

Alejandro K. Samhan Arias



Research interests

I'm interested in the understanding both the advantageous and deleterious properties of free radicals and reactive oxygen and nitrogen species with a special focus on those reactions that occur at the neuronal plasma membrane.

Qualifications

Biochemistry and Molecular Biology, Doctorate, Characterization and location of the NADH dependent redox centers associated to the plasma membrane of neurons. University of Extremadura , Universidad de Extremadura
2004 → 2008

Award Date: 30 May 2008

Biochemistry and Molecular Biology, Master, Universidad de Extremadura
2004 → 2006

Award Date: 22 Nov 2007

Anatomy and Cell Biology, Master, Universidad de Extremadura
2004 → 2005

Award Date: 26 May 2005

Biology, Bachelor, Universidad de Extremadura
1998 → 2002

Employment

Researcher

Researcher

DQ - Departamento de Química

Universidade NOVA de Lisboa

Portugal

19 Dec 2018 → 18 Mar 2022

Postdoctoral researcher

Researcher

UCIBIO - Applied Molecular Biosciences Unit

Universidade NOVA de Lisboa

1 Mar 2015 → 31 Dec 2017

Research output

The Use of Flavylum Salts as Dynamic Inhibitor Moieties for Human Cb₅R

Martínez-Costa, O. H., Rodrigues-Miranda, L., Clemente, S. M., Parola, A. J., Basílio, N. & Samhan-Arias, A. K., Jan 2023 , In: *Molecules*. 28, 1, 15 p., 123.

Sweat as a Testing Analytical Fluid for Emotions and Stress Biomarkers Detection

Cordas, C. M., Nunes, M. J., Valério, G. N., Samhan-Arias, A., Krippahl, L., Moura, J. J. G., Santos, G., Sousa, J. P. & Rouco, C., 2023, *Developments and Advances in Defense and Security: Proceedings of MICRADS 2022*. Rocha, Á., Fajardo-Toro, C. H. & Riola, J. M. (eds.). Singapore: Springer, p. 77-85 9 p. (Smart Innovation, Systems and Technologies; vol. 328).

Biochemical and Biophysical Characterization of the Caveolin-2 Interaction with Membranes and Analysis of the Protein Structural Alteration by the Presence of Cholesterol

Gorospe, B., Moura, J. J. G., Gutierrez-Merino, C. & Samhan-Arias, A. K., Dec 2022, In: *International Journal of Molecular Sciences*. 23, 23, 18 p., 15203.

Stress Sensing Based on Sweat Biomarkers Analysis for Integration in Textiles: The STRESSENSE Project

Santos, G., Nunes, M. J., Valério, G. D. N., Samhan-Arias, A. K., Krippahl, L., Moura, J. J. G. D., Sousa, J. P., Rouco, C. & Cordas, C., 16 Jun 2022.

Evaluation of Sweat-Sampling Procedures for Human Stress-Biomarker Detection

Nunes, M. J., Moura, J. J. G., Noronha, J. P., Branco, L. C., Samhan-Arias, A., Sousa, J. P., Rouco, C. & Cordas, C. M., 16 Apr 2022, In: *analytica*. 3, 2, p. 178-194 17 p.

Screen-Printed Electrodes Testing for Detection of Potential Stress Biomarkers in Sweat

Nunes, M. J., Valério, G. N., Samhan-Arias, A. K., Moura, J. J. G., Rouco, C., Sousa, J. P. & Cordas, C. M., Feb 2022, In: *Electrocatalysis*. 13, 3, p. 299-305 7 p.

Stress Biomarkers Detection Using Non-invasive Methods for Textiles Integrated Sensors Development

Cordas, C. M., João Nunes, M., Valério, G. N., Samhan-Arias, A., Krippahl, L., Moura, J. J. G., Santos, G., Sousa, J. P. & Rouco, C., 2022, *Developments and Advances in Defense and Security - Proceedings of MICRADS 2021*. Rocha, Á., Fajardo-Toro, C. H. & Riola Rodríguez, J. M. (eds.). Singapore: Springer, p. 261-270 10 p. (Smart Innovation, Systems and Technologies; vol. 255).

Targeting Lipid Peroxidation for Cancer Treatment

Clemente, S. M., Martínez-Costa, O. H., Monsalve, M. & Samhan-Arias, A. K., 5 Nov 2020, In: *Molecules*. 25, 21

Human erythrocytes exposure to juglone leads to an increase of superoxide anion production associated with cytochrome b₅ reductase uncoupling

Valério, G. N., Gutiérrez-Merino, C., Nogueira, F., Moura, I., Moura, J. J. G. & Samhan-Arias, A. K., 1 Feb 2020, In: *Biochimica et Biophysica Acta - Bioenergetics*. 1861, 2, 148134.

Modulation of cytochrome b₅ reductase activity by 5-hydroxy-1,4-naphthoquinone

Valério, G. N., Gutierrez-Merino, C., Moura, I., Moura, J. J. G. & Samhan-Arias, A., 1 Aug 2019, In: *Free Radical Biology And Medicine*. 139, Suppl. 1, p. S54-S54

Ligand accessibility to heme cytochrome b₅ coordinating sphere and enzymatic activity enhancement upon tyrosine ionization

Samhan-Arias, A. K., Cordas, C. M., Carepo, M. S., Maia, L. B., Gutierrez-Merino, C., Moura, I. & Moura, J. J. G., May 2019, In: *JBIC Journal of Biological Inorganic Chemistry*. 24, 3, p. 317-330

Cytochrome c stimulates the superoxide anion production by cytochrome b₅ reductase in neuronal synaptic plasma membrane vesicles

Samhan-Arias, A. K., Fortalezas, S., Cordas, C. M., Moura, I., Moura, J. J. G. & Gutierrez-Merino, C., 20 May 2018, In: *Free Radical Biology And Medicine*. 120, p. S155-S155

Structural and functional characterization of the acid and alkaline transition of cytochrome b₅

Samhan-Arias, A., Cordas, C., Carepo, M., Maia, L. & Moura, J., 20 May 2018, In: *Free Radical Biology And Medicine*. 120, Suppl.1, p. S109-S109

Cytochrome b₅ reductase is the component from neuronal synaptic plasma membrane vesicles that generates superoxide anion upon stimulation by cytochrome c

Samhan-Arias, A. K., Fortalezas, S., Cordas, C. M., Moura, I., Moura, J. J. G. & Gutierrez-Merino, C., 1 May 2018, In: *Redox Biology*. 15, p. 109-114 6 p.

Structural characterization of cardiolipin-driven activation of cytochrome c into a peroxidase and membrane perturbation

Mohammadyani, D., Yanamala, N., Samhan-Arias, A. K., Kapralov, A. A., Stepanov, G., Nuar, N., Planas-Iglesias, J., Sanghera, N., Kagan, V. E. & Klein-Seetharaman, J., 1 May 2018, In: *Biochimica et Biophysica Acta - Biomembranes*. 1860, 5, p. 1057-1068 12 p.

Peroxidase-like activity of cytochrome b₅ is triggered upon hemichrome formation in alkaline pH

Samhan-Arias, A. K., Maia, L. B., Cordas, C. M., Moura, I., Gutierrez-Merino, C. & Moura, J. J. G., 1 Feb 2018, In: *Biochimica et Biophysica Acta - Proteins and Proteomics*. 1866, 2, p. 373-378 6 p.

Topography of human cytochrome b₅/cytochrome b₅ reductase interacting domain and redox alterations upon complex formation

Samhan-Arias, A. K., Almeida, R. M., Ramos, S., Cordas, C. M., Moura, I., Gutierrez-Merino, C. & Moura, J. J. G., Feb 2018, In: *Biochimica et Biophysica Acta - Bioenergetics*. 1859, 2, p. 78-87 10 p.

Butirato, ¿Un compuesto tóxico para nuestro organismo?

Samhan-Arias, A. K., May 2017, 2 p.

Microbiota importance for life: Importancia de la microbiota para la vida

Samhan-Arias, A. K., Jan 2017, 2 p.

High expression of cytochrome b₅ reductase isoform 3/cytochrome b₅ system in the cerebellum and pyramidal neurons of adult rat brain

Samhan-Arias, A. K., López-Sánchez, C., Marques-da-Silva, D., Lagoa, R., Garcia-Lopez, V., García-Martínez, V. & Gutierrez-Merino, C., 1 May 2016, In: *Brain Structure and Function*. 221, 4, p. 2147-2162 16 p.

The critical role of lipid rafts nanodomains in the cross-talk between calcium and reactive oxygen and nitrogen species in cerebellar granule neurons apoptosis by extracellular potassium deprivation

Gutierrez-Merino, C., Marques-da-Silva, D., Fortalezas, S. & Samhan-Arias, A. K., 2016, In: *AIMS Molecular Science*. 3, 1, p. 12-29 18 p.

Cytosolic Calcium Homeostasis in Neurons — Control Systems, Modulation by Reactive Oxygen and Nitrogen Species, and Space and Time Fluctuations

Gutierrez-Merino, C., Marques-da-Silva, D., Fortalezas, S. & Samhan-Arias, A. K., 2014, *Neurochemistry*. Heinbockel, T. (ed.). InTech, p. 59 110 p.

Reduction of ascorbate free radical by the plasma membrane of synaptic terminals from rat brain

Samhan-Arias, A. K., Duarte, R. O., Martín-Romero, F. J., Moura, J. J. G. & Gutiérrez-Merino, C., 15 Jan 2008, In: *Archives of Biochemistry and Biophysics*. 469, 2, p. 243-254 12 p.

Activities

Nuevos tratamientos y dianas terapéuticas.

Alejandro K. Samhan Arias (Speaker)
10 Jun 2017

Chemistry And Physics Of Lipids (Journal)

Alejandro K. Samhan Arias (Referee)
2017

INSTRUCT

Alejandro K. Samhan Arias (Participant)
13 Sept 2016 → 15 Sept 2016

Asociación Española de Enfermos de Crohn y Colitis Ulcerosa (External organisation)

Alejandro K. Samhan Arias (Member)
2016 → ...

World Journal of Gastroenterology (Journal)

Alejandro K. Samhan Arias (Referee)
2016

DOVE Drug Design, Development and Therapy (Journal)

Alejandro K. Samhan Arias (Referee)
2015

ECCO-EFCCA Patient Guidelines on Ulcerative Colitis (UC)

Alejandro K. Samhan Arias (Consultant)
2015

Experimental Gerontology (Journal)

Alejandro K. Samhan Arias (Referee)
2014

Toxicology Reports (Journal)

Alejandro K. Samhan Arias (Referee)
2014 → 2015

Research Associate

Alejandro K. Samhan Arias (Member)
2011 → 2014

Postdoctoral Associate

Alejandro K. Samhan Arias (Member)
1 Jan 2009 → 30 Dec 2010

Predocctoral student

Alejandro K. Samhan Arias (Recipient)
1 Dec 2004 → 30 Nov 2008

International Workshop: The Cell Within Cytomics

Alejandro K. Samhan Arias (Participant)
4 Oct 2004 → 8 Oct 2004

V Curso de iniciación a la investigación en Bioquímica y Biología Molecular

Alejandro K. Samhan Arias (Participant)
13 Sept 2001

Publication list can be found at: <http://orcid.org/0000-0001-9602-4848>

Alejandro K. Samhan Arias (Recipient)
2000 → 2017

Prizes**Postdoctoral Fellowship**

Samhan Arias, Alejandro K. (Recipient), 1 Jan 2009

Postdoctoral fellowship FCT

Samhan Arias, Alejandro K. (Recipient), 1 Mar 2015

Postdoctoral researcher

Samhan Arias, Alejandro K. (Recipient), 1 Mar 2015

Predoctoral fellowship

Samhan Arias, Alejandro K. (Recipient), 1 Dec 2004

Premio Extraordinario de Doctorado por la Universidad de Extremadura a la mejor tesis doctoral defendida en el campo de la Biomedicina

Samhan Arias, Alejandro K. (Recipient), 2008

Research Associate

Samhan Arias, Alejandro K. (Recipient), Jan 2011

Young Investigator Award

Samhan Arias, Alejandro K. (Recipient), 2007