
Curriculum vitae

Name: MIGUEL ANGEL VALVERDE DE CASTRO

Date: 28-10-2024

SURNAME: **Valverde**
NAME: **Miguel A.**
Male

Current Professional Situation
Full Professor of Physiology

Entity: Universitat Pompeu Fabra
Faculty: Facultat de Ciències de la Salut i de la Vida
Department Dept. Ciències Experimentals i de la Salut
Address: C/ Dr. Aiguader, 80; 08003 Barcelona

Areas of research

Ion channels, mechano/osmotic transduction, calcium signaling, epithelial physiology/pathology, migraine, cell migration

Summary of Teaching Activities.

Lecturer. King's College London 1995-1999. Human physiology to biomedical and medical students.
Lecturer Universidad Pompeu Fabra de Barcelona 2000-2003. Human physiology to Biomedical students.
Full Professor of Physiology, Universidad Pompeu Fabra de Barcelona from 2003.

University Education

Degree	Institution	Date
Medical Degree	University of Valladolid	1/07/1988
M Phil. Pharmacology	Darwin Colledge. University of Cambridge (Reino Unido)	1/10/1991
PhD in Medicine	University of Valladolid	25/09/1992

Professional activity

Position	Institución	Date
Sandwich Student. Dept.. Physiology.	Facultad de Medicina. Universidad de Valladolid.	1986-1988
Intern Student. Emergency Room	Hospital Clínico Universitario Valladolid	1986-1988
PhD Student	Facultad de Medicina. Universidad de Valladolid	1988-1990
M.Phil. Student. Department of Pharmacology	University of Cambridge & The Babraham Institute Cambridge, U.K.	1990-1991
Senior Scientific Officer	University of Cambridge & The Babraham Institute Cambridge, U.K.	1992-1994
Demonstrator. Departamento de Bioquímica, Biología Molecular y Fisiología	Facultad de Medicina. Universidad de Valladolid	1994-1996
Postdoctoral Researcher Department of Clinical Biochemistry	University of Oxford Oxford, U.K.	1994-1995
University Lecturer (Profesor Titular de Universidad) King's College London	University of London, U.K.	1995-1999
Lecturer	Universitat Pompeu Fabra	1-7-1999 al 29-2- 2003
Full Professor	Universitat Pompeu Fabra	2003

FUNDING.

1. [NATO Research Grants](#). Regulatory adjustments of ionic activities in intestinal cells during absorption

Participants: Departamento de Fisiología, Facultad de Medicina, Valladolid, España, y Institute of Animal Physiology and Genetics Research, Babraham, Cambridge, CB2 4AT, U.K.

Duration: 1986-1989

PI: FV. Sepúlveda

\$ 16037

2. [Spanish Ministry of Education and Research](#). Proto-oncogenes and intracellular signals during early development of inner ear.

Participants: Departamento de Bioquímica y Biología Molecular y Fisiología. Facultad de Medicina, Valladolid.

Duration: 1989-1992

PI.: F Giraldez

€ 113.000

3. [Cancer Research Campaign \(U.K.\)](#). Cell volume regulated chloride channel as a physiological function of the multidrug resistance P-glycoprotein

Participants: Department of Cell Biology, The Babraham Institute, Cambridge CB2 4AT, U.K.

Duration: 1992-1994

PI: FV Sepúlveda

€ 52.701(Aprox 8.000.000 ptas)

4. [Commission of the European Communities](#): Membrane Bound ATPases involved in translocation of hydrophobic molecules.

Participants: Department of Cell Biology, The Babraham Institute, Cambridge CB2 4AT, U.K. y Department of Clinical Biochemistry. University of Oxford, John Radcliffe Hospital Oxford OX3 9DU, U.K

PI: P. Deveaux.

5. [The Royal Society U.K. 574006.G503/17458/JECL/SM](#). Cystic fibrosis and cell volume.

Participants: Dept. of Physiology, King's College London

Duration: 1996-1998

PI: MA Valverde

€ 14.000

6. [Cystic Fibrosis Trust PJ426](#). Cell volume control in the small intestine of normal and cystic fibrosis mice.

Participants: Dept. of Physiology, King's College London

Duration: 1996-1998

PI: MA Valverde

€ 213.952

[7. The Wellcome Trust \(UK\) Ref. 055619/Z/98/Z/JMW/TH/JF.](#) Study of the molecular basis and pathological relevance of impaired cell volume regulation in cystic fibrosis airways.

Participants: Dept. of Physiology, King's College London

Duration: 1998-2000

PI: MA Valverde

€ 319.323 (interrupted on my return to Spain).

[8. Human Frontiers Science Program RG-113/99M.](#) Maxi-K channel beta subunit as the target for estrogens in the membrane of the vasculature.

Participants: Universitat Pompeu Fabra, Universidad de Chile, University of California Los Angeles, University of Oxford.

Duration: 2000-2003

PI and Coordinator: Miguel A. Valverde

\$ 600.000

[9. Spanish Ministry of Science and Education. SAF 2000-085.](#) Study of the molecular basis and pathophysiological relevance of cell volume regulation in cystic fibrosis airways.

Duration: 2000-2003

Participant: Universitat Pompeu Fabra

PI: Miguel A Valverde

€ 157.879

[10. Distinció de la Generalitat de Catalunya](#) para la promoció de la investigació universitària. Special Award from the Catalan Government for the Development of University Research.

Personal Award to MA Valverde

2000-2004

€120.343.

[11. Spanish Health Ministry \(FIS\).](#) HERACLES Network. Genetic determinants of vascular dysfunction in hypertension.

Duration: 2003-2005

Participant: Universitat Pompeu Fabra

PI: Miguel A. Valverde

€ 267.648

[12. Spanish Ministry of Science and Technology. SAF 2003-1240.](#) Study of the molecular basis and regulation of TRPV4 channels.

Duration: 2003-2006

Participant: Universitat Pompeu Fabra

PI: Miguel A Valverde

€ 281.660

[13. Spanish Ministry of Science and Education. SAF 2006-4973.](#) Role of TRPV4 in the development of chronic respiratory disease.

Duration: 2006-2009

Participant: Universitat Pompeu Fabra

PI: Miguel A Valverde
€ 424.226

[14. Spanish Health Ministry \(FIS\). RD06/0009/0002](#) HERACLES Network. Genetic determinants of vascular dysfunction in hypertension.

Duration: 2006-2012

Participant: Universitat Pompeu Fabra

PI: Miguel A. Valverde

€ 292.800

[15. Generalitat de Catalunya AGAUR SGR 2002-109](#). Cell Signalling Unit.

Duration: 2003-2006

Participants : Universitat Pompeu Fabra ta al estrés.

PI : MA Valverde

€ 35.847

[16. Generalitat de Catalunya AGAUR SGR 2005-266](#). Molecular Physiology and Channelopathies.

Duration: 2005-2009

Participants : Universitat Pompeu Fabra ta al estrés.

PI : MA Valverde

€ 36.600

[17. Fundacio La Marato TV3. 061331](#). Genetic and Molecular basis of migraine and ataxia.

Duration: 2007-2009

Participant: Universitat Pompeu Fabra

PI: JM Fernández, co-aplicant: Miguel A. Valverde

€ 100.220

[18. Research Project with Industry. Grifols](#): Study of the protective role of a Grifols compound in Alzheimer.

Duration: 2008-2011.

Participant: Universitat Pompeu Fabra

PI: Francisco Muñoz, co-aplicant: Miguel A. Valverde.

€ 101.090

[19. Fundacio La Marato TV3 080430](#). Ion channel in the pathogenesis and pharmacological response of essential hypertension.

Duration: 2009-2011

Participant: Universitat Pompeu Fabra

PI: Miguel A. Valverde;

€ 147.902

[20. Ministry of Science and Innovation](#). Calcium signalling in chronic respiratory disease. SAF2009-9848.

Duration: 2009-2012

Participant. Universitat Pompeu fabra

PI: Miguel A. Valverde

€ 370.000

[21. Generalitat de Catalunya AGAUR SGR 2009-1369.](#) Molecular Physiology and Channelopathies.

Duration: 2009-2013

Participants : Universitat Pompeu Fabra.

PI : MA Valverde

€ 45.760

[22. Almirall SA. CN09512.](#) Study of the effect of Almirall drugs on the activity of TRPM4 channel.

Duration: Jan-May 2013.

Participant: Universitat Pompeu Fabra

PI: Miguel A. Valverde

€ 21.585,36

[23. Spanish Health Ministry \(FIS\). HERACLES/RIC Network RD12/0042/0014.](#) Mechanisms of hypertension in the development of atherosclerosis and related cardiovascular diseases

Duration: 2013-2016

Participant: Universitat Pompeu Fabra

PI: Miguel A. Valverde

€ 220.000

[24. Ministry of Economy and Competitiveness.](#) Calcium signalling in health and disease. SAF2012-38140.

Duration: 2013-2015

Participant. Universitat Pompeu fabra

PI: Miguel A. Valverde

€ 339.300

25. [Migraine Research Foundation \(New York, U.S.A.\)](#)

(<http://www.migraineresearchfoundation.org/about-mrf-grants.html>). Project title:

Identification of novel, selective voltage-gated Ca_v2.1 calcium channel inhibitors which reverse the gain of channel function produced by Hemiplegic Migraine CACNA1A mutations.

Participant entities: University Pompeu Fabra (Barcelona, SPAIN) and University of Sussex (Brighton, United Kingdom). Amount granted: 50.000 \$. Duration: from 01/2015 to 12/2015.

PI: Dr. José Manuel Fernández Fernández. Co-aplicant: MA Valverde

26. [Ministry of Economy and Competitiveness MECHANO/OSMOSENSITIVE CHANNELS IN EPITHELIA, CANCER AND ASTHMA.](#) SAF2015-69762-R

Duration: 2016-2018

Participant: Universitat Pompeu Fabra

PIs: Miguel A. Valverde and JM. Fernández-Fernández.

€280.000

27. Ministry of Science, Innovation and Universities

Role of Mechano/osmosensitive channels in short and long-term cellular functions. RTI2018-099718-B-I00

Duration: 2019-2021

Participant: University Pompeu Fabra

PI: Miguel A. Valverde

€290.000

28. Ministry of Science, Innovation and Universities

Mechanosensitive ion channels in the pathophysiology of Amyotrophic Lateral Sclerosis
PID2023-149767OB-100

Duration: 2024-2026

University Pompeu Fabra (Spain)

PIs: Francisco J. Muñoz and Miguel A. Valverde

€318.750

Projects by private bodies

1) Title: The small intestine crypt as a model for the pharmacological study of chloride secretion.

Funding body: Bayer Pharmaceuticals Plc. U.K.

Participants: Department of Physiology, King's College London, Strand WC2R 2LS, U.K.

Duration: 1/01/1996- 30/12/1996

PI: Dr. M.A. Valverde

2) Title: Valoración de la actividad de fármacos LACER sobre el canal Maxi K

Funding Body: LACER SA

Participants: UPF, Barcelona

Duration: Sep 2000 - Ago 2001

PI: Dr. M.A. Valverde

3) Title: Role of Albumin in Alzheimer disease

Funding Body: Proyecto Grifols

Participants: Universitat Pompeu Fabra

PI: Francisco Muñoz. 1 de Marzo de 2008 a 28 de Febrero de 2011;

101.090,59 €

4) Title: Pharmacological study of TRPM4 channel.

Almirall SA. CN09512.

Participant: Universitat Pompeu Fabra

Duration: Jan-May 2013

PI: Miguel A. Valverde

€ 21.585,36

PUBLICATIONS

117. Kaustav Bera, Alex Kiepas, Inês Godet, Yizeng Li, Pranav Mehta, Brent Ifemembi, Colin D. Paul, Anindya Sen, Selma A. Serra, Konstantin Stoletov, Jiaxiang Tao, Gabriel Shatkin, Se Jong Lee, Yuqi Zhang, Adrianna Boen, Panagiotis Mistriotis, Daniele M. Gilkes, John D. Lewis, Chen-Ming Fan, Andrew P. Feinberg, Miguel A. Valverde, Sean X. Sun, Konstantinos Konstantopoulos.

Extracellular fluid viscosity enhances cell migration and cancer dissemination.

Nature 611, 365–373 (2022). [https://doi.org/10.1038/s41586-022-05394-6\(2022\)](https://doi.org/10.1038/s41586-022-05394-6(2022)).

PMID: 36323783.

116. Zhang Y, Li Y, Thompson KN, Stoletov K, Yuan Q, Bera K, Lee SJ, Zhao R, Kiepas A, Wang Y, Mistriotis P, Serra SA, Lewis JD, Valverde MA, Martin SS, Sun SX, Konstantopoulos K.

Polarized Nhe1 And Swell1 Regulate Migration Direction, Efficiency And Metastasis

Nat Commun. 2022 Oct 17;13(1):6128. doi: 10.1038/s41467-022-33683-

1.PMID: 36253369 **Q1 D1 IF 17**

115. J Carrillo-Garcia V Herrera-Fernández, SA. Serra, F Rubio-Moscardo, M Vogel-Gonzalez, P Doñate-Macian, C F. Hevia, C Pujades and MA Valverde (2021)

The mechanosensitive Piezo1 channel controls endosome trafficking for an efficient cytokinetic abscission

Science Advances (2021) Oct 29;7(44):eabi7785. doi: 10.1126/sciadv.abi7785. **Q1 D1 IF 14.4**

114. Yankaskas CL, Bera K, Stoletov K, Serra SA, Carrillo-Garcia J, Tuntithavornwat S, Mistriotis P, Lewis JD, Valverde MA, Konstantopoulos K. (2021)

The fluid shear stress sensor TRPM7 regulates tumor cell intravasation

Science Advances 7 (28), eabh3457 Jul 9;7(28):eabh3457. doi: 10.1126/sciadv.abh3457.**Q1 D1 IF 14.4**

113. Serra SA, Stojakovic P, Amat R, Rubio-Moscardo F, Latorre P, Seisenbacher G, Canadell D, Böttcher R, Aregger M, Moffat J, de Nadal E, Valverde MA*, Posas F* (2021)

LRR8A-containing chloride channel is crucial for cell volume recovery and survival under hypertonic conditions

Proceedings of the National Academy of Sciences 118 (23):e2025013118. Jun 8; doi: 10.1073/pnas.2025013118.**Q1 D1 IF 10.8**

* Senior corresponding authors

112. Vellino S, Oddou C, Rivier P, Boyault C, Hiriart-Bryant E, Kraut A, Martin R, Coute Y, Knölker HJ, Valverde MA, Albigès-Rizo C, Destaing O. (2021)

Cross-talk between the calcium channel TRPV4 and reactive oxygen species interlocks adhesive and degradative functions of invadosomes

Journal of Cell Biology 220 (2), e201910079 Feb 1;220(2):e201910079. doi:

10.1083/jcb.201910079. **Q1 D1 IF 10.5**

111. Venturini V, Pezzano F, Català Castro F, Häkkinen HM, Jiménez-Delgado S, Colomer-Rosell M, Marro M, Tolosa-Ramon Q, Paz-López S, Valverde MA, Weghuber J, Loza-Alvarez P, Krieg M, Wieser S, Ruprecht V.

The nucleus measures shape changes for cellular proprioception to control dynamic cell behavior

Science. 2020 Oct 16;370(6514):eaba2644. doi: 10.1126/science.aba2644. **Q1 D1 IF 41**

110. Doñate-Macian P, Duarte Y, Rubio-Moscardo F, Pérez-Vilaró G, Canan J, Díez J, González-Nilo F, Valverde MA (2022)
Structural determinants of TRPV4 inhibition and identification of new antagonists with antiviral activity
[Br J Pharmacol](#). 2022 Jul;179(14):3576-3591. doi: 10.1111/bph.15267. Epub 2020 Sep 21. doi: 10.1111/bph.15267. **Q1 D1 IF 7.7**
109. Zhao R, Afthinos A, Zhu T, Mistriotis P, Li Y, Serra SA, Zhang Y, Yankaskas CL, He S, Valverde MA, Sun SX, Konstantopoulos K. (2019)
Cell sensing and decision-making in confinement: The role of TRPM7 in a tug of war between hydraulic pressure and cross-sectional area
[Science Advances](#) 2019 Jul 24;5(7):eaaw7243. doi: 10.1126/sciadv.aaw7243. **Q1 D1 IF 14.4**
108. G Cantero-Recasens, CM Butnaru, N Brouwers, S Mitrovic, MA Valverde, V Malhotra (2019).
Sodium channel TRPM4 and sodium/calcium exchangers (NCX) cooperate in the control of Ca²⁺-induced mucin secretion from goblet cells
[Journal of Biological Chemistry](#) 294 (3), 816-826 **Q2 IF 5.1**
107. Gerard Cantero-Recasens, Cristian M. Butnaru, Miguel A. Valverde, José R. Naranjo, Nathalie Brouwers, Vivek Malhotra (2018)
KChIP3 coupled to Ca²⁺ oscillations exerts a tonic brake on baseline mucin release in the colon. [eLife](#) e39729 (accepted 14th Sep 2018) **Q1 IF 7**
106. Carole Jung, Victor Fernández-Dueñas, Cristina Plata, Anna Garcia-Elias, Francisco Ciruela, José M. Fernández-Fernández and Miguel A. Valverde (2018).
Functional coupling of GABA_{A/B} receptors and the channel TRPV4 mediates rapid progesterone signaling in the oviduct
[Science Signaling](#) 11(543). pii: eaam6558. **Q1 IF 7.5**
105. Doñate-Macian P. Jungfleisch J., Pérez-Vilaró G., Rubio-Moscardo F., Perálvarez-Marín A., Díez J. and , Valverde M.A. (2018).
The TRPV4 channel links calcium influx to DDX3X activity and viral infectivity
[Nature Communications](#) (2018) 9:2307; DOI: 10.1038/s41467-018-04776-7. **Q1 IF 14.9**
104. Rozen EJ, Roewenstrunk J, Barallobre MJ, Di Vona C, Jung C, Figueiredo AF, Luna J, Fillat C, Arbonés ML, Graupera M, Valverde MA, de la Luna S (2018)
DYRK1A Kinase Positively Regulates Angiogenic Responses in Endothelial Cells
[Cell Reports](#) 23(6):1867-1878
Q1 IF 8.3
103. Carlos Pardo-Pastor, Fanny Rubio-Moscardo, Marina Vogel-González, Selma A. Serra, Alexandros Afthinos, Sanela Mrkonjic, Olivier Destaing, Juan F. Abenza, José M. Fernández-Fernández, Xavier Trepas, Corinne Albiges-Rizo, Konstantinos Konstantopoulos, Miguel A. Valverde (2018)
Piezo2 channel regulates RhoA and actin cytoskeleton to promote cell mechanobiological responses

Q1 D1 IF 9.6

102. Núñez-Ollé M, Jung C, Terré B, Balsiger NA, Plata C, Roset R, Pardo-Pastor C, Garrido M, Rojas S, Alameda F, Lloreta J, Martín-Caballero J, Flores JM, Stracker TH, Valverde MA, Muñoz FJ, Gil-Gómez G. (2017)

Constitutive Cyclin O deficiency results in penetrant hydrocephalus, impaired growth and infertility.

[Oncotarget](#) 8(59):99261-99273.

Q1 IF 5.0

101. Sanchez A, Alvarez JL, Demydenko K, Jung C, Alpizar YA, Alvarez-Collazo J, Cokic SM, Valverde MA, Hoet PH, Talavera K. (2017).

Silica nanoparticles inhibit the cation channel TRPV4 in airway epithelial cells.

[Part Fibre Toxicol.](#) 2017 Nov 3;14(1):43. doi: 10.1186/s12989-017-0224-2.

Q1 D1 IF 8.5

100. Yeranddy A. Alpizar, Brett Boonen, Alicia Sanchez, Carole Jung, Alejandro López-Requena, Robbe Naert, Brecht Steelant, Katrien Luyts, Cristina Plata, Vanessa De Vooght, Jeroen A. J. Vanoirbeek, Victor M. Meseguer, Thomas Voets, Julio L. Alvarez, Peter W. Hellings, Peter H. M. Hoet, Benoit Nemery, Miguel A. Valverde and Karel Talavera (2017).

TRPV4 activation triggers protective responses to bacterial lipopolysaccharides in airway epithelial cells

[Nature Communications](#) 8(1):1059. doi: 10.1038/s41467-017-01201-3.

Q1 IF 14.9

99. Berna-Erro A, Izquierdo-Serra M, Sepúlveda RV, Rubio-Moscardo F, Doñate-Macián P, Serra SA, Carrillo-García J, Perálvarez-Marín A, González-Nilo F, Fernández-Fernández JM, Valverde MA (2017).

Structural determinants of 5',6'-epoxyeicosatrienoic acid binding to and activation of TRPV4 channel.

[Sci Rep.](#) 2017 Sep 5;7(1):10522. doi: 10.1038/s41598-017-11274-1.PMID:28874838

Q1 IF 4.2

98. Laura R. Sadofsky, Gerard Cantero-Recasens, Carolyn E. Wright, Miguel A. Valverde and Alyn H. Morice (2017)

TRPV1 polymorphisms influence capsaicin cough sensitivity in men.

[Journal of Thoracic Disease](#) 9(3):839-840. doi: 10.21037/jtd.2017.03.50

97. Ramos-Fernández E, Tajés M, Ill-Raga G, Vargas L, Busquets-García A, Bosch-Morató M, Guivernau B, Valls-Comamala V, Gomis M, Grau C, Fandos C, Rosen MD, Rabinowitz MH, Inestrosa N, Maldonado R, Altafaj X, Ozaita A, Alvarez A, Vicente R, Valverde MA, Muñoz FJ.(2016)

Glutamatergic stimulation induces GluN2B translation by the nitric oxide-Heme-Regulated eIF2 α kinase in cortical neurons.

[Oncotarget.](#) 7:58876-92.

Q1 IF 5.0

96. Henry CO, Dalloneau E, Pérez-Berezo MT, Plata C, Wu Y, Guillon A, Morello E, Aimar RF, Potier-Cartereau M, Esnard F, Coraux C, Börnchen C, Kieffmann R, Vandier C, Touqui L, Valverde MA, Cenac N, Si-Tahar M. (2016)

In vitro and in vivo evidence for an inflammatory role of the calcium channel TRPV4 in lung epithelium: Potential involvement in cystic fibrosis.

[Am J Physiol Lung Cell Mol Physiol](#). 311(3):L664-75.

Q1 IF 4.7

95. Hung, Wei-Chien; Yang, Jessica R.; Yankaskas, Christopher; Wong, Bin Sheng; Wu, Pei-Hsun; Pardo-Pastor, Carlos; Serra, Selma A.; Chiang, Meng-Jung; Gu, Zhizhan; Wirtz, Denis; Valverde, Miguel A.; Yang, Joy T.; Zhang, Jin and Konstantopoulos, Konstantinos (2016)

Confinement-sensing and Signal Optimization via Piezo1/PKA and Myosin II pathways

[CELL Reports](#) 15:1430-41

Q1 IF 8.3

94. Terré B, Piergiovanni Gabriele, Segura-Bayona Sandra, Gil-Gómez Gabriel, Youssef Sameh A, Attolini Camille Stephan-Otto, Wilsch-Bräuninger Michaela, Jung Carole, Rojas Ana M., Marjanović Marko, Knobel Philip A., Palenzuela Lluís, López-Rovira Teresa, Forrow Stephen, Huttner Wieland B., Valverde Miguel A., de Bruin Alain, Costanzo Vincenzo and Stracker Travis H (2016)

GEMC1 is a critical regulator of multiciliated cell differentiation

[EMBO J](#) 35:942-60

Q1 IF 9.4

93. Galindo-Villegas J, Montalban-Arques A, Liarte S, de Oliveira S, Pardo-Pastor C, Rubio-Moscardo F, Meseguer J, Valverde MA, Mulero V (2016)

TRPV4-Mediated Detection of Hyposmotic Stress by Skin Keratinocytes Activates Developmental Immunity

[Journal of Immunology](#). 196(2):738-49.

Q1 IF 5.9

92. Cuadrado-Godia E, Regueiro A, Núñez J, Díaz-Ricard M, Novella S, Oliveras A, Valverde MA, Marrugat J, Ois A, Giralt-Steinhauer E, Sanchís J, Escolar G, Hermenegildo C, Heras M, Roquer J (2015)

Endothelial Progenitor Cells Predict Cardiovascular Events after Atherothrombotic Stroke and Acute Myocardial Infarction. A PROCELL Substudy.

[PLoS One](#). 2015 Sep 2;10(9):e0132415. doi: 10.1371/journal.pone.0132415.

Q1 IF 3.2

91. Anna Garcia-Elias¹, Alejandro Berna-Erro¹, Fanny Rubio-Moscardo, Carlos Pardo-Pastor, Sanela Mrkonjić, Romina V. Sepúlveda, Rubén Vicente, Fernando González-Nilo and Miguel A. Valverde (2015)

Interaction between the linker, pre-S1 and TRP domains determines folding, assembly and trafficking of TRPV channels

[Structure](#) 23:1404-13.

Q1 6.1

90. Fernández-Mariño AI, Ciudad P, Zafra D, Nocito L, Domínguez J, Oliván-Viguera A, Köhler R, López-López JR, Pérez-García MT, Valverde MÁ, Guinovart JJ, Fernández-Fernández JM.

Tungstate-targeting of BK α β 1 channels tunes ERK phosphorylation and cell proliferation in human vascular smooth muscle.

[PLoS One](#). 2015 Feb 6;10(2):e0118148. doi: 10.1371/journal.pone.0118148.

Q1 IF 3.2

89. Ander Regueiro; Elisa Cuadrado-Godia; Carlos Bueno-Beti; Maribel Diaz-Ricart; Anna Oliveras; Susana Novella; Gemma Gonzalez-Gene; Carole Jung; Isaac Subirana; Jose Tomas Ortiz-Perez; Merce Roque; Xavier Freixa; Julio Nuñez; Gines Escolar; Jaume Marrugat; Carlos Hermenegildo; Miguel Angel Valverde; Jaume Roquer; Juan Sanchis; Magda Heras.(2015)

Mobilization of endothelial progenitor cells in acute cardiovascular events in the Procell study: Time-course after acute myocardial infarction and stroke.

[Journal of Molecular and Cellular Cardiology](#) 2015, 80:146-55.

Q1 IF 4.6

88. Sanela Mrkonjić, Anna Garcia-Elias, Carlos Pardo-Pastor, Elsa Bazellières, Xavier Trepas, Joris Vriens, Debapriya Ghosh, Thomas Voets, Rubén Vicente and Miguel A. Valverde (2015)

TRPV4 participates in the establishment of trailing adhesions and directional persistence of migrating cells.

[Pflugers Arch](#). 467(10):2107-19

Q1 IF 4.1

87. Ill-Raga G, Palomer E, Ramos-Fernández E, Guix FX, Bosch-Morató M, Guivernau B, Tajés M, Valls-Comamala V, Jiménez-Conde J, Ois A, Pérez-Asensio F, Reyes-Navarro M, Caballo C, Gil-Gómez G, López-Vílchez I, Galán AM, Alameda F, Escolar G, Opazo C, Planas A, Roquer J, **Valverde MA**, Muñoz FJ. (2015)

Fibrinogen Nitrotyrosination After Ischemic Stroke Impairs Thrombolysis And Promotes Neuronal Death.

[Biochim Biophys Acta](#). 1852(3):421-8.

Q1 IF 4.88

86. Vila-Pueyo M, Gené GG, Flotats-Bastardes M, Elorza X, Sintas C, **Valverde MA**, Cormand B, Fernández-Fernández JM, Macaya A,

A loss-of-function CACNA1A mutation causing benign paroxysmal torticollis of infancy

[European journal of paediatric neurology](#), 18(3), 430-433 (2014)

Q2 IF 2.3

85. Extreme Population Differences in the Human Zinc Transporter ZIP4 (SLC39A4) Are Explained by Positive Selection in Sub-Saharan Africa.

Engelken J, Carnero-Montoro E, Pybus M, Andrews GK, Lalueza-Fox C, Comas D, Sekler I, de la Rasilla M, Rosas A, Stoneking M, **Valverde MA**, Vicente R, Bosch E.

[PLoS Genet](#). 2014 Feb 20;10(2):e1004128. doi: 10.1371/journal.pgen.1004128.

Q1 D1 IF 7.5

84. Posttranslational Nitro-Glycative Modifications of Albumin in Alzheimer's Disease: Implications in Cytotoxicity and Amyloid β -Peptide Aggregation

Eva Ramos-Fernández, Marta Tajés, Ernest Palomer, Gerard ILL-Raga, Mònica Bosch-Morató, Biuse Guivernau, Irene Román-Dégano, Abel Eraso, Daniel Alcolea, Juan Fortea, Laura Nuñez, Antonio Paez, Francesc Alameda, Xavier Fernàndez-Busquets, Alberto Lleó, Roberto Elosúa, Mercé Boada, **Miguel A. Valverde**, and Francisco J. Muñoz

[J. Alzh. Dis.](#) 40(3), 643-57 (2014).

Q1 IF 4.1

83. Fernández-Mariño AI, **Valverde MA**, Fernández-Fernández JM.

BK channel activation by tungstate requires the β 1-subunit extracellular loop residues essential to modulate voltage sensor function and channel gating.

[Pflugers Arch.](#) 466(7):1365-75 (2014)

Q1 IF 4.1

82. **Rare variants in calcium homeostasis modulator 1 (CALHM1) found in early onset Alzheimer's disease patients alter calcium homeostasis.**

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2.- **Valverde, M.A.**, Sheppard, D.N., Giraldez, F. & Sepúlveda, F.V.

Two types of potassium currents observed in isolated Necturus enterocytes with the single-electrode voltage clamp technique.

Journal of Physiology (London). 433, 645-674 (1991). **Q1 D1 IF5**

1.- Giraldez, F., **Valverde, M.A.** & Sepúlveda, F.V.
Hypotonicity increases apical membrane Cl^- conductance in Necturus enterocytes.
Biochimica & Biophysica Acta 942, 353-356 (1988). **Q2 IF 3.8**

Other Scientific Documents

- 1.- Valverde, M.A. (1988). Cl⁻ conductance and cellular volume in Necturus Maculosus intestinal cells. **M.D. Thesis**, Facultad de Medicina, Universidad de Valladolid.
- 2.- Valverde, M.A. (1991). Chloride currents of unstimulated T₈₄ intestinal epithelial cells. **M. Phil. Thesis**. Cambridge University.
- 3.- Valverde, M.A. (1992). Electrophysiological study of the volume-regulated chloride channel associated with the P-glycoprotein expression. **PhD Thesis**, Facultad de Medicina, Universidad de Valladolid.
- 4.- Valverde, M.A., Hardy, S.P. & Monaghan, A.S. (1997). Chloride channel pharmacology. In: **Ion channel pharmacology**. Eds. V. Ceña and B. Soria. Oxford University Press.
CL
5. Higgins, C.F., Weylandt, K.H., Nastrucci, C., Sardini, A., Diaz, M. and Valverde, M.A. (1999). Swelling –activated chloride channels and their regulation by P-glycoprotein. In: **Chloride channels** R. Kozlowski (ed.) Isis Medical Media Ltd., Oxford, p 35-46.
CL
6. Valverde MA (2001). Realidades y retos de las nuevas tecnologías. En: Sostenibilidad del sistema sanitario. **Opinión Quiral: Medicina, comunicación y sociedad. Barcelona**
CL
7. Andrade YN, Fernandes J, Lorenzo I, Arniges M and Valverde MA (2006) TRPV4 channel in ciliated epithelia. In: **TRP Ion channels in transduction of sensory stimuli and cellular signaling cascades**. Liedtke W and Heller S (ed) CRC press, Boca Ratón p413-420.
CL
8. Garcia-Elias A, Mrkonjić S, Jung C, Pardo-Pastor C, Vicente R, **Valverde MA**. (2014) The TRPV4 channel. Handb Exp Pharmacol. 2014;222:293-319. doi: 10.1007/978-3-642-54215-2_12. Review. PMID: 24756711

Invited talks (15 selected)

Mechanosensitive Ion Channels in Confined Cell Migration. 20 years of TRPV4 . Exploring Science, Discovery, and Future Directions. New York 8-11 June 2021.

Mechano/osmosensitive ion channels in cancer invasion and metastasis. Ion Channel Initiative, Cáceres May 2019.

Mechano/osmosensitive ion channels in cancer invasion and metastasis. 41st congress of the Spanish Molecular Biology Society, Santander 10-13 Sept 2018.

TRPV4 channel in epithelial physiology. TRP channel meeting. Leuven, Belgium. September 2015

Regulation and population genetics of TRP channels. Le Studium conference on Chronic Inflammatory lung disease, Tours, France, September 2013

Regulation and population genetics of TRP channels. European respiratory Society, Sensational developments in the airways, Dublin, Ireland. May 2013

Role of TRPV4 N-terminus in channel gating and cell shape. European Calcium Channel Conference, Alpbach, Austria, May 2012.

TRP channels in asthma.

Meeting on Genes x Occupation Interactions in Asthma, Paris 12th January 2011.

Molecular regulation of the volume sensitive TRPV4 channel.

International meeting on Cell Volume Regulation and Anion Transport, Okazaki, Japan August 2009.

TRPs and CRAC channels

Chairman and Discussion Leader. Gordon Research Conference on ION CHANNELS. Tilton School, USA. 6-11 July 2008.

Cross-talk between IP3 receptor and TRPV4 signalling in ciliated epithelia.

European Science Foundation Conference on Rare Diseases: Channels and Transporters. St. Feliu Guixols, Girona, Spain 8-12 March 2008.

Mechanical and osmotic activation of TRPV4 via signal transduction cascades.

6th International symposium on cell volume regulation in health and disease. Salzburg, Austria 21-24 September 2007.

Convergence of signal transduction pathways in the activation of TRPV4 mediated Ca²⁺ entry

Chairman. 14th International Congress of Ca²⁺ binding proteins. La Palma, Canarias, 16-21 October 2007.

Modulation of Ion channels by estrogens.

3rd Federation of European Physiological Societies Congress. Nice (France). July 2003

Swelling-sensitive ion channels in secretory epithelia.

XIV International Biophysics Congress. Buenos Aires (Argentina). May 2002

Patents

1. José M. Fernández-Fernández, Marta Tomás, Esther Vázquez, Mariano Sentí, Jaume Marrugat y Miguel A. Valverde

Título: Método y kit para la detección del riesgo de padecer hipertensión arterial

Registro: P200400883

Entidad: Universidad Pompeu Fabra.

Fecha: 29 Marzo 2004

Internacional.

2. Francisco J Muñoz, Gerard ILL-Raga y Miguel A. Valverde.

Título: 3-Nitrotyrosinated fibrinogen as a diagnostic marker in ischemic stroke and uses thereof

Registro P201290032

Entidad: Universidad Pompeu Fabra

Fecha: Noviembre 2009

Internacional.

Stays at Foreign Laboratories

CLAVE: D = PhD, P = postdoctoral, I = invited, C = contract, O = others

Centro: Department of Pharmacology, University of Cambridge & The Babraham Institute

Localidad: Cambridge País: Inglaterra Fecha: Agosto 1990-Junio 1991
Tema: Canales de cloruro en las celulas epiteliales de intestino T84 Clave: D

Centro: The Babraham Institute

Localidad: Cambridge País: Inglaterra Fecha: Julio 1991-Marzo 1994
Tema: Regulación de los canales de cloruro Clave: P

Centro: Nuffield Department of Clinical Biochemistry, John Radcliffe Hospital

Localidad: Oxford País: Inglaterra Fecha: Abril 1994- Agosto 1995
Tema: Efecto de las hormonas sexuales y sus antagonistas en las membranas biológicas
Clave: P

Centro: Departamento de Neurobiología, Instituto Mexicano de Psiquiatría

Localidad: Mexico D.F. País: Mexico Fecha: Marzo 1995- Abril 1995
Tema: Medida del volumen celular con técnicas de microscopía fluorescente Clave: I

Centro: Neuroscience Research Centre, Department of Physiology, King's College London

Localidad: London País: Inglaterra Fecha: Septiembre 1995- Agosto 1999
Tema: Regulacion del volumen celular en tejidos epiteliales Clave: C (profesor titular)

Centro: Centro de Estudios Científicos de Santiago. Universidad de Chile

Localidad: Santiago País: Chile Fecha: Marzo-Junio 1998, Julio 1999
Tema: Expresión de canales iónicos en oocitos de Xenopus Clave: I

SUPERVISED PhDs

1. Título: VOLUME-REGULATED ION CHANNELS AND THEIR INTERACTION WITH P-GLYCOPROTEIN

Doctorando: Tamara Bond

Universidad: University of Oxford

Facultad / Escuela: Dept. of Clinical Biochemistry

Fecha: Defendida en 1997

Co-supervisada con el Prof. C.F. Higgins.

2. Título: BASES MOLECULARES DE LA REGULACIÓN DE LOS CANALES DE CL⁻ POR ESTRÓGENOS Y ANTIESTRÓGENOS.

Doctorando: Maria I. Bahamonde

Universidad: Universitat Pompeu Fabra

Facultad / Escuela: Departamento de Ciències Experimentals

Fecha: Inicio Enero 2000.

Defensa Febrero 2004. Sobresaliente cum laude

Director: Miguel A Valverde

3. Título: SWELLING-ACTIVATED Ca²⁺ ENTRY VIA TRPV4 CHANNEL IN NORMAL AND CYSTIC FIBROSIS AIRWAY EPITHELIA

DOCTORANDA: Maite Arniges Gómez

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENT: Ciències Experimentals i de la Salut

Defensa junio 2006. Sobresaliente cum laude

Directores: Esther Vázquez y Miguel A Valverde

4. Título: VASCULAR ASPECTS OF ALZHEIMER'S DISEASE.

DOCTORANDO: Mireia Coma Camprodon

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENT: Ciències Experimentals i de la Salut

Defensa: Junio 2007. Sobresaliente cum laude

Directores: Francisco J. Muñoz y Miguel A Valverde

5. Título: ROLE OF TRPV4 CHANNEL IN THE REGULATION OF CILIARY BEATING FREQUENCY

DOCTORANDO: Ivan Lorenzo

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENT: Ciències Experimentals i de la Salut

Año: Inicio Octubre 2004

Defensa: Julio 2008. Sobresaliente cum laude

Director: Miguel A Valverde

6. Título: ESTUDIO DEL PAPEL DEL Ca²⁺ EN LA NEURODEGENERACIÓN COLINÉRGICA EN LA ENFERMEDAD DE ALZHEIMER.

DOCTORANDO: Francesc Xavier Guix

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENT: O Ciències Experiments i de la Salut

Año: Inicio Octubre 2004

Defensa Enero 2009. Sobresaliente cum laude

Directores: Francisco J. Muñoz y Miguel A Valverde

7. Title: Identificación y estudio funcional de mutaciones en el canal Cav2.1 asociadas a migraña y ataxia

DOCTORANDA: Selma A Serra

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENTO: Ciències Experiments i de la Salut

Año: Inicio Octubre 2005

Defensa: Julio 2011. Sobresaliente cum laude, Mención Europea

Directores: JM Fernández-Fernández y Miguel A Valverde

8. Title: Molecular determinants of TRPV4 channel regulation

DOCTORANDA: Anna Garcia-Elias

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENTO: Ciències Experiments i de la Salut

Año: Inicio Octubre 2007

Defensa: Junio 2011. Sobresaliente cum laude, Mención Europea

Directores: Miguel A Valverde

9. Title: Cellular Calcium homeostasis in the pathophysiology of chronic respiratory disease

DOCTORANDA: Gerard Cantero Recasens

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENTO: Ciències Experiments i de la Salut

Año: Octubre 2009

Defensa: 10 Enero 2013. Sobresaliente cum laude, Mención Europea

Directores: Miguel A Valverde

10. Title: Regulation of BK channel by tungstate and its relevance for the control of vascular tone and intracellular signalling

DOCTORANDA: Ana I. Fernández Mariño

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENTO: Ciències Experiments i de la Salut

Año: Inicio Octubre 2009

Defensa: Julio 2013. Sobresaliente cum laude, Mención Europea

Directores: Miguel A Valverde

11. Title: TRPV4 regulation and involvement in cell motility

DOCTORANDA: Sanela Mrkonjic

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENTO: Ciències Experiments i de la Salut

Año: Inicio Junio 2010

Defensa: Marzo 2014. Sobresaliente cum laude,

Director: Miguel A Valverde

12. Title. Mechano/osmosensitive channels in cáncer metástasis.

DOCTORANDA: Carlos Pardo Pastor

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENTO: Ciències Experiments i de la Salut

Año: Inicio January 2014

Defensa: January 2018. Sobresaliente cum laude,

Director: Miguel A Valverde

13. Title. Zinc homeostasis and disease. Impact on breast cancer progression and infection severity

DOCTORANDA: Marina Vogel-González

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENTO: Ciències Experiments i de la Salut

Año: Inicio January 2017

Defensa: September 2021. Sobresaliente cum laude,

Director: Rubén Vicente and Miguel A Valverde

14. Title. Regulation of Piezo1 channels and its impact on cell division.

DOCTORANDA: Julia Carrillo-Garcia

UNIVERSIDAD: Universitat Pompeu Fabra

FACULTAD: Ciències de la Salut i la Vida

DEPARTAMENTO: Ciències Experiments i de la Salut

Año: Inicio January 2017

Defensa: 30 Sept 2021

Director: Miguel A Valverde and José M. Fernández-Fdez

Undergraduate Thesis

Título: Identification of the anionic channels involved in cell volume regulation in T84 cells

Doctorando: Sujidra Ambikapathy

Universidad: King's College London

Facultad / Escuela: Biomedical Sciences

Fecha: 1996-1997

Título: Modulation of ionic pathways in the wild-type and $\Delta F508$ mouse intestinal crypts.

Doctorando: Zubaida M. Siddiqui
Universidad: King's College London
Facultad / Escuela: Biomedical Sciences
Fecha: 1996-1997

Título: Cell volume regulation in normal and cystic fibrosis airway epithelia
Doctorando: Anita Sugavanam
Universidad: King's College London
Facultad / Escuela: Biomedical Sciences
Fecha: 1996-1997

Título: Study of chloride secretion in morphologically differentiated and undifferentiated intestinal cell lines.
Doctorando: Shbana Rahman
Universidad: King's College London
Facultad / Escuela: Biomedical Sciences
Fecha: 1996-1997

Título: Cell volume regulation in wild-type and cystic fibrosis murine tracheal cells. Characterization of the volume regulated ionic conductances
Doctorando: Hagar Lock
Universidad: University of Brighton and King's College London
Facultad / Escuela: Biomedical Sciences
Fecha: 1997-1998

Título: Characterization of the mechanisms involved in regulatory volume decrease in human airway cells.
Doctorando: Shanthi Thambapillai.
Universidad: King's College London
Facultad / Escuela: Biomedical Sciences
Fecha: 1997-1998

Título: Correction of the secretory and cell volume regulatory mechanisms by expression of CFTR in a $\Delta F508$ human airways cell line.
Doctorando: Cheryl Young
Universidad: King's College London
Facultad / Escuela: Biomedical Sciences
Fecha: 1998-1999.

RESEARCH COMMITTEES

Título del Comité: Editorial Board
Entidad de la que depende: Journal of Molecular Membrane Biology
Tema: Estructura y función de proteínas de membrana
Fecha: desde 1996

Fecha: desde Junio 2004-diciembre 2005.

Fecha: desde Julio 2005.

Fecha: desde Enero 2001-diciembre 2006.

Fecha: 2-4 Noviembre de 1998.

Fecha: 28-31 Marzo de 1999.

Fecha: 5-9 Mayo de 1999

Fecha: 17-19 Diciembre 2001.

Experimentales, UPF.

Fecha: 17 Septiembre 2012

OTHER

Awards:

- PhD Thesis, Universidad de Valladolid, 1992.
- Distinció de la Generalitat de Catalunya para la promoción de la investigación universitaria, 2000.
- Premio ICREA Academia. 2008

Research Societies:

- Miembro de la Physiological Society, desde 1994.
- Miembro de la Sociedad de Ciencias Fisiológicas de España, desde 2000

Consultant

- Bayer Pharmaceuticals Plc. U.K. 1996-1999. .
- Cardiovascular diseases committee of Catalunya from 2005.

Reviewer

- Nature, Nature Cell Biology, Nature Communications, PNAS, Pflugers Arch

Administrative duties

- Vice-director Dept. of Experimental and Health Sciences 2007-2010.
- Director of the Cell and Molecular Biology program at Univesristy Pompeu Fabra