

José Pablo Vázquez-Medina, PhD

Postdoctoral Researcher

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Education and training

- 2000-2004 BS (with highest distinction). Marine Biology. Departamento de Biología Marina. Universidad Autónoma de Baja California Sur. La Paz, Mexico.
- 2005-2007 MS. Marine Biology. Centro de Investigaciones Biológicas del Noroeste. La Paz, Mexico.
- 2008-2013 PhD. Quantitative and Systems Biology. School of Natural Sciences. University of California Merced. Merced, CA.
- 2013- Postdoctoral Researcher. Molecular and Cellular Biology. Institute for Environmental Medicine. Perelman School of Medicine at The University of Pennsylvania.

Publications

Peer-reviewed

1. Martínez, B., Soñanez-Organis J.G., **Vázquez-Medina J.P.**, Viscarra J.A., MacKenzie D.S., Crocker D.E., Ortiz R.M. Prolonged food deprivation increases mRNA expression of deiodinase 1 & 2, and thyroid hormone receptor β -1 in a fasting-adapted mammal. *J. Exp. Biol.*, In Press.
2. **Vázquez-Medina, J.P.**, Popovich I., Thorwald M.A., Rodriguez R., Soñanez-Organis J.G., Viscarra J. A., Lam L., Peti-Peterdi J., Nakano D., Nishiyama A., Ortiz, R.M. 2013. Angiotensin receptor mediated oxidative stress is associated with impaired cardiac redox signaling and mitochondrial function in insulin resistant rats. *Am. J. Physiol. Heart Circ. Physiol.*, 305, H599-4607.
3. Suzuki, M., **Vázquez-Medina J.P.**, Viscarra J.A., Soñanez-Organis J.G., Crocker D.E., Ortiz R.M. 2013. Activation of systemic, but not local, renin-angiotensin system is associated with local inflammation during prolonged fasting in northern elephant seal pups. *J. Exp. Biol.*, 216, 3215-3221.
4. **Vázquez-Medina, J.P.**, Soñanez-Organis J.G., Rodriguez R., Viscarra J.A., Nishiyama A., Crocker D.E., Ortiz R.M. Prolonged fasting activates Nrf2 in postweaned elephant seals. *J. Exp. Biol.*, 216, 2870-2878.
5. Viscarra, J.A., Rodriguez R., **Vázquez-Medina J.P.**, Lee A., Tift M.S., Tavoni S., Crocker D.E., Ortiz R.M. 2013. Insulin and GLP-1 infusions demonstrate the onset of adipose-specific insulin resistance in a large fasting mammal: potential glucogenic role for GLP-1. *Physiol. Rep.*, 1, p.e00023.
6. Soñanez-Organis, J.G., **Vázquez-Medina J.P.**, Crocker D.E., Ortiz R.M. 2013. Prolonged fasting activates hypoxia inducible factors -1 α , -2 α and -3 α 2 in a tissue-specific manner in northern elephant seal pups. *Gene*, 526, 155-163.

7. Montez, P., **Vázquez-Medina J.P.**, Rodriguez R., Thorwald M.A., Lam L., Peti-Peterdi J., Nakano D., Nishiyama A., Ortiz R.M. 2012. Angiotensin receptor blockade recovers UCP2 expression and aconitase and SDH activities, and ameliorates hepatic oxidative damage in insulin resistant rats. *Endocrinology*, 153, 5746-5759.
8. **Vázquez-Medina, J.P.**, Zenteno-Savín T., Elsner R., Ortiz R.M. 2012. Coping with physiological oxidative stress: a review of antioxidant strategies in seals. *J. Comp. Physiol. B*, 182, 741-750. ***Invited contribution.**
9. Viscarra, J.A., **Vázquez-Medina J.P.**, Champagne C.D., Adams S., Crocker D.E., Ortiz R.M. 2012. Decreased expression of adipose CD36 and FATP1 contributes to increased plasma free fatty acids during prolonged fasting in northern elephant seal pups (*Mirounga angustirostris*). *J. Exp. Biol.*, 215, 2455-2464.
10. Soñanez-Organis, J.G., **Vázquez-Medina J.P.**, Zenteno-Savín T., Aguilar A., Crocker D.E., Ortiz R.M. 2012. Prolonged fasting increases purine recycling in postweaning northern elephant seals. *J. Exp. Biol.*, 215, 1448-1455.
11. **Vázquez-Medina, J.P.**, Zenteno-Savín T., Tift M.S., Forman H.J., Crocker D.E., Ortiz R.M. 2011. Apnea stimulates the adaptive response to oxidative stress in elephant seal pups. *J. Exp. Biol.*, 214, 4193-4200.
12. Cantú-Medellín, N., Byrd B., Hon A., **Vázquez-Medina J.P.**, Zenteno-Savín T. 2011. Differential antioxidant protection in tissues from marine mammals with distinct diving capacities. *Comp. Biochem. Physiol. A Mol. Integr. Physiol.*, 158, 438-443.
13. **Vázquez-Medina, J. P.**, Soñanez-Organis J.G., Burns J. M., Zenteno-Savín T., Ortiz R.M. 2011. Antioxidant capacity develops with maturation in the deep diving hooded seal. *J. Exp. Biol.*, 214, 2903-2910.
14. Viscarra, J., **Vázquez-Medina J.P.**, Crocker D.E., Ortiz R. M. 2011. Glut4 is upregulated despite decreased insulin signaling during prolonged fasting in northern elephant seal pups. *Am. J. Physiol. Regul. Integr. Comp. Physiol.*, 300, R150-R154.
15. **Vázquez-Medina, J.P.**, Olguín-Monroy N.O., Maldonado P.D., Konigsberg M., Santamaria A., Elsner R., Hammill M.O., Burns J.M., Zenteno-Savín T. 2011. Maturation increases superoxide radical production without increasing oxidative damage in the skeletal muscle of hooded seals (*Cystophora cristata*). *Can. J. Zool.*, 89, 206-2012.
16. **Vázquez-Medina, J.P.**, Zenteno-Savín T., Forman H.J., Crocker D.E., Ortiz R.M. 2011. Prolonged fasting increases glutathione biosynthesis in postweaned northern elephant seals. *J. Exp. Biol.*, 214, 1294-1299.
17. **Vázquez-Medina, J.P.**, Crocker D.E., Forman H.J., Ortiz R.M. 2010. Prolonged fasting does not increase oxidative damage or inflammation in northern elephant seal pups. *J. Exp. Biol.*, 213, 2524-2530.
18. Zenteno-Savín, T., Cortés-Jacinto E., **Vázquez-Medina J.P.**, Villareal-Colmenares H. 2008. Oxidative stress of juvenile redclaw crayfish (*Cherax quadricarinatus*): Response to varying protein and lipid levels. *Hidrobiológica*, 18, 147-154.
19. **Vázquez-Medina, J. P.**, Zenteno-Savín T., Elsner R. 2007. Glutathione protection against dive-associated ischemia/reperfusion in ringed seals. *J. Exp. Mar. Biol. Ecol.*, 345, 110-118.

20. **Vázquez-Medina, J.P.**, Zenteno-Savín T., Elsner R. 2006. Antioxidant enzymes in ringed seal tissues: Potential protection against dive-associated ischemia/reperfusion. *Comp. Biochem. Physiol. C Toxicol. Pharmacol.*, 142, 198-204.

Editorials

1. Joyner-Matos, J., Puntarulo S., **Vázquez-Medina J.P.**, Zenteno-Savín T. 2013. Oxidative stress in aquatic ecosystems: selected papers from the First International Conference. *Comp. Biochem. Physiol. A Mol. Integr. Physiol.*, 165, 381-383.

Books

1. Abele, D., **Vázquez-Medina J.P.**, Zenteno-Savín T. *Oxidative Stress in Aquatic Ecosystems.* Wiley-Blackwell, U.K. 2011. 548 pp. ISBN: 978-1-4443-3548-4.

Book Chapters

1. Abele, D., **Vázquez-Medina J.P.**, Zenteno-Savín T. Introduction to oxidative stress in aquatic ecosystems. Abele D., Vázquez-Medina J.P., Zenteno-Savín T. (Eds.). *Oxidative Stress in Aquatic Ecosystems*, p.1-6, Wiley-Blackwell. 2011.
2. Zenteno-Savín, T., **Vázquez-Medina J.P.**, Cantú-Medellín N., Ponganis P. J., Elsner R. Ischemia/reperfusion in diving birds and mammals: how they avoid oxidative damage. Abele D., Vázquez-Medina J.P., Zenteno-Savín T. (Eds.). *Oxidative Stress in Aquatic Ecosystems*, p.178-190. Wiley-Blackwell. 2011.

Awards/Honors

Academic distinctions

- American Physiological Society. Caroline tum Suden/Hellebrand Professional Opportunity Award. San Diego, CA April 2012.
- UC Merced Outstanding Graduate Student of the Year 2010-2011.
- Honorable Mention (highest distinction) for B.S. Honors thesis work. Departamento de Biología Marina, Universidad Autónoma de Baja California Sur, La Paz, Mexico, 2004.
- Sociedad Mexicana de Mastozoología Marina. Best student presentation. XXIX Reunión Internacional para el estudio de los mamíferos marinos. La Paz, Mexico May 2004.

Travel awards

- APS/NIDDK Minority Travel Award. Anaheim, CA, April 2010. Denver, CO, October 2010. San Diego, CA, April 2012.
- UC Merced QSB Graduate Group Travel Award. November 2012, November 2011, November 2012.
- The Company of Biologists Travel Grant, Glasgow, UK, July 2011.
- UC Merced Graduate Student Association Travel Award. November 2009.
- Sociedad Mexicana de Bioquímica. Rama de Estrés Oxidativo Travel Award, Taxco, Mexico, March 2009.
- APS/CEPS Novo Nordisk Foundation Travel Award, New Orleans, LA, April 2009.

Fellowships

- University of California Miguel Velez Fellowship 2010-2011, 2012-2013.
- UC Merced Graduate Division Spring Fellowship 2012.
- UC Merced Graduate Research Council Summer Fellowship 2011, 2012.
- Mexico's Ministry of Education Fellowship for Graduate Studies 2009-2011.
- UC MEXUS-CONACYT Doctoral Fellowship 2008-2013.
- Mexico's Council for Science and Technology Fellowship for Master studies 2005-2007.

Teaching experience

- Teaching Assistant. Bio 161: Human Physiology. School of Natural Sciences, University of California, Merced. Fall 2010, Fall 2011.
- Teaching Assistant. Bio 060: Nutrition. School of Natural Sciences, University of California, Merced. Fall 2009.
- Lecturer. Biochemistry II. Instituto Tecnológico de La Paz. La Paz, Mexico, Spring 2007.
- Teaching Assistant. Organic Chemistry. Departamento de Biología Marina, Universidad Autónoma de Baja California Sur. Fall 2003, Spring 2004.
- Teaching Assistant. Biochemistry. Departamento de Biología Marina, Universidad Autónoma de Baja California Sur. Fall 2004, Spring 2005.

Other research experience

- Graduate Student Researcher. School of Natural Sciences, University of California Merced. Summer 2009, 2010, 2011, 2012, Fall 2012.
- Research Assistant. Laboratorio de Estrés Oxidativo. Centro de Investigaciones Biológicas del Noroeste. Fall 2007.
- Laboratory Technician. Laboratorio de Estrés Oxidativo. Centro de Investigaciones Biológicas del Noroeste. Spring 2005.
- Undergraduate Student Researcher. Laboratorio de Estrés Oxidativo. Centro de Investigaciones Biológicas del Noroeste. 2002-2004.

Academic service

- Editorial Board. *Frontiers in Aquatic Physiology*. Review Editor. 2013-.
- Scientific Committee: “First International Congress on Oxidative Stress in Aquatic Ecosystems”, San Jose del Cabo, Mexico, November 20-24, 2012.
- Reviewer for *The Journal of Experimental Biology*
- Reviewer for *Comparative Biochemistry and Physiology*
- Reviewer for *Journal of Comparative Physiology*
- Reviewer for *Physiological and Biochemical Zoology*

Mentoring

Undergraduate students mentored:

- Max Thorwald. UC Merced, undergraduate student research project.
- Aaron Ortiz. UC Merced, undergraduate student research project.
- Jose Viscarra. UC Merced, undergraduate student research project.
- Nadiezhda Cantú-Medellín. CIBNOR, La Paz, Mexico. BS honors thesis project.
- Geremías Sánchez-Pinedo. UABCS, La Paz, Mexico. BS honors thesis project.

Society membership

- Society for Free Racial Biology and Medicine. Since 2005.
- Society for Marine Mammalogy. 2005-2008.
- American Physiological Society. Since 2009.
- Society for Experimental Biology. Since 2011.
- American Association for the Advancement of the Science. Since 2011.

Conference presentations

(Selected from over 30 abstracts presented at national and international meetings in Mexico, USA, UK, Japan and Greece)

- The northern elephant seal as a model of natural tolerance to sleep apnea. First International Congress on Oxidative Stress in Aquatic Ecosystems. San Jose del Cabo, Mexico, November 2012. **Invited oral presentation.**
- Rest- and submersion-associated apneas do not induce systemic oxidative damage in elephant seals. SEB at Glasgow 2011. Glasgow, UK. July 2011. **Abstract selected for oral presentation.**

- Antioxidant capacity develops with maturation in the deep diving hooded seal. SEB at Glasgow 2011. Glasgow, UK, July 2011. **Abstract selected for travel award.**
- The antioxidant system of the elephant seal during its natural prolonged fast. Experimental Biology 2011. Washington, DC, April 2011. **Abstract selected for oral presentation.**
- Sleep and diving-associated apneas do not induce oxidative stress in northern elephant seals. APS Inter Society Meeting 2010. Denver, CO, October 2011. **Abstract selected for travel award.**
- Fasting increases antioxidant enzymes and glutathione content in elephant seals. Experimental Biology 2010. Anaheim, CA. **Abstract selected for travel award.**
- Nox4 and P22phox increase after prolonged fasting without oxidative damage or inflammation in a naturally adapted mammal. XVI Annual Meeting of the Society for Free Radical Biology and Medicine. San Francisco, CA, November 2009. **Abstract selected for oral presentation.**
- Nox4 and CuZn-SOD are increased after prolonged fasting in northern elephant seals. IUPS XXXVI International Congress of Physiological Sciences. Kyoto, Japan, July-August 2009.
- Glut4 increases with prolonged fasting in northern elephant seals. Experimental Biology 2009. New Orleans, LA, April 2009. **Abstract selected for travel award.**
- Oxidative stress and inflammation during prolonged fasting in northern elephant seals. Fourth International Workshop on Comparative Aspects of Oxidative Stress in Biological Systems. Taxco, Mexico, March 2009. **Abstract selected for oral presentation and travel award.**
- Antioxidant defenses in pinnipeds. International Free Radical Summer School. Spetses, Greece, September-October 2006.
- Glutathione content protects seal tissues against dive-derived ischemia/reperfusion. XIV Biennial Meeting of the Society for Marine Mammalogy. San Diego, CA, November 2005.
- Antioxidant protection in diving seal tissues. Second Workshop of Comparative Aspects of Oxidative Stress in Biological Systems. La Paz, Mexico, February 2005. **Oral presentation.**
- Actividad enzimática antioxidante en tejidos de foca anillada (*Phoca hispida*) y de cerdo común (*Sus scrofa*). XXIX Reunión Internacional para el estudio de los mamíferos marinos. La Paz, Mexico. **Abstract selected for oral presentation. Best student presentation award.**

References

Rudy M. Ortiz, PhD, FAHA
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