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María de los Ángeles García Robles

CURRICULUM VITAE

Full Professor Cell Biology, University of Concepcion, CHILE Date of birth: 12/07/1962 ID 9.164.528-9

Education/Training

University of Concepcion, Biochemist	10/09/89
University of Concepcion, Ph.D.	20/03/02

1. Personal Statement

I have worked in cellular biology at the Universidad de Concepcion for 30 years professor and researcher. My research area has focused on hypothalamic glucosensing, specifically on the role of glial cells. In I have extended my research area to neuronal function. I have a broad background in molecular biology with specific training and expertise in viral vector generation for inhibiting the expression of proteins that control feeding behavior. My research includes the evaluation of changes associated with feeding behavior and neurogenesis induced by the diet. As PI of Chilean government-funded grants, I identified that tanycytes, a type of glia in the hypothalamus, are the primary nutritional signals sensors. Specifically, glucose changes are detected by tanycytes, which signal to nearby neuroendocrine cells, resulting in short- term adaptive responses, as documented in the following publications. Furthermore, our recent evidence indicates that these cells are involved in the long-term regulation of feeding behavior through a connexin 43-dependent mechanism whereby they increase their proliferation.

2 Academic positions

1990-2005	Assistant Professor, Department of Molecular Biology, University of Concepcion.
2006-2014	Associate Professor, Department of Cellular Biology, University of Concepcion.
2014-present	Full Professor, Department of Cellular Biology, University of Concepcion.
2018-present	Member of the Molecular and Cellular Biology Doctoral Program Committee of the University of Concepcion.
2018	Visiting Scientist, Universidad de Maryland, College Park (USA).
2016-present	Member, Study Section Biochemistry and Physiology, Scholarships Program for Graduate Studies, CONICYT-ANID.
2020-present	Panel Member, Study Section for Biochemistry and Molecular Biology

(GB-3), FONDECYT-ANID Chile.

3 Professional memberships and Honors

2001- present	Member, Chilean Society of Biology
2002- present	Member, Chilean Society of Cell Biology
2005- present	Member, American Society Neurochemistry
2014- present	Associate Editor, Frontier in Neuroenergetics
2006- present	International Society for Neurochemistry
2004- present	Chilean Society for Neurosciences
2015- 2016	French National Research Agency, external reviewer
2008-2011	Award to academic excellence, University of Concepcion, Chile
2012-2015	Award to academic excellence, University of Concepcion, Chile
2016-2019	Award to academic excellence, University of Concepcion, Chile
2017	Award for the best Ph.D. thesis (tutor) from Society of Cellular Biology of Chile
2018	Award for the best doctoral thesis from University of Concepcion

4. Research Grants

2018-2022 Fondecyt 1180871 03/17/18-03/15/22
Hypothalamic control of feeding behavior. This study aims to identify the cellular mechanisms that define the role of hypothalamic glia-neuron interaction in the homeostatic control of feeding behavior. Chilean Gov. Principal Investigator.

2018-2021 Associative Project VRID-UDEC 218.031.113-1
CITCELL Comparison of the performance and capacity of chondrogenic differentiation of stem cells obtained from dental pulp and bone marrow seeded in biocompatible matrices
Principal investigator

2018-2019 REDI170306
Sensing of nutrients at the brain level as a key process for developing new therapies against obesity awarded in the Support Network Training Competition. International for Researchers in Initial Stage of Redes-CONICYT

2017-2018 InnBio- CORFO EQM 140111 03/15/17-03/15/18
CRIOVIDA
This project aimed to generate a service of embryos and gametes cryopreservation of mice and rats.
Principal Investigator.

2014-2018 Fondecyt 1140677 03/15/14-03/15/17
Role of tanycytes in feeding behavior. The goal of this study was to determine the role of tanycytes in feeding behavior. Principal Investigator.

2012–2017 FIC-GORE 30116843-0
Strengthening of international alliances for the implementation of a business unit that promotes the performance of preclinical studies in the eighth region. Transfer of the Bioterium to the service of companies and laboratories. Co-Investigator

2010-2014 Fondecyt 1110705 03/15/10-03/15/14
Role of hypothalamic glial cells in brain glucose sensing. This study aimed to determine the role of glial cells in the detection and response to glucose. Chilean Gov. Principal Investigator.

2010-2014 Fondecyt 1100396 03/15/10-03/15/14
Cellular Biology of vitamin C transporters in stem cells. The goal of this study was to determine the function of vitamin C transporters in neuronal stem cells. Chilean Gov. Co-Investigator.

2010-2013. INNOVA BIO-BIO 08-PC S1-468 03/15/10-03/15/13
Cartilage regeneration using tissue engineering. This project aimed to generate articular cartilage from bone marrow stem cells for the treatment of patients.
Role: Co-Investigator.

2007-2010 Conicyt-ARP Anillo ACT-02 11/01/07-03/15/10
Research Center for the Study of the Nervous System: Cell Biology and Biomedical Applications
This Associative Research Program's main goal was to establish a multidisciplinary research group that will focus on the understanding of the cellular mechanisms that regulate cell-cell communication. Principal Investigator.

2006-2007 Fondecyt 1060962 03/15/06-03/15/08
Glucokinase and monocarboxylate transporters expression in the hypothalamus, central molecules in the glucose sensor mechanism based on glia-neuron interaction. This project aimed to evaluate the localization and function of glucokinase and lactate transporters in the hypothalamus. Principal Investigator.

5 Publications (Citations: 2946, H-index: 29)

1. Barahona MJ, Langlet F, Labouebe G, Croizier S, Picard A, Thorens B, Garcìa-Robles MA (2022) GLUT2 expression by glial fibrillary acidic protein-positive tanycytes is required for promoting feeding-response to fasting. Sci Rep 12(1):17717 doi: 10.1038/s41598-022-22489-2
2. Recabal A, López S, Salgado M, Palma A, Obregón AM, Elizondo-Vega R, Sáez JC, García-Robles MÁ. (2022) A Short-Term Sucrose Diet Impacts Cell Proliferation of Neural Precursors in the Adult Hypothalamus. Nutrients. 14(13):2564. doi: 10.3390/nu14132564.
3. Orellana MS, Jaña GA, Figueroa M, Martínez-Oyanedel J, Medina FE, Tarifeño-Saldivia E, Gatica M, García-Robles MÁ, Carvajal N, Uribe E. (2022) New Insights into the Determinants of Specificity in Human Type I Arginase: Generation of a Mutant That Is Only Active with Agmatine as Substrate. Int J Mol Sci. 23(12):6438. doi: 10.3390/ijms23126438.
4. Salgado M, Elizondo-Vega R, Villar PS, Konar M, Gallegos S, Tarifeño-Saldivia E, Luz-Crawford P, Aguayo LG, Araneda RC, Uribe E, García-Robles MÁ. (2022) GKRP-dependent modulation of feeding behavior by tanycyte-released monocarboxylates. Theranostics. 12(4):1518-1536. doi: 10.7150/thno.66634.
5. Obregón AM, Oyarce K, García-Robles MA, Valladares M, Pettinelli P, Goldfield GS. (2022) Association of the dopamine D2 receptor rs1800497 polymorphism with food addiction, food reinforcement, and eating behavior

in Chilean adults. Eat Weight Disord. 27(1):215-224. doi: 10.1007/s40519-021-01136-1.

6. Órdenes P, Villar PS, Tarifeño-Saldivia E, Salgado M, Elizondo-Vega R, Araneda RC, García-Robles MA. (2021) Lactate activates hypothalamic POMC neurons by intercellular signaling Sci Rep. 11(1):21644. doi: 10.1038/s41598-021-00947-7.
7. Salgado M, García-Robles MÁ, Sáez JC. (2021) Purinergic signaling in tanycytes and its contribution to nutritional sensing. Purinergic Signal. 17(4):607-618. doi: 10.1007/s11302-021-09791-w
8. Recabal A, Fernández P, López S, Barahona MJ, Ordenes P, Palma A, Elizondo-Vega R, Farkas C, Uribe A, Caprile T, Sáez JC, García-Robles MA. (2021) The FGF2-induced tanycyte proliferation involves a connexin 43 hemichannel/purinergic-dependent pathway. J Neurochem. 156(2):182-199. doi: 10.1111/jnc.15188.
9. Contreras-Lopez R, Elizondo-Vega R, Luque-Campos B, Torres MJ, Pradenas C, Tejedor G, Paredes-Martinez MJ, Vega-Letter AM, Campos-Mora M, Rigual-Gonzalez Y, Oyarce K, Salgado M, Jorgensen C, Khoury M, Garcia-Robles MA, Altamirano C, Djouad F, and P. Luz-Crawford. 2021. The ATP synthase inhibition induces an AMPK dependent glycolytic switch of mesenchymal stem cells that enhances their immunotherapeutic potential. Theranostics 11 (1), 445-460
10. Barahona MJ, Rojas J, Uribe EA, and María A García-Robles. 2020. Tympanic Membrane Rupture During Stereotaxic Surgery Disturbs the normal Feeding Behavior in Rats. Front. Behav. Neurosci.| https://doi.org/10.3389/fiber.2020.591204
11. Contreras-Lopez RA, Elizondo-Vega R, Paredes MJ, Luque-Campos N, Torres MJ, Tejedor G, Vega-Letter AM, Figueroa-Valdés A, Pradenas C, Oyarce K, Jorgensen C, Khoury M, Garcia-Robles MLA, Altamirano C, Djouad F, Luz-Crawford P. HIF1α-dependent metabolic reprogramming governs mesenchymal stem/stromal cell immunoregulatory functions. The FASEB Journal 34 (6), 8250-8264
12. Contreras-Lopez RA, Elizondo-Vega R, Torres MJ, Vega-Letter AM, Luque-Campos N, Paredes-Martinez MJ, Pradenas C, Tejedor G, Oyarce K, Salgado M, Jorgensen C, Khoury M, Kronke G, Garcia-Robles MA, Altamirano C, Luz-Crawford P& Djouad F.2020. PPARβ/δ-dependent MSC metabolism determines their immunoregulatory properties. Scientific Reports 10 (1), 1-8
13. Recabal A, Fernández P, López S, Barahona MJ, Ordenes P, Palma A, Elizondo-Vega R, Farkas C, Uribe A, Caprile T, Sáez JC, García-Robles MA. 2020. The FGF2-induced tanycyte proliferation involves a connexin 43 hemichannel/purinergic-dependent pathway. J Neurochem. 2020 Sep 16. doi: 10.1111/jnc.15188.
14. Palma A, Konar M, Ordenes P, Maureira F, Elizondo-Vega R, Oyarce K, López S, Rojas J, Steinberg X. Garcia-Robles MA, Sepulveda F. 2019. Glucose increase DAGLa levels in tanycytes and its inhibition alters orexigenic and anorexigenic neuropeptides expression in response to

glucose. Frontier Endocrinology 2019. Front Endocrinol 10:647. doi: 10.3389/fendo.2019.00647eCollection

15. Elizondo-Vega R, Barahona MJ, Recabal A, Oyarce K, Ordenes P, Salgado M, Pincheira R, Luz-Cawford P, García-Robles MA. 2019. Inhibition of hypothalamic MCT4 and MCT1-MCT4 expression affect food intake and alter orexigenic and anorexigenic neuropeptide expression. Molecular Neurobiology 57 (2), 896-909. 2019. DOI: 10.1007/s12035-019-01776-6
16. Salgado M, Ordenes P, Villagra M, Uribe E, García-Robles MA**,** Tarifeño-Saldivia E. 2019. When a Little Bit More Makes the Difference: Expression Levels of GKRP Determines the Subcellular Localization of GK in Tanycytes. Front Neurosci. 13:275. https://doi.org/10.3389/fnins.2019.00275
17. Hermosilla V, Salgado G, Riffo E, Escobar D, Hepp MI, Farkas C, Galindo M, Morín V, García-Robles MA, Castro AF, Pincheira R. 2018. SALL2 represses cyclins D1 and E1 expression and restrains G1/S cell cycle transition and cancer-related phenotypes. Mol Oncol. 12(7):1026-1046. DOI: 10.1002/1878-0261.12308
18. Recabal A, Elizondo-Vega R, Philippot C, Salgado M, López S, Palma A, Tarifeño-Saldivia E, Timmermann A, Seifert G, Caprile T, Steinhäuser C, García-Robles MA. 2018. Connexin-43 Gap Junctions Are Responsible for the Hypothalamic Tanycyte-Coupled Network. Front Cell Neurosci. 2018 12:406. DOI: 10.3389
19. Barahona MJ, Llanos P, Recabal A, Escobar-Acuña K, Elizondo-Vega R, Salgado M, Ordenes P, Uribe E, Sepúlveda FJ, Araneda RC, García-Robles MA. 2018. Glial hypothalamic inhibition of GLUT2 expression alters satiety, impacting eating behavior. Glia. 2018 doi: 10.1002/glia.23267
20. Uranga RM, Millán C, Barahona MJ, Recabal A, Salgado M, Martínez F, Ordenes P, Elizondo-Vega R, Sepúlveda F, Uribe E, García-Robles MA**.** 2017. Adenovirus-mediated suppression of hypothalamic glucokinase affects feeding behavior. Sci Rep. 1;7(1):3697. doi: 10.1038/s41598-017-03928-x
21. Romero N, Benítez J, Garcia D, González A, Bennun L, García-Robles MA, López V, Wilson LA, Schenk G, Carvajal N, Uribe E. 2017. Mammalian agmatinases constitute unusual members in the family of Mn2+-dependent ureahydrolases. J Inorg Biochem. 122-125. doi: 10.1016/j.jinorgbio.
22. Recabal A, Caprile T, García-Robles, MA. 2017. Hypothalamic Neurogenesis as an Adaptive Metabolic Mechanism. Front. Neurosci. 5;11:190. doi:10.3389/fnins. 2017.00190.eCollection
23. Elizondo-Vega R, Cortés-Campos C, Barahona MJ, Carril C, Ordenes P, Salgado M1, Oyarce K, García-Robles MA**.** 2016. Inhibition of hypothalamic MCT1 expression increases food intake and alters orexigenic and anorexigenic neuropeptide expression. Scientific Reports. 28;6:33606
24. Elizondo-Vega R, Salgado M, García-Robles MA. 2016. Monocarboxylate Transporters (MCTs) and their Role in Hypothalamic Glucosensing. MOJ Cell Sci Rep. 3(4): 00066
25. García D, Ordenes P, Benítez J, González A, García-Robles MA, López V, Carvajal N, Uribe E. 2016. Cloning of two LIMCH1 isoforms:

characterization of their distribution in rat brain and their agmatinase activity. Histochem Cell Biol. 145(3):305-13.

26. Elizondo-Vega R, Cortes-Campos C, Barahona MJ, Carril C, Oyarce K, and **García-Robles MA**. 2015. The Role of Tanycytes in Hypothalamic Glucosensing. Journal of Cellular Molecular Medicine. J Cell Mol Med. 19(7):1471-82. DOI: 10.1111/jcmm.12590
27. Quiñones M, Cofre J, Benítez J, García D, Romero N, González A, Carvajal N, **García-Robles MA**, López V, Schenk G, Uribe E. 2015. Insight on the interaction of an agmatinase-like protein with Mn(2+) activator ions.. J Inorg Biochem. 145:65-9.
28. Salgado M, Tarifeño-Saldivia E, Ordenes P, Millán C, Yañez MJ, Llanos P, Villagra M, Elizondo-Vega R, Martínez F, Nualart F, Uribe E, García-Robles MA. 2014. Dynamic localization of glucokinase and its regulatory protein in hypothalamic tanycytes. PLoS One.9(4):e94035. doi: 10.1371/ journal.pone.0094035
29. Salazar K, Cerda G, Martínez F, Sarmiento JM, González C, Rodríguez F,García-Robles M, Tapia JC, Cifuentes M, Nualart F. 2014. SVCT2 transporter expression is post-natally induced in cortical neurons and its function is regulated by its short isoform. J Neurochem. 130(5):693-706. doi: 10.1111/jnc.12793
30. Cortes-Campos C, Elizondo R, Carril C, Martinez F, Boric K, Nualart F, Garcia-Robles MA. 2013. MCT2 expression and lactate influx in anorexigenic and orexigenic neurons of the arcuate nucleus (ISI) PLoS One. 26;8(4):e62532.doi: 10.1371/journal.pone.0062532.
31. Montoya F, Martínez F, García-Robles M, Balmaceda-Aguilera C, Koch X, Rodríguez F, Silva-Álvarez C, Salazar K, Ulloa V, Nualart F. 2013. Clinical and experimental approaches to knee cartilage lesion repair and mesenchymal stem cell chondrocyte differentiation. Biol Res. 46(4):441-51. doi:10.4067/S0716-97602013000400015
32. Ulloa V*, García-Robles M*, Martínez F, Salazar K, Reinicke K, Pérez F, Godoy DF, Godoy AS, Nualart F. 2013 Human Choroid Plexus Papilloma Cells Efficiently Transport Glucose and Vitamin C. J Neurochem. 127(3):403-14. doi:10.1111/jnc.12295
33. Nualart F, Castro T, Low M, Henríquez JP, Oyarce K, Cisternas P, García A, Yáñez AJ, Bertinat R, Montecinos VP, García-Robles MA**.** 2013. Dynamic expression of the sodium-vitamin C co-transporters, SVCT1 and SVCT2, during perinatal kidney development. Histochem Cell Biol. 139(2):233-47
34. Nualart F, Salazar K, Oyarce K, Cisternas P, Jara N, Silva-Álvarez C, Pastor P, Martínez F, García A, García-Robles MA, Tapia JC. 2013. Typical and atypical stem cells in the brain, vitamin C effect and neuropathology Biol Res. 45(3):243-56
35. García-Robles MA, Elizondo R, Cortés-Campos C, Martínez F, Nualart F. 2012. Brain monitoring of glucose homeostasis. Neuron-glia interactions. Biomedical Research 3(1):29-39
36. Balmaceda-Aguilera C, Cortés-Campos C, Cifuentes M, Peruzzo B, Mack L, Tapia JC, Oyarce K, García MA, Nualart F. 2012. Glucose transporter 1 and monocarboxylate transporters 1, 2, and 4 localization within the glial cells of

shark blood-brain-barriers. PLoS One. 7(2):e32409. doi: 10.1371/journal.pone.0032409.

37. Orellana JA, Sáez PJ, Cortés-Campos C, Elizondo RJ, Shoji KF, Contreras-Duarte S, Figueroa V, Velarde V, Jiang JX, Nualart F, Sáez JC, García MA. (2012) Glucose increases intracellular free $Ca^{(2+)}$ in tanycytes via ATP released through connexin 43 hemichannels. Glia. 60(1):53-68. doi: 10.1002/glia.21246.
38. Nuñez-Parra A, Cortes-Campos C, Bacigalupo J, García MA, Nualart F, Reyes JG. (, 2011). Expression and distribution of facilitative glucose (GLUTs) and monocarboxylate/H+ (MCTs) transporters in rat olfactory epithelia. Chem Senses. 36(9):771-80. DOI: 10.1093/chemse/bjr052.
39. Cifuentes M*, García MA*, Arrabal PM, Martínez F, Yañez MJ, Jara N, Weil B, Domínguez D, Medina RA, Nualart F. (2011). Insulin regulates GLUT1-mediated glucose transport in MG-63 human osteosarcoma cells. J Cell Physiol. 226(6):1425-32 DOI: 10.1002/jcp.22668
40. Cortés-Campos C, Elizondo R, Llanos P, Uranga RM, Nualart F, García MA. 2011. MCT expression and lactate influx/efflux in tanycytes involved in glia-neuron metabolic interaction. PLoS One. 6(1):e16411. doi: 10.1093/chemse/bjr052.
41. Mella C, Martínez F, García MA, Nualart F, Castro V, Bustos P, Carvajal N, Uribe E. 2010. Expression and localization of an agmatinase-like protein in the rat brain. Histochem Cell Biol. 134(2):137-44. doi: 10.1007/s00418-010-0720-z
42. Millán C, Martínez F, Cortés-Campos C, Lizama I, Yañez MJ, Llanos P, Reinicke K, Rodríguez F, Peruzzo B, Nualart F, García MA. 2010. Glial glucokinase expression in adult and post-natal development of the hypothalamic region. ASN Neuro. 2(3):e00035. doi: 10.1042/AN20090059
43. Nualart F, García MA, Medina R, Owen G. 2009. Glucose transporters in sex steroid hormone related cancer. Current Vascular Pharmacology 7: 534-548
44. Caprile T, Salazar C, Astuya A, Cisternas P, Montecinos H, Millán C, García MA, Nualart F. (2009). The Na+-dependent L-ascorbic acid transporter SVCT2 expressed in brain stem cells, neurons and neuroblastoma cells is inhibited by flavonoids. Journal of Neurochemistry 108: 563-577
45. Godoy A, Salazar K, Figueroa C, Smith GJ, García MA, Nualart F. 2009. Nutricional channels in breast cancer. Journal and Cellular Molecular Medicine 12(6): 1-12
46. Meneses AM, Medina RA, Kato S, Pinto M, Jaque MP, Lizama I, García MA**,** Nualart F, Owen GI. 2008. Regulation of GLUT3 and glucose uptake by the cAMP signaling pathway in the breast cancer cell line ZR-75. J Cell Physiol. 214(1):110-6.
47. Castro T, Low M, Salazar K, Montecinos H, Cifuentes M, Yáñez AJ, Slebe JC, Figueroa CD, Reinicke K, García MA, Henríquez JP, Nualart F. 2008 Differential distribution of the Sodium-vitamin C cotransporter-1 along the proximal tubule of the mouse and human kidney. Kidney International 74(10):1278-86

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49. Godoy A, Ulloa V, Rodríguez F, Reinicke K, Yañez AJ, García MA, Medina RA, Carrasco M, Barberis S, Castro T, Martínez F, Koch X, Vera JC, Poblete MT, Figueroa CD, Peruzzo B, Pérez F, Nualart F.2006.Differential subcellular distributionof glucose transporters GLUT1-6 and GLUT9 in human cancer: ultrastructurallocalization of GLUT1 and GLUT5 in breast tumor tissues. J Cell Physiol207(3):614-27
50. Astuya A, Caprile T, Castro M, Salazar K, García M, Reinicke K, Rodríguez F, Vera JC, Millán C, Ulloa V, Low M, Martínez F, Nualart F. 2005. Vitamin C uptake and recycling among normal and tumor cells from the central nervous system. J. Neurosci Res. 79(1-2):146-56
51. García MA, Salazar K, Millán C, Rodríguez F, Montecinos H, Caprile T, Silva C, Cortes C, Reinicke K, Vera JC, Aguayo LG, Olate J, Molina B, Nualart F. 2005. Sodium vitamin C cotransporter SVCT2 is expressed in hypothalamic glial cells. Glia.;50(1):32-47
52. Yáñez AJ, Bertinat R, Spichiger C, Carcamo JG, García M**,** Concha II, Nualart F, Slebe JC. 2005. Novel expression of liver FBPase in Langerhans islets of human and rat pancreas. J Cell Physiol. 205(1):19-24
53. Silva-Alvarez C, Carrasco M, Balmaceda-Aguilera C, Pastor P, García MA**,** Reinicke K, Aguayo L, Molina B, Cifuentes M, Medina R, Nualart F. Ependymal cell differentiation and GLUT1 expression is a synchronous process in the ventricular wall. Neurochem Res. 30(10):1227-36
54. Medina RA, Meneses AM, Vera JC, Gúzman C, Nualart F, Rodriguez F, García M, Kato S, Espinoza N, Monsó C, Carvajal A, Pinto M, Owen GI. 2004. Differential regulation of glucose transporter expression by estrogen and progesterone in Ishikawa endometrial cancer cells. J Endocrinol. 182(3):467-78
55. Verleysdonk S, Hirschner W, Wellard J, Rapp M, Garcia MA, Nualart F, Hamprecht B. 2004. Regulation by insulin and insulin-like growth factor of 2-deoxyglucose uptake in primary ependymal cell cultures. Neurochem Res. 29(1):127-34
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57. Medina RA, Meneses AM, Vera JC, Guzmán C, Nualart F, Astuya A, García MA, Kato S, Carvajal A, Pinto M, Owen GI. 2003**.** Estrogen and progesterone up-regulate glucose transporter expression in ZR-75-1 human breast cancer cells. Endocrinology. 144(10):4527-35
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Rudolph MI, Cabanillas A, Gómez P, García MA, Villan L. 1997. On the mechanism of action of ethodin in inducing myometrium contractions. Gen Pharmacol. 28(3):381-5
61. Rudolph MI, García MA, Sepúlveda M, Brandan E, Reinicke K, Nicovani S, Villan L. 1997. Ethodin: pharmacological evidence of the interaction between smooth muscle and mast cells in the myometrium. J Pharmacol Exp Ther. 282(1):256-61
62. Brandan E. Melo F. García MA**.** Contreras, M. 1996 Significantly reduced expression of the proteoglycan decorin in Alzheimer`s disease fibroblasts. Clinical Pathol: Molec Pathol. 49:351-356.
63. Pérez R, García MA, Arias P, Gallardo M, Valenzuela S, Rudolph MI. 1997. Inhibitionof xylazine induced uterine contractility by clenbuterol and nifedipine. Res Vet Sci. 63(1):73-6.

Chapter books

Elizondo-Vega R., García-Robles M.A. (2017) Molecular Characteristics, Regulation, and Function of Monocarboxylate Transporters. In: Ortega A., Schousboe A. (eds) Glial Amino Acid Transporters. Advances in Neurobiology, vol 16. Springer, Cham D8.

Medina R, Henríquez JP, García-Robles MA and Nualart F. 2010. Vitamin C: Absorption and Reabsorption, In Vitamin C: Nutrition, Side Effects and Supplements. Nova Scince Publishers (Editor CM Jackson).

6 Thesis advisor

2021 Patricio Ordenes. Role of Lactate in brain control of food intake. Doctorate in Biological Sciences. Faculty of Biological Sciences, University of Concepcion. In progress

2020 Sergio Lopez. Cell proliferation in neurogenic niches involved in the regulation of food intake. Master in Biochemistry and Bioinformatics, Faculty of Biological Sciences. University of Concepcion

2020 María José Barahona. Participation of glucose transporter 2, in tanycytes, in the regulation of ghrelin secretion and feeding behavior" Doctorate in

Biological Sciences. Faculty of Biological Sciences, University of Concepcion

2020 Antonia Recabal. Dietary and purinergic factors that promote the proliferation of hypothalamic neuronal precursors" Doctorate in Biological Sciences. Faculty of Biological Sciences, University of Concepcion

2019 Magdiel Salgado Role of GKRP and glial ketogenesis in hypothalamic glucosensing". Doctorate in Biological Sciences. Faculty of Biological Sciences, University of Concepcion

2018 Omayra Contreras. Odontoblastoid differentiation from human dental pulp stem cells. Thesis for the title of Bioengineer. University of Concepcion

2017 Macarena Konar. “Expression and localization of DAGLα in the basal hypothalamus in response to glucose”. Thesis of Master in Biochemistry and Bioinformatics. Faculty of Biological Sciences, University of Concepcion.

2017 Katheen Escobar Acuña. Overexpression of GLUT2 in tanycytes. Thesis for the title of Bioengineer. University of Concepcion.

2016. Roberto Elizondo. "Participation of the transporters of hypothalamic monocarboxylates in the regulation of food intake". Doctorate in Biological Sciences. Faculty of Biological Sciences, University of Concepcion

2016 Marcos Villagra. "Dynamic localization of GK and exogenous GKRP, in real time". Thesis for the title of Biochemist. University of Concepcion. 2015

2015. Patricio Ordenes. "Comparison of the subcellular localization of GK / GKRP in the hypothalamus and in the liver and its regulation by clock genes". Thesis for the title of Biochemist. University of Concepción.

2014 Claudio Carril. "Sensing of lactate in culture of hypothalamic neurons". Thesis of Master in Biochemistry and Bioinformatics. Faculty of Biological Sciences, University of Concepcion.

2014 María José Barahona. "Adenoviral inhibition of the monocarboxylate 1 (MCT1) transporter in hypothalamic glia: Study of the feeding behavior". Thesis to apply for the title of Biologist. University of Concepcion.

2013 Magdiel Salgado. "Glucose-dependent modulation of the interaction of GK and GKRP in hypothalamic glia". Thesis of Master in Biochemistry and Bioinformatics. Faculty of Biological Sciences, University of Concepcion.

2013 Paula Llanos. "Inhibition of GLUT2 in tanyciyes and its effect in vivo on dietary intake". Thesis of Master in Biochemistry and Bioinformatics. Faculty of Biological Sciences, University of Concepcion.

2012 Mr. Claudio Carril. "Inhibition of the monocarboxylate transporter 1 (MCT1) in hypothalamic glia". Thesis for the title of Bioengineer. University of Concepcion. 2012.

2012 Fernando Martínez. "Looking for the molecular basis to explain a rapid route of glucose entry into the brain". Doctorate in Biological Sciences. Faculty of Biological Sciences, University of Concepcion

2011.Paula Llanos. "Generation of an adenoviral vector for the inhibition of GLUT2

and its evaluation in rat insulinoma cells". Thesis for the title of Bioengineer. University of Concepcion. 2011

2011 Christian Cortés Campos. "Participation of the transporters of 3. monocarboxylates in the glucose sensor mechanism based on a glia-neuron metabolic interaction". Doctorate in Biological Sciences. Faculty of Biological Sciences, University of Concepcion.

2010 Roberto Elizondo. "Comparative analysis of the expression and function of glucose and lactate transporters of hypothalamic and cortical glial cells." Thesis of Master in Biochemistry and Bioinformatics. Faculty of Biological Sciences, University of Concepción

2010 Estefanía Tarifeño. "Cloning of GK from hypothalamic glia." Thesis to apply for the title of Biologist. University of Concepcion. 2010

2010 María José Yáñez. "Intracellular compartmentalization of GK and GKRP in response to glucose in hypothalamic glia." Thesis for the title of Bioengineer. University of Concepción. 2010

2008 Roberto Elizondo. "Comparative analysis of the expression and function of glucose and lactate transporters of hypothalamic and cortical glial cells." Thesis for the title of Biochemist. University of Concepcion.

2008 Carola Millán. "Localization, regulation, and inhibition of glucokinase in the hypothalamic glia and its regulation with feeding behavior." Doctorate in Cellular and Molecular Biology Faculty of Biological Sciences. University of Concepcion.

7 Meeting abstract (last 6 years)

Invited speaker

November 2019 Organization of Symposium “Glia involvement on hypothalamic regulation of energy balance

García-Robles, MA”. Tanycytes and their role in glucosensing and food intake regulation. Chilean Society for Cellular Biology, Puerto Varas, Chile

October 2019 Invited Speaker in Symposium “Glucose and vitamin C transporters in health and disease. A tribute to Juan Carlos Vera”, García-Robles MA. Hypothalamic glucosensing and food intake regulation. Chilean Society for Biochemistry and Molecular Biology Meeting, Iquique, Chile

November 2019. Hypothalamic control of feeding behaviour. García-Robles MA University of San Sabastian, Chile

November 2018. Role of connexin 43 in the formation of panglial red in the hypothalamus. García-Robles MA NEXOS meeting for resident scientists in the United States. Washington DC.

October 2016 Glucose increases opening of hemichannels through a glycolytic-dependent mechanism. García-Robles MA, Orellana JA, Elizondo R, Sáez JC. FALAN,

Buenos Aires, Argentina

Meeting participation

2019

Salgado M, Barahona M, Elizondo-Vega R, Uribe E, García-Robles MA 2018 In vivo gain/loss of GKRP expression in hypothalamic tanycytes produces alterations in neuropeptides expression and abnormal feeding behavior. Chilean Society for Cell Biology – XXXIII Annual Meeting. Puerto Varas, Chile. Best PhD-poster presentation

Barahona MJ, Langlet F, Croizier S, Labouèbe G, Picard A, Thorens B, García-Robles MA Hypothalamic alpha-tanycytes: A novel appetite regulators. Chilean Society for Cell Biology – XXXIII Annual Meeting. Puerto Varas, Chile

Órdenes P, Hu R, Villar P, Salgado M, Elizondo-Vega R, Araneda R, and García-Robles MA. Lactate modulates the activity of POMC neurons of the arcuate nucleus through a receptor. Chilean Society for Cell Biology – XXXIII Annual Meeting. Puerto Varas, Chile

López S, Recabal A. and García-Robles MA. Cellular proliferation in neurogenic niches involved in the regulation of food intake. Chilean Society for Cell Biology – XXXIII Annual Meeting. Puerto Varas, Chile

2018

Recabal A, Elizondo-Vega R, Palma A, Caprile T, Philippot C, Steinhäuser C, García-Robles MA. Role of connexin 43 in the formation of radial glia-like features in hypothalamic tanycytes: coupling and proliferation. Federation of European Neuroscience Societies. Berlin

Salgado M, Órdenes P, Villar P, Araneda R, Aguayo L, and García-Robles MA. Modulation of POMC neuron activity by lactate and tanycyte-released β-hydroxybutyrate (β-HB). Federation of European Neuroscience Societies. Berlin

Barahona MJ, Recabal A, Salgado M, Ordenes P, Palma A, Sepúlveda F, Garcia-Robles MA. 2017. Hypothalamic GLUT2 inhibition impacts feeding behavior. 42 FEBS CONGRESS. Jerusalén, Israel

Sepulveda F, Konar-Nie M, Palma A, Ordenes P, Joaquin Rojas, Maurelia F, Azocar C, Garcia-Robles MA.Novel role of endocannabinoid signaling in hypothalamic glial cells to regulate food intake. Chilean Society for Cell Biology – XXXII Annual Meeting, Puerto Varas, Chile.

Recabal A, Elizondo-Vega R, Caprile T, Steinhäuser C, García-Robles MA. Connexin-43 gap junctions are responsible for the hypothalamic tanycyte-coupled network. Chilean Society for Cell Biology – XXXII Annual Meeting. Puerto Varas, Chile

2017

Elizondo-Vega R, García-Robles, MA. Participation of the hypothalamic monocarboxylate transporters in the regulation of feeding behavior. XXXI Annual Meeting of the Cell Biology Society of Chile, Puerto Varas, Chile. Award for a best national doctorate thesis

Elizondo-Vega R, Contreras, Salgado M, Martínez L, Paredes MJ, Garcia-Robles MA, Luz-Crawford P. Monocarboxylate transporters expression on mesenchymal stem cells and their role on immunosuppression. XXXI Annual Meeting of the Cell Biology

Society of Chile, Puerto Varas, Chile.

Recabal A, Fernández P, Caprile T, Sáez JC, García-Robles MA. Connexin 43 participates in the proliferation of Tanycytes in vitro. 2017. XXXI Annual meeting chilean society for cell biology. Puerto Varas, Chile.

Escobar-Acuña K, Salgado, Elizondo-Vega, Barahona MJ, Órdenes, García-Robles MA. Overexpression and inhibition of GLUT2 in tanycytes and their effect on glucose transport. XXXI Annual meeting chilean society for cell biology. Puerto Varas, Chile

Órdenes P, Elizondo-Vega R, Salgado M, Escobar K, García-Robles MA. 2017. Inhibition of MCT2 expression in anorexigenic hypothalamic neurons. XXXI Annual meeting Chilean society for cell biology. Puerto Varas, Chile.

Konar M, Salgado M, Órdenes P, Palma A., García-Robles MA, Sepúlveda F. Expression and localization of the endocannabionoids-producing DAGLa enzyme in the arcuate nucleus XXXI Annual meeting chilean society for cell biology Chile.

2016

Garcia-Robles MA, Barahona MJ, Llanos P, Millán C, Salgado M, Elizondo-Vega R, Uribe EA. Glucose transporter two inhibition in tanycytes affects feeding behavior. American Society for Neurochemistry (ASN) 47th Annual Meeting. Denver USA

Oyarce M, Elizondo-Vega R, Barahona MJ, Recabal A, García-Robles MA. Double knockdown of monocarboxylate transporters MCT1 and MCT4 in tanycytes by shRNA alters the brain glucosensing mechanism. American Society for Neurochemistry (ASN) 47th Annual Meeting. Denver USA

Recabal A, Elizondo R, Salgado M, Ordenes P, García-Robles MA. 2016. Targeting glucokinase expression in a beta-pancreatic cell line using RNAi and CRISPRi. XXX Annual meeting Chilean society for cell biology. Puerto Varas, Chile.

Barahona MJ, García-Robles, MA. GLUT2 inhibition in the brain affects gut ghrelin expression and increases food intake. XXX Annual meeting Chilean society for cell biology Puerto Varas, Chile.

2015

Barahona MJ, Llanos P, Elizondo-Vega R, García-Robles MA. In vivo glut2 inhibition affects feeding behavior. XXIX Annual Meeting of the Cellular Biology Society of Chile, Puerto Varas, Chile.

Roberto Elizondo-Vega, Christian Cortes-Campos, María Barahona, Claudio Carril, María García- Robles. Knock-down of MCT1 and MCT4 expression in tanycytes by adenovirus-mediated siRNA affects the brain glucose sensing mechanism. XXIX Annual Meeting of the Cellular Biology Society of Chile, Puerto Varas, Chile.

Ordenes P, Llanos P, Salgado M, Palma A, Carril C, García-Robles MA, Millán C. Circadian expression of GKRP and GLUT2 in hepatocytes. XXIX Annual Meeting of the Cellular Biology Society of Chile, Puerto Varas, Chile.

Barahona MJ., Elizondo-Vega R., Cortés-Campos C., García-Robles MA. In vivo MCT1 Inhibition in tanycytes affects feeding behavior. XXVIII Annual Meeting of the Cellular Biology Society of Chile, Puerto Varas, Chile., **2014.**

Garcia-Robles MA, Salgado M, Tarifeño-Saldivia E, Ordenes P, Villagra M, Elizondo-Vega R, Uribe E. FEBS/EMBO, Paris.

Órdenes P, Villagra ., Salgado M, Elizondo-Vega R, Carril C, Barahona MJ, García-Robles MA. GK regulatory protein in brain glucosensing. XXVIII Annual Meeting of the Cellular Biology Society of Chile, Puerto Varas, Chile.

Carril C, Salgado M, Ordenes P, Villagra M, Millan C, García-Robles MA. Exogenous expression of GKRP in tanycytes modulates glucosensing in pancreatic beta cells. XXVIII Annual Meeting of the Cellular Biology Society of Chile, Puerto Varas, Chile.

Salgado M, Ordenes P, Uribe E, García-Robles MA. Glucose-Dependent modulation of subcellular localization of GK and GKRP in hypothalamic tanycytes. XXVIII Annual Meeting of the Cellular Biology Society of Chile, Puerto Varas, Chile