



Dr. Fernando A. Moraga

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Profesor Titular,

Depto. Ciencias Biomédicas, FAMED-UCN



- Licenciatura en Biología y Cs Naturales. Universidad de La Serena, marzo 1990
- Magíster en Ciencias Biológicas, mención Fisiología. Programa de Postgrado de la Facultad de Medicina, U de Chile, marzo 2005
- Doctor en Ciencias Biológicas. Programa de Doctorado Universidad Autónoma de Madrid, junio 2015

Líneas de investigación:

He desarrollado el tema de la respuesta adaptativa a la hipoxia en el modelo de hipoxia fetal y neonatal y, actualmente, el modelo de hipoxia hipobárica crónica e intermitente que se describe en el trabajador minero.

Para la realización de estos estudios hemos contado con el financiamiento de fondos nacionales, internacionales y privados.

Publicaciones:

1. Acetylcholine produces contractions mediated by the cyclooxygenase pathway in arterial vessels in the Chilean frog (*Calyptocephalella gayi*). Moraga FA, Urriola-Urriola N. *Braz J Biol*. 2017 Nov; 77(4):781-786. doi: 10.1590/1519-6984.00816.
2. Hemoconcentration During Maximum Exercise in Miners with Chronic Intermittent Exposure to Hypobaric Hypoxia (3800 m). Moraga FA, Osorio J, Calderón-Jofré R, Pedreros A. *High Alt Med Biol*. 2018 Mar;19(1):15-20. doi: 10.1089/ham.2017.0011.
3. Chronic Intermittent Hypobaric Hypoxia (4600 M) Attenuates Pulmonary Vasodilation Induced by Acetylcholine or Sodium Nitroprusside. Moraga FA, Miranda G, López V, Vallejos C, Silva D. *High Alt Med Biol*. 2018 Mar 22. doi: 10.1089/ham.2017.0012.
4. The Effect of Oxygen Enrichment on Cardiorespiratory and Neuropsychological Responses in Workers With Chronic Intermittent Exposure to High Altitude (ALMA, 5,050 m). Moraga FA, López I, Morales A, Soza D, Noack J *Front Physiol*. 2018 Mar 23;9:187. doi: 10.3389/fphys.2018.00187. eCollection 2018.
5. Plasmatic Concentrations of ADMA and Homocystein in Llama (*Lama glama*) and Regulation of Arginase Type II: An Animal Resistant to the Development of Pulmonary Hypertension Induced by Hypoxia. López V, Moraga FA, Llanos AJ, Ebensperger G, Tabora MI, Uribe E. *Front Physiol*. 2018 May 29;9:606. doi: 10.3389/fphys.2018.00606.



6. The 2018 Lake Louise Acute Mountain Sickness Score. Roach RC, Hackett PH, Oelz O, Bärtsch P, Luks AM, MacInnis MJ, Baillie JK; Lake Louise AMS Score Consensus Committee. *High Alt Med Biol.* 2018 Mar;19(1):4-6. doi: 10.1089/ham.2017.0164.
7. Estado nutricional, composición corporal e indicadores antropométricos de trabajadores mineros expuestos a hipoxia hipobárica crónica e intermitente a una altitud moderada (0-2500 msnm). Andrés Pedreros, Rodrigo Calderón, Fernando A Moraga. *Rev Chil Nutr* 2018; 45(3): 199-204.
8. Aerobic Capacity, Lactate Concentration, and Work Assessment During Maximum Exercise at Sea Level and High Altitude in Miners Exposed to Chronic Intermittent
9. Hypobaric Hypoxia (3,800 m). Moraga FA, Osorio J, Jiménez D, Calderón-Jofré R, Moraga D *Front Physiol.* 2019 Sep 6;10:1149. doi: 10.3389/fphys.2019.01149.
10. Cognitive Effects of Repeated Acute Exposure to Very High Altitude Among Altitude-Experienced Workers at 5050 m. Pun M, Guadagni V, Drogos LL, Pon C, Hartmann SE, Furian M, Lichtblau M, Muralt L, Bader PR, Moraga FA, Soza D, Lopez I, Rawling JM, Ulrich S, Bloch KE, Giesbrecht B, Poulin MJ 2019 Dec;20(4):361-374. doi: 10.1089/ham.2019.0012.
11. Mal agudo de montaña: pasado, presente y futuro. Moraga, FA. *J. health med. sci.*, 6(1):9-16, 2020.
12. Poblaciones humanas en altura geográfica. Moraga, FA. *J. health med. sci.*, 6(2):81- 85, 2020.
13. Altitude effect on sleep quality and serum melatonin levels in Chilean mining workers Calderón-Jofré, R. & Moraga, FA. *J. health med. sci.*,6(2):161-167, 2020.
14. A key for hypoxia genetic adaptation in alpaca could be a HIF1A truncated bHLH protein domain. Moraga, FA.; Figueroa, F.; Carrasco, R. & Moraga, D. *J. health med. sci.*, 6(2):97-106, 2020.
15. Oxygen saturation and heart rate in children at high altitude. A different response of aymaras and non-aymaras with chronic exposure at 3500 m. López, V.; Moraga, D.; Calderón-Jofre, R. & Moraga, FA. *J. health med. sci.*, 6(2):123- 129, 2020.
16. Activation of arginase II by asymmetric dimethylarginine and homocysteine in hypertensive rats induced by hypoxia: a new model of nitric oxide synthesis regulation in hypertensive processes? López V, Uribe E., Moraga FA 2021. doi: 10.1038/s41440-020-00574-1.
17. Cardiovascular Risk Is Increased in Miner's Chronic Intermittent Hypobaric Hypoxia Exposure From 0 to 2,500 m?. Pedreros-Lobos A, Calderón-Jofré R, Moraga D, Moraga FA. *Front Physiol.* 2021 Mar 26;12: 647976. doi: 10.3389/fphys.2021.647976.



18. Enhanced Vasoconstriction Mediated by α 1-Adrenergic Mechanisms in Small Femoral Arteries in Newborn Llama and Sheep Gestated at Low and High Altitudes. Moraga FA, Reyes RV, Ebensperger G, López V and Llanos AJ. *Front in Physiol* 2021; 12:697211. doi: 10.3389/fphys.2021.697211.
19. Comparison between PSA and Liquid Oxygen enrichment techniques in the Atacama Large Millimeter/Submillimeter Array facility at Chajnantor plateau (5,050 m.) Lopez I, Aravena R, Soza D, Morales A, Riquelme S, Calderon-Jofre R, Moraga FA. *Frontiers in Physiology* 2021; DOI: 10.3389/fphys.2021.775240
20. The action of 2-aminoethyldiphenyl borinate on the pulmonary arterial hypertension and remodeling of high-altitude hypoxemic lambs. Castillo-Galán S, Parrau D, Hernández I, Quezada S, Díaz M, Ebensperger G, Herrera AE, Moraga FA, Iturriaga R, Llanos JA and Reyes RV. *Front in Physiol* 2022; Jan 10;. 12:765281. doi: 10.3389/fphys.2021.765281.
21. The effect of chronic intermittent hypobaric hypoxia on sleep quality and melatonin serum levels in chilean miners. Calderon-Jofre R, Moraga D and Moraga FA. *Front Physiol.* 2022 Feb 9;12:809360. doi: 10.3389/fphys.2021.809360.
22. Beñaldo FA, Araya-Quijada C, Ebensperger G, Herrera EA, Reyes RV, Moraga FA, Riquelme A, González-Candia A, Castillo-Galán S, Valenzuela GJ, Serón-Ferré M, Llanos AJ. Cinaciguat (BAY-582667) Modifies Cardiopulmonary and Systemic Circulation in Chronically Hypoxic and Pulmonary Hypertensive Neonatal Lambs in the Alto Andino. *Front Physiol.* 2022 Jun 6;13:864010. doi: 10.3389/fphys.2022.864010
23. Rytz C, Pun M, Mawhinney J, Mounsey C, Mura M, Martin A, Pialoux V, Hartmann S, Furian M, Rawling J, Lopez I, Soza D, Moraga FA, Lichtblau M, Bader P, Ulrich S, Bloch K, Frise M, and Poulin M. Differential Effects of High-Altitude Exposure on Markers of Oxidative Stress, Antioxidant Capacity and Iron Profiles. *Am Journal of Physiology-Regulatory, Integrative and Comparative Physiology* 2022 Aug 8. doi: 10.1152/ajpregu.00321.2021.

Proyectos de investigación:

1. Programa Universidad del Adulto Mayor, Proyecto GORE 2019-2022. Proyecto Social, Co-Investigador.
2. Targeting the Orail channel against pulmonary vascular overconstriction and cardiopulmonary remodeling in ovine models with neonatal pulmonary hypertension induced by chronic hypoxia. Concurso de Proyectos Fondecyt Regular 2021-2025. Co-Investigador



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