CV date	06/02/2021

Part A. PERSONAL INFORMATION

First and Family name:	José Luis Micol Molina	Gender:	Man
ID number (DNI):	22924797F	Age:	64
Researcher ID:	B-4832-2010	ORCID code:	0000-0002-0396-1750

A.1. Current position

Name of University	Universidad Miguel Hernández de Elche (UMH)		
Department	Instituto de Bioingeniería		
Address and Country	Campus de Elche, 03202 Elche, Spain		
Phone number	966658504	E-mail	jlmicol@umh.es
Current position	*Catedrático de Universidad*	Start date	19/6/2000
UNESCO codes	2415 2409.02 2417.14		
Palabras clave	Arabidopsis, plant genetics, plant genomics, plant development		

A.2. Education

Degree	University	Year
Licenciado en Química (especialidad de Bioquímica)	de Murcia	1979
Licenciado en Biología (especialidad de Biología Molecular)	Autónoma de Madrid	1983
Doctor en Biología	de Murcia	1985

A.3. JCR articles, h Index, thesis supervised... The CNEAI granted me 6 *sexenios de investigación* and 1 *sexenio de transferencia*. I authored 110 publications, 98 of which with Web of Science (WOS) JCR Impact Factor (IF); 84 of these were Q1 in at least one JCR category at the year of their publication, of which 53 were D1. I am corresponding or single author in 70 (61 with IF) of my publications, and first author in 5 (4 with IF). My average IF is 5,407 (using the IFs of the year of publication of each paper). According to WOS ("All databases" option)/WOS ("WOS core collection" option)/Scopus/ Google Scholar, my total number of citations is 5719/5364/5529/7666, with an annual average over the last 5 years of 414/371/379/539 citations; my h (Hirsch's) index is 38/37/37/41. PubMed contains 100 of my publications. See section C7 of this CVA (page 4) for my work as supervisor.

Part B. CV SUMMARY (*max. 3500 characters, including spaces*). My career path is described in section C4 (page 4) of this CVA. I have analyzed different aspects of the development of distinct and phylogenetically distant species, always under a genetic perspective. I studied in my doctoral thesis the genetics of the germination of the spores of the fungus *Phycomyces blakesleeanus*, and in my postdoctoral periods the regulation of the expression of the *Ultrabithorax* homeotic gene of *Drosophila melanogaster*, and the role of genes encoding growth factors in the embryonic development of the sea urchin *Strongylocentrotus purpuratus*. As a Principal Investigator (hereafter, PI), I studied the genetics of leaf organogenesis and salt tolerance in *Arabidopsis thaliana* (hereafter, Arabidopsis).

I have based part of my work in high-throughput genetic strategies: I am one of the pioneers in Spain in large-scale mutant screens through forward and reverse genetic approaches, such as quantitative trait loci (QTL) analyses and iterative analysis of linkage to molecular markers in Arabidopsis. I developed methods for long PCR, for the cloning of tagged genes, and for gene expression analysis by multiplex PCR and fragment analysis. Together with María Rosa Ponce, I developed a high-throughput gene mapping method, which allowed us to keep open for 13 years a nonprofit gene mapping service that helped tens of Arabidopsis PIs in the positional cloning of about 200 genes. We have also developed software for mutation identification by means of massive DNA sequencing (mapping-by-sequencing).

Plant leaves capture sun light, reduce the level of CO_2 in our atmosphere, produce most of the oxygen that we breath and are the direct or indirect source of almost all the food that we eat. My group made pioneer analyses of leaf venation pattern formation and natural variation in leaf form. We identified and functionally characterized in Arabidopsis 59 genes required for plant leaf development. We isolated 261 leaf mutants by means of forward genetics: 78 from public collections, 153 induced by EMS, 2 of natural origin, and 28 induced by fast-neutron bombardment. Complementation and linkage analyses of these mutants indicated that they represent 147 different genes required for leaf development. We also isolated 706 leaf mutants from a gene-indexed collection. Some of the genes that we identified and characterized at a functional level act specifically in leaf organogenesis, yet others play roles in cellular processes shared by most organs, and their loss of function is easily visible and

tractable in leaves: genes involved in the homeostasis of several amino acids (*RE*, *RER1-RER6*, *VEN1*, *VEN3* and *VEN6*), of nucleotides (*VEN4*), and of hormones such as brassinosteroids (*UCU1* and *UCU2*), auxin (*HVE*, *ICU6* and *RON3*), inositides (*RON1*) and cytokinins (*DEAL1-DEAL4* and *EODL*); the transcriptional regulation of nuclear (*RON2* and *ICU4*) and organellar (*SCA3* and *RUG2*) genes; the epigenetic machinery (*ICU1*, *ELO1-ELO4*, *ANG4*, *ICU2*, and *ICU11* and *CP2-CP5*); the morphogenetic role of the ribosome as a regulator of mRNA translation (*ANG3*, *DEN5*, *DEN12*, *DEN29*, *DEN30*, *API2*, *API7*, *DEN3*, *DEN10* and *DEN15*); and chloroplast biogenesis and retrograde signaling (*ANU7*, *ANU10*, *ANU1*, *ANU4*, *ANU9*, *ANU12* and *ORB1*). My main current interest is the dissection of the molecular mechanisms—including but not limited to those that are epigenetic—of the specification of size and symmetry of plant organs through approaches based on systems biology.

Part C. RELEVANT MERITS (this CVA does not include any section on patents)

C.1. Publications. The JCR 2019 IF is shown for reference: **1** ***Nature*** (42,778; Chini *et al.*, 2007*), **1** ***Trends Plant Sci*** (14,416; Candela *et al.*, 2011), **2** ***Mol Plant*** (12,084; Robles *et al.*, 2012b; Nadi *et al.*, 2018), **2** ***Nucleic Acids Res*** (11,501; Ponce and Micol, 1992a; Wilson-Sánchez *et al.*, 2019), **1** ***Trends Genet*** (11,333; Pérez-Pérez *et al.*, 2009a), **1** ***Mol Biol Evol*** (11,062; Ponce *et al.*, 1999a), **5** ***Plant Cell*** (9,618; González-Guzmán *et al.*, 2002; Fleury *et al.*, 2007; Barrero *et al.*, 2007; Derrien *et al.*, 2018; Mateo-Bonmatí *et al.*, 2018), **3** ***Proc Natl Acad Sci USA*** (9,412; Micol and García-Bellido, 1988; Nelissen *et al.*, 2005; Karampelias *et al.*, 2016), **2** ***New Phytol*** (8,512; Wilson-Sánchez *et al.*, 2018a; Ponce and Micol, 2020), **1** ***Current Opin Plant Biol*** (8,356; Micol, 2009), **11** ***Plant Physiol*** (6,902; Quesada *et al.*, 2002*; Micol and Hake, 2003; Pérez-Pérez *et al.*, 2004; Ochando *et al.*, 2006; Hricová *et al.*, 2006; Massonet *et al.*, 2010*; Robles *et al.*, 2010; Esteve-Bruna *et al.*, 2013; Pérez-Pérez *et al.*, 2013; Bustillo-Avendaño *et al.*, 2018; Yoshida et al., 2018), **3** ***Plant Cell Environ*** (6,362; Barrero *et al.*, 2006; 2008; Pérez-Pérez *et al.*, 2011), **9** ***Plant J*** (6,141; Ponce *et al.*, 1998; Fujikura *et al.*, 2009; Mollá-Morales *et al.*, 2011; Horiguchi *et al.*, 2011; Quesada *et al.*, 2011; Coego *et al.*, 2014; Wilson-Sánchez *et al.*, 2014; Jover-Gil *et al.*, 2014; Muñoz-Nortes *et al.*, 2017a), **6** ***J Exp Bot*** (5,908; Cnops *et al.*, 2004; Barrero *et al.*, 2005; González-Bayón *et al.*, 2006; Muñoz-Nortes *et al.*, 2014; Casanova-Sáez *et al.*, 2014a; Pěnčík *et al.*, 2018), **2** ***Development*** (5,611; Alonso-Peral *et al.*, 2006; Gallemí *et al.*, 2016), **3** ***Bioinformatics*** (5,610; Micol, 1987; 1989; Ponce and Micol, 1992b), **1** ***J Integr Plant Biol*** (4,885; Candela *et al.*, 2015), **3** ***Front Plant Sci*** (4,402; Navarro-Quiles *et al.*, 2018; Ibáñez *et al.*, 2019; Lup *et al.*, 2021), **2** ***Physiol Plantarum*** (4,148; Van Minnebruggen *et al.*, 2010; Robles *et al.*, 2015), **3** ***Plant Cell Physiol*** (4,062; Pérez-Pérez *et al.*, 2010b; Jover-Gil *et al.*, 2012; Micol-Ponce *et al.*, 2015), **7** ***Genetics*** (4,015; González-Gaitán *et al.*, 1990; Castelli-Gair *et al.*, 1990; Micol *et al.*, 1990; Berná *et al.*, 1999; Quesada *et al.*, 2000; Serrano-Cartagena *et al.*, 2000; Pérez-Pérez *et al.*, 2002a), **1** ***Ann Bot*** (4,005; Fernández-Nohales *et al.*, 2014), **4** ***Sci Rep*** (3,998; Casanova-Sáez *et al.*, 2014b; Mateo-Bonmatí *et al.*, 2015; Muñoz-Nortes *et al.*, 2017b; 2017c), **2** ***Plant Sci*** (3,591; Horiguchi *et al.*, 2012*; Robles *et al.*, 2018), , **2** ***Current Genet*** (3,464; Micol and Murillo, 1986a; 1986b), **2** ***Planta*** (3,390; Ponce *et al.*, 2000; Mateo-Bonmatí *et al.*, 2014), **1** ***FEBS Lett*** (3,057; Quesada *et al.*, 1999), **2** ***Dev Biol*** (2,895; Candela *et al.*, 1999; Pérez-Pérez *et al.*, 2002b), **5** ***Mol Genet Genomics*** (2,797; Castelli-Gair *et al.*, 1992; Martínez-Laborda *et al.*, 1996; Ponce *et al.*, 1999b; Serrano-Cartagena *et al.*, 1999; Robles and Micol, 2001), **5** ***PLOS ONE*** (2,740; Rubio-Díaz *et al.*, 2012; Robles *et al.*, 2012a; Quesada *et al.*, 2012; Ferrández-Ayela *et al.*, 2013a*; 2013b), **1** ***J Plant Res*** (2,185; Pérez-Pérez *et al.*, 2010b), **1** ***Evol Dev*** (1,925; Juenger *et al.*, 2005*), **1** ***Plant Direct*** (1,725; Parry *et al.*, 2020) and **2** ***Int J Dev Biol*** (1,105; Micol and Blázquez, 2005; Pérez-Pérez *et al.*, 2009b). *These six publications were recommended by Faculty of 1000. I also published **6 articles without IF and 6 book chapters** (e.g., Bensmihen *et al.*, 2008; Ponce *et al.*, 2006; 2007).

My most productive years were 2007 (in publishing quality; 1 *Nature* and 2 *Plant Cell*), 2014 (in quantity: 3 *Plant J*, 2 *J Exp Bot*, 1 *Sci Rep*, 1 *Planta*, and 1 *Ann Bot*), and 2018 (in both quality and quantity: 1 *Mol Plant*, 2 *Plant Cell*, 1 *New Phytol*, 2 *Plant Physiol*, 1 *J Exp Bot*, 1 *Front Plant Sci*, and 1 *Plant Sci*). My year with a higher number of citations was 2020: 451/431/459/613 (see A3). The ten publications of mine that I find more important are the following (I am corresponding author in all of them, except in #6 ; the IF of the year of publication of each article is shown).

1.- Mateo-Bonmatí E, Esteve-Bruna E, Juan-Vicente L, Nadi R, Candela H, Lozano FM, Ponce MR, Pérez-Pérez JM, Micol JL. (2018). *INCURVATA11* and *CUPULIFORMIS2* are redundant genes that encode components of the epigenetic machinery in Arabidopsis. *Plant Cell* **30**, 1596-1616. (IF: 8,631).

2.- Wilson-Sánchez D, Martínez-López S, Navarro-Cartagena S, Jover-Gil S, Micol, JL. (2018). Members of the DEAL subfamily of the DUF1218 gene family are required for bilateral symmetry but not for dorsoventrality in Arabidopsis leaves. *New Phytol* **217**, 1307-1321 (IF: 7,299).

3.- Wilson-Sánchez D, Rubio-Díaz S, Muñoz-Viana R, Pérez-Pérez JM, Jover-Gil S, Ponce MR, Micol

JL. (2014). Leaf phenomics: a systematic reverse genetic screen for Arabidopsis leaf mutants. *Plant J* **79**, 878-891 (IF: 5,972).

4.- Pérez-Pérez JM, Candela, H, Micol JL. (2009). Understanding synergy in genetic interactions. *Trends Genet* **25**, 368-376 (IF: 8,689).

5.- Barrero JM, González-Bayón R, del Pozo JC, Ponce MR, Micol JL. (2007). *INCURVATA2* encodes the catalytic subunit of DNA polymerase α and interacts with genes involved in chromatin-mediated cellular memory in *Arabidopsis thaliana*. *Plant Cell* **19**, 2822-2838 (IF: 9,653).

6.- Chini A, Fonseca S, Fernández G, Adie B, Chico JM, Lorenzo O, García-Casado G, López-Vidriero I, Lozano FM, Ponce MR, Micol JL, Solano R. (2007). The JAZ family of repressors is the missing link in jasmonate signalling. *Nature* **448**, 666-671 (IF: 28,751).

7.- Quesada V, García-Martínez S, Piqueras P, Ponce MR, Micol JL. (2002). Genetic architecture of NaCl tolerance in *Arabidopsis thaliana*. *Plant Physiol* **130**, 951-963 (IF: 4,687. This article is referenced in 25 patents).

8.- Candela H, Martínez-Laborda A, Micol JL. (1999). Venation pattern formation in *Arabidopsis thaliana* vegetative leaves. *Dev Biol* **205**, 205-216 (IF: 6,049).

9.- Berná G, Robles P, Micol JL. (1999). A mutational analysis of leaf morphogenesis in *Arabidopsis thaliana*. *Genetics* **152**, 729-742 (IF: 4,221).

10.- Ponce MR, Micol JL. (1992). PCR amplification of long DNA molecules. *Nucleic Acids Res* **20**, 623. (IF: 3,294. This article is referenced in 19 patents).

C.2. Research projects and grants

Table C1. Productivity of *Plan Estatal* three-year projects directed by J.L. Micol

Project	Publications with IF derived from each project		
	N[a]	Av. IF[b]	Number of papers published in each *Journal*
PGC2018-093445-B-I00	2	10,007	1 *Nucleic Acids Res*, 1 *New Phytol*
BIO2014-53063-P	13	6,440	1 *Proc Natl Acad Sci USA*, 1 *Mol Plant*, 2 *Plant Cell*, 1 *New Phytol*, 1 *Plant Physiol*, 1 *J Exp Bot*, 1 *Plant J*, 3 *Sci Rep*, 1 *Front Plant Sci*, 1 *J Integr Plant Biol*
BFU2011-22825	10	5,104	2 *Plant Physiol*, 1 *Plant J*, 2 *J Exp Bot*, 1 *Sci Rep*, 2 *PLOS ONE*, 1 *Planta*, 1 *Plant Sci*
BIO2008-04075	14	6,044	1 *Curr Opin Plant Biol*, 1 *Trends Genet*, 1 *Trends Plant Sci*, 4 *Plant J*, 1 *Plant Cell Environ*, 2 *Plant Physiol*, 1 *Plant Cell Physiol*, 1 *Int J Dev Biol*, 1 *Physiol Plant*, 1 *J Plant Res*
BFU2005-01031	7	9,833	1 *Nature*, 2 *Plant Cell*, 1 *Development*, 2 *Plant Physiol*, 1 *J Exp Bot*
BMC2002-02840	6	5,092	1 *Proc Natl Acad Sci USA*, 2 *Plant Phys*, 1 *J Exp Bot*, 1 *Evol Dev*, 1 *Int J Dev Biol*
BIO2000-1082	5	5,474	1 *Plant Cell*, 1 *Plant Physiol*, 2 *Plant Cell Environ*, 1 *J Exp Bot*
PB98-1389	5	4,007	1 *Dev Biol*, 2 *Genetics*, 1 *Planta*, 1 *Mol Genet Genomics*
BIO97-1050	3	3,837	1 *Plant J*, 1 *Genetics*, 1 *FEBS Letters*
PB95-0685	4	4,724	1 *Dev Biol*, 1 *Genetics*, 2 *Mol Gen Genet*
BIO94-0253	0		
PB91-0749	1	3,294	1 *Nucleic Acids Res*

This table only includes 70 of my 98 publications with IF. [a]Number of articles with IF. [b]Average IF, calculated using the IFs of the year of publication of each article.

I participated in 16 projects of which I was not PI. Since 1991, I have been PI of 70 projects and subprojects: 3 international, 26 national, 26 regional and 15 local; 24 three/four-year research grants, 19 equipment grants, 8 complementary actions, 5 grants for personnel hiring, and 14 aids for the organization of congresses and meetings. I was also head of the host laboratory of 2 European Commission Marie Curie International Reintegration Grants. I think that the grants that deserve mention because of their entity, duration, funding or internationalization are the following:

1.- Análisis clonal de los efectos de mutaciones letales embrionarias sobre el desarrollo vegetativo en *Arabidopsis thaliana*. Programa Prometeo para grupos de investigación de excelencia. PI: J.L. Micol (1/1/2009-31/12/2013; Generalitat Valenciana PROMETEO/2009/112).

2.- Función y potencial biotecnológico de los factores de transcripción de las plantas. Proyecto Consolider-Ingenio 2010. Coordinator: Javier Paz-Ares (1/10/2007-30/5/2013; CSD2007-00057; 6.188.115 €; funding for the groups of J.L. Micol and M.R. Ponce).

3.- Arabidopsis GROwth Network integrating OMICS technologies (AGRON-OMICS). Coordinator: Pierre Hilson (European Comission Integrated Project LSHG-CT-2006-037704; 1/11/2006-30/4/2012

(UMH was one of the partners, with J.L. Micol and M.R. Ponce as PIs).

4.- Subproject Cartografía génica automatizada, of the Proyecto integrado sobre genómica funcional en *Arabidopsis* (GEFA; GEN2001-4890-C07-07; 2002-2005). Acción Estratégica de Genómica y Proteómica del Plan Nacional de I+D+I. Coordinator: Javier Paz-Ares (Subproject PI: J.L. Micol).

5.- Development and growth of leaves: identification of genetic networks (2002-2005). European Comission Human Potential Programme, Research Training Networks (HPRN-CT-2002-00267). Coordinator: Mieke Van Lijsebettens (UMH was one of the partners, with J.L. Micol as PI).

C.3. Contracts. Obtención y ensayo de fármacos proteicos a partir de plantas transgénicas. PIs: Bernat Soria and J.L. Micol (1995-97; Plan Tecnológico de la Comunidad Valenciana and ANECOOP). Desarrollo de herramientas para el análisis genético y genómico de la palmera datilera (*Phoenix dactylifera* L.). PI: J.L. Micol (2002-03; Convenio con el Ayuntamiento de Elche).

C.4. Career path. I was *Profesor Ayudante* at the Universidad de Murcia (1979-85), Fundación Juan March postdoctoral fellow at the Centro de Biología Molecular Severo Ochoa (Madrid, 1986-89), and Research Fellow and Senior Research Fellow at the California Institute of Technology (Pasadena, 1989-91). I founded the group of Genetics of the Universidad de Alicante, which I joined in 1991 as *Profesor Titular de Universidad*, and the group of Genetics of the UMH, which I joined at the time of its creation, in 1997. I am *Catedrático de Universidad* since 2000.

I worked at the laboratories of Francisco J. Murillo (EMBO member; a good microbial geneticist, retired in 2015), Antonio García-Bellido (probably the most awarded Spanish scientist alive, creator of the Spanish school of researchers in *Drosophila* developmental genetics; retired in 2006), and Eric H. Davidson (National Academy of Sciences of the USA member; pioneer of the study of the mechanisms of regulation of eukaryotic gene expression, and of the dissection of gene regulatory networks; deceased in 2015). I stayed four times in the laboratory of Eric H. Davidson, at the California Institute of Technology, USA (1989-91, and summers of 1992, 1993 and 2000, totalizing 3 years and 1 month), and also 5 weeks in the laboratory of Marc Van Montagu, at the University of Gent, Belgium (1991).

C.5. Responsibilities in scientific societies and contributions to congresses. I am President of the Genetics Society of Spain (SEG; 2018-…). I was SEG Vice-president (2002-05) and webmaster of its web page (1998-2006). I was member of the board of directors of the SEG (1998-2001) and of the Developmental Biology Society of Spain (SEBD; 2001-11).

I made 380 contributions to congresses (143 international and 237 national; 20 invited talks, 46 oral communications, and 314 posters). I was president of the organizing committee of 2 national and 3 international congresses and 4 international meetings, member of the organizing committee of 1 national and 3 international congresses, and chaired 9 national and 10 international congress sessions.

C.6. Distinctions and academic responsibilities. I was awarded the Premio Nacional de Genética (2013) by the SEG. I represent Spain at the Multinational Arabidopsis Steering Committee (2014-...). I was member of the Comité Asesor 3: Biología Molecular y Celular of the CNEAI (2018).

I was co-founder of the Instituto de Bioingeniería of the UMH. I am member of the Consejo de Gobierno de la UMH since 2002, and Director del Departamento de Biología Aplicada since 2000. I was honored by the *Consejo Social* of the UMH as both best researcher (2010) and best teacher (2012). I also received the UMH Distinguished Teacher Diploma (2001, 2002, 2003 and 2006) and Teaching Talent Award (2016).

C.7. Training capacity. I supervised 115 undergraduate students (two-month internships), 9 Advanced Studies Diploma works, 14 Master's Theses, and 8 End of Career and 15 End of Degree Assignments. I also supervised 29 graduate students (7 ongoing and 20 already presented doctoral theses, 6 of which obtained Extraordinary Doctorate Award; 2 of my graduate students halted their theses), 16 postdocs (9 of these had already been graduate students of mine), and 15 lab technicians.

My former graduate students and postdocs reached the following professional categories: 3 *Catedráticos de Universidad*, 6 *Profesores Titulares de Universidad*, 2 *Profesoras Ayudantes Doctoras*, 6 high school teachers (4 in Spain, 1 in the United Kingdom, and 1 in Tunisia), 2 researchers in private companies, 1 Senior Scientist (Nitra, Slovakia), 1 Group Leader (Canberra, Australia), 1 Lab Manager (in Austria) and 7 postdocs (3 in Spain, and 1 in the United Kingdom, Sweden, Australia, and Germany). This list includes 15 women and 14 men. Ten of my former associates are now PIs.