

Part A. PERSONAL INFORMATION

		CV date	13/06/2023
First and Family name	Carlos CABAÑAS		
Researcher codes	Open Researcher and Contributor ID (ORCID)	0000-0002-8767-060X	
	SCOPUS Author ID	7003834097	
	WoS Researcher ID	J-4595-2012	

A.1. Current position

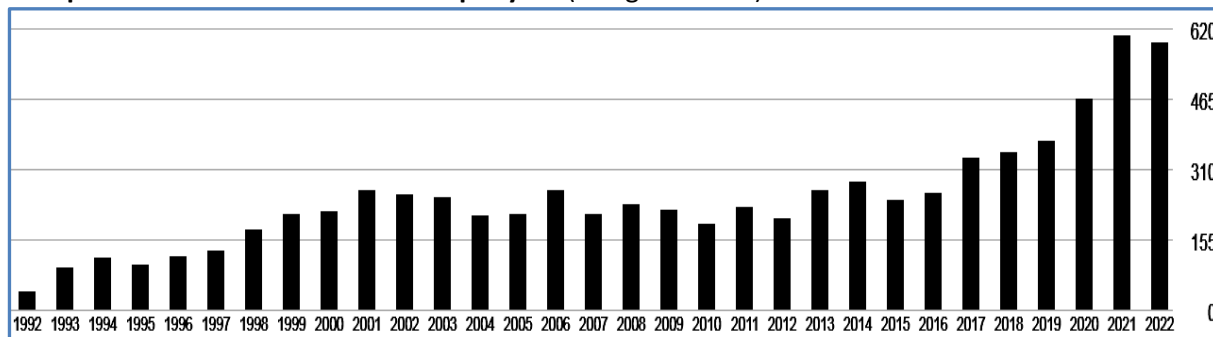
Name of Institution	Consejo Superior de Investigaciones Científicas (CSIC)		
Center	Centro de Biología Molecular Severo Ochoa (CBMSO)		
Address and Country	Nicolás Cabrera 1, 28049 Madrid, Spain		
Phone number	+34 911964513	E-mail	ccabanas@cbm.csic.es
Current position	Senior Staff Scientist ("Investigador Científico", CSIC)	Since	10/06/2006
Key words	Exosomes, metastasis, cell adhesion, integrins, tetraspanins		

A.2. Education

PhD, Bachelor, Graduate	University	Year
Bachelor in Biology / Licenciado en Biología	U. Alcalá de Henares (UAH), Spain	1985
PhD in Molecular Biology / Doctor en Biología Molecular	U. Autónoma de Madrid (UAM), Spain	1990

A.3. General indicators of quality of scientific production (see instructions)

- Number of research periods ("sexenios") recognized by CNEAI: **6** (periods: 1986-1991, 1992-1997, 1998-2003, 2004-2009, 2010-2015 and 2016-2021).
- Number of Doctoral Theses supervised: **11 (5 of them in the last 10 years)**.
- Research articles published (PubMed): **99**
- Total number of citations: **5650 / 5700 / 8200** (Web of Science / Scopus / Google Scholar)
- H index: **41 / 46** (Web of Science / Google Scholar)
- Average number of citations per year in the last 5 years (2018-2022): **480** (Google Scholar)
- Graph with distribution of citations per year (Google Scholar):



Part B. CV SUMMARY

B.1. Summary of relevant contributions to Science and to Society:

1. Early in my scientific career (1990-1993), as a postdoc in the laboratory of Dr. Nancy Hogg (Cancer Research UK, London, UK) I contributed to unravelling the mechanisms of activation of leukocyte integrin LFA-1, a crucial adhesion receptor in the immune system. I had a relevant role in the publications of this postdoctoral period (as first or second author):

- Dransfield, I., Cabañas, C., Barrett, J. and Hogg, N. (1992). Interaction of leukocyte integrins with ligand is necessary but not sufficient for function. *The Journal of Cell Biology* 116:1527-1535.
- Dransfield, I., Cabañas, C., Craig, A. and Hogg, N. (1992). Divalent cation regulation of the function of leukocyte integrin LFA-1. *The Journal of Cell Biology* 116:219-226.
- Cabañas, C. and Hogg, N. (1993). Ligand ICAM-1 has a necessary role in activation of integrin LFA-1. *Proceedings of the National Academy of Sciences U.S.A. (P.N.A.S.)* 90:5838-5842.
- Stewart, M.*, Cabañas, C.*, and Hogg, N. (1996). T cell adhesion to ICAM-1 is controlled by cell spreading and the activation of integrin LFA-1. *The Journal of Immunology* 156:1810-1817. (* these two authors contributed equally).

2. I returned to Spain (1993), established as an independent scientist, and continued studying the LFA-1 "inside-out" and "outside-in" signaling in leukocytes:

- Rodríguez-Fernández, J. L., Gómez, M., Luque, A., Hogg, N., Sánchez-Madrid, F. and Cabañas, C. (1999). Interaction of activated integrin LFA-1 with ICAM-1 regulates T cell morphology and induces activation of FAK and PYK-2 tyrosine kinases. *Molecular Biology of the Cell* 10:1891-1907.
- Rodríguez-Fernández JL, Sánchez-Martín L, Rey, M., Vicente-Manzanares, M, Narumiya, S, Teixidó, J, Sánchez-Madrid, F and Cabañas, C. (2001). Rho and ROCK modulate the tyrosine kinase PYK2 in T-cells through regulation of the activity of the integrin LFA-1. *Journal of Biological Chemistry* 276: 40518-27.
- Rodríguez-Fernández JL, Sánchez-Martín L, Alvarez de Frutos C, Sancho D, Robinson M, Sánchez-Madrid F, and Cabañas C. (2002). LFA-1 Integrin and the Microtubular Cytoskeleton are involved in the Ca²⁺-mediated regulation of the activity of the Tyrosine Kinase PYK2 in T-cells. *Journal of Leukocyte Biology* 71:520-530.



- d. Sánchez-Martín, L, Sánchez-Sánchez, N, Gutiérrez-López, MD, Rojo, AI, Pérez-Alvarez, MJ, Cuadrado A, Sánchez-Mateos, P, Sánchez-Madrid F, Rodríguez-Fernández, JL and **Cabañas C.** (2004) Signalling through the leukocyte integrin LFA-1 in T cells induces a transient activation of Rac-1 that is regulated by Vav and PI3K/Akt-1. *Journal of Biological Chemistry* 279:16194-16205.
- 3. We also studied activation of $\beta 1$ integrins for which we generated monoclonal antibodies (HUTS-4, HUTS-7 and HUTS-21) specific for epitopes that are only expressed by activated conformations of these integrins. These antibodies are extremely useful as reporters of $\beta 1$ integrin activation, are used by many scientist around the world, and we have transferred them (and other mAbs) to the industrial sector through license agreements, which is an important contribution to society:**
- a. Luque, A., Gómez, M., Puzon, W., Takada, Y., Sánchez-Madrid, F. and **Cabañas, C.** (1996). Activated conformations of VLA integrins detected by a group of antibodies (HUTS) specific for a novel regulatory region (355-425) of the common $\beta 1$ chain. *Journal of Biological Chemistry* 271:11067-11075.
 - b. Gómez, M., Luque, A., del Pozo, M. A., Sánchez-Madrid, F. and **Cabañas, C.** (1997). Functional relevance during lymphocyte migration and cellular localization of a Ligand-Induced Binding Site on $\beta 1$ integrins. *European Journal of Immunology* 27:8-16.
 - c. Shih P.T., Elices M.J., Fang Z.T., Ugarova T.P., Strahl D., Territo M.C., Frank J.S., Kovach N.L., **Cabañas C.**, Berliner J.A., Vora D.K. (1999). Minimally modified low-density lipoprotein induces monocyte adhesion to endothelial connecting segment-1 by activating beta1 integrin. *Journal of Clinical Investigation* 103:613-625.
 - d. Gerszten, R. E., Lim, Y.C., Ding, H. A., Snapp, K., Kansas, G., Dichek, D. A., **Cabañas, C.**, Sánchez-Madrid, F., Gimbrone, M. A., Rosenzweig, A., and Luscinskas, F. B. (1998). Adhesion of monocytes to VCAM-1-transduced human endothelial cells: Implications for atherogenesis. *Circulation Research* 82:871-878.
- 4. We have characterized the tetraspanin CD9 as a regulatory molecule that modulates the activity of many integrins, the adhesion molecule ALCAM/CD166 and the metalloproteinase ADAM17/TACE. We have also established the implication of CD9 in cancer, particularly in the process of colorectal carcinoma tumorigenesis:**
- a. Gutierrez-Lopez MD, Ovalle S, Yáñez-Mó M, Sánchez-Sánchez N, Rubinstein E, Olmo N, Lizarbe MA, Sanchez-Madrid F. and **Cabañas C.** (2003). A functionally relevant conformational epitope on the CD9 tetraspanin depends on the association with activated beta-1 integrin. *Journal of Biological Chemistry* 278:208-218.
 - b. Ovalle, S, Gutiérrez-López MD, Olmo N, Turnay J, Lizarbe MA, Majano P, Molina-Jiménez F, López-Cabrera M, Yáñez-Mó M, Sánchez-Madrid F and **Cabañas C.** (2007). The tetraspanin CD9 inhibits the proliferation and tumorigenicity of human colon carcinoma cells. *International Journal of Cancer* 121:2140-52.
 - c. Gutiérrez-López MD, Gilsanz A, Yáñez-Mó M, Ovalle S, Lafuente ME, Domínguez C, Monk PN, González-Alvaro I, Sánchez-Madrid F, **Cabañas, C.** (2011). The sheddase activity of ADAM17/TACE is regulated by the tetraspanin CD9. *Cellular and Molecular Life Sciences* 68:3275-92.
 - d. Gilsanz A, Sánchez-Martín L, Gutiérrez-López MD, Ovalle S, Machado-Pineda Y, Reyes R, Swart GW, Figdor CG, Lafuente EM, **Cabañas C.** (2013). ALCAM/CD166 adhesive function is regulated by the tetraspanin CD9. *Cellular and Molecular Life Sciences* 70:475-93.
 - e. Reyes R, Monjas A, Yáñez-Mó M, Cardeños B, Morlino G, Gilsanz A, Machado Y, Lafuente E, Monk P, Sánchez-Madrid F, **Cabañas C.** (2015). Different states of integrin LFA-1 aggregation are controlled through its association with tetraspanin CD9. *Biochimica et Biophysica Acta* 1853:2464-80
 - f. Machado-Pineda Y, Cardeños B, Reyes R, López-Martín S, Toribio V, Sánchez-Organero P, Grötzinger J, Lorenzen I, Yáñez-Mó M and **Cabañas C.** (2018) CD9 controls integrin $\alpha 5\beta 1$ -mediated cell adhesion by modulating its association with the metalloproteinase ADAM17. *Frontiers in Immunology* 9:2474.
- 5. We have developed methods for the isolation and characterization of cancer-derived exosomes and characterized adhesion molecules involved in their binding and uptake by cancer target cells:**
- a. Suárez H, Gámez-Valero A, Reyes R, López-Martín S, **Cabañas C**, Borrás F E, Yáñez-Mó M. (2017). A bead-assisted flow cytometry method for the semi-quantitative analysis of Extracellular Vesicles. *Scientific Reports* 7:11271.
 - b. Willms E, **Cabañas C**, Mäger I, Wood MJA, Vader P. (2018). Extracellular Vesicle Heterogeneity: Subpopulations, Isolation Techniques, and Diverse Functions in Cancer Progression. *Frontiers in Immunology*. 9:738.
 - c. Toribio V, Morales S, López-Martín S, Cardeños B, **Cabañas C**, and Yáñez-Mó, M. (2019). Development of quantitative and sensitive method to measure Extracellular Vesicle uptake. *Scientific Reports* 9:10522.
 - d. Cardeños B, Clares I, Toribio V, Pascual L, López-Martín S, Torres-Gómez A, Sainz de la Cuesta R, Lafuente EM, López-Cabrera M, Yáñez-Mó M, **Cabañas C.** (2021). Cellular integrin $\alpha 5\beta 1$ and exosomal ADAM17 mediate the binding and uptake of exosomes produced by colorectal carcinoma cells. *International Journal of Molecular Sciences* 22:9938
 - e. Pascual-Antón L, Cardeños B, Sainz de la Cuesta R, González-Cortijo L, López-Cabrera M, **Cabañas C**, Sandoval P. (2021). Mesothelial-to-Mesenchymal Transition and Exosomes in Peritoneal Metastasis of Ovarian Cancer. *International Journal of Molecular Sciences* 22:11496.
 - f. Cardeños B, Clares I, Bezos T, Toribio V, López-Martín S, Rocha A, Peinado H, Yáñez-Mó M, Cabañas C. (2022). ALCAM/CD166 Is Involved in the Binding and Uptake of Cancer-Derived Extracellular Vesicles. *International Journal of Molecular Sciences* 23:5753.
- 6. We maintain collaborations with research groups of the highest international level and reputation, including Dr. Timothy A. Springer (Harvard Medical School) (who probably is the top scientist in the field of integrins and other adhesion molecules in the immune system), with Dr. Junichi Takagi (Osaka University, Japan), Dr. Luise Florin (Mainz University, Germany), Dr. Alexander Flügel (Institute of Neuroimmunology, Göttingen, Germany), Dr. Mathew Wood (University of Oxford, UK) and Dr. Vassiliki Buissonis (Harvard Medical School, Boston, USA). These collaborations have been productive:**
- a. Arimori T, Miyazaki N, Mihara E, Takizawa M, Taniguchi Y, **Cabañas C**, Sekiguchi K, Takagi J. (2021). Structural mechanism of laminin recognition by integrin. *Nature Communications* 12:4012.
 - b. Mikulić S, Fritzen A, Scheffer K, Strunk J, **Cabañas C**, Sperrhake M, Reiss K and Florin L. (2020). Tetraspanin CD9 affects HPV16 infection by modulating ADAM17 activity and the ERK signalling pathway. Submitted to: *Medical Microbiology and Immunology* 209:461-471.
 - c. Willms E, **Cabañas C**, Mäger I, Wood MJA, Vader P. (2018). Extracellular Vesicle Heterogeneity: Subpopulations, Isolation Techniques, and Diverse Functions in Cancer Progression. *Frontiers in Immunology*. 9:738. (doi: 10.3389/fimmu.2018.00738).
 - d. Li J, Su Y, Xia W, Qin Y, Humphries MJ, Vestweber D, **Cabañas C**, Lu C, Springer TA (2017). Conformational equilibria and intrinsic affinities define integrin activation. *EMBO Journal* 36:629-645.
 - e. Su Y, Xia W, Li J, Walz T, Humphries MJ, Vestweber D, **Cabañas C**, Lu C, Springer TA. (2016). Relation of Conformation to Function in Integrin $\alpha 5\beta 1$. *Proc Natl Acad Sci USA* 113:E3872-81.
 - f. Schläger C, Körner H, Vidoli S, Brylla E, Haberl M, Krüger M, **Cabañas C**, Issekutz T, Nelson PJ, Bechmann I, Lodygin D, Odoardi F and Flügel A. (2016). Effector T cell trafficking between the leptomeninges and the cerebrospinal fluid and its control by T cell activation- and CCR5/CXCR3-triggered VLA-4-/LFA-1 adhesion forces. *Nature* 530:349-53

B.2. Summary of contributions to the Training of Junior Scientists:

I have directed so far 11 doctoral theses, 5 of them in the last 10 years (Alfonso Luque Jiménez, Dec 1997; Lourdes Herreros Villanueva, Nov 2000; Lorena Sánchez Martín, Nov 2004; Noelia Sánchez-Sánchez, June 2005; Susana Ovalle Andreu, Dec 2008; Iria Medraño Fernández, May 2012; Alvaro Gilsanz Cáceres, June 2012; Raquel Reyes Manzananas, Jan 2016; Yesenia Machado Pineda, Nov 2017; Beatriz Cardeños Pérez, Feb 2022; and Álvaro Torres Gómez, Dec 2022). In all cases, the experimental work carried out by these junior scientists in my lab has given rise to several publications in relevant journals; this is an important and **objective indicator of the quality of training provided in our group**

and has been a critical positive factor for opening future opportunities in their professional careers. It is important to highlight that **two of the doctors trained in our group (Alfonso Luque Jiménez, 1997 and Lorena Sánchez-Martín, 2004) were awarded the university distinction “Premio Extraordinario de Doctorado”, based on the number and relevance of the publications derived from their PhD projects.**

The following is a brief individual description of their professional careers:

Dr. Alfonso Luque Jiménez, defended his Doctoral Thesis in Biology (*cum laude*) at UCM in 1997 with “*Premio Extraordinario de Doctorado*” distinction. After a 5-year postdoctoral period in the lab of Dr. M.L. Iruela-Arispe in UCLA (California), he returned to Madrid with a “*Ramón y Cajal*” contract in the CNIC and then he obtained a “*Miguel Servet*” contract in “*Centro Nacional de Microbiología*” of ISCIII (Majadahonda), where he has recently obtained a tenured position as “*Científico Titular*” of ISCIII and is an independent scientist. **Dr. Lourdes Herreros Villanueva**, defended her Doctoral Thesis in Biochemistry (*cum laude*) at UCM in 2000, then she studied a Master of Monitorization of Clinical Trials and immediately joined the pharma company Roche, where she works at present as coordinator of Clinical Trials. **Dr. Lorena Sánchez Martín**, defended her Doctoral Thesis in Biology (*cum laude*) at UCM in 2004 with “*Premio Extraordinario de Doctorado*” distinction, then she obtained a postdoctoral “*Juan de la Cierva*” contract (JdIC) at Hospital Gregorio Marañón and then a postdoctoral contract from the RIER (*Red de Inflamación y Enfermedades Reumáticas*) RETICS Network of ISCIII; since 2016 she has worked with a *Torres Quevedo* contract at the biotech company Making Genetics (Noain, Navarra). **Dr. Noelia Sánchez Sánchez**, defended her Doctoral Thesis in Biology (*cum laude*) at UCM in 2005, then she gained a tenured (civil servant) position as teacher of Biology in secondary education (*Profesor funcionario de Enseñanza Secundaria de Biología*). **Dr. Susana Ovalle Andreu**, defended her Doctoral Thesis in Biology (*cum laude*) at UCM in 2008, then she incorporated as graduated staff with a permanent contract at the Genomics Unit of “*Parque Científico de Madrid*” (Cantoblanco, campus of UAM, Madrid). **Dr. Iria Medraño Fernández**, defended her Doctoral Thesis in Biology (*cum laude*) at UCM in 2012, then she incorporated as postdoctoral scientist to the group of Dr. R. Sitia in “*Ospedale San Raffaele*” (Milan, Italia), where she still works, now as a semi-independent scientist. **Dr. Alvaro Gilsanz Cáceres**, defended his Doctoral Thesis in Biochemistry (*cum laude*) at UCM in 2012, and currently works as “*Product Manager*” in BotGal laboratories. **Dr. Raquel Reyes Manzanas**, defended her Doctoral Thesis in Biology (*cum laude*) at UAM in 2016, and then obtained a position as Assistant Professor at Department of Biology, UAM. **Dr. Yesenia Machado Pineda**, defended her Doctoral Thesis in Biology (*cum laude*) at UCM in 2017, then she joined the scientific department of the company “*MEED Comunicación*”. **Dr. Beatriz Cardeños Pérez**, defended her Doctoral Thesis in Biology (*cum laude*) at UAM in 2022, then she joined the scientific department of a biotech company based in Basel, Switzerland.

Part C. RELEVANT MERITS

C.1. Recent Publications (*last 7 years*)

1. ALCAM/CD166 Is Involved in the Binding and Uptake of Cancer-Derived Extracellular Vesicles. Cardeños B, Clares I, Bezos T, Toribio V, López-Martín S, Rocha A, Peinado H, Yáñez-Mó M, Cabañas C. *Int J Mol Sci*. 2022 May 20;23(10):5753. doi: 10.3390/ijms23105753.
2. Mesothelial-to-Mesenchymal Transition and Exosomes in Peritoneal Metastasis of Ovarian Cancer. Pascual-Antón L, Cardeños B, Sainz de la Cuesta R, González-Cortijo L, López-Cabrera M, Cabañas C, Sandoval P. *Int J Mol Sci*. 2021 Oct 25;22(21):11496. doi: 10.3390/ijms222111496.
3. Cellular Integrin $\alpha 5 \beta 1$ and Exosomal ADAM17 Mediate the Binding and Uptake of Exosomes Produced by Colorectal Carcinoma Cells. Cardeños B, Clares I, Toribio V, Pascual L, López-Martín S, Torres-Gomez A, Sainz de la Cuesta R, Lafuente EM, López-Cabrera M, Yáñez-Mó M, Cabañas C. *Int J Mol Sci*. 2021 Sep 14;22(18):9938. doi: 10.3390/ijms22189938.
4. Structural mechanism of laminin recognition by integrin. Arimori T, Miyazaki N, Mihara E, Takizawa M, Taniguchi Y, Cabañas C, Sekiguchi K, Takagi J. *Nat Commun*. 2021 Jun 29;12(1):4012. doi: 10.1038/s41467-021-24184-8.
5. Functional Integrin Regulation Through Interactions with Tetraspanin CD9. Torres-Gómez Á, Cardeños B, Díez-Sainz E, Lafuente EM, Cabañas C. *Methods Mol Biol*. 2021;2217:47-56. doi: 10.1007/978-1-0716-0962-0_5.
6. Phagocytic Integrins: Activation and Signaling. Torres-Gomez A, Cabañas C, Lafuente EM. *Front Immunol*. 2020 Apr 30;11:738. doi: 10.3389/fimmu.2020.00738. eCollection 2020.
7. RIAM-VASP Module Relays Integrin Complement Receptors in Outside-In Signaling Driving Particle Engulfment. Torres-Gomez A, Sanchez-Trincado JL, Toribio V, Torres-Ruiz R, Rodríguez-Perales S, Yáñez-Mó M, Reche PA, Cabañas C, Lafuente EM. *Cells*. 2020 May 8;9(5):1166. doi: 10.3390/cells9051166.

8. Tetraspanin CD9 affects HPV16 infection by modulating ADAM17 activity and the ERK signalling pathway. Mikulić S, Fritzen A, Scheffer K, Strunk J, Cabañas C, Sperrhake M, Reiss K, Florin L. *Med Microbiol Immunol*. 2020 Aug;209(4):461-471. doi: 10.1007/s00430-020-00671-5.
9. Functional Relevance of Tetraspanins in the Immune System. Cabañas C, Yáñez-Mó M, van Spruiel AB. *Front Immunol*. 2019 Jul 24;10:1714. doi: 10.3389/fimmu.2019.01714.
10. Development of a quantitative method to measure EV uptake. Toribio V, Morales S, López-Martín S, Cardeños B, Cabañas C, Yáñez-Mó M. *Sci Rep*. 2019 Jul 19;9(1):10522. doi: 10.1038/s41598-019-47023-9.
11. Phosphatase of Regenerating Liver-1 (PRL-1) Regulates Actin Dynamics During Immunological Synapse Assembly and T Cell Effector Function. Castro-Sánchez P, Ramirez-Munoz R, Martín-Cófreces NB, Aguilar-Sopeña O, Alegre-Gomez S, Hernández-Pérez S, Reyes R, Zeng Q, Cabañas C, Sánchez-Madrid F, Roda-Navarro P. *Front Immunol*. 2018 Nov 20;9:2655. doi: 10.3389/fimmu.2018.02655.
12. CD9 Controls Integrin $\alpha 5\beta 1$ -Mediated Cell Adhesion by Modulating Its Association With the Metalloproteinase ADAM17. Machado-Pineda Y, Cardeños B, Reyes R, López-Martín S, Toribio V, Sánchez-Organero P, Suarez H, Grötzinger J, Lorenzen I, Yáñez-Mó M, Cabañas C. *Front Immunol*. 2018 Nov 5;9:2474. doi: 10.3389/fimmu.2018.02474.
13. Tetraspanin CD9: A Key Regulator of Cell Adhesion in the Immune System. Reyes R, Cardeños B, Machado-Pineda Y, Cabañas C. *Front Immunol*. 2018 Apr 30;9:863. doi: 10.3389/fimmu.2018.00863.
14. Extracellular Vesicle Heterogeneity: Subpopulations, Isolation Techniques, and Diverse Functions in Cancer Progression. Willms E, Cabañas C, Mäger I, Wood MJA, Vader P. *Front Immunol*. 2018 Apr 30;9:738. doi: 10.3389/fimmu.2018.00738.
15. A bead-assisted flow cytometry method for the semi-quantitative analysis of Extracellular Vesicles. Suárez H, Gámez-Valero A, Reyes R, López-Martín S, Rodríguez MJ, Carrascosa JL, Cabañas C, Borrás FE, Yáñez-Mó M. *Sci Rep*. 2017 Sep 12;7(1):11271. doi: 10.1038/s41598-017-11249-2.
16. Conformational equilibria and intrinsic affinities define integrin activation. Li J, Su Y, Xia W, Qin Y, Humphries MJ, Vestweber D, Cabañas C, Lu C, Springer TA. *EMBO J*. 2017 Mar 1;36(5):629-645. doi: 10.15252/embj.201695803.
17. Relating conformation to function in integrin $\alpha 5\beta 1$. Su Y, Xia W, Li J, Walz T, Humphries MJ, Vestweber D, Cabañas C, Lu C, Springer TA. *Proc Natl Acad Sci U S A*. 2016 Jul 5;113(27):E3872-81. doi: 10.1073/pnas.1605074113.
18. Effector T-cell trafficking between the leptomeninges and the cerebrospinal fluid. Schläger C, Körner H, Krueger M, Vidoli S, Haberl M, Mielke D, Brylla E, Issekutz T, Cabañas C, Nelson PJ, Ziemssen T, Rohde V, Bechmann I, Lodygin D, Odoardi F, Flügel A. *Nature*. 2016 Feb 18;530(7590):349-53. doi: 10.1038/nature16939.
19. Positive and negative regulation by SLP-76/ADAP and Pyk2 of chemokine-stimulated T-lymphocyte adhesion mediated by integrin $\alpha 4\beta 1$. Dios-Esponera A, Isern de Val S, Sevilla-Movilla S, García-Verdugo R, García-Bernal D, Arellano-Sánchez N, Cabañas C, Teixidó J. *Mol Biol Cell*. 2015 Sep 15;26(18):3215-28. doi: 10.1091/mbc.E14-07-1246.
20. Different states of integrin LFA-1 aggregation are controlled through its association with tetraspanin CD9. Reyes R, Monjas A, Yáñez-Mó M, Cardeños B, Morlino G, Gilsanz A, Machado-Pineda Y, Lafuente E, Monk P, Sánchez-Madrid F, Cabañas C. *Biochim Biophys Acta*. 2015 Oct;1853(10 Pt A):2464-80. doi: 10.1016/j.bbamcr.2015.05.018.

C.2. Research projects (P.I. in all of them) *(last 10 years)*

- **Project Reference: BFU2010-19144:** Title of project: *"Interactions between the tetraspanin CD9 and other cell surface proteins: functional implications on cell adhesion, migration, invasion and proliferation"*. Funding Agency: Spanish Ministry for Science and Innovation (**MICINN**). Centre of execution of the project: CBM-SO. Years 2011-2012. Amount awarded: 37.000 euros. **PI: Carlos Cabañas.**
- **Project Reference: SAF2012-34561.** Title of project: *"Functional regulation of ALCAM/CD166, B2 integrins and CXCL12 chemokine receptors in cell adhesion, migration, phagocytosis and metastasis"*. Funding Agency: Spanish Ministry of Economy and Competitiveness (**MINECO**). Centre of execution of the project: CBM-SO. Years 2013-2016. Amount awarded: 128.000 euros. **PI: Carlos Cabañas.**
- **Project Reference: SAF2016-77096-R.** Title of project: *"Functional regulation of integrins and other cell adhesion molecules of leukocytes and tumor cells; their relevance in the binding, fusion and uptake of exosomes"*. Funding Agency: Spanish Ministry of Economy and Competitiveness (**MINECO**). Centre of execution of the project: CBM-SO. Years 2017-2020. Amount awarded: 108.000 euros. **PI: Carlos Cabañas.**
- **Project Reference: PID2021-123199OB-I00.** Title of project: *"Molecular determinants involved in the binding/uptake of tumor exosomes by immune and non-immune recipient target cells"*. Funding Agency: Spanish Ministry of Science and Innovation (**MICINN**). Centre of execution of the project: CBM-SO. Years 2022-2025. Amount awarded: 202.000 euros. **PI: Carlos Cabañas.**