

MILLENNIUM INSTITUTE INTERDISCIPLINARY CENTER OF NEUROSCIENCE OF VALPARAÍSO CINV

Impact Area: Health
Speciality: Nervous system

The Millennium Institute Interdisciplinary Center of Neuroscience of Valparaíso is a research center housed at the Universidad de Valparaíso (Valparaíso University). Its main focus is the nervous system functioning from an interdisciplinary point of view and, with this purpose, it brings together biophysicists, physiologists, neurobiologists and genomics experts, bioinformatics and molecular simulation that develop science and outreach in an academic environment of world-class standard.

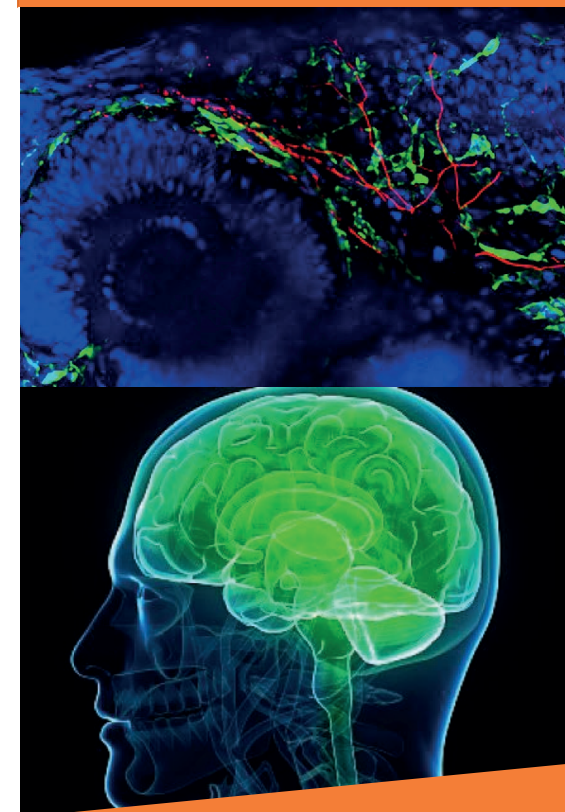
The currently most represented areas in the CINV are those who study the molecular basis of the neuronal excitement, synaptic transmission (between neurons or other cells), neuronal differentiation and neuronal mechanisms of perception (auditory, visual). During its first five years, the CINV has achieved not only to increase science productivity from 18 articles in 2011 to 54 ISI articles in 2015, but also their quality. This includes high impact publications in journals such as Nature, Nature Communications, Neuron and Proceedings of the National Academy of Sciences (USA).

The CINV deals with various aspects of an fundamental scientific question: How does the nervous system respond to the sensory stimuli in health and disease? This question is addressed through the different research areas encompassed by the Millennium Institute, studying from the proteins internal operations that receive the outside world signals to the behaviour of neural networks.

Research lines:

- Structure and function of molecular sensors.
- Cell signalling.
- Genetics and development of the nervous system.
- Synaptic and circuit physiology.
- Bioinformatics and computational biology.

Millennium Institute



>> SCIENTIFIC PRODUCTIVITY:

ISI: **333**

SCIELO: **4**

Books or chapters: **20**

Other publications: **16**
(including Scopus,
Latindex and others).

*Data updated by Millennium
Centers to March 2021





>> CONTACT INFORMATION:

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>> OUTREACH ACTIVITIES:

- **Tertulias porteñas (Gatherings in Valparaíso):** conversation meetings between scientists, artists, and intellectuals around a common interest topic for all of them, creating discussion spaces that enrich the knowledge as of the standpoints variety.
- **Ciencia al tiro (Science right now):** its purpose is strengthening ties with the community, contributing to scientific learning for the children of our city through entertaining practical workshops and field trips.
- **NeuroNews:** alliance between CINV and electronic newspaper "El Mostrador" for the studies dissemination published in specialised scientific journals, transcribes to a common language by the Master and PhD in Neuroscience students from the Universidad de Valparaíso.
- **What do you have in mind?:** Conversations to students from schools in various locations in the Valparaíso Region, promoting scientific learning and motivating the training of future scientists between the young people.
- **Refuge of Scientists:** publication that covers three centuries of the Juan Ignacio Molina building history, located in the barrio de La Matriz (La Matriz neighbourhood), that houses CINV.
- **Montemar and the labyrinths of memory:** audiovisual production that narrates one of the most significant epics in science in recent Chilean history.
- **Neuromantes:** popular science series set in Valparaíso, which address topics of universal interest.

>> RESEARCHERS:

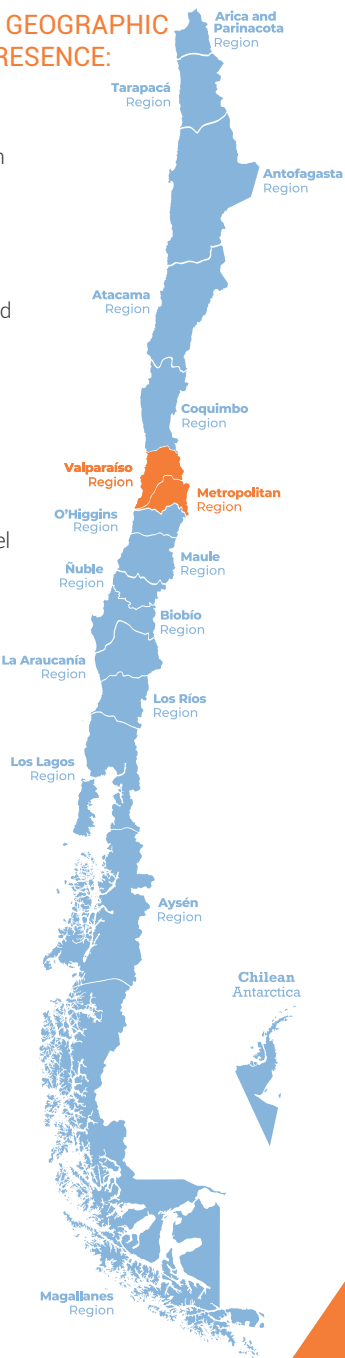
Associate researchers:
Ana María Cárdenas; Andrés Chávez Navarrete; John Ewer Lothian; Fernando González Nilo; Adrián Palacios Vargas; Juan Carlos Saéz; Alan Neely; Tomás Pérez Acle; Kathleen Whitlock; Pablo Moya; Andrea Calixto; Carlos González.

Assistant researchers:
Agustín Martínez; Patricio Orio Álvarez; David Naranjo Olivier; Oliver Schmachtenberg.

Junior researchers:
Isaac García; José Antonio Gárate; Helmuth Sánchez; Álvaro Ardiles; Karen Castillo Huera.

Senior researchers:
Francisco Bezanilla; Gonzalo Ferreira; Miguel Holmgren; Verónica Milessi; Alfredo Kirkwood; Osvaldo Álvarez Araya.
CINV-Max Planck Tandem Research Group
Leader: Chiayu chiu

>> GEOGRAPHIC PRESENCE:



>> MAIN ACHIEVEMENTS:

- New fluorescence techniques incorporation, implemented for the first time in Chile as The lanthanides resonance energy transfer (LRET)
- It is demonstrated that the aminoglycosides antibiotics and boldine (extracted from boldo, an endemic Chilean tree) are selective inhibitors of the hemi channels, opening the possibility of its use as anti-inflammatory drugs.
- Neurospheres development (neural stem cells) able to produce neuroendocrine cells that create the hormone that releases gonadotrophin. These cells are essential for puberty to occur, and its defective development led to Kallmann syndrome in humans, a disease that causes hypogonadism and anosmia.
- It is shown that the Octodon degus, an endemic rodent of Chile is an excellent model of the Alzheimer disease in humans.