



**Date of Birth** 30 April 1936

**Place** Madrid (Spain)

**Nomination** 24 June 2003

**Field** Molecular Biology

**Title** Professor

### Professional address

Universidad Autónoma de Madrid

Consejo Superior de Investigaciones Científicas

Centro de Biología Molecular "Severo Ochoa"

Cantoblanco

28049 Madrid (Spain)

### Most important awards, prizes and academies

**Awards:** Principe de Asturias de Investigación Científica, Spain (1984); Leopold Mayer de l'Academie des Sciences de Paris, France (1986); Santiago Ramón y Cajal National Prize for Scientific Research, Spain (1995); Severo Ochoa Chair in Biology, Section: Research abroad, Spain (1996); Comunidad Autónoma de Madrid Research Prize, Spain (1998); Rey Jaime I Research Medal, Valencia, Spain (1998); Encomienda con Placa de la Orden Civil de Alfonso X el Sabio (2005); Premio México de Ciencia y Tecnología (2006). **Academies:** Real Academia de Ciencias Exactas Físicas y Naturales, Spain (1984); Foreign Member, American Academy of Arts and Sciences, USA (1985); Foreign Member, Royal Society, London (1986); Foreign Member, Nat. Acad. of Sciences USA, Washington, DC (1987); Founder Member, Academia Europaea (1988); Foreign Member, Nat. Acad. of Sciences of France (1995); European Academy of Sciences (2004). **Honorary Degrees:** Academy of Sciences USSR, Moscow (1990); University of La Coruña, Spain (1996); University of Barcelona, Spain (1996); University of Oviedo, Spain (1997); University of Salamanca, Spain (1998); University of Elche, Alicante, Spain (2001).

### Summary of scientific research

The work of Antonio García-Bellido has been pioneer and prevalent in exploring an 'apogenetic' notion of Development: the genome, active in the individual cells, determines specific cell behaviour and this, in turn, the organization of cells in supracellular systems. The wealth of new ideas contributed by Antonio García-Bellido in the field of Developmental Biology is related with his outstanding experimental results in the studies of the genetic bases of cell recognition (1966-69); genetic mosaics and blastoderm maps (1968); clonal analysis of developing systems (1968-73) that lead him to the discovery of developmental compartments and the theory of selector genes; somatic cell genetics (1970-76); genetic trans-regulation and syntagmas (1972-82); cell-cell interactions in Morphogenesis (1984-). Venation and cell proliferation control (1989-). His ideas and new approaches to the problem of Development have been followed and continued by numerous researchers all over the world mainly in Europe and the United States of America, prompting similar research studies in other animal groups, such as mammals, and plants. The present flourishing of the Molecular Genetics of Development in *Drosophila* is due, in a large extent, to the important work of Antonio García-Bellido that is already quoted and explained in text books (e.g. Genetics, Strickberger, Molecular Biology of the Cell, B. Alberts et al.). Some of his papers have been qualified as 'citation classics' by Current Contents and commented and praised by many colleagues in research papers, review articles and dedications of books.

### Main publications

García-Bellido, A., Larvalentwicklung transplanterter Organe von *Drosophila melanogaster* im Adultmilieu, *J. Ins. Physiol.*, 11, pp. 1071-8 (1965); García-Bellido, A., Pattern reconstruction by dissociated Imaginal Disk Cell of *Drosophila Melanogaster*, *Develop. Biol.*, 14, pp. 278-306 (1966); García-Bellido, A. and Merriam, J.R., Cell Lineage of the Imaginal Discs in *Drosophila Gynandromorphs*, *J. Exp. Zool.*, 170, pp. 61-76 (1969);

García-Bellido, A. and Merriam, J.R., Parameters of the Wing Imaginal Disc Development of *Drosophila Melanogaster*, *Develop. Biol.*, 24, pp. 61-87 (1971); García-Bellido, A. and Merriam, J.R., Genetic Analysis of Cell Heredity in Imaginal Discs of *Drosophila Melanogaster*, *Proc. Natl. Acad. Sci. USA*, 68, pp. 2222-6 (1971); García-Bellido, A., Some Parameters of Mitotic Recombination in *Drosophila Melanogaster*, *Molec. Gen. Genetics*, 115, pp. 54-72 (1972); García-Bellido, A., *Pattern Formation in Imaginal Disks, Results and Problems in Cell Differentiation*, vol. 5, pp. 59-91 (H. Ursprung, R. Nothiger, eds.), Springer-Verlag (Berlin, 1972); García-Bellido, A. and Santamaria, P., Developmental Analysis of the Wing Disc in the Mutant Engrailed of *Drosophila Melanogaster*, *Genetics*, 72, pp. 87-104 (1972); García-Bellido, A., Ripoll, P. and Morata, G., Developmental Compartmentalization of the Wing Disk of *Drosophila*, *Nature New Biology*, 245, pp. 251-3 (1973); Capdevila, M.P. and García-Bellido, A., Development and Genetic Analysis of Bithorax Phenocopies in *Drosophila*, *Nature*, 250, pp. 500-2 (1974); García-Bellido, A., Genetic Control of Wing Disc Development in *Drosophila*, *Cell Patterning*, Ciba Foundation Symposium 29, pp. 161-82, Elsevier (Amsterdam, 1975); García-Bellido, A. and Ripoll, P., The Number of Genes in *Drosophila Melanogaster*, *Nature*, 273, pp. 399-499 (1978); García-Bellido, A. and Moscoso del Prado, J., Genetic Analysis of Maternal Information in *Drosophila*, *Nature*, 278, pp. 346-8 (1979); García-Bellido, A., Genetic Analysis of the Achaete-Scute System of *Drosophila Melanogaster*, *Genetics*, 91, pp. 491-520 (1979); Capdevila, M.P. and García-Bellido, A., Genes Involved in the Activation of the Bithorax Complex of *Drosophila*, *Wilhelm Roux's Archiv.*, 190, pp. 339-50 (1981); García-Bellido, A. and Robbins, L.G., Viability of Female Germ-Line Cells Homozygous for Zygotic Lethals in *Drosophila Melanogaster*, *Genetics*, 103, pp. 235-47 (1983); Moscoso del Prado, J. and García-Bellido, A., Genetic Regulation of the Achaete-Scute Complex of *Drosophila Melanogaster*, *Roux's Arch. Dev. Biol.*, 193, pp. 242-5 (1984); Diaz-Benjumea, F.J. and García-Bellido, A., Genetics Analysis of the Wing Vein Pattern of *Drosophila*, *Roux's Arch. Dev. Biol.*, 198, pp. 336-54 (1990); Diaz-Benjumea, F.J. and García-Bellido, A., Behaviour of Cells Mutant for an EGF Receptor Homologue of *Drosophila* in Genetic Mosaics, *Proc. R. Soc. Lond. B*, 242, pp. 36-44 (1990); García-Bellido, A., Cortés, F. and Milán, M., Cell Interactions in the Control of Size in *Drosophila* Wings, *Proc. Natl. Acad. Sci. USA*, 91, pp. 10222-6 (1994); Milán, M., Campuzano, S. and García-Bellido, A., Cell Cycling and Patterned Cell Proliferation in the *Drosophila* Wing during Metamorphosis, *Proc. Natl. Acad. Sci. USA*, 93, pp. 11687-92 (1996); Cifuentes, F.J. and García-Bellido, A., Proximo-Distal Specification in the Wing Disc of *Drosophila* by the Nubbin Gene, *Proc. Natl. Acad. Sci. USA*, 94, pp. 11405-10 (1997); García-Bellido, A.C. and García-Bellido, A., Cell Proliferation in the Attainment of Constant Sizes and Shapes: the Entelechia Model, *Int. J. Dev. Biol.*, 42, pp. 353-62 (1998); Martin-Blanco, E., Pastor-Pareja J.C. and García-Bellido, A., JNK and Decapentaplegic Signaling Control Adhesiveness and Cytoskeleton Dynamics during Thorax Closure in *Drosophila*, *PNAS*, 97, n. 14, pp. 7667-8192 (2000); Baonza, A. and García-Bellido, A., Notch signaling directly controls cell proliferation in the *Drosophila* wing disc, *Proceedings of the National Academy of Sciences*, 97: 2609-14 (2000); Baena-López, L.A., Baonza, A. and García-Bellido, A., The Orientation of Cell Divisions Determines the Shape of *Drosophila* Organs, *Current Biology*, 15: 1640-4 (2005); Baena-López, L.A. and García-Bellido, A., Control of growth and positional information by the graded vestigial expression pattern in the wing of *Drosophila melanogaster*, *Proceedings of the National Academy of Sciences*, 103: 13734-9 (2006).