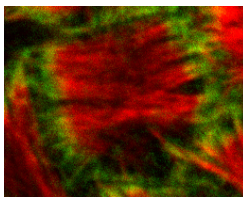
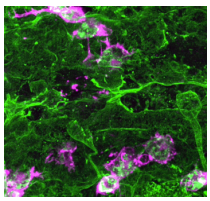
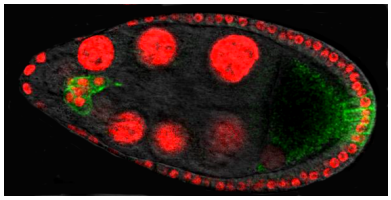
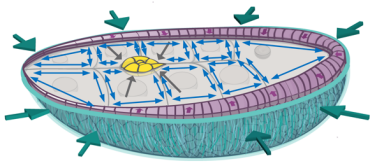
M. D. Martín Bermudo´s Lab

https://www.mblab.es/home **mdmarber@upo.es**

Brief description of research interests:

In our laboratory, we are interested in understanding the molecular and cellular mechanisms underlying cell migration and epithelial morphogenesis.

Cell migration plays a key role in a wide variety of biological phenomena that take place during both embryogenesis and in the adult organism. Both during development and in the adulthood, cells can move individually or collectively. In addition, they can use as substrate for their movement either extracellular matrix (ECM) components or other cells. Finally, cell migration, a fascinating process in normal cells, involving numerous intricately coordinated and controlled processes, becomes destructive and damaging when acquired by cancerous cells. In our lab, we use the migration of the border cells (BC) and the follicular epithelium (FE) of the *Drosophila* ovary as a simple genetic system for the in vivo study of the mechanisms regulating cell migration. In addition, we use the *Drosophila* wing disc as an attractive system to study cell invasion.

Shaping tissues and organs requires forces with proper directionality, generated by the contraction of actin filament (F-actin) meshworks by the molecular motor Myosin II. The magnitude, direction and timing of contractile forces depend on the organization of the cellular actomyosin meshworks and how these networks are connected between cells and to the extracellular matrix (ECM). In the lab, we are interested in understanding the mechanisms by which basement membranes (BMs) -specialized ECM that surrounds most organs and tissues- contribute to the generation of cell and tissue shape by providing a physical scaffold to oppose the contractile forces generated by epithelial cell shape changes.

To address these issues, we use a multidisciplinar approach combining genetics with cell and molecular biology, biophysical measurements, *in vivo* imaging and mathematical modelling. At present, we concentrate on the following aspects of cell migration and tissue morphogenesis:

1. Cell migration.

1.1 Role of the contraction forces imposed by BMs on cell migration.

The classical role of BMs on cell migration is to act as a substratum. Thus, the BM surrounding the FE serves as a substratum for its migration. In the lab, we have found that the mechanical properties of this BM also regulate the migration of BCs. BCs move between a group of cells, the nurse cells (NCs), that are enclosed by the FE, enveloped itself by the follicle BM. We have found that disrupting the follicle BM stiffness affects BC migration speed and dynamics. Our preliminary results show that follicle BM stiffness also controls NC and FC cortical tension. We propose that constriction forces imposed by the follicle BM affect NC and FC cortical tension, which, in turn, influence BC migration. This work provides new insights towards our understanding of the remarkable and assorted ways whereby BMs can regulate cell migration during morphogenesis.

1.2 Characterization of the first step in cell migration: the delamination process

In many instances, both during development and in pathological conditions, prior to migrating epithelial cells need to first delaminate from an epithelium. However, while the molecular machinery underlying the migration itself has been well studied, the first steps regulating the delamination process remain poorly understood. We have recently developed GFP reporter lines that label differentially cell membranes and acto-myosin cytoskeleton of BCs, FCs and NCs. This, in combination with E-cad fluorescent-tagged versions, has allowed us to visualize in vivo, with

high spatiotemporal resolution, acto-myosin and adhesion dynamics during BC delamination. The analysis of cell behavior in mutant conditions that impair delamination, such as inhibition of the function of Ste-20 like kinase *misshapen* (*msn*), will help us to understand at the cellular level how cell adhesion and contraction regulate both delamination and the initial steps of BC migration.
We are also performing transcriptome analysis of wild type BCs and *msn* mutant BCs to isolate new genes required for the initial steps of BC migration.

1.3 Identification of new genes regulating invasive behaviour.

In a screen done in the lab, we have isolated a number of candidate genes that when downregulated resulted in the appearance of tumor GFP+Ras^{V12} gut cells in ectopic locations. Among these genes, we have found a new inhibitor of the EGFR, which we have termed EGFRAP, 2 novel cell-cell adhesion molecules, a member of the Ig superfamily transmembrane proteins and a signalling protein with an Src homology 2 domain. We have recently isolated mutants in these genes using the crisper-Cas9 technique. At present, we are analysing the molecular and cellular mechanisms by which alterations in these genes leads to an invasive behaviour of Ras^{V12} cells.

2. Epithelial morphogenesis.

2.1 Characterization of the role of integrins in the morphogenesis and maintenance of a mono-layered epithelium.

We have found that integrins are required for the maintenance of the FE mono-layered. By using live imaging and newly developed fluorescent markers, we are following *in vivo* cell division and, in particular, positioning of the mitotic spindle, in wild type and integrin mutant FCs. This will help us to identify the cellular mechanism(s) responsible for the disruption of the mono-layered FE. Interestingly, multilayering due to absence of integrins is restricted to egg chamber poles. However, the reasons for this restriction remain unknown. Our hypothesis is that tissue tension might play a role in this context, as we have found that elimination of integrins interfere with the activity of tension regulators, such as the hippo pathway. We are currently testing this hypothesis applying live microscopy, imaging analysis and mathematical and in silico modeling, to both wild type and conditions in which tension is affected in specific areas of the egg chamber.

2.2 Contribution of cell-ECM interactions to tissue and organ shape.

We have recently found that the changes in the shape of anterior FCs underlying egg chamber elongation require a combination of surface tension generated by integrins at the basal surface and intracellular force/tension generated by the acto-myosin cytoskeleton. We are currently studying the biophysical properties of this interplay and its interactions with the Hippo pathway. In addition, we are analysing at a molecular level the mechanisms regulating the flattening of SCs by performing single-cell RNA sequencing of FCs at different stages of egg chamber development, before, during and at the end of the SC flattening process.

2.3 Role of integrins as regulators of acto-myosin activity in epithelia morphogenesis and homeostasis.

Morphogenesis, function and maintenance of epithelia require a fine balance between acto-myosin contraction forces and opposing integrin adhesion forces. In fact, we have found that *elimination* of integrin function in the wing imaginal disc epithelium leads to cell death. However, we have also discovered that *downregulation* of integrins caused changes in acto-myosin activity and cell shape that leads to evagination. Thus, we propose that normal morphogenesis require a tightly regulated removal from the restrain of ECM contacts. We are currently testing this hypothesis.

Part A. Personal Data

Date CVA	29.03.2016

Name, Surname	M. Dolores Martín Bermudo		
DNI/NIE/	28869071T	Age	56
	Researcher ID	L-2306-2014	
	Código Orcid	0000-0002-8060-1695	

A.1. Position

Institution	CSIC			
Dpt.	CABD/Univ. Pablo de Olavide			
Address	Univ. Pablo de Olavide, Ctra Utrera Km1 41013 Sevilla			
Phone	954348674	email	mdmarber@upo.es	
Position	Investigador Científico CSIC		Starting Date	01.04.2009
UNESCO	240991			
Key words	Cell migration, integrins, extracelular matrix, tension			

A.2. Academic record

PhD Date	University	Year
Ciencias Químicas	Autónoma de Madrid	1987

A.3. Scientific production

Over the last 10 years, I have supervised 11 PhD thesis, two of them received the Price called “Premio Extraordinario de doctorado”. With respect to the quality of my scientific production, of 52 publications I am corresponding author in 28 of them, first author in 12. My publication record has a H index 22.

Part B. Free summary CV

During my professional life, I have always worked on topics in the field of Developmental and Cell Biology using *Drosophila* melanogaster as model system.

During my PhD (1989-1992; Prof. F. Jiménez, CBM, Madrid), I studied the molecular mechanisms regulating early neurogenesis in the *Drosophila* embryo. My work unravelled the molecular mechanism by which neurogenic genes determine the right number of neuroblasts, the transcriptional regulation of proneural genes.

During my post-doctoral period (1993-1998; Prof. N. H. Brown, Univ. of Cambridge, RU), I started to work on the field of integrins, main cell-extracellular matrix receptors. I analysed the role of integrins during development and established that integrins act as adhesion and signalling molecules regulating a myriad of cellular processes, including cell migration, adhesion, division and differentiation.

Once established as an independent researcher (1998-2000, Anatomy Department, Univ. of Cambridge, RU; 2000-2004, Instituto de Parasitología y Biomedicina (CSIC), Granada; 2004-presente, Centro Andaluz de Biología del Desarrollo (CSIC-UPO), Sevilla), I focused on the characterization of the signalling pathways by which integrins perform all these different functions, with especial emphasis on cell migration.

At present, research in my group focuses on:

1-Identification of new genes regulating individual and collective cell migration. We use as model systems the migration of the border cells of the *Drosophila* ovary, as an example of collective cell migration, and the migration of the embryonic hemocytes, as an example of individual cell migration. Using a diverse array of techiniques, including life imaging, genomics, proteomics, we have been abel to isolate new genes regulating these two types of cell igration.

2- Isolation of new genes regulating the invasive behaviour of epithelial cells. We generate tumor cells in the gut of the *Drosophila* larvae and identify genes that when eliminated or overexpressed confer these tumor cells the ability to migrate. By using life imaging, genetics and biochemistry, we are trying to elucidtae the molceular and cellular mchanisms by which these genes regulate the invasive behaviour of tumor cells.

3- Analysis of the role of cellular tension during morphogenesis. We focus on analysing the role of actomyosin contractility in morphogenesis using as paradigme the folicular epithelium of the *Drosophila* ovary. By combining cell biology, life imaging, laser abaltion experiments, mathematical modelling and genetics, we try to unravel the role of actomyosin contractility dyanics durign epithelial morphogenesis.

Publications (last 10 years)

1. Martínez-Abarca Millán, A, Soler Beatty, J., Valencia-Expósito, A.and Martin-Bermudo, M.D.*(2023) *Drosophila* as model system to study Ras-mediated oncogenesis:the case of the tensin family of proteins. *Genes* https://doi.org/10.3390/genes14071502

2. Ester Molina López, Anna Kabanova, Alexander Winkel, Kristian Franze, Isabel M. Palacios and Maria D. Martín-Bermudo (2023) Constrains imposed by basement membranes regulate developmental cell migration. PLoS Biol. 2023 https://doi.org/10.1371/journal.pbio.3002172

3. **Rincón-Ortega, L., Valencia-Expósito, A., Kabanova, A., González-Reyes, A.* and Martín-Bermudo, M.D.* (2023)** Integrins control epithelial stem cell proliferation in the *Drosophila* ovary by modulating the Notch pathway. Front. Cell Dev Biol., 11,2023. https://doi.org/10.3389/fcell.2023.1114458

4. Hernández-del-Valle, M., Valencia-Expósito, A., López-Izquierdo, A., Casanova-Ferrer, P., Tarazona, P., Martín-Bermudo, M. D., and Míguez Gómez, D. (2022) A coarse-grained approach to model the dynamics of the actomyosin cortex. BMCB https://doi.org/10.1186/s12915-022-01279-2

5. Klubmann-Fricke, B.J., Martín-Bermudo, M.D.* and Llimargas, M.*. (2022) The Basement Membrane controls size and integrity of the Drosophila tracheal tubes. Cell Reports, 39. https://doi.org/10.1016/j.celrep.2022.110734

6. Hernández-del-Valle, M., Valencia-Expósito, A., Gorfinkel, N., Martín-Bermudo, M. D. and Míguez Gómez, D. (2022) Analysis of the actomyosin oscillatory dynamics using a coarse-grained model. Frontiers in Physics. https://doi.org/10.3389/fphy.2022.881384.

7. Valencia-Expósito, A., Gómez-Lamarca, M.J., Widmann, T. and Martín-Bermudo, M.D. (2022) Integrins cooperate with the EGFR/Ras pathway to promote epithelia survival and architecture in development and oncogenesis. Front. Cell Dev Biol., 13 June 2022. https://doi.org/10.3389/fcell.2022.892691

8. Pérez Moreno, Santa-Cruz Mateos C., M. D. Martín-Bermudo, and Estrada, B. LanB1 cooperates with Kon-tiki during embryonic muscle migration in *Drosophila*. Frontiers in Cell and Dev. Biol. 9:749723. https://doi.org/10.3389/fcell.2021.749723.

9. Braun A.L, Meghini F., Villa-Fombuena G., Guermont M., Fernandez-Martinez E., Qian Z., Martín- Bermudo M.D., González-Reyes A., Glover D. M., and Kimata Y. (2021) The careful control of Polo Kinase by APC/C-Ube2C ensures the intercellular transport of germline centrosomes during *Drosophila* oogenesis. OpenBiol. Jun; 11(6):200371. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8241486/

10. Soler Beatty, J., Molnar, C., Luque, C.M., de Celis J.F. and Martin-Bermudo, M.D.* (2021) *EGFRAP* encodes a new negative regulator of the EGFR acting in both normal and oncogenic EGFR/Ras-driven tissue morphogenesis. PLoS Genetics. Aug. https://doi.org/10.1371/journal.pgen.1009738

11. Palacios, I., Vicente-Crespo, M. and Martin-Bermudo, M.D. (2020) The humble fruit fly is helping the African science community to thrive. Nature Rev. Mol. Cell Biol. https://doi.org/10.1038/s41580-020-00283-0.

12. Santa-Cruz Mateos, C., Valencia-Expósito, A., Palacios, I.M. and Maria D. Martin-Bermudo (2020) Integrins regulate epithelia cell shape by controlling the architecture and mechanical properties of basal actomyosin networks. *PLoS Genetics, 16 (6)*. https://doi.org/10.1371/journal.pgen.1008717.

13. J. Dai, B. Estrada, Sofie Jacobs, B. J. Sánchez-Sánchez[2], J. Tang, M. Ma, P. Magadán-Corpas, José C. Pastor-Pareja* and María D. Martín-Bermudo* (2018). (*Co-corresponding authors). Dissection of Nidogen function in *Drosophila* reveals tissue-specific mechanisms of basement membrane assembly. *PLoS Genetics, 14 (9)*.

14. P. Gómez-Gálvez, P. Vicente-Munuera, A. Tagua, C. Forja, A. M. Castro, M. Letrán, A. Valencia-Expósito, C. Grima, M. Bermúdez-Gallardo, Ó. Serrano-Pérez-Higueras, F. Cavodeassi, S. Sotillos, M. D. Martín-Bermudo, A. Márquez, J. Buceta and L. M. Escudero (2018) Scutoids, a geometrical solution to three-dimensional packing of epithelia. *Nature Communications, 9, 2960.*

15. Martín-Bermudo, M. D.*, Gebel, L. and Palacios, I.M.* (2017). (*Co-corresponding authors). DrosAfrica: Building an African biomedical research community using *Drosophila*. Seminars in Cell & Developmental Biology, 10.1016/j.semcdb.2017.08.044.

16. M. C. Díaz de la Loza, A. Díaz-Torres, F. Zurita, E. Moeendarbary, K. Franze, María D. Martín-Bermudo* and A. González-Reyes* (2017) (*Co-corresponding authors). Laminin levels regulate tissue migration and Anterior-Posterior polarity during egg morphogenesis in *Drosophila*. *Cell Reports, 20, 211-233.*

17. B. J. Sánchez-Sánchez, Urbano, J.M., Comber, K., Dragu, A., Wood, W., Stramer, B. and Maria D. Martín-Bermudo (2017) *Drosophila* embryonic hemocytes produce laminins to strengthen migratory response. *Cell Reports, 21,1461-1470.*

18. Bing Fu Ng, Gokul K Selvaraj, Carmen Santa-Cruz Mateos, Inna Grosheva, Ines Alvarez-Garcia, Maria Dolores Martin-Bermudo, and Isabel M Palacios (2016) Alpha-spectrin is essential for septate junction formation and columnarization, but not for proliferation control, in the follicular epithelium. *Development, 143, 1388-1399*.

19. Valencia-Expósito, A., Grosheva, I., Míguez, D.G., González-Reyes, A. and Martín-Bermudo, M. D. (2016) Myosin Light Chain Phosphatase regulates basal actomyosin oscillations during morphogenesis**.** *Nature Communications, 7, 10798*.

20. John R. Pearson, Federico Zurita, Laura Tomás-Gallardo, Alfonsa Díaz-Torres, María del Carmen Díaz de la Loza, Kristian Franze, María D. Martín-Bermudo and Acaimo González-Reyes. **(2016)** *timp*-mediated ECM regulation is required for stem cell niche organization and cyst production in the *Drosophila* ovary. *PLoS Genetics, 1005763.*

21. Martín-Bermudo, M. D., Pierre-Luc Bardet, Yohanns Bellaicheand and Malartre, M. (2015) The Vav oncogene antagonizes EGFR signaling and regulates adherens junction dynamics during *Drosophila* eye development. *Development, 142: 1492-1501*.

22. Gómez-Lamarca, M.J., Cobreros Reguera, L., Ibáñez-Jiménez, B.,Palacios, I.M. and M. D. Martín-Bermudo (2014) Integrins regulate epithelial cell differentiation by modulating Notch activity. *J. Cell Science, 127: 4667-4678.*

23. Pérez Moreno, J., Bischoff, M., M. D. Martín-Bermudo, and Estrada, B. (2014) The transmembrane proteoglycan Perdido is essential for *in vivo* myofibrillogenesis and proper sarcomeric structure. *J. Cell Science, 127: 3162-3173.*

24. K. Comber, S. Huelsmann, I. Evans, B. J. Sánchez-Sánchez, A. Chalmers, R. Reuter, W. Wood and M. D. Martín-Bermudo (2013) A dual role for the βPS integrin *myospheroid* in mediating *Drosophila* embryonic macrophage migration. *J. Cell Science, 126: 3475-3484.*

25. C. H. Fernández-Espartero, D. Ramel, M. Farago, M. Malartre, C. M Luque, S. Limanovich, S. Katzav, G. Emery and Martín-Bermudo, M. D. (2013). The GEF Vav regulates guided cell migration by coupling guidance receptor signalling to local Rac activation. *J. Cell Science, 126:2285-2293.*

C.2. Projects (last 10 years)

1.Título del proyecto: Análisis genético de la regulación de la migración celular y de la formación de microvellosidades en Drosophila
Entidad financiadora: JA Proyecto de Excelencia P06-CVI-01592 Entidades participantes: CSIC
Duración, desde: 01/04/2007 hasta: 10/04/2010 Cuantía de la subvención: 217.999,88
Investigador responsable: Dr Alfonso González Reyes

2.Título del proyecto: From Genes to Shape Entidad financiadora: MCyT Proyecto 25120 (Consolider)
Entidades participantes: CSIC
Duración, desde: 01/04/2007 hasta: 10/04/2010 Cuantía de la subvención: 6.127.000
Investigador responsable: Dr. Ginés Morata Pérez

3.Título del proyecto: Estudio de las interacciones célula-matriz extracelular en el mantenimiento de las células troncales y en el control de la migración e invasión celular
Entidad financiadora: Junta de Andalucía Proyecto de Excelencia CVI-05058 Entidades participantes: CSIC
Duración, 01/04/2010 hasta: 10/04/2013 Cuantía de la subvención: 236.839,88
Investigador responsable: **Dr. M.D. Martín Bermudo**

4.Título del proyecto: Análisis genético, molecular y celular de los mecanismos que regulan la migración e invasión celular
Entidad financiadora: Ministerio de Economía y competitividad Proyecto BFU2010-16669 Entidades participantes: CSIC
Duración, desde: 01/01/2011 hasta: 31/12/2013 Cuantía de la subvención: 200.000,00
Investigador responsable: **Dr. M.D. Martín Bermudo**

5.Título del proyecto: Aproximación genética, celular y molecular para identificar mecanismos que regulan la migración e invasión celular
Entidad financiadora: Ministerio de Economía y competitividad Proyecto BFU2013-48988 Entidades participantes: CSIC
Duración, 01/01/2014 hasta: 31/12/2016 Cuantía de la subvención: 200.000,00
Investigador responsable: **Dr. M.D. Martín Bermudo**

6.Título del proyecto: Genetic, molecular and cellular analysis of the mechanisms regulating cell migration and epithelia morphogenesis.
Entidad financiadora: Ministerio de Economía y competitividad Proyecto BFU2016-80797R Entidades participantes: CSIC
Duración, 01/01/2017 hasta: 31/12/2019 Cuantía de la subvención: 266.200,00
Investigador responsable: **Dr. M.D. Martín Bermudo**

7.Título del proyecto: Mecanismos moleculares y celulares que regulan las fuerzas que dirigen la morfogénesis y homeostasis de epitelios.
Entidad financiadora: JA. Proyecto PY18-903 Entidades participantes: CSIC
Duración, 01/09/2021 hasta: 31/12/2022 Cuantía de la subvención: 95.000,00
Investigador responsable: **Dr. M.D. Martín Bermudo**

C.3. Patents

C.4. Prizes/awards

2002 EMBO Young Investigator prize in 2002.
2014 Beaufort Visiting Scholar Fellow, St John´s College en Cambridge (UK).
2020 EMBO member.
2021 Suffrage Science award in the Engineering and Physical Sciences Category, by Medical Research Council's (UK).

C.5. Evaluation Tasks.

I revise regularly fellowships and projects grant for EMBO, the National Science Foundation (NSF; USA), the Foundation for Science and Technology (Portugal), Agencia Nacional de Promoción Científica y Tecnológica (Argentina), la Agence Nationale de la Recherche (ANR; Francia), Wellcome/CRC, Medical Research Council

and the Biotechnology and Biological Sciences Research Council (UK), Comunidad Autónoma de Madrid y Ministerio de Economía y competitividad. I also participate as as external expert in European Committees such as ANR (Francia), EMBO y IRB (Barcelona).
I revise articles for peer reviewed journals, including *Nature*, *Cell, Developmental Cell, Development*, *Nature Cell Biology*, *Genes and Development, Developmental Biology*, *Journal of Cell Science*, *Current Biology* and *Mechanisms of Development, PLoS One* amon others**.**
In addition, I am:
2013-2021 Member of the Pre-Poposal Evaluation Panel of the Agence Nationale de La Recherche (ANR), France.
2009-2021 Reviewer for ANEP, Secretaría General de Proyectos de Investigación de España, Ministry of Science, Spain.
2009-2021 Reviewer for EMBO, Long and short term fellowships.
2009-2021 Reviewer for different UK funding Institutions including MRC, BBSRC and Wellcome Trust.
2019-2021 Reviewer for the Hellenic Foundation for Research and Innovation, Ministerio Griego de Desarrollo e Investigación, Grecia.
2021 External expert, area BIO.
2022 Panel member in several international grant committees, such as EMBO Long Term Fellowships, the HORIZON-MSCA-2022-PF-01 and the European Research Council Executive Agency (European Commission).

C.6. PhD supervised.
I have supervised 10 PhD students:
1.Title: Regulación de la migración y la forma celular durante el desarrollo de Drosophila melanogaster: Papel de las integrinas Student: P. Domínguez Giménez. Universidad de Granada Fecha: Oct.2000
2.Title: Morphogenesis of the follicular epithelium during *Drosophila* oogenesis. Student: A. Fernández Miñán. Universidad de Granada Fecha: Mar.2007
3.Title: Análisis Genético y Molecular de la migración celular durante la organogénesis del tubo digestivo embrionario de *Drosophila melanogaster*. Student: J. M. Urbano Fernández. Universidad Pablo de Olavide Fecha: Dic.2007
4.Title: Identification and characterization of novel genes involved in border cell migration. Student: L. Cobreros Reguera. Universidad Pablo de Olavide. Fecha: Apr. 2008
5.Title: Analysis of the role of integrins during epithelial morphogenesis. Student: M. J. Gómez Lamarca . Universidad Pablo de Olavide. Fecha: Febr. 2013
6.Title: Mecanismos moleculares que regulan la migración colectiva. Student: C. Huertas Fernández-Espartero. Universidad Pablo de Olavide. Fecha: May.2013
7.Title: Estudio de la función del gen perdido en la musculature de Drosophila melanogaster. Student: Juan José Pérez Moreno. Universidad Pablo de Olavide Fecha: Feb.2015
8.Title: Papel de la matriz extracellular en la migración cellular durante la embryogenesis. Student: Besaiz J. Sánchez Sánchez. Universidad Pablo de Olavide. Fecha: Sep.2016
9.Title: Regulación de la actividad de actomiosina y su papel en morfogénesis y homeostasis de epitelios. Student: Andrea Valencia Expósito. Universidad Pablo de Olavide. Fecha:Junio 2019.
10.Title: Papel de las integrinas como reguladores de la organización del citoesqueleto de actomiosina en la morfogénesis y homeostasis de epitelios. Student: Carmina Santa-Cruz Mateos. Universidad Pablo de Olavide Fecha: Oct 2020.
11. Title: Análisis de los mecanismos moleculares y celulares que regulan la hiperplasia tisulaer mediada por EGFR/Ras. Student: Jennifer Soler Beatty. Universidad Pablo de Olavide Fecha: Feb 2022.

At present, I am supervising 3 PhD students. In addition, I supervise Graduated and Master projects from both the Universidad Pablo de Olavide and Universidad de Sevilla.

C.7. Outreach.
I am co-founder of the Charity DrosAfrica, http://drosafrica.org//, which was created with the aim to help sceintists across the African continent to improve the quality and impact of their research.

C.8. Teaching exprience.
From Oct. 2003 until Oct. 2006 I worked as an associated Professor in the Department of Genetics of the Universidad Pablo de Olavide. In addition, from 2004, I participate as a teacher in the Master “Biotecnologia sanitaria” of this university.