CURRICULUM VITAE

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ACADEMIC DATA

GRADUATION: Pharmacy, Universidad de Alcalá, Madrid, SPAIN. 1999
Ph.D.: Pharmacy, Universidad de Alcalá, Madrid, SPAIN. 2004

LANGUAGES

SPANISH, ENGLISH, FRENCH.

PROFESSIONAL POSITIONS AND MAJOR RESEARCH SUBJECTS

HEALT SCIENCES / ASSOCIATE SCIENTIST 3: March 2008 –present. Department of Cell Biology and Physiology. College of Medicine. University of New Mexico, NM, USA.

POSTDOCTORAL FELLOW: April 2005 – March 2008. Department of Cell Biology and Physiology. College of Medicine. University of New Mexico, NM, USA. Advisor: Dr. Laura González Bosc.
Project: "Role of the transcriptional factor NFAT in Pulmonary arterial remodeling in chronic hypoxia-induced pulmonary hypertension"
Project: "NFAT in transcriptional regulation of arterial cardiovascular remodeling in an animal model of Sleep Apnea."
Project: "Role of NFAT in the regulation of soluble Guanylate Cyclase in chronic hypoxia-induced pulmonary hypertension"

POSTDOCTORAL ASSOCIATE: April 2004-March 2005. Department of Pharmacology, University of Vermont, Burlington VT, USA. Advisor: Dr. Wolfgang Dostmann.
Project: "Exploring vasomotor mechanism using new PKG inhibitors: Cellular uptake of the membrane permeable PKG inhibitor DT2."

PREDOCTORAL FELLOW: October 1999- December 2003. Department of Physiology, Universidad de Alcalá. Advisors: Dr. Manuel Rodriguez-Puyol and Dr. Marta Saura Redondo.
Thesis:"Guanylyl Cyclases: differential responses and regulation mechanisms"

SHORT RESEARCH STAY: August 2001-October 2001. Department of Pharmacology, University of Vermont, Burlington VT, USA. Advisor: Dr. Wolfgang Dostmann.
Project: "Studies of the cGMP dynamics in endothelial cells using encoded cGMP-indicators by using dual-emission fluorescence microscopy imaging."

VOLUNTARY COLLABORATION: September 1998- June 1999.
Department of Biochemistry and Molecular Biology, Universidad de Alcalá. Advisor: Dr. Eduardo Arilla Ferreiro lab.
Project: "Effect of leptin on the somatostatinergic system in rat brain."

AWARDS

PREDOCTORAL FELLOWSHIPS*:*
Comunidad Autonoma de Madrid. Spain. September 1999- september 2003.
Universidad de Alcalá. Spain. September 2003- January 2004

POSTDOCTORAL FELLOWSHIP*:*
University of Vermont. USA. April 2004- March 2005.

POSTDOCTORAL FELLOWSHIP*:*
University of New Mexico. USA. April 2005- December 2005.

POSTDOCTORAL FELLOWSHIP*:*
Fulbright.(Ministerio de Educacion y Ciencia). Spain.(not accepted).

POSTDOCTORAL FELLOWSHIP*:*
Ministerio de Educacion y Ciencia. Spain. December 2005- December 2007.

AUGUST KROGH YOUNG INVESTIGATOR TRAVEL AWARD:
Microcirculatory Society. USA. April 2006

CAROLINE TUM SUDEN/FRANCIS A. HELLEBRANDT PROFESSIONAL OPPORTUNITY AWARD:
American Physiological Society. USA. April 2008.

ABSTRACTS AND ORAL COMMUNICATIONS

"Hyperglycemia activates the Ca2+/calcinerurin-dependent transcription factor NFAT (nuclear factor of activated T cells) in retinal microvessels in vivo"
A.V. Zetterqvist, J. Nilsson Öhman, S. de Frutos Garcia, P.G. Maguire, L. Gonzalez Bosc and M.F. Gomez.
Experimental Biology. San Diego, CA, USA. 2008.
Abstract Publication: The FASEB Journal, Vol…. Abstract # 1148.13

"Mechanisms of NFAT activation during chronic hypoxia (CH)"
S. de Frutos Garcia, D. Alo, L. Gonzalez Bosc.
Experimental Biology. San Diego, CA, USA. 2008.
Abstract Publication: The FASEB Journal, Vol…. Abstract # 960.19

"NFATc3 mediates Intermittent Hypoxia (IH)-induced systemic hypertension in mice."
S. de Frutos Garcia, D. Alo, T. Berry, M. Walker, N. Kanagy, L. Gonzalez Bosc.
Experimental Biology. San Diego, CA, USA. 2008.
Abstract Publication: The FASEB Journal, Vol…. Abstract # 960.21

"Intermittent hypoxia (IH)-induced hipertensión in mice requires NFATc3 and correlates with endothelin 1 (ET1) up-regulation."
S. de Frutos Garcia, T. Berry, M. Hutchinson, V. Wolf, J. Wang, W. Wang, M. Walker, N. Kanagy, L. Gonzalez Bosc.
VII International Symposium Vasoactive Peptides. Ouro Preto, Brasil. 2008.

"NFATc3 mediates Chronic Hypoxia (CH)-induced soluble guanylyl cyclase-α (sGC-α) up-regulation in lung."
S. de Frutos Garcia, R. Spangler, D. Alo, L. Gonzalez Bosc.
Experimental Biology. Washington, USA. 2007.
Abstract Publication: The FASEB Journal, Vol 21:6, A1414, april 3, 2007. Abstract # 969.23

"Intermitent hypoxia/hypercapnia (IH) activates NFAT (nuclear factor of activated T-cells) in the cardiovascular system of mice
S. de Frutos Garcia, R. Spangler, D. Alo, L. Gonzalez Bosc.
Experimental Biology. Washington, USA. 2007.
Abstract Publication: The FASEB Journal, Vol 21:6, A1413, april 3, 2007. Abstract # 969.22

"NFAT is activated in the cardiovascular system in an animal model of sleep apnea-induced hypertension."
S. de Frutos Garcia, L. Duling, R. Spangler, D. Alo, N. Kanagy, L. Gonzalez Bosc.
XXII Latin-American and first Ibero-American Congress of Physiologycal Sciences. Buenos Aires, Argentina. 2006.
Abstract Publication: Physiological Mini-Reviews, Vol 2, N 4, November 2006. poster # POS 14-01

"Role of NFATc3 in Chronic hypoxic pulmonary hypertension."
S. de Frutos Garcia, R. Spangler, D. Alo, L. Gonzalez Bosc.
XXII Latin-American and first Ibero-American Congress of Physiologycal Sciences. Buenos Aires, Argentina. 2006.
Abstract Publication: Physiological Mini-Reviews, Vol 2, N 4, November 2006. poster # POS 14-02

"NFAT is activated in the cardiovascular system in an animal model of sleep apnea."
S. de Frutos Garcia, L. Duling, R. Spangler, D. Alo, N. Kanagy, L. Gonzalez Bosc.
FASEB summer research conferences. Smooth muscle. Snowmass Village, Colorado, USA. 2006.

"Evidence for a contribution of NFATc3 to chronic hypoxic pulmonary hypertension"
S. de Frutos García, R. Spangler, D. Aló, T. Resta, and L. González Bosc..
FASEB summer research conferences. Smooth muscle. Snowmass Village, Colorado, USA. 2006.

"NFAT plays a role in chronic hypoxia-induced pulmonary arterial hypertension."
S. de Frutos, R. Spangler, L. Gonzalez Bosc.
Experimental Biology. San Francisco, CA, USA. 2006.
Abstract Publication: The FASEB Journal, Vol 20:4, A404, march 6, 2006. Abstract # 238.27

"Culture conditions influence uptake and intracellular localization of the membrane permeable cGMP-dependent portein kinase inhibitor DT-2.."
S. de Frutos, K. Laskovski, K. Foley, W. Dostmann.
12th Annual Meeting North East Smooth Muscle Society. University of Massachusetts Medical School, Worcester, MS, USA: 2004

"Las Guanilato ciclasas, efectos biológicos y mecanismos de regulacion.
Graduate level course, Department of Physiology, Universidad de Alcalá. Madrid. Spain. **2004 Invited lecture**

"El RGDS Aumenta el Contenido Celular de Guanilato Ciclasa Soluble en Células Mesangiales Humanas."
S. de Frutos, M. Griera, M. Saura, D. Rodriguez-Puyol, M. Rodríguez-Puyol.
Oral communication.
XXXIII congreso Sociedad Española de Nefrología, Palma de Mallorca, España. 2003.
Abstract Publication: Nefrología, volumen XXIII:6, 2003, Pag 12.

"PKG-I and Smad Proteins Mediate NO Inhibition of TGF –beta-Dependent Gene Expression in Endothelial Cells."
M. Saura, R Ortega, *S. de Frutos*, A Martín, S. Lopez, D. Rodriguez-Puyol, M. Rodríguez-Puyol.
ASN 35th annual meeting, Philadelphia, PA, USA. 2002.
Abstract Publication: Journal of American Society of Nephrology, volume 13, 2002

"C-Type natriuretic peptide (CNP) Down regulates soluble guanylate cyclase (sGC) protein stability in human mesangial cells (HMC)."
S. de Frutos, M. Saura, F. Rivero, M.P. Ruiz, A Martín, M. Rodríguez-Puyol.
XXXIX Congress ERA/EDTA, Copenhagen, Denmark. 2002.
Publicación: Nephrology Diálisis Transplantation vol.17 (1): 51, M4, July 2002

"Collagen I Induced down regulation of Soluble Guanylate Cyclase in Human Mesangial Cells."
F. Rivero, *S. de Frutos*, D. Rodríguez-Puyol, M.L. Diez, M. Rodríguez-Puyol, M. Saura.
ASN/ISN World Congress of Nephrology, San Francisco, CL, USA. 2001.
Abstract Publication: Journal of the American Society of Nephrology vol. 12, september 2001. p. 714A

"La leptina aumenta la actividad del sistema receptor-efector de la somatostatina en al corteza frontoparietal de la rata."
A. Hervás-Aguilar, *S. De Frutos*, L. Puebla-Jimenez,M.C. Boyano-Adánez, R.M. Izquierdo-Claros, M.Griera, R. Contador-Sevillano, E. Arilla-Ferreiro.
Poster number: T06-020, p. 126.
XXIV Congreso Sociedad Española de Bioquimica y Biología Molecular, Valencia, España, 2001.

"Diferential regulation of integrin linked kinase (ILK) activity by collagens. The importance on TGF b 1 synthesis."
M. González-Rubio, M.L. Díez-Marqués, S. Lopez-ongil, M. Saura, *S. de Frutos*, F. Rivero Vilches, D.Rodríguez-puyol.
XXXVII Congress of the European Renal Association, Nice, France. 2000

"A Role for Integrin-Linked kinase (ILK) in the Collagen I-Induced Upregulation of the TGF b 1 synthesis."
M. González-Rubio, R. Ortega-Velazquez, *S. de Frutos*, F. Rivero-Vilches, D.Rodríguez-Puyol.
33rd Annual Meeting and 2000 Renal Week of the American Society of Nephrology, Toronto, Canada. 2000.
Abstract Publication: Journal of the American Society of Nephrology vol. 11, september 2000, p 527A

"Modulación del sistema de endotelina por proteínas de matriz extracelular: posibles mecanismos implicados."
L. González-Santiago, S. López-Ongil, C. Perez-Caballero, G. Torrecillas, *S. De Frutos*, D. Rodríguez-Puyol.
5ª Reunión Nacional Sociedad Española de Hipertensión. Liga Española para la Lucha contra la Hipertensión Arterial. Madrid, España. 2000
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"Modulation of somatostatin receptors, somatostatin content and Gi proteins in rat brain by substance P."
L. Puebla, M. Griera, M. C. Boyano-Adánez, R. M. Izquierdo-Claros, A. Ocaña, *S. de Frutos*, E. Arilla.
26th Meeting of the Federation of European Biochemical Societies. Nice, France. 1999
Abstract publication: Biochimie, 81 s109, Su/13.1/069, 1999, p. 109.

PUBLICATIONS:

Guanilato Ciclasas: procesos fisiológicos Mediados por GMPc.
F.J. Rivero-Vilches [#], S. De Frutos [#], M. Rodríguez-Puyol, D. Rodríguez-Puyol, M. Saura.
***Nefrología*. 2001.** XXI (3): 233-239.
(#:These authors contributed equally to this work.)

Differential relaxing responses to particulate or soluble guanylyl cyclase activation on endothelial cells: a mechanism dependent on PKG-I α activation by NO/cGMP.
F. J. Rivero-Vilches [#], S. De Frutos [#], M. Saura, D. Rodriguez-Puyol, M. Rodriguez-Puyol.
***American Journal of Physiology-Cell Physiology*, 2003.** 285(4):C891-C898.
(#:These authors contributed equally to this work.)

C-type Natriuretic Peptide (CNP) Decreases Soluble Guanylate Cyclase (sGC) Levels by Activating the Proteasome Pathway
S. de Frutos, M. Saura, F. J. Rivero-Vilches, D. Rodriguez-Puyol, M. Rodriguez-Puyol.
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Culture conditions influence uptake and intracellular localization of the membrane permeable cGMP-dependent protein kinase inhibitor DT-2.
K. F. Foley, S. De Frutos, K. E. Laskovski, W. Tegge, W. R. Dostmann.
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Differential Regulation of Soluble Guanylyl Cyclase Expression and Signalling by collagens: Involvement of Integrin Linked Kinase (ILK).
S. De Frutos [#], M. Saura [#], M. Griera, F.J. Rivero-Vilches, C. Zaragoza, D. Rodriguez-Puyol, M. Rodriguez-Puyol.
Journal of the American Society of Nephrology, 2005. *16(9):2626-35.*
(#:These authors contributed equally to this work.)

NFATc3 Mediates Chronic Hypoxia-induced α-Actin Up-regulation and Pulmonary Arterial remodeling
S. de Frutos, R. Spangler, D. Alò, and L. V. González Bosc□□.
Journal of Biological Chemistry. 2007. *282(20):15081-9.*
Published in Vascular Biology Publications Alert, NAVBO (North American Vascular Biology Organization), June 11, 2007

Intermittent hypoxia/hypercapnia (IH) activates NFAT (nuclear factor of activated T-cells) in the cardiovascular system of mice
S. de Frutos, L. Duling, D. Alò, R. Spangler, N. Kanagy and L. V. González Bosc□□.
American Journal of Physiology-Heart and Circulatory Physiology (on Press)

NFATc3 mediates intermittent Hypoxia (IH)-induced soluble guanylyl cyclase-ALFA (sGC-ALFA) up-regulation in systemic vasculature.
S. de Frutos, R. Spangler, D. Alò, and L. V. González Bosc□□.
(on preparation)

PROJECTS AND GRANTS PARTICIPATION.

National Institute of Health. (1R01HL088151)
GONZALEZ BOSC L. (PI). 12/01/2007 – 11/30/2012
Department of Cell Biology and Physiology. University of New Mexico, USA
Title: "NFATc3 in chronic hypoxic pulmonary hypertension."

American Heart Association. Scientist Development Award (0535347N SDG)
GONZALEZ BOSC L. (PI). 7/1/2005 – 6/30/2009
Department of Cell Biology and Physiology. University of New Mexico, USA
Title: "Transcriptional regulation of arterial cardiovascular remodeling in an animal model of Sleep Apnea."

National Institute of Health, RO1 Public Health Service Grant (HL68991-01).
WOLFGANG DOSTMANN. (PI). 1/1/2002 - 12/31/2006
Department of Pharmacology. University of Vermont, USA.
Title: "Exploring vasomotor mechanism using new PKG inhibitors."

National Science Foundation, (MCB-9983097).
WOLFGANG DOSTMANN. (PI). 2004
Department of Pharmacology. University of Vermont, USA.
Title: "Design of in vivo indicators for cyclic-GMP".

Dirección General de Investigación. (BF12001-1036).
MANUEL RODRÍGUEZ PUYOL (PI). 12/28/2001 – 12/27/2004
Departamento de Fisiologia, Universidad de Alcalá, SPAIN.
Title: "*GMP ciclico y función celular: especificidad de las respuestas biológicas e importancia de la matriz extracelular*."

Universidad de Alcalá (E030/2001).
MANUEL RODRÍGUEZ PUYOL (PI). 2001.
Departamento de Fisiologia, Universidad de Alcalá, SPAIN.
Title: "*Papel de los cambios en la pared vascular en la regulación de los factores endoteliales vasoactivos".*

Fondo de Investigación Sanitaria (FISS). (01/0434).
MANUEL RODRÍGUEZ PUYOL (PI). *2001*
Departamento de Fisiologia, Universidad de Alcalá, SPAIN
Title: "*Mecanismos de contracción Celular. El peroxido de hidrógeno como posible mediador intracelular"*.

Universidad de Alcalá. (E042/2000).
MANUEL RODRÍGUEZ PUYOL (PI). *2000*
Title: "*Influencia de la matriz extracelular en células mesangiales humanas.*
Departamento de Fisiologia, Universidad de Alcalá, SPAIN.
Transducción de señales y expresión génicas mediadas por integrinas y factores de crecimiento".

Ministerio de Ciencia y Tecnología. (PM97-0067).
MANUEL RODRÍGUEZ PUYOL (PI). 6/10/1998 – 7/1/2001
Departamento de Fisiologia, Universidad de Alcalá, SPAIN.
Title: "*Las Guanilato Ciclasas y la función de las células endoteliales y mensagiales. Posibles mecanismos de regulación cruzada e importancia de la matriz".*

REFERENCES:

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