

## Curriculum Vitae Gonzalo E. Yévenes, PhD

### Personal Information

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### Education

- 1995 - 2002 Biochemist, Faculty of Pharmacy, University of Concepción, Chile.
- 2002 - 2007 PhD in Biological Sciences, Faculty of Biological Sciences, University of Concepción, Chile.
- 2007 - 2008 Postdoctoral Fellow, Dept. of Physiology, University of Concepción, Concepción, Chile.
- 2008 - 2013 Postdoctoral Fellow, Dept. of Pharmacology and Toxicology, University of Zurich, Zurich, Switzerland.

### Positions

- 2013 - 2017 Assistant Professor, Department of Physiology, Faculty of Biological Sciences, University of Concepción, Chile.
- 2018 - Associate Professor, Department of Physiology, Faculty of Biological Sciences, University of Concepción, Chile.

### Research line

I started my scientific life by studying Biochemistry in the Faculty of Pharmacy at the University of Concepción (1995-2002). Afterwards, I started my doctoral training in the Faculty of Biological Sciences (2002 to 2007). My academic experience in Chile was largely enriched during my period of postdoctoral training at the University of Zurich, Switzerland (2008-2013). After the training described above, my career as an independent researcher formally started as Assistant Professor (2013-2017) and have continued as Associate Professor (2018-present) on the Department of Physiology at the University of Concepcion, Chile. My current assignments involve research activities, as well as many teaching and administrative duties. Our research group is currently focused on the design and characterization of the molecular mechanisms and behavioral effects of novel compounds modulating neuronal glycine and GABAA receptors, with a special focus on molecules with activity against chronic pain targets. We aim to integrate molecular, cellular, electrophysiological, structural, and behavioral aspects of the receptor-drug interactions. We are convinced that these investigations will give relevant information towards the development of potential drugs targeting inhibitory receptors. Our group is currently funded by a regular ANID-FONDECYT grant (2017-2021) and by the Millennium Nucleus for the Study of Pain (MiNuSPain) (2020-2023). In terms of academic duties, I am a regular lecturer on undergraduate and postgraduate courses with focus on neuroscience. Furthermore, I am the Head of the Master program in Neurobiology (2018- present) and I am member of the academic committee of the PhD program in Biological Sciences (2019- present), both at the University of Concepcion. Finally, I am a regular member of the Study Group Biology 2 at the National Agency for Research and Development (2018- present).

**Selected publications (18 of 41). H-index:19**

1. "Pentameric Ligand-Gated Ion Channels as Pharmacological Targets Against Chronic Pain". Lara CO, Burgos CF, Moraga-Cid G, Carrasco MA, Yévenes GE. *Front Pharmacol.* 3;11:167, 2020.
2. "Modulation of glycine receptor single-channel conductance by intracellular phosphorylation". Moraga-Cid G, San Martín VP, Lara CO, Muñoz B, Marileo AM, Sazo A, Muñoz-Montesino C, Fuentealba J, Castro PA, Guzmán L, Burgos CF, Zeilhofer HU, Aguayo LG, Corringier PJ, Yévenes GE. *Sci Rep.* 16;10(1):4804, 2020.
3. "Inhibitory Actions of Tropeines on the  $\alpha 3$  Glycine Receptor Function" San Martín VP, Burgos CF, Marileo AM, Lara CO, Sazo A, Fuentealba J, Guzmán L, Castro PA, Aguayo LG, Moraga-Cid G, Yévenes GE. *Front Pharmacol.* 10:331, 2019.
4. "Glycine receptors and glycine transporters: targets for novel analgesics?" Zeilhofer HU, Acuña MA, Gingras J, Yévenes GE. *Cell Mol Life Sci.* 75:447-465, 2018.
5. "Concerted action of SUMOylation, acetylation and phosphorylation cascades regulate gephyrin scaffolding and GABAergic transmission" Ghosh H, Auguadri I, Bataglia, Zahra Thirouin S, Zemoura K, Messner S, Acuña MA, Wildner H, Yévenes GE, Dieter A, Kawasaki H, Hottiger M, Zeilhofer HU, Fritschy JM, Tyagarayan SK. *Nature Comm.* 7:13365, 2016.
6. "Phosphorylation State-Dependent Modulation of Spinal Glycine Receptors Alleviates Inflammatory Pain" Acuña MA, Yévenes GE, Ralvenius WT, Benke D, Di Lio A, Lara CO, Muñoz B, Burgos CF, Moraga-Cid G, Corringier PJ, Zeilhofer HU. *Journal of Clinical Investigation.* 126:2547-2560, 2016.
7. "Functional modulation of glycine receptors by the alkaloid gelsemine" Lara CO, Murath P, Muñoz B, Marileo AM, San Martín VP, Burgos CF, Mariqueo TA, Aguayo LG, Fuentealba J, Godoy P, Guzman L, Yévenes GE. *British Journal of Pharmacology* 173:2263-2277, 2016.
8. "Antihyperalgesia by  $\alpha 2$ -GABAA receptors occurs via a genuine spinal action and does not involve supraspinal sites. Paul J, Yévenes GE, Benke D, Di Lio A, Ralvenius WT, Witschi R, Scheurer L, Cook JM, Rudolph U, Fritschy JM, Zeilhofer HU. *Neuropsychopharmacology* 39, 477-487, 2014.
9. "Fast synaptic inhibition in spinal sensory processing and pain control" Zeilhofer, H.U., Wildner, H., Yévenes, G.E. *Physiol. Rev.* 92, 193-235, 2012.
10. "Chronic pain States: pharmacological strategies to restore diminished inhibitory spinal pain control" Zeilhofer, H.U., Benke, D., Yévenes, G.E. *Annu Rev Pharmacol Toxicol.* 52,111-133, 2012
11. "Molecular sites for the positive allosteric modulation of glycine receptors by endocannabinoids" Yévenes, G.E., Zeilhofer, H.U. *PLoS One* 6(8):e23886, 2011
12. "Activated G protein  $\alpha$  subunits increase the ethanol sensitivity of human glycine receptors" Yévenes, G.E., Moraga-Cid, G., Romo, X., Aguayo, L.G. *J Pharmacol Exp Ther.* 339, 386-393, 2011
13. "Allosteric modulation of glycine receptors" Yévenes, G.E., Zeilhofer, H.U. *Br J Pharmacol.* 164, 224-236, 2011.
14. "Regulation of GABAergic synapse formation and plasticity by GSKb dependent phosphorylation of gephyrin" Tyagarajan, S.K., Ghosh, H., Yévenes, G.E., Nikonenko, I., Ebeling, C., Schwerdel, C., Sidler, C., Zeilhofer, H.U., Gerrits, B., Muller, D., Fritschy, J.M. *PNAS* 108, 379-384, 2011
15. "Molecular basis for ethanol differential allosteric modulation of ligand-gated ion channels based on selective G $\beta\gamma$  modulation" Yévenes, G.E., Moraga-Cid, G., Avila, A., Guzmán, L., Figueroa, M., Peoples, R.W., Aguayo, L. G. *J. Biol. Chem.* 285, 30203-30213, 2010.
16. "A selective G $\beta\gamma$ -linked intracellular mechanism for modulation of a ligand-gated ion channel by ethanol" Yévenes, G.E., Moraga-Cid, G., Peoples, R.W., Schmalzing, G., Aguayo, L.G. *PNAS* 105: 20523-20528, 2008
17. "Molecular determinants for G protein  $\beta\gamma$  modulation of ionotropic glycine receptors" Yévenes, G.E., Moraga-Cid, G., Guzman, L., Haeger, S., Oliveira, L., Olate, J., Schmalzing, G., Aguayo, L.G. *J. Biol. Chem.* 281: 39300-39307, 2006.
18. "Modulation of glycine-activated ion channel function by G protein  $\beta\gamma$  subunits" Yévenes, G.E., Peoples, R. W., Tapia, J. C., Parodi, J., Soto, X., Olate, J., Aguayo, L. G. *Nature Neurosci.* 6:819-824, 2003.

**Selected Grants**

- Millennium Nucleus for the Study of Pain (MiNuSPain), 2020-2023. Associated investigator.
- FONDECYT 1170252 "Targeting glycine receptors for the treatment of chronic pain, hyperekplexia and anxiety: development of novel modulators based on recent structural and pharmacological insights" Principal investigator. 2017-2021
- FONDECYT 1160851 "Deciphering the functional and structural properties of the large intracellular domain of the pentameric ligand gated receptors" Co-investigator. 2016-2018
- FONDECYT 1161014 "Understanding ALS Disease Mechanisms using human induced pluripotent stem cells derived motor neurons (iMNs)" Co-investigator- 2016-2018

- FONDECYT-International Collaboration with United Kingdom. DP120140008 “Characterization of Glycine Receptor Molecular Determinants and Alcohol Depressant Action”. Alternate director. 2015-2018
- FONDECYT 1140515 “Modulation of spinal glycine receptor subtypes as a strategy against pain sensitization”. Principal investigator. 2014-2016
- VRID 213.033.106-1.0 “Modulation of glycine receptors against pain sensitization” Principal investigator. 2013-2014