

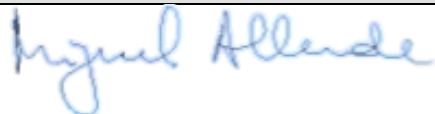
I. CONTENIDO DE LA MEMORIA ANUAL

COVER

Name of the Center:	
Type (Institute or Nucleus)	Institute
Acronym	MI-CGR
Reported period	January 1 to December 31, 2025
Starting date of the Center	July 1, 2022
Web Page	https://institutocrg.cl
Host Institution(s)	Universidad de Chile Pontificia Universidad Católica de Chile Pontificia Universidad Católica de Valparaíso Universidad Andrés Bello Universidad Mayor
Address	Antonio Bellet N° 193, Of. 302, Providencia
Stage	New/ Continuity /Renewal
Year of Execution	2025
End date of the Center	July 1, 2032
Total amount	USD \$10,500,000 for 10 years
Total amount for the reported period	USD \$720,000

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Singapore Declaration
<i>I hereby declare that the information provided in this Annual report is reliable, and that I adhere to the Singapore Declaration, contained in Conicyt Exempt Resolution No. 157 of January 24, 2013, as a global guide for responsible conduct in research.</i>

Institute / Nucleus Director Name	Institute / Nucleus Alternate Director Name
Miguel Luis Allende Connelly	Juliana de Abreu Vianna
Director's Signature	Alternate Director's Signature
	

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1. **Introduction & Executive Summary**

The Millennium Institute of Genome Regulation Center (MI-CGR, 2022-2032) is the continuation of a project that began in 2010 as a pioneering center in Chile dedicated to genomic sciences in a multidisciplinary manner. The primary objective of the MI-CGR is to generate scientific knowledge in the fields of genomics, functional genomics, gene interaction networks, and omic sciences, which are applied to fundamental knowledge of biological processes, biodiversity conservation, strategies to counteract climate change, biotechnology, and the sustainable production of food. At its inception, the MI-CGR defined three main research lines: 1) Functional Genomics of Adaptation and Convergent Evolution, 2) Interaction Networks Governing Genome Structure in Communities, and 3) Genomics for Conservation, Ecosystem Health, and Sustainable Food Production.

In 2025, our scientific team consisted of 9 Associate (Principal) Researchers, 10 Adjunct Researchers, 25 Young Researchers, 22 Postdoctoral Researchers, and 128 students, affiliated with five host universities and three adjunct universities. A total of 46 students completed their thesis projects in 2025, of which 22 were undergraduate students, 12 were Master's, and 12 were Doctorate's.

In terms of productivity, during the reported period we generated 68 publications, of which:

- 64 were research articles in peer-reviewed journals and 4 were books or book chapters
- 70% of research articles were published in Q1 journals and 22% in Q2 journals
- 30% were collaborative publications among IM-CRG researchers
- 19% had students as co-authors
- The average impact factor of our publications in 2025 was 5.64 (compared to 4.98 in 2024).

It is worth highlighting that in 2025 we hosted the Second Chilean 1,000 Genomes Project Workshop, with the Earth Biogenome Project's (EBP) Chair and France's Genoscope Director as keynotes speakers. This event gathered over 150 researchers, expanding the MI-CGR's visibility and positioning it as a benchmark institution in this discipline, both locally and internationally. It is also worth noting that, through the Chilean 1,000 Genomes Project, we were able to establish and strengthen connections with the public and private sector, as well as with similar initiatives in Latin America. The Chilean 1000 Genomes Project Consortium has grown to encompass 7 centers of excellence, 15 universities and 3 state institutes with over 100 scientists involved directly in the project. These connections have also involved the international collaborative work with Africa, Europe, and Latin America, thereby consolidating the project as a platform for scientific collaboration and contributing to the strengthening of genomic research networks at the national and international levels.

Science doesn't happen only in the lab. In 2025, MI-CGR researchers and students took their work to the streets, schools, and community centers with 32 outreach activities across 5 regions of the country, more than 6,000 people engaged in person, and 135 media appearances that kept Chilean genomics in the national and international conversation.

1.1 **Resumen Ejecutivo**

El Instituto Milenio Centro de Regulación del Genoma (IM-CRG, 2022-2032) es la continuación de un proyecto que comenzó en 2011 como un centro pionero en Chile dedicado a las ciencias genómicas de manera multidisciplinaria. El objetivo principal del IM-CRG es generar conocimiento científico en los campos de la genómica, la genómica funcional, las redes de interacción génica y las ciencias ómicas, todas aplicadas a la conservación de la biodiversidad, a las estrategias para contrarrestar el cambio climático, la biotecnología y a la producción sostenible de alimentos. El IM-CRG definió en su génesis tres principales líneas de investigación: 1) Genómica funcional de la adaptación y evolución convergente, 2) Redes de interacción que rigen la estructura del genoma en comunidades de organismos y 3) Genómica para la conservación, la salud de los ecosistemas y la producción sostenible de alimentos.

En 2025, nuestro equipo científico se compuso de 9 Investigadores Asociados (Principales), 10 Adjuntos, 25 Jóvenes, 22 Postdoctorales y 128 estudiantes, pertenecientes a cinco universidades albergantes y tres universidades adjuntas. 46 estudiantes finalizaron sus proyectos de tesis en 2025, de los cuales 22 fueron de pregrado, 12 de Magíster y 12 de doctorado.

En términos de productividad, en el período reportado generamos 68 publicaciones, de las cuales:

- 64 fueron artículos de investigación en revistas con revisión de pares y 4 fueron libros o capítulos de libros
- 70% fueron en revistas Q1 y 22% fueron en Q2
- 30% fueron publicaciones colaborativas entre Investigadores del IM-CRG
- 19% tuvo estudiantes como co-autores
- El promedio de factor de impacto de nuestras publicaciones fue de 5.64 (en 2024 fue 4.98).

Cabe destacar que en 2025 organizamos el II Workshop del proyecto 1000 Genomas Chile, con la participación del director del Earth Biogenome Project (EBP) y el Director de Genoscope de Francia como ponentes principales. Este evento reunió a más de 150 investigadores en genómica, ampliando la visibilidad del MI-CGR y posicionándolo como una institución de referencia en esta disciplina, tanto a nivel local como internacional. Cabe destacar también que, a través de 1000 Genomas Chile, fue posible establecer y fortalecer vínculos con los sectores público y privado, así como con iniciativas genómicas en Latinoamérica. El Proyecto 1000 Genomas ha crecido hasta abarcar 7 centros de excelencia, 15 universidades y 3 institutos estatales, con más de 100 científicos involucrados directamente en el proyecto. Estas conexiones también han implicado un trabajo colaborativo internacional con África, Europa y América Latina, consolidando así el proyecto como una plataforma de colaboración científica y contribuyendo al fortalecimiento de las redes de investigación genómica a nivel nacional e internacional.

La ciencia no ocurre solo en el laboratorio. En 2025, investigadores/as y estudiantes del MI-CGR llevaron su trabajo a las calles, las escuelas y las pantallas: 32 actividades de divulgación en 5 regiones del país, más de 6.000 personas participaron presencialmente y 135 apariciones en medios mantuvieron a la genómica chilena en la conversación nacional e internacional.

1.2 Outstanding Achievements

There are several outstanding achievements that we would like to highlight:

- Our research team published 64 articles in peer-reviewed journals, with an average impact factor of 5.64. Remarkably, some of these articles were published in highly prestigious journals, that are considered among the top 10 journals in their respective disciplines, such as Science, Nature Ecology & Evolution, Annual Review of Plant Biology, and Trends in Plant Science.
- Our researchers organized a wide variety of scientific events in 2025, including the Global Ocean Systems Ecology and Evolution (GOSEE) 2025: ‘An eco-systems biology view of ocean genomics’ held in Punta Arenas (Chile), and the International School of Science Education (ISSE) held in Heidelberg (Germany). We also hosted 6 Interactomics seminars, with 3 international speakers.
- Our research team shared its work at 47 congresses and scientific meetings in 2025, 39% of which were international. Out of a total of 167 oral presentations and posters, 74% were delivered by students, Postdoctoral or Young Researchers.
- 128 students were mentored during 2025 (65 women, 62 men, 1 non-binary), with 46 successfully completing their theses.
- Our research team actively participated in establishing and strengthening connections with other sectors, with activities including meetings, project development, and training courses. It worth

noting that, through the Chilean 1,000 Genomes Project, we were able to establish and strengthen connections with the public (ministries and national services) and private sector, as well as with genomic initiatives in Latin America.

- We put together a fruitful Workshop on Genomic Biodiversity in Extreme Environments in Rapa Nui (Easter Island). This activity integrated community engagement actions together with scientific endeavors. The latter aimed to generate the reference genome for *Monetaria caputdraconis*, a sea snail species that is endemic to Rapa Nui, and *Pterodroma atrata*, an endangered bird species that is considered cultural heritage for Rapa Nui. The outreach component included an open fair and a photographic exhibition that engaged school students and the general public in Rapa Nui, in collaboration with the Municipality of Rapa Nui.
- Students took center stage at an open community fair in Rapa Nui, proudly sharing with their families what they had learned. The event was accompanied by an exhibition of 50 biodiversity photographs that celebrated Chile's natural heritage — and were donated to the island as a lasting gift to the community.
- The Chilean 1,000 Genomes project advanced in the generation of reference genomes for 50 species representatives of the country's biodiversity, its economic activities, and cultural heritage. The project also led the articulation of a Latin American network of biodiversity genomic initiatives, attending to various regional meetings like Genetics Without Borders for Conservation: First Latin American Workshop on Genomics, Biobanks, and Biotechnology held in Cali (Colombia), and the Latin American Meeting on Evolution held in Tucumán (Argentina).
- Our outreach activities reached 32 events in 2025, with at least 6,061 participants across 5 Chilean regions, and were amplified through 135 media appearances. A substantial share of these actions was linked to partnerships with, among others, the Chilean 1,000 Genomes Project, Seremi ciencia y educación de Tarapaca, Teletón, MIM, Thinkey/American Spaces, Ladera Sur, and regional universities.

2. Scientific and technological research

In 2025, the RL1 show advances in Functional genomics of adaptation and convergent evolution, using approaches to understand the past and present, and from fieldwork to laboratory experimentation. We combined genomic, paleogenomics (and paleometabolomics), chemistry, ecological, and environmental variables. A biological phenomenon we have been studying for the past decade concerns adaptations of fish to highly stressful environments such as salt lakes and temporary ponds. We have made significant advances in our analysis of the adaptations of annual killifish embryos to control development in response to environmental signals. Adding to our previous study on the global gene expression response of these fish to developmental arrest (diapause), we now followed up with a complete genome sequence for two species. Intriguingly, we show that, for one of them, there has been an evolutionarily recent expansion of the genome due to multiplication of transposable elements. Thus, phenotypic plasticity could be due, in part, to a highly dynamic regulatory landscape that allows for adaptations to arise from a variable genomic background. The analysis of this hypothesis is ongoing.

We have also continued to examine the adaptations of a second group of killifish to the environment present in the high plateau of the Chilean Northern Andes, the Altiplano. Here, members of the genus *Orestias* survive high salt, high UV and low oxygen conditions using adaptive strategies that we have uncovered in their genomes. We now add to these findings the relationship of these fish with their microbiome, which provides immunological promoting factors as well as protection from UV irradiation. We have also explored the adaptations of invertebrate animals to the conditions of the Altiplano, including nematodes and planarians. The first results on our findings have recently been published and will be reported on further in future reports.

Genomic analyses of three southern skua species reveal diversification during the Penultimate Glacial Period followed by population expansion. Strong directional introgression was detected across regions, from Antarctica through South America to subantarctic islands, facilitating the spread of adaptive variants. Genes under selection are associated with adaptation to extreme environments, and differences in ancestry proportions correspond to distinct adaptive signatures. These results highlight introgression as a key mechanism promoting rapid adaptation in polar seabirds.

Paleometabolomics reveals how abiotic factors have shaped rodent midden metabolism over the last 50,000 years. By combining metabolomics and paleoecology, this study evaluates whether untargeted metabolomics can reliably capture ancient metabolic signals and how climate and age influence midden chemistry. Using samples from the Atacama Desert (200–49,600 years BP), metabolic diversity was shown to be strongly affected by midden composition, age, temperature, and precipitation. Key compounds such as lipids and phenolics were linked to climate variation, and these patterns were supported by analyses of modern plants. Therefore, our results not only showcase paleometabolomics as a powerful tool to reconstruct past ecosystem dynamics and metabolic evolutionary trajectories, but also to uncover relevant chemical families that could serve as trackers of past -and potentially future- climate fluctuations.

In 2025, RL2 advanced the understanding of how environmental change reshapes biotic interaction networks by combining mathematical modeling, metagenomics, and systems biology. The team expanded its research to diverse ecosystems—from aquaculture-impacted lakes and cold marine waters to Antarctic soils—investigating how stressors such as pollution, temperature, salinity, and nutrient limitation reorganize microbial and viral networks. In aquaculture-impacted environments, RL2 showed that bacterial resistome networks remain strongly influenced by anthropogenic pressures, identifying the floR gene as a key hub linking metagenomic variants with experimentally validated resistance phenotypes. Complementary studies in freshwater systems revealed that pollution and sediment nutrient gradients drive shifts in microbial guilds, biogeochemical coupling, and metal-resistance pathways. Parallel work explored microbial and viral adaptation at molecular and regulatory levels, revealing how environmental gradients promote the diversification of metabolic and defense pathways. Research in coastal marine environments examined microbial community variation before and during harmful algal blooms. Research in glacial-retreat soils and *Deschampsia antarctica* rhizospheres uncovered distinct bacterial–archaeal–fungal assemblages shaped by glacial melting and temperature gradients. Additional studies in arid and saline soils, —including native crops, desert ecosystems, compost, and orchards—highlighted microbial mutualisms, stress-response gene networks, and bacterial–fungal cooperation supporting nutrient turnover and soil health, reinforcing RL2’s broader interest in ecosystem resilience and interaction under stress. Several studies further linked microbial activity to carbon fluxes, and vegetation patterns under changing climate regimes, demonstrating the relevance of microbial interaction networks in processes such as greenhouse-gas balance and carbon sequestration. RL2 also incorporated paleogenomic and macroecological perspectives to contextualize modern microbial networks within deep evolutionary timescales.

Finally, participation in the CEODOS Chile Mission—an associate program of TARA Oceans—expanded RL2’s international collaborations and enabled cross-ecosystem comparisons of microbial and viral networks spanning marine, terrestrial, and anthropogenic systems. Overall, RL2’s 2025 achievements provide an integrative framework linking metagenomics, regulatory potential, and quantitative modeling to understand how microbial and viral interaction networks reorganize under environmental and climatic pressures, continues to build predictive understanding of ecological resilience—contributing directly to the broader goals of the MI-CGR.

The RL3 showed advances in genomics for Conservation, Ecosystem Health, and Sustainable Food Production. From a conservation and ecological genomics perspective, studies on *Cistanthe*

longiscapa dissect ecophysiological traits and transcriptomic signatures associated with adaptation to extreme aridity in the Atacama Desert, enabling the identification of adaptive units, drought-resilience genes, and predictive markers of species distribution under climate change. Complementary work on microbial diversity, including genomic analyses of bacterial and fungal strains from environmental and agroecosystem contexts, illuminates evolutionary trajectories, stress tolerance mechanisms, and potential biotechnological functions, reinforcing the genomic basis for biodiversity conservation and sustainable ecosystem management. In Antarctica, the arrival of pathogenic avian influenza viruses has been identified in penguins and cormorants and is being monitored to support management and conservation actions. Species distribution models (SDMs) have been used to predict the impact of climate change on the distribution of skua species, incorporating introgressed individuals identified through genomic data.

A significant body of work focuses on sustainable food production through mechanistic and applied genomics. Multi-omics studies in Hass avocado elucidate transcriptomic and metabolic regulators of ripening heterogeneity, uncover molecular determinants of exocarp pigmentation and mesocarp softening, and identify biomarkers linked to color–texture synchronization that can reduce postharvest losses and improve supply-chain predictability. In sweet cherry, integrated fruit–seed transcriptomics, small RNA profiling, and hormonal pathway analyses uncover SPL–miR156 regulatory modules and lignin/inositol metabolic programs governing the transition to ripening, contributing to molecular breeding strategies for climate-resilient cultivars. Further, lipidomics–transcriptomics studies in *Prunus* rootstocks and multi-omics GWAS in durum wheat reveal gene networks, QTLs, and metabolic signatures underlying drought tolerance, expanding genomic tools for water-efficient horticulture and cereal production under increasing climate stress. In addition, Arabidopsis-based mechanistic studies on nitrate-regulated cell wall remodeling and temperature-modulated root hair growth provide foundational insights into nutrient and environmental signaling pathways that can be translated into strategies for improving nutrient-use efficiency and root system performance in crops. Complementary to these efforts, genomic surveillance of foodborne pathogens, integrating whole-genome sequencing and epidemiological modelling, provides high-resolution insights into prevalence, environmental persistence, virulence, and transmission pathways across agroecosystems and food chains, thereby strengthening risk assessment frameworks and supporting evidence-based food safety interventions.

In relation to our research on *P. salmonis*, the causative agent of Salmon *Rickettsial Septicaemia* (SRS), we have developed a stable and transferable CRISPRi knockdown system in this fastidious intracellular pathogen. This is a significant step towards systematic studies of gene function in SRS pathogenesis. Furthermore, we exploited the strengths of the zebrafish model at both the larval and adult stages to address the research gap in *P. salmonis* biology concerning the interaction between the bacterium and the host immune response. Building on our previous work on the adaptation of bacterial communities inhabiting the seawater of salmon farming areas to antibiotics, we identified sequence variations in the *floR* gene - the most abundant phenicol-specific antibiotic resistance gene - that displayed phenotypic differences in antibiotic resistance. The coexistence of high- and low-resistance *floR* variants in environmental bacteria suggests that the salmon farming environment allows point mutations to accumulate and be maintained in bacterial populations.

Researchers involved RL 3 have also been actively involved in advances in biotechnological applications through the valorization of native biodiversity and environmentally aligned processing technologies. Bioprocessing research develops symbiotic fermented foods from Latin America native plant species, exploring antioxidant, antihypertensive, and multifunctional properties through microbial and enzymatic transformations. Process biotechnology results include ultrasound-assisted enzymatic production of oligogalacturonides, bioactive oligosaccharides with potential in plant defense priming

and gut health as well as integrated agronomic and enzymatic interventions to reduce neo-formed contaminants in potatoes, bridging genomics, metabolomics, and food safety. Microbial genomics-driven studies further explore lipid production in Antarctic fungal isolates, identifying extremophile strains with potential for sustainable lipid bioproducts.

Collaborative research efforts have contributed to RL3 by applying genomic approaches to improve sustainable aquaculture and biotechnological development. In Atlantic salmon, genome-wide analyses identified novel regions and genes influencing flesh pigmentation, offering molecular tools to enhance product quality and pigment-use efficiency in breeding programs. Complementary transcriptomic and allele-specific analyses elucidated host regulatory mechanisms involved in the immune response to *Caligus rogercresseyi*, providing targets for strengthening genomic selection for parasite resistance. Multi-trait GWAS in rainbow trout revealed temperature-dependent genetic architectures for growth, generating resources crucial for adapting aquaculture to climate variability. Additionally, assessments of genetic diversity in Brazilian Nile tilapia populations established key baselines for designing resilient breeding nuclei that support long-term productivity and genetic sustainability. Together, these advances reinforce the genomic foundation needed for sustainable food production and environmentally robust aquaculture systems.

Collectively, these 2025 publications provide a coherent and strategically aligned contribution to MI-CGR Objective 3 by: (i) generating genomic resources that underpin conservation and ecological forecasting; (ii) advancing multi-omics and modelling tools for resilient and sustainable crop production; and (iii) developing biotechnology and functional food innovations rooted in genomic and metabolic diversity. Through these integrative advances, MI-CGR strengthens the genomic foundation required for biodiversity preservation, climate-adaptive agriculture, and sustainable biotechnological development.

2.1 Methodological and technical procedures

Research Questions and Hypotheses

At the conception of the MI-CGR, we set some research questions to guide our work. The main ones were:

- What are the fundamental genetic and evolutionary mechanisms used by organisms -and communities of organisms- to adapt and evolve in response to environmental factors and biological interactions?
- How are environmental signals perceived by plants, leading to transcriptional, metabolic, physiological, and ultimately phenotypic changes?
- What mechanisms explain genomic or metabolomic co-occurrence patterns?
- How can regulatory networks be established on a supra-organismal level?
- How can resilience and resistance be a factor in community dynamics in extreme environments or when confronted with local or global perturbations such as climate change?
- How and why are organisms living in the Atacama Desert, Antarctic niches, the ocean and areas near salmon and wine industries? And how are these networks of organisms configured by environmental change?
- How do changing environmental conditions (i.e. drought, climatic events) impact on the production and quality of commercially interesting fruits?

In the past 4 years, new and more specific questions have arisen:

- Is epitranscriptomics a mechanism of adaptation to stress conditions?

- What is the predominant strategy to mobilize genetic elements between organisms in natural extreme environments?
- What are the most frequent defense systems against mobile genetic elements in extreme environments?
- What is the mechanism used by an organism or community of organisms to choose its metabolic phenotype?
- What is the role of facilitation mechanisms for the survival of the species that inhabit the Atacama Desert?
- What are the metabolomic mechanisms associated to the facilitation and structuring processes of plant communities in Atacama?
- How paelogenomics and paleometabolomics can reliably capture ancient signals of adaptation to climate on species?
- How introgressive adaptation contribute to acquired variation that provides adaptation to Antarctica?

Methodologies and Techniques

Among the many methodologies and techniques employed by our group in 2025, here we highlight the main ones:

Research line 1 (RL1): Our research explores adaptation and convergent evolution through a multi-omics approach, integrating field experiments under varying environmental conditions with genomic, epigenomic, transcriptomic (mRNA, tRNA), proteomic, and metabolomic analyses, as well as paleogenomic approaches. Data analyses include phylogenetic reconstruction (e.g., using RAxML) and the incorporation of phylogenetic information into D-suite analyses to evaluate introgression among species and incomplete lineage sorting. Demographic history is inferred using coalescent-based methods such as PSMC and Stairway Plot. Population genetic structure is assessed using approaches such as ADMIXTURE, PCA, and F_{ST} . Adaptive evolution is evaluated by detecting signatures of selection among populations using outlier approaches (e.g., F_{ST} outliers, RAI_{SD}), as well as along phylogenetic branches using dN/dS methods (e.g., CodeML), followed by functional enrichment analyses. Introgressive adaptation is investigated by combining introgression detection methods with selection scans, while convergent evolution is assessed by identifying selection signals on phylogenetic branches of independently evolved clades. A comparative genomics approach is used to assess genome size, structural variation, and transposable element content. Metabolite extraction from rodent middens in desert environments and subsequent profiling are conducted to characterize chemical diversity over time. Finally, genomic variation under selection and gene expression patterns are analyzed across environmental gradients (abiotic factors) and in response to biotic interactions, including associations with commensal and pathogenic microorganisms.

Research line 2 (RL2): We integrate biochemical (chromatography, spectrophotometry, enzymatic assays, antioxidant capacity), molecular (gene and tRNA sequencing using nanopore technology), and microbiological techniques (microorganism isolation, culture maintenance of cyanobacteria, bacteria,

fungi, and archaea). We evaluate microbial biomass concentration and diversity in natural and extreme environments (e.g., Atacama Desert soils and hot springs, Antarctic ecosystems, marine environments) through DNA extraction, shotgun sequencing, and Illumina-based metabarcoding. Meta-omics approaches—including metagenomics, metatranscriptomics, and metaviromics—are combined with environmental metadata (soil nutrients, pH, temperature, humidity) to understand microbial dynamics. We employ systems biology, mathematical modeling, and data science approaches. Specifically, we use multi-objective optimization to explore metabolic capacities within microbial communities or specific organisms. Community-level biological characteristics—such as genomic features, metabolic genes, regulatory elements, and taxonomic profiles—are analyzed using machine learning and artificial intelligence tools. Techniques are employed combining systems biology, mathematical modeling, and data science. More specifically, multi-objective optimization techniques to explore the metabolic space determined in bacterial communities or by specific organisms. Abundance of a community's biological characteristics (mostly genomic, such as metabolic genes, regulatory signals, and taxonomy) are evaluated using data learning methods and artificial intelligence.

Research line 3 (RL3): We integrate multiple approaches to generate data for biodiversity conservation. Species distribution models (SDMs) are built using occurrence data from GBIF and climatic predictors from WorldClim, applying six algorithms within the biomod2 framework with pseudo-absences, cross-validation, and evaluation metrics (TSS, AUC), followed by ensemble modeling. Future distributions are projected under CMIP6 scenarios (SSP2-4.5 and SSP5-8.5). Genomic connectivity is estimated using EEMS from whole-genome SNP data and integrated into spatial analyses. When relevant, ecological interactions (e.g., foraging and nesting niches) are incorporated into SDMs. Spatial prioritization is conducted using Zonation to identify areas of high suitability and connectivity for conservation planning. Genomic diversity and vulnerability are assessed using SNP density and runs of homozygosity (ROH), from which inbreeding coefficients (FROH) are estimated using PLINK v2.0 and BCFtools. Population-level metrics, including private alleles, nucleotide diversity, Tajima's D, FIS, and heterozygosity, are calculated using VCFtools. For wildlife disease surveillance (e.g., avian influenza), viral genomes are amplified, sequenced, and analyzed phylogenetically to infer transmission dynamics. Viral RNA is extracted from field samples, influenza A virus is detected by RT-qPCR targeting the matrix gene, and H5 subtyping is performed. Genomes are sequenced using ONT, aligned with MAFFT, and phylogenies reconstructed with IQ-TREE. Serological exposure is assessed using ELISA assays.

In agriculture research, genomic and transcriptomic approaches (e.g., RNA-Seq) were used to identify molecular signatures of stress adaptation and developmental processes in plants and microorganisms. Multi-omics data integration (transcriptomics, metabolomics including lipidomics based on GC-MS, LC-MS and tims-TOF platforms, small RNAs, lnc-RNA and GWAS) was applied to characterize gene networks, metabolic pathways, and QTLs associated with key agronomic traits or phenotypes of interest during production and postharvest. Thorough phenotyping was assessed incorporating destructive and non-destructive tools. Omics-data integration was based on DIABLO (Data Integration Analysis for Biomarker discovery using Latent cOmponents), which is based on sparse Partial Least Squares Discriminant Analysis (sPLS-DA) to a multi-block context.

In aquaculture research, breeding programs, selection candidates for Atlantic salmon, rainbow trout, and tilapia have been genotyped using high-throughput platforms, such as SNP arrays. Quality control filters are applied to the resulting genotype datasets to ensure reliability and consistency. Tools such as PLINK 1.9 beta and statistical packages in R (e.g., GenABEL) are commonly employed to

perform filtering based on parameters such as minor allele frequency (MAF), SNP call rate, and deviation from Hardy-Weinberg equilibrium, among others. The curated SNP data are subsequently used to estimate genomic and genetic breeding values (GEBVs and EBVs, respectively) for selection candidates. These estimations are typically conducted using genomic evaluation methodologies, notably the Genomic Best Linear Unbiased Predictor (GBLUP), implemented via the BLUPF90, software written in Fortran 90/95 designed for mixed model equations in animal breeding. The single-step GBLUP (ssGBLUP) approach integrates both genotypic and phenotypic information in a unified framework, allowing for improved accuracy of selection. Our project also applies RNA-seq, bacterial whole-proteome mass spectrometry, and confocal microscopy to unravel the regulatory pathways involved in *P. salmonis* infectivity and stress responses during intracellular growth. Microbial genomics and genomic surveillance (whole-genome sequencing and epidemiological modeling) were used to assess diversity, antimicrobial resistance, and pathogen transmission.

Open Science

Our team preferentially uses open access repositories and online research tools. Genomics, transcriptomics, and methylomic data (ej. FASTQ files) from the analysis of all three research lines and different organisms are deposited in NCBI repository (<https://www.ncbi.nlm.nih.gov/>). Metabolomics generated data is freely as supplementary files in publications. These datasets follow the Metabolomics Standards Initiative. Selected list of native eucaryotic species to be sequenced for *de novo* genomes are available in Goat platform (<https://goat.genomehubs.org/>). All script used on different publications are deposited on Github (<https://github.com/>), ecological data are available in dryad (<https://datadryad.org/>), and other repositories as IMG/VR v4 (<https://img.jgi.doe.gov/vr/>), GTDB-tk r220 (<https://gtdb.ecogenomic.org/>), Refseq (<https://www.ncbi.nlm.nih.gov/refseq/>), BioArt (<https://bioart.niaid.nih.gov/>), GISAID (<https://gisaid.org/>), and ModENCODE (<http://data.modencode.org/>).

2.2 Researchers distribution

Category of researcher	Quantity	Average age	Nationality		Distribution Gender		
			National	International	Male	Female	Not stated
Director	1	63	1	0	1	0	0
Alternate Director	1	46	0	1	0	1	0
Principal Researcher	7	58	5	2	4	3	0
Adjunct researcher	10	50	8	2	5	5	0
Young Researcher	24	36	23	1	15	9	0
Postdoctoral	22	40	20	2	11	11	0
Senior Researcher	4	62	0	4	2	2	0

2.3 **Associative & collaborative work**

Millennium Institutes are expected to go beyond funding individual scientific projects to generate multidisciplinary knowledge and advance scientific progress in a groundbreaking manner. To meet this expectation, we have focused on fostering an environment that encourages synergy and the exchange of diverse perspectives and expertise, as well as providing the necessary resources and support for collaborative research. In 2025, 30% of our research articles resulted from collaborative efforts among IM-CRG researchers.

Among the collaborative publications in 2025, we would like to highlight the study titled ‘A recent and rapid genome expansion driven by the amplification of transposable elements in the Neotropical annual killifish *Garcialebias charrua*’, that was the result of a collaborative work between research lines 1 and 2. This study involved 4 Principal Researchers, 2 Adjunct Researchers, 1 Young Researcher, and 1 former student, and was published in the journal Biological Research. It used comparative genomics and sequencing to characterize the Neotropical annual killifish *Garcialebias charrua*. The study elucidated the structural genomic basis, specifically a massive expansion of repetitive elements, underlying the fish’s extreme adaptation of embryonic diapause to survive a seasonally arid, desiccation-prone habitat. These findings offer a novel comparative model for investigating the molecular bases of adaptation in the *Orestias* fish and other species tolerant of extreme conditions, directly addressing the MI-CGR’s core objectives. Additionally, the study focuses on eukaryotic genome structure and the dynamics of transposable elements (TEs) in a fish model, quantitatively describing how TEs drive genomic changes in the fish genome versus how interactions govern genomic features in microbial communities.

We would also highlight the article titled ‘Modeling the emergent metabolic potential of soil microbiomes in Atacama landscapes’ published in the journal Environmental Microbiome, which involved three Principal Researchers and two Young Researchers, within the framework of the formal collaborative network with INRIA-Équipe Associé. This study is highly relevant to defining functional and environmental interactions in Atacama biotopes, through the direct analysis of metagenomes and metagenome-assembled genomes (MAGs) from the Atacama Desert’s Talabre Lejía transect. It used a computational framework coupling taxonomic and functional profiling with community-wide metabolic modeling, the authors quantified the emergent metabolic potential of soil microbiomes and examined the roles of metabolic adaptation and functional redundancy. The results establish links between site-specific physicochemical conditions and the metabolic capabilities that support prokaryotic life in this extreme desert environment. In addition, the analytical framework of the study also contributes to ongoing efforts to identify novel biologically active compounds and pigments from extremophilic microorganisms, particularly those associated with puna ecosystems, with potential biotechnological applications.

We also note the study conducted on King George Island ‘Microbial Communities in Permafrost, Moraine and *Deschampsia antarctica* Rhizosphere Soils near Ecology Glacier (King George Island, Maritime Antarctic)’. This article, published in the journal Diversity, involved researchers from both lines 2 and 3. One Principal Researcher, one Adjunct Researcher, and two Young Researcher. The study assessed the diversity, structure, and dynamics of bacterial, archaeal, and fungal communities in Antarctic soils types (permafrost, moraine, and rhizosphere) using amplicon sequencing, providing data on microbial communities that are essential for defining environmental interactions. The results provide baseline data for understanding microbial community organization and environmental interactions, and reveal clear differences in community composition among soil types. Importantly, the study also examines microbial community shifts associated with glacial retreat, contributing to the understanding of climate change impacts on Antarctic biodiversity. The identification of microorganisms adapted to

cold and oligotrophic conditions further supports future biotechnological exploration of taxa with potentially novel metabolic traits and enzymatic functions, in line with MI-CGR objectives.

Network Projects

In 2023, we set aside special funds for collaborative projects that are led by an Adjunct Researcher and in which multiple Associate Researchers effectively interact with each other and with Adjunct Researchers. These projects -dubbed “Network Projects”- have resulted in students and Postdoctoral Researchers that are co-mentored by more than one MI-CGR Researcher. Here is a summary of the progress of each Network in 2025:

Network 1: During 2025, our project achieved advances across three complementary lines of work centered on codon usage dynamics, tRNA biology, and translational responses in extremophile cyanobacteria, antibiotic responses in *E. faecalis* and comparison in Antarctic and temperate penguins. In *Nodularia* sp. TAL-12, a cyanobacterium from the Atacama Desert, we generated high-quality transcriptomes and tRNA nanopore sequencing datasets from cells exposed to 0, 48, and 96 hours of UV radiation. These analyses revealed pronounced shifts in codon usage associated with stress-response and DNA-repair pathways, together with differential expression of enzymes from the Tsa and Mnm complexes responsible for t⁶A³⁷ and mnm⁵U³⁴ formation. Replicate-consistent tRNA abundance estimates (Spearman correlations up to ~0.93) and condition-specific error-profile signatures identified several tRNAs potentially affected by UV-induced changes in RNA modification or damage response. Collectively, these findings support a model in which translational adaptation to UV stress arises from coordinated plasticity in codon bias, tRNA supply, and the tRNA epitranscriptome.

The analysis of *E. faecalis* revealed no global changes in codon usage across conditions, despite identifying 25 tRNA-modifying enzymes and condition-specific expression shifts. Vancomycin strongly induced most van resistance genes, and several tRNA-modifying enzymes (including RlmN, Tgt, TilS, and TrmM) showed significant differential expression linked to stress and antibiotic response. These results highlight a potential role for targeted tRNA modifications in modulating decoding efficiency and antibiotic adaptation.

In parallel, we advanced a comparative genomic analysis of four penguin species spanning Antarctic and temperate environments. Codon usage profiles (RSCU), PCA, and hierarchical clustering revealed a clear ordering of species along a thermal gradient: *Aptenodytes forsteri* displayed the most divergent profile, *Eudyptula minor* and *Spheniscus mendiculus* clustered closely together, and *S. demersus* occupied an intermediate position. Internal biases were particularly notable for leucine, alanine, and glutamine, whereas most amino acids exhibited nearly uniform synonymous usage. Low correlations between codon frequencies and tRNA gene copy numbers ($r \approx 0.22$ – 0.28) indicated only partial codon–tRNA coadaptation, suggesting that additional genomic factors contribute to the observed patterns. Both projects also supported student training (Ms. And PhD thesis), the development of reproducible analytical pipelines and presentations in national and international meetings.

Network 2: The project ‘Identification of regulatory mechanisms activated during the combined transcriptional response to *Pseudomonas syringae* cv. *syringae* infection in sweet cherry’, led by Mauricio Latorre (UOH) in collaboration with Alejandro Maass (University of Chile), Lorena Pizarro (UOH), and Víctor Aliaga (UMayor), progressed satisfactorily, fully meeting all committed milestones. We identified mRNAs encoding transcription factors (TFs) that were differentially expressed across the 24 analyzed transcriptomes, and integrated the associated regulatory mechanisms into a transcriptional regulatory network model that explains the dynamics of genes involved in hormonal pathways, stress

responses, and plant defense. Additionally, progress was made in the selection and preliminary validation of TFs and their transcriptional targets through qPCR (all objectives achieved).

Regarding human capital development, UOH Biotechnology Master's student Daniela Muñoz completed her thesis associated with the project (approved; degree awarded April 14, 2025, with highest distinction). In terms of dissemination, the work was presented at the 6th Argentine Phytopathology Congress, highlighting the integrative network-based approach to plant immunity. The remaining project products are in their final stages: the scientific article will be submitted between January and March 2026. The project was supported by complementary funding from the University of O'Higgins, ANILLO ACTO190001, ANILLO ACTA210004, and the BioSAV Center for Plant Health.

Network 3: The project 'Identification of Microbial Biomarkers in the Carposphere of *Persea americana* for the Early Prediction of Physiological Disorders' evaluated whether the carposphere microbiome at harvest can serve as an early indicator of postharvest behavior. Using amplicon sequencing of bacterial (16S rRNA) and fungal (ITS) markers, we characterized the surface microbiome across orchards and seasons. Although overall microbial diversity did not differ between fruits that ripened normally and those that developed Color–Firmness Desynchronization, several bacterial and fungal taxa exhibited differential abundance between phenotypes. A subset of these microbial markers appeared in both seasons, suggesting partially reproducible signatures that reflect physiological differences present before storage. Furthermore, predictive modeling based on fungal community composition revealed that microbiome profiles at harvest contain meaningful information for anticipating ripening outcomes. Together, these findings indicate that the carposphere microbiome can contribute to early detection strategies for improving postharvest management, reducing quality losses, and strengthening the sustainability of avocado supply chains. Ultimately, this work establishes the foundation for microbiome-informed strategies to reduce postharvest losses and improve the export quality of Hass avocado.

Future work will focus on developing predictive models using the most consistent biomarkers, incorporating shotgun metagenomics to characterize functional traits underlying biomarker taxa, and developing targeted molecular assays for the most informative markers.

Network 4: In 2025, our project advanced substantially on its four main objectives, combining field ecology, phylogenetics, soil biogeochemistry and metagenomics in plant communities of the Atacama Desert. We quantified plant–plant interactions using the Relative Interaction Index (RII) at the species level and Community Weighted Means (CWM) at the community level, showing that—as predicted by the Stress Gradient Hypothesis—facilitative interactions are stronger at lower elevations, where water limitation and environmental stress are highest. We also found that this facilitation is associated with local increases in soil nitrogen and carbon but does not necessarily translate into higher overall vegetation cover, which appears to be constrained by large-scale environmental gradients.

To explore evolutionary patterns of facilitation, we constructed a phylogenetic tree including all species in our census and mapped nurse–facilitated pairs onto it. Preliminary analyses indicate that nurse and facilitated species typically belong to different plant families and that facilitative pairs are, on average, neither more nor less phylogenetically related than expected by chance, with this pattern varying along the elevational gradient. In parallel, metagenomic analyses comparing plants growing alone versus plants involved in facilitative interactions have focused on metabolites linked to elevation and stress responses. These analyses revealed a set of largely unannotated metabolites that likely play a role in stress tolerance and plant–microbe interactions and are currently under further investigation.

During 2025, these advances were disseminated through conference presentations and student training activities within the MI-CGR network. The project supported the research of graduate students

working on plant–plant interactions, soil processes and microbial ecology, and is generating manuscripts in preparation that will strengthen the scientific visibility of the Chilean research community working in extreme environments.

2.4 **Results and impact**

Academic Productivity

During the reported period, we published 64 research articles in peer-reviewed journals and 4 books or book chapters. As a center with a highly multidisciplinary nature, we emphasize that most MI-CGR publications are featured in prestigious journals within the subfields we focus on, and that the increase in the average impact factor of our publications has been solid and steady.

We highlight the study that importantly involved one MI-CGR doctoral student, titled ‘Nitrate sensing and signaling in plants: comparative insights and nutritional interactions’, and published in the journal *Annual Review of Plant Biology*. This work, that also involved one Principal Researcher and one Senior Researcher, describes the synthesis of the molecular and genetic architecture, such as the Primary Nitrate Response (PNR) and Nitrogen Starvation Response (NSR), underlying plant adaptive strategies to highly fluctuating nutritional environments. It employed a comparative genomics approach, analyzing the conservation and evolution of nitrate-sensing mechanisms across diverse plant lineages, Bacteria, and Archaea, assessing convergent evolution and adaptation to extreme conditions. This work established a framework for developing biotechnological solutions to enhance Nutrient Use Efficiency (NUE), providing direct applications for developing resilient cultivars in arid and resource-limited agricultural systems.

We also draw attention to the study focused on the Atacama Desert endemic plant *Cistanthe longiscapa*, that involved one Principal Researcher and one Adjunct Researcher. The study of *C. longiscapa* genomics is among the MI-CGR objectives and has been a flagship species for the team. The article titled ‘*Cistanthe longiscapa* exhibits ecophysiological and molecular adaptations to the arid environments of the Atacama Desert’ was published in the journal *Plant Physiology* and assessed the ecophysiological and transcriptomic responses of the species to varying aridity, focusing on Crassulacean Acid Metabolism (CAM) as a water-efficient photosynthetic strategy. Uncovering the genetic basis of this stress tolerance and identifying key genes (e.g., NADP-ME, TDT, NCED3) involved in CAM modulation contributes to the development of biotechnological solutions for improving water use efficiency and drought tolerance in economically important crops.

We also highlight the article titled ‘Combined multi-omics and physiological approaches to elucidate drought-response mechanisms of durum wheat’, led by one Principal Researcher, one Adjunct Researcher and one Young Researcher. This study, published in the journal *Frontiers in Plant Science*, employed integrated multi-omics (genomics, transcriptomics, metabolomics) and physiological analyses on *Triticum turgidum* L. ssp. *durum* to identify drought-response mechanisms in agricultural ecosystems. Thus, this work contributes to the goal of proposing biotechnological solutions for sustainable food production under extreme climate conditions.

Another relevant contribution is the study led by MI-CGR students and former students, titled ‘Genomic Introgression and Adaptation of Southern Seabird Species Facilitate Recent Polar Colonization’. This article, published in the journal *Molecular Biology and Evolution*, also involved one Principal Researcher and one Young Researcher, in the context of the formal collaborative network with the Millennium Institute for the Biodiversity of Antarctic and Subantarctic Ecosystems. The study used whole-genome sequences and comparative population genomics in three skua species (*Stercorarius* spp.) to identify genomic adaptations and introgression events that facilitate adaptation to extreme cold, polar environments. Genomic data revealed that skuas underwent diversification around the Penultimate Glacial Period, followed by subsequent demographic expansion. The three skua species and admixed

individuals exhibited a unique pattern of putative genes under selection, allowing adaptation to extreme conditions. Individuals with a higher proportion of Brown Skua ancestry showed signs of selection on genes related to reproductive isolation, while admixed individuals with a higher proportion of South Polar Skua ancestry displayed patterns resembling those of the South Polar Skua. Overall, the study found that introgression may be a key mechanism of adaptation for many species that may help buffer against the ongoing climate change.

Finally, we highlight the study led by a MI-CRG Postdoctoral Researcher, titled ‘Integration of lipidomics and transcriptomics provides new insights into lipid metabolism in response to water deficit in *Prunus spp.* rootstock leaves’, and published in the journal *Environmental and Experimental Botany*. This article, that also involved one Principal Researcher, one Adjunct Researcher and one Young Researcher, used an integrated physiological, transcriptomic, and lipidomic approach to elucidate drought-response mechanisms in *Prunus* species rootstock, revealing that the drought-tolerant genotype exhibits enhanced accumulation of ceramides, unsaturated fatty acids, and triacylglycerols, providing crucial molecular biomarkers for developing resilient cultivars and promoting agricultural sustainability.

Social Impact

In 2025, MI-CGR’s outreach and external engagement activities combined broad public reach with clear connections to societal challenges. The Center conducted 32 outreach activities across five regions of Chile, engaging at least 6,061 participants, and generated 135 media contributions, including interviews and press coverage. These efforts contributed to maintaining genomics within the public conversation while fostering direct interaction with diverse audiences.

Beyond dissemination, MI-CGR’s research continued to demonstrate relevance to key productive and environmental sectors. In agriculture, research outputs and collaborative activities supported advances in postharvest quality in avocado, grapevine improvement, hydroponic systems, pathogen surveillance in irrigation water, and approaches to more sustainable food production. In parallel, work on crop genomics and stress responses contributes to longer-term strategies for climate-resilient agriculture. In aquaculture, the Center generated knowledge relevant to the control and understanding of Salmon Rickettsial Septicaemia, the dynamics of antibiotic resistance in farming environments, and the development of genomic tools to support selective breeding in commercially important species. These contributions are aligned with sectoral needs for improved sustainability and disease management.

MI-CGR also contributed to environmental monitoring and biodiversity conservation through genomic approaches applied to extreme and sensitive ecosystems, as well as through initiatives such as the Chilean 1,000 Genomes Project. This initiative has strengthened connections with public institutions, industry, and regional partners, while advancing the generation of genomic resources for species of ecological, economic, and cultural relevance. Finally, activities such as the workshop in Rapa Nui illustrate the integration of research and community engagement, linking genomic research with local knowledge, education, and cultural heritage. Together, these efforts position MI-CGR as a contributor to evidence-based decision-making and to the development of sustainable solutions across multiple sectors in Chile.

Summary table

Category of Publication ¹	MSI Center Members	Number of Publications coauthored by students	Total Number of Publications
ISI/WOS Publications or Similar to ISI/WOS Standard	Associate Researchers	11	35
	Others Researchers	5	28
SCOPUS Publications or Similar to SCOPUS Standard	Associate Researchers	0	0
	Others Researchers	0	1
SCIELO Publications or Similar to SCIELO Standard	Associate Researchers	0	0
	Others Researchers	0	0
Books & Chapters of Books	Associate Researchers	1	1
	Others Researchers	0	3
Other Scientific Publications	Associate Researchers	0	0
	Others Researchers	0	0
Total		17	68

¹We checked the journal's listing on the Web of Science Master Journal List, either by title or ISSN number.

3. Other relevant scientific achievements

Scientific Events

Our research team presented its work at 47 congresses and scientific meetings in 2025, Our research team presented its work at 47 congresses and scientific meetings in 2025, 39% of them internationally.

MI-CGR researchers were Keynote Speakers in 9 events, and of 167 oral presentations and posters, 123 were delivered by students, Postdoctoral Researchers, and Young Researchers.

We organized scientific events, including Global Ocean Systems Ecology and Evolution (GOSEE) 2025: *An eco-systems biology view of ocean genomics*, held in Punta Arenas, Chile, and organized by Principal Researcher Dr. Alejandro Maass in collaboration with the Center for Mathematical Modeling, the University of Nantes, and Stazione Zoologica of Naples. MI-CGR Director Dr. Miguel Allende also participated again in organizing the International School of Science Education (ISSE), held in Heidelberg, Germany, in collaboration with the European Molecular Biology Laboratory (EMBL). MI-CGR researchers also participated in the Annual Meeting of the Society for Molecular Biology & Evolution (SMBE) and organized symposia at the XLVII Annual Meeting of the Chilean Biochemistry and Molecular Biology Society, the LVIII Annual Meeting of the Chilean Genetics Society, the XVII Plant Biology Meeting, the IV Annual Meeting of the Chilean Bioinformatics Society, the XLVII Annual Chilean Microbiology Society Meeting, and the First Trinational Meeting on Ecology.

We hosted 6 Interactomics seminars: including presentations by MI-CGR students and former students, a conference by a Spanish collaborator, and one aimed to explore collaboration opportunities with an Argentinian genomics company.

We also organized the second workshop of the Chilean 1,000 Genomes Project, with over 150 attendees and keynote speakers Dr. Harris Lewin, Chair of the EBP, and Dr. Patrick Wincker, Director of Genoscope. The Chilean 1,000 Genomes Project and MI-CGR organized the Workshop on Genomic Biodiversity in Extreme Environments in Rapa Nui. Scientifically, it aimed to generate the reference genome for the sea snail *Monetaria caputdraconis*, locally known as “pure snail,” found only in Rapa Nui and Salas y Gómez Island, and for the seabird *Pterodroma atrata* (Henderson petrel), which nests exclusively on Henderson Island, a World Heritage Site in the South Pacific, is usually sighted at Rapa Nui, and is believed to be declining. On the other hand, the outreach component included an open fair, a photographic exhibition, and a community science fair. Held on April 28 and 30, 2025, these activities engaged basic and high school students and the broader community; the workshop with the open fair and photographic exhibition reached 50 participants, while the community science fair reached 250 participants.

Technological Transference and Industrial Property

Although patenting is not an explicit aim of a Millennium Institute, whose priorities are frontier scientific research, the training of young scientists, formal collaborative networks, and scientific communication, we recognize that these institutions should provide value to society and that patenting is one way to do so. Adjunct Researchers are currently involved in three in-process patents: one molecular method to quantify *L. monocytogenes*, *Salmonella*, and STEC, and two bleaching methods to extract elements from mining tailings using *Pseudomonas* strains. These patents also include doctoral candidates and master’s students.

Editorial Boards

Eight Principal Researchers and two Adjunct Researchers are part of the Editorial Boards of 14 scientific journals, all of which are ISI/WoS. These journals are some of the top in their respective fields in the Scimago Journal Rank (SJR).

- Dr. Miguel Allende has been on the Editorial Board of the journals *Mechanisms of Development* since 2010, and *Gene* since 2011. The first one is an international journal covering the areas of cell biology and developmental biology, while the latter focuses on gene expression, function, and evolution in all organisms.
- Dr. Alejandro Maass has been on the Editorial Board of the journal *Discrete and Continuous Dynamical Systems* since 2019. This journal publishes peer-reviewed papers of the highest quality on the theory, methods and applications of analysis, differential equations and dynamical systems and is in the top 10 journals on discrete mathematics and combinatorics in the SJR.
- Dr. Romina Pedreschi has been on the Editorial Board of the journal *Postharvest Biology and Technology* since 2016. This is a top journal in the field of postharvest biology and technology and is in the top 30 journals on agronomy and crop science in the SJR.
- Dr. Rodrigo Gutiérrez has been on the Editorial Board of the *Journal of Experimental Botany* since 2010, *Molecular Plant* since 2017, and *The Plant Cell* since 2018. These are in the top 30 journals on plant science in the SJR.
- Dr. Ariel Orellana has been on the Editorial Board of the journal *Frontiers in Plant Sciences* since 2012. This journal is in the top 60 journals on plant science in the SJR.
- Dr. Beatriz Díez has been on the Editorial Board of the journal *International Microbiology* since 2018. This journal is in the top 100 journals on microbiology in the SJR.

- Dr. Verónica Cambiazo, Dr. Mauricio González and Dr. Martin Montecino are on the Editorial Board of the journal Biological Research, published by the Society of Biology of Chile. This is an open access, peer-reviewed journal that encompasses diverse fields of experimental biology, such as biochemistry, bioinformatics, biotechnology, cell biology, cancer, chemical biology, developmental biology, evolutionary biology, genetics, genomics, immunology, marine biology, microbiology, molecular biology, neuroscience, plant biology, physiology, stem cell research, structural biology and systems biology.
- Dr. Claudio Latorre has been on the Editorial Board of the journals Quaternary Science Reviews since 2022, and Climate of the Past since 2021. Climate of the Past is the number one journal on paleontology in the SJR, while Quaternary Science Reviews is in the top 20 journals on geology in the SJR.

Awards and Accolades

MI-CGR researchers are highly distinguished in their respective fields and continue to make a strong impact in the areas they study. This was recognized by external entities in different ways:

- Dr. Alejandro Maass was acknowledged with the National Prize in Exact Sciences, an award that is granted by Chilean Academy of Science to outstanding scientific trajectories with multidisciplinary impact and international recognition. Dr. Maass was praised for going beyond mathematics and integrate biology and ecology in his studies of the ocean, salmon, and bioleaching.
- Dr. Ariel Orellana was invited by the Spanish Society for Biochemistry and Molecular Biology to deliver de Neimeyer Conference in its 2025 Annual Meeting, and by the Society for Biochemistry and Molecular Biology of Chile to deliver the Osvaldo Cori Conference in its 2025 Annual Meeting. Both are a recognition of Dr. Orellana's trajectory and contributions to the field.
- Dr. Martin Montecino was elected President of the Society for Biochemistry and Molecular Biology of Chile, a recognition of his peers to his academic career.
- Dr. Angélica Reyes was recognized at her university for her academic productivity (Wos publications in the top 6% of her discipline) and for her contribution to solving problems of national relevance.
- Dr. Liane Bassini was awarded the Teaching Innovation Prize at her university.

In addition, the Center for Genome Regulation Foundation received an award for its commitment to transparency and excellence in management.

4. Education and Capacity Building Education, Training and Capacity Building:

MSI RESEARCHER	NUMBER									TOTAL NUMBER PER MSI RESEARCHER
	Undergraduate students			Graduate students						
				Masters			Doctoral			TOTAL
F	M	ND	F	M	ND	F	M	ND		
Miguel Allende	0	0	0	2	2	0	0	0	0	4
Juliana Vianna	4	6	0	3	2	0	13	4	0	32
Rodrigo Gutiérrez	2	0	0	0	0	0	9	4	0	9
Romina Pedreschi	0	0	0	0	2	0	3	1	0	6
Beatriz Díez	1	1	0	0	1	0	1	2	1	7
Ariel Orellana	0	0	0	0	0	0	1	4	0	5
Alejandro Maass	1	1	0	1	1	0	0	2	0	6
Verónica Cambiazo	0	1	0	0	0	0	3	0	0	4
Mauricio González	1	0	0	0	0	0	0	0	0	1
Alexandra Galetovic	0	2	0	0	1	0	0	0	0	3
Álvaro Glavic	0	0	0	2	2	0	2	0	0	6
Aurora Gaxiola	9	2	0	1	1	0	3	3	0	19
Angélica Reyes	2	0	0	1	2	0	1	1	0	7
Martín Montecino	1	1	0	0	0	0	0	2	0	4
Jacqueline Acuña	0	0	0	0	0	0	1	1	0	2
Liane Bassini	0	1	0	0	0	0	0	0	0	1
Mauricio Latorre	1	0	0	4	2	0	0	2	0	9
Claudio Latorre	0	7	0	1	0	0	1	0	0	9
Claudio Meneses	0	1	0	0	1	0	3	4	0	9
TOTAL	21	22	0	13	15	0	31	27	1	130

Comments to the 2024 Annual Report

First, we would like to address the evaluation given to our 2024 Annual Report in terms of education and training, where the reviewer stated that ‘*One would hope – no specific information is provided – that the students and postdocs of the Center could take advantage of this wide variety of expertise of the Center’s members, e.g. by exchanges between groups and institutions. This should be emphasized, if not already implemented*’. Although it has not been formalized, we eagerly promote the exchange of students between groups and institutions, and the co-tutoring of students by more than one MI-CGR Researcher. Just to mention a few examples from 2025, some doctoral students were co-tutored by MI-CGR Researchers from different institutions, providing them with a broader perspective of their research and a wider range of scientific methods. In addition, 6 students and 1 Postdoctoral Researcher did internships in institutions at Brazil, Spain, France, and Peru, mostly financed by external funding earned by MI-CGR Principal Researchers.

Formal Training Programs

MI-CGR Researchers integrate a variety of Academic Councils in their institutions and actively participate in teaching activities:

Director Dr. Miguel Allende together with Associate Researcher Dr. Mauricio González and Adjunct Researcher Dr. Álvaro Glavic from the University of Chile integrate the Academic Council of the Doctoral Program in Cell Biology, Molecular Biology and Neurosciences. Dr. Allende is also an Adjunct Member of the Academic Council of the Doctoral Programs in Biotechnology and Microbiology; he too serves as coordinator and lecturer in these programs’ courses. In addition, Dr. Allende regularly acts as an external evaluator in postgraduate thesis examinations in different

universities across the country. Dr. Glavic also serves as lecturer in the Doctoral Program in Biomedical Sciences and undergraduate degrees in Molecular Biotechnology Engineering, Biology, and Chemistry. Dr. González together with Associate Researcher Dr. Verónica Cambiazo from the University of Chile integrate the Academic Council of the Doctoral Program in Molecular Biotechnology. Dr. González also integrates the Academic Council of the Doctoral programs in Nutrition and Food Technology, and Agricultural and Forestry Sciences. Dr. Verónica Cambiazo also integrates the Academic Council of the Doctoral programs in Agricultural and Forestry Sciences.

Deputy Director Dr. Juliana Vianna and Adjunct Researcher Dr. Aurora Gaxiola from the Pontifical Catholic University of Chile integrate the Academic Council of the Doctoral Program in Biological Sciences with specialization in Ecology. Dr. Vianna also integrates the Master Program in Natural Resources from her university, and of the Doctoral Program in Bioinformatics of the Andrés Bello University.

Associate Researcher Dr. Alejandro Maass from the University of Chile integrates the Academic Council of the undergraduate program of Mathematical Civil Engineer, of the Master programs of Engineering Sciences with a specialization in Applied Mathematics, Data Science, and Medical Informatics, and of the Doctoral Program of Engineering Sciences with a specialization in Mathematical Modeling. He also serves as lecturer in these programs' courses and as a member of evaluation committees.

Associate Researcher Dr. Beatriz Díez integrates the Doctoral Program in Integrative Genomics at Mayor University, where she serves as lecturer in microbial ecology courses.

Associate Researcher Dr. Romina Pedreschi from the Pontifical Catholic University of Valparaíso integrates the Academic Council of the Master Program in Agronomical and Environmental Sciences and the Doctoral Program in Agricultural and Food Sciences.

Associate Researcher Dr. Rodrigo Gutiérrez together with Adjunct Researchers Dr. Claudio Meneses and Dr. Claudio Latorre from the Pontifical Catholic University of Chile integrate the Academic Council of the Doctoral Program in Biological Sciences with specialization in Molecular Genetics and Microbiology. Dr. Meneses is the Director of the Doctoral Program in Vegetal Biotechnology and Dr. Gutiérrez integrates its Academic Council.

Associate Researcher Dr. Ariel Orellana from the Andrés Bello University integrates the Academic Council of the Doctoral Program in Biotechnology and also the Doctoral Program in Bioinformatics and System biology at the UNAB.

Adjunct Researcher Dr. Alexandra Galetovic from the University of Antofagasta coordinates undergraduate courses such as Toxicology, Biochemistry of Extremophile Microorganisms, and Enzymology for the degrees of Biochemistry, Marine Biology, Medicine, and Nutrition.

Adjunct Researcher Dr. Mauricio Latorre from the University of O'Higgins is the Director of the Master Program in Biotechnology and integrates the Academic Council of the Doctoral Program in Bioengineering from his university and the Master Program in Nutrition and Food with specialization in Healthy Food from the University of Chile.

Training Present and Future Researchers

In 2025, 128 students received training and mentorship at the MI-CGR. Moreover, 22 Postdoctoral Researchers and 25 Young Researchers took part in the research team, actively working towards the objectives of the MI-CRG. Out of the 128 students, 65 (51%) were female, 62 (48%) were male and 1 (1%) was non-binary. Even though these are good percentages, we are outlining a formal plan to incorporate more female students, with an emphasis on regional students.

During the reported period, 46 students completed their thesis projects, of which 22 were undergraduate students, 12 were Master's, and 12 were Doctorate's. Most of the students that finished their PhD's went on to a postdoctoral position, either in the MI-CGR or in a different institution. Notably, some students secured positions in the industry, further confirming that the training provided by the MI-CGR prepares graduates across multiple professional contexts, even beyond academia.

As mentioned earlier, 6 students and 1 Postdoctoral Researcher did internships in institutions at Brazil, Spain, France, and Peru, where they were able to develop technical and soft skills, built professional networks with mentors and peers, and gained practical knowledge of diverse research environments. In 2025, the MI-CRG hosted 10 internships: 4 students (2 national, 2 international) and 6 researchers (all international). International interns came from United States, Spain, France, and Portugal. The MI-CRG was able to finance some of these internships and we hope to set aside funds to foster more international mobility over the next year.

Students were co-authors in 18% of the research articles published in 2025, even as first authors. Postdoctoral and Young Researchers were first authors in 11 publications. Furthermore, students and young researchers were crucial for the dissemination of our work in congresses and scientific meetings in 2025: out of a total of 167 oral presentations and posters in 47 events, 123 were delivered by students, Postdoctoral or Young Researchers.

Notably, in 2025 we held the first Meeting of MI-CRG Students and Young Researchers, which served as an opportunity for them to present their theses and interact with former MI-CGR students. This event was meant to provide students, Postdoctoral and Young Researchers, with a structured space to establish collaborations and integral tools for their scientific careers too. Furthermore, in 2025 we organized numerous activities specifically targeted for students and young researchers, such as a panel discussion on international mobility, and a crash course on artificial intelligence for academic writing.

Across the 32 outreach activities reported for 2025, a total of 70 student participations were recorded. Outreach efforts also involved 3 Young Researchers participating in 9 activities and 1 Postdoctoral researcher participating in 1 activity.

5. Collaborative networks

With a modest increase from 2024, in 2025 we accounted for 26 formal collaborative networks. It is to be noted that 20% of the research articles resulted from a formal collaborative network and that 87.5% of the outreach activities reported in 2025 were associated with collaborative initiatives and partner institutions, including the Chilean 1,000 Genomes Project, Congreso Futuro, Teletón, the Municipality of Rapa Nui, MIM, Thinky/American Spaces, INTA, Ladera Sur, and national and regional universities. In addition, ANID-linked funding and collaboration instruments continued to support the Center's scientific development through Fondecyt, Basal, FOVI, Exploration, and Regional Funds.

In terms of national collaboration, in 2025 we signed a collaboration agreement with the Allende Connelly Foundation, a well-known institution that has advocated for scientific education in Chilean schools for decades. This association will facilitate the development of novel outreach activities and programs. Additionally, we started working on a strategy to leverage resources by applying to local competitive funds like the Regional Fund for Productivity and Development, and international competitive funds like the ones from EMBO and SMBE.

As of 2024, the main source of collaboration with external institutions and researchers has been the Chilean 1,000 Genomes Project. In 2 years, it has become a scientific network with over 110 people from the main universities and research centers in Chile. We too share researchers and students with the centers of excellence that are associated to the Chilean 1,000 Genomes network, such is the case of the Center for Mathematical Modelling, the Millennium Institute of Integrative Biology, the Millennium

Institute for the Biodiversity of Antarctic and Subantarctic Ecosystems, and the Cape Horne International Center. During the reported period, the Chilean 1,000 Genomes Project allowed us to participate in collaborative activities and lay the foundations for potential networks with the public and private sector, both for research purposes, as well as for outreach. One example is the future partnership with the Chilean Network of Botanical Gardens, that we hope to formalize in 2026. This alliance will facilitate sampling for genome sequencing and further analysis of endemic endangered plant species.

In terms of international collaboration, one example is the affiliation to the European Reference Genome Atlas (ERGA) project, that will enable the exchange of students, technical staff, and researchers, between the MI-CGR and ERGA facilities. It is worth noting that in 2025 we earned a grant to finance collaboration activities between the MI-CGR and ERGA. This will contribute to our objective of locally installing technical and methodological capacities for genome sequencing and bioinformatics analysis.

6. Outreach and connections with other sectors

In 2025, our research team actively participated in establishing and strengthening connections with other sectors, with 16 activities that included meetings, project development, and training courses. Here we highlight some of them:

Associate Researcher Dr. Alejandro Maass was involved with the biotechnology industry in a project to develop cultured meat from swine cells and other project to generate a genomic-scale model for a unicellular seaweed species. As part of Tara Ocean, he also participated in a project with the French Facility for Global Environment (FFGE) to develop a genomic method for Key Ocean Planktonic Areas (KOPAs). Dr. Maass strengthened connections with the private sector as the guest speaker of a discussion cycle organized by the Innovation Circle of the Chilean Institute of Rational Business Administration, to address the strategic relationship between State, science, and the business sector.

Associate Researcher Dr. Ariel Orellana started a connection with Viña Concha y Toro, a globally renowned vineyard committed with research and innovation, to develop a DNA-free gene editing-based project to improve the resistance of *Vitis* to climate change.

Associate Researcher Dr. Romina Pedreschi extended her connections with the horticulture industry, developing a study to reduce carbon footprint in hydroponic crops.

Adjunct Researcher Dr. Angélica Reyes led two projects with companies from the food industry, both involving advanced microbial analysis. She was also invited to provide training in food microbiology for public workers in the extreme region of Magallanes.

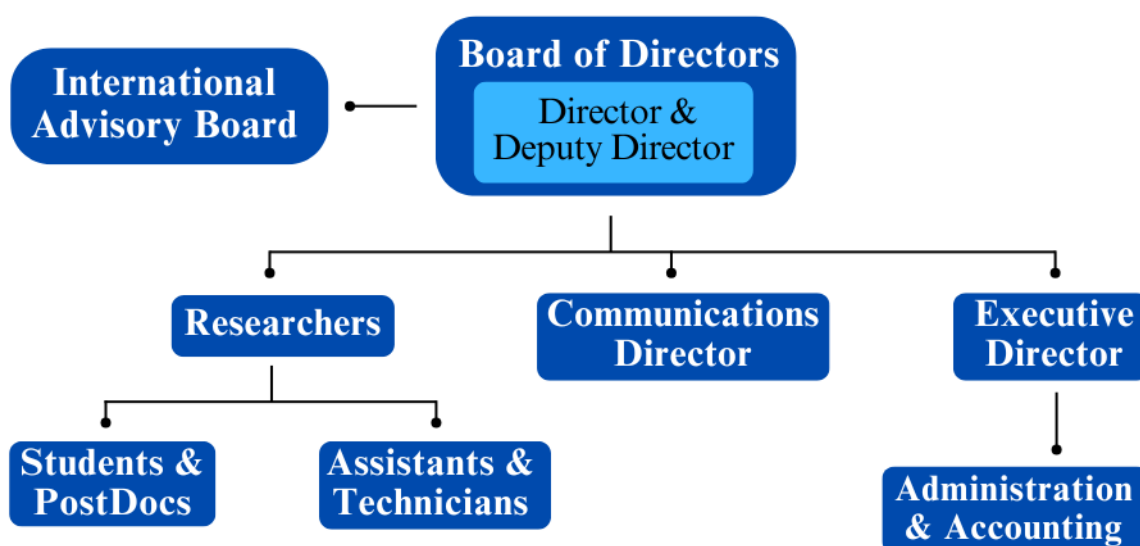
It worth noting that, through the Chilean 1,000 Genomes Project, we were able to establish and strengthen connections with the public (ministries and national services) and private sector, as well as with genomic initiatives in Latin America. For instance, Dr. Orellana led the conversations with the Chilean Network of Botanical Gardens to access samples of endangered plants and generate reference genomes to inform conservation policies. Deputy Director Dr. Juliana Vianna partook in meetings organized by the Chilean Ministry of International Affairs related to the Nagoya Protocol, and the Scientific Advisory Committee on Climate Change, as well as with the Global Biodiversity Information Facility from the Chilean Ministry of Environment, and two companies from the productive sector: Anglo American Chile (mining) and CMPC (cellulose, forestry). We aim to direct these two initial meetings into collaborative projects and secure private funding.

7. Administration, Governance and Financial Status Organization and administration

Organization and administration

The MI-CGR is managed by the Center for Genome Regulation Foundation, created in 2023. The Foundation held four official Board of Directors meetings as mandated by our charter. Albeit the Board of Directors is the governing body that oversees the organization, daily operations are managed by Principal Researchers and administrative staff.

The MI-CGR has formal collaborative relationships with its five host institutions, which facilitates both our research activities and the training of young researchers. We accomplished the goal set in 2024 to formalize ties with the three regional institutions to which some of our Adjunct Researchers are affiliated, in order to further expand our collaborative network with universities across the country.



Category	Female	Male	TOTAL
Assistant & Technicians	21	18	39
Administrative Staff	2	2	4
TOTAL	23	20	43

Financial Status:

While the reporting period for this Report is from January 1st to December 31st, our financial year begins at the end of July, when we receive the financial contribution from the Millennium Science Initiative (MSI). The total amount of funds transferred from MSI to the MI-CGR for the reported period was \$840,000,000 CLP, which is approximately \$869,400 USD. In addition, the MI-CGR received additional funds through a wide variety of projects secured by our Researchers: 30 Fondecyt ANID, 1 ANID Basal Center, 1 ANID FOVI, 1 ANID Exploration Fund, and 1 Regional Fund. The total yearly amounts per project were adjusted for the reported period, yielding a total of \$173,430,117 CLP for 2025. This is evidence of the competitiveness of our Researchers and their formidable capacity to leverage additional funds. In addition, the MI-CGR received CLP 5,000,000 through PME (External

Outreach Projection) funding for the following initiative: The creation of ADN Explorador II, a book and documentary film rooted in Rapa Nui, where the real protagonists are the children who discovered genomics for the first time during our workshop. Both will be launched in June 2026, carrying the voices and curiosity of island kids to the rest of Chile and beyond.

Category	Total amount [USD]
Salaries	532,844.57
Infrastructure	0
Investments	8,343.26
Operational Expenses	426,116.20
Total	967,304.03

Total Funding

Funds	2024 Sources of Funding	
	Amount [\$]	Percentage of resources used by the Center [%]
MSI	840,000,000	82,89%
ANID (Fondecyt)	84,430,117	8,33%
ANID (Basal)	40,000,000	3,95%
ANID (Redes - FOVI)	9,000,000	0,88%
ANID (Exploration)	20,000,000	1,97%
ANID (Regional funds)	20,000,000	1,97%
TOTAL	1,013,430,117	100%

Type of Expense	Total Amount [\$]
Scientific Staff Personal Científica	126.435.000
Technical Staff Personal Técnico	278.508.290
Administrative Staff Personal Administrativo	66.363.370
Communications Staff Personal de Comunicaciones	28.501.550
Investments Inversiones	7.825.980
Infrastructure Infraestructura	
Consulting Consultorías	8.500.000

8. **Other achievements [OPTIONAL]**

Support to Applications and Researchers

As a Research Center with a well-known reputation and acclaimed Researchers, we strongly believe that we must support the development of new research projects and the promotion of early-career scientists. In 2025, we offered institutional support to competitive funds applied by MI-CGR Researchers, students, and collaborators: two applications for the creation of research centers, two applications for the acquisition of scientific equipment, one application to fund a genomics conference, one students annual meeting, one outreach activity, two applications to fund applied projects, three Postdoctoral applications, three applications to the Regional Funds for Productivity and Development, as well as support for the applications of early-career scientists to academic positions.

9. **Negative or positive aspects that you would like to address in order to understand the context in which the center developed its work during the reported period**

Relevant Positive and Negative Aspects

Among the positive aspects that we would like to address for the reviewers to understand the context in which the MI-CRG developed its work during 2025, it is worth mentioning that the Agency (ANID) listened to the concerns of Millennium Institutes and agreed to adjust annual budgets for yearly inflation. This is certainly a positive step on the issue of budget.

Among the negative aspects that we would like to address for the reviewers to understand the context in which the MI-CRG developed its work during 2025, it should be noted that internships of MI-CGR Postdoctoral Researchers cannot be informed in the MSI reporting system, as it only allows the report of student's internships. Similarly, internships or short international visits of MI-CGR Associate and Adjunct Researchers cannot be informed in the MSI reporting system. These restrictions force us to underreport the real capacity of internationalization of the MI-CGR. In addition, we would like to insist on the need to update ANID's classification system of human resources to recognize what in other countries are labeled 'scientists'. These professionals often serve as project leaders and have relevant positions in research articles, frequently as main authors. Currently, these professionals do not belong in the existing categories in the ANID classification system, or they must be categorized as 'technicians' because they are neither researchers nor students. This is the case for many engineers, biochemists, and bioinformaticians in our Center, who make relevant contributions to our research and training objectives.

10. Annexes:
Annex 1.- Research Lines

N°	Research Line	Research Line Objectives	Description of Research Line	Researcher	Research Discipline	Starting Date	Ending Date
1	Functional genomics of adaptation and convergent evolution	Use a genomic approach to investigate the independent evolution of similar traits in different lineages.	Convergent evolution generally involves the same genes, and with this line of research we seek to understand the genetic basis of the evolution of similar traits in different lineages to determine which mutations, either in a gene or in the genetic sequence, are responsible for modifying a particular trait.	Martín Montecino Leonard. Miguel Allende Connelly. Rodrigo Gutiérrez Ilabaca. Eleodoro Riveras Hernandez. Álvaro Glavic Maurer. Alexandra Galetovic Carabantes. Violeta Natalia Kallens Meza. Francisco González Pinilla. Juliana De Abreu Vianna. Colomban de Vargas . Rasmus Nielsen Jensen.	Biología molecular. Microbiología. Ciencias Matemáticas. Biología celular. Genética y evolución. Botánica. Zoología. Ecología y ciencias ambientales.	01-07-2022	23-06-2032

				Pamela Morales Henriquez.		
				Ivana Gajardo Urrutia.		
				Carola Cañón Valenzuela.		
				Fabiola Leon Miranda.		
				Emiliano Matías Molina Reyes.		
				Daly Noll Vergara.		
				Sebastián Arredondo Barros.		
				Barbara Casas Atala.		
				Camilo Valdivieso Guerrero.		
				Catalina Ibarra .		
				Pamela Ubilla .		

2	Interaction networks that govern genome structure in communities of organisms	To investigate how gene regulatory networks interact in the genome of microbiological communities.	A gene regulatory network interacts to control a specific cellular function. Gene regulatory networks are important in development, differentiation and response to environmental signals.	Mauricio Latorre Mora.	Biología celular.	01-07-2022	23-06-2032
				Claudio Latorre Hidalgo.	Biología molecular.		
				Jacqueline Acuña Sobarzo.	Biología de poblaciones.		
				Beatriz Díez Moreno.	Ecología y ciencias ambientales.		
				Pablo Vergara Barros.	Genética y evolución.		
				Constanza Schapheer Carrasco.	Microbiología.		
				Blanca Lidia Águila Llanquilef.	Análisis.		
				Alejandro Maass Sepúlveda.	Ciencias Matemáticas.		
				Gloria Coruzzi .	Biogeografía.		
				Marie France Sagot .	Paleontología.		
2	Interaction networks that govern genome structure in communities of organisms	To investigate how gene regulatory networks interact in the genome of microbiological communities.	A gene regulatory network interacts to control a specific cellular function. Gene regulatory networks are important in development, differentiation and response to environmental signals.	Mauricio González Canales.	Pesca y piscicultura.	01-07-2022	23-06-2032
				Daniel Palma .	Inmunología.		
				Sebastián Nelson Mendoza Farías.	Parasitología.		
2	Interaction networks that govern genome structure in communities of organisms	To investigate how gene regulatory networks interact in the genome of microbiological communities.	A gene regulatory network interacts to control a specific cellular function. Gene regulatory networks are important in development, differentiation and response to environmental signals.	Felipe Loyola .		01-07-2022	23-06-2032

				Pamela Constanza Aguado Norese. Marianne Buscaglia . Fernanda Valentina Fredericksen Quilodrán. Iñaki Hojas . Victor Aliaga Tobar. Joaquin Ignacio Rilling Tenorio. Laura Jimenez Jimenez. Jaime Alcorta Loyola. Francisco Issotta Contardo. Constanza María Andreani Gerard. Moises Adolfo Ariel Rojas Navarrete.		
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				Javiera Ortiz Severín. Ricardo Palma Wilson Elías Castillo Inaipil.			
3	Genomics for conservation, ecosystem health and sustainable food production	Analyze genomes and their interaction networks to generate hypotheses related to the impact of climate change on endangered species, and propose solutions for biodiversity conservation, sustainable agriculture and aquaculture.	Conservation genetics is the application of genetics to understand and reduce the risk of extinction of populations and species. From our analysis of genomes, genes and networks, we can generate and test hypotheses related to the impacts of climate change and environmental degradation, and propose biotechnological solutions for biodiversity conservation and sustainable production in agriculture and aquaculture.	Aurora Gaxiola Alcantar. Claudio Meneses Araya. Romina Pedreschi Plasencia. Ariel Orellana López. Liane Bassini Ney. Gerardo Núñez Lillo. Ignacia Hernández Figueroa. Ana Karina Madriaza Maturana. Víctor Alfonso García Gutiérrez. Jonathan Elias Maldonado Soto. María Paz Covarrubias Becerra.	Biología molecular. Ecología y ciencias ambientales. Agronomía y especialidades silvoagropecuarias. Procesamiento y tecnología de alimentos. Otras especialidades de la biología. Ingeniería genética. Ciencias veterinarias. Derecho del Ambiente. Economía agraria y sistemas de producción. Pesca y piscicultura. Biogeografía.	01-07-2022	23-06-2032

				Alexis Ignacio Gaete Silva.	Biotecnología.		
				Angélica Reyes Jara.	Nutrición básica.		
				Verónica Cambiazo Ayala.	Bioquímica.		
				Karin Rothkegel Agurto.			
				Daniel Palma .			
				Patricio Olmedo Miraflones.			
				Alvaro Miquel Poblete.			
				Jouseph Gallardo Hidalgo.			
				Javiera Ortiz Severín.			
				Patricio Tapia Reyes.			

Annex 2.- Institute / Nucleus Researchers**2.1 Principal Researchers**

Full Name	Research Line	Nacionality	Gender	Date of birth	Profession	Academic Degree	Affiliation	Current Position	Relation with Center
Miguel Allende Connelly	Functional genomics of adaptation and convergent evolution.	Chilean	M	08-10-1962	Molecular Biology	D	Universidad de Chile	Full Professor	[2]
Juliana De Abreu Vianna	Functional genomics of adaptation and convergent evolution.	Brazilian	F	09-04-1979	Biology	D	Pontificia Universidad Católica de Chile	Associate Professor	[2]
Rodrigo Gutiérrez Ilabaca	Functional genomics of adaptation and convergent evolution.	Chilean	M	30-12-1971	Biochemistry	D	Pontificia Universidad Católica de Chile	Full Professor	[2]
Romina Pedreschi Plasencia	Genomics for conservation, ecosystem health and sustainable food production.	Italian	F	17-08-1978	Agronomy	D	Pontificia Universidad Católica de Valparaíso	Associate Professor	[2]
Verónica Cambiazo Ayala	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	F	06-01-1961	Molecular Biology	D	Universidad de Chile	Full Professor	[2]
Beatriz Díez Moreno	Interaction networks that govern genome structure in communities of organisms.	Spanish	F	22-02-1972	Biology	D	Universidad Mayor	Full Professor	[2]
Alejandro Maass Sepúlveda	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	11-11-1965	Mathematics	D	Universidad de Chile	Full Professor	[2]

Mauricio González Canales	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	04-12-1964	Molecular Biology	D	Universidad de Chile	Full Professor	[2]
Ariel Orellana López	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	M	01-12-1961	Molecular Biology	D	Universidad Andrés Bello	Full Professor	[2]

2.2 Senior Researchers

Full Name	Research Line	Nacionality	Gender	Date of birth	Profession	Academic Degree	Affiliation	Current Position	Relation with Center
Rasmus Nielsen Jensen	Functional genomics of adaptation and convergent evolution.	American	M	27-01-1970	Biology	D	University of California	Professor	[2]
Gloria Coruzzi	Interaction networks that govern genome structure in communities of organisms.	American	F	28-06-1954	Biology	D	New York University	Full Professor	[2]
Marie France Sagot	Interaction networks that govern genome structure in communities of organisms.	French	F	21-04-1956	Informatics	D	INRIA, Institute for Research in IT and Automation, Université Lyon	Director	[2]
Colomban de Vargas	Functional genomics of adaptation and convergent evolution.	French	M	25-08-1971	Biology	D	CNRS-Sorbonne Université	Senior Researcher	[2]

2.3 Adjunct Researchers

Full Name	Research Line	Nacionality	Gender	Date of birth	Profession	Academic Degree	Affiliation	Current Position	Relation with Center
Aurora Gaxiola Alcantar	Genomics for conservation, ecosystem health and sustainable food production.	Mexican	F	09-01-1974	Plant Ecology	D	Pontificia Universidad Católica de Chile	Professor	[2]
Angélica Reyes Jara	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	F	06-05-1976	Nutrition	D	Universidad de Chile	Assistant Professor	[2]
Álvaro Glavic Maurer	Functional genomics of adaptation and convergent evolution.	Chilean	M	22-11-1971	Biochemistry	D	Universidad de Chile	Associate Professor	[2]
Alexandra Galetovic Carabantes	Functional genomics of adaptation and convergent evolution.	Chilean	F	24-09-1973	Biochemistry	D	Universidad de Antofagasta	Assistant Professor	[2]
Jacquelinne Acuña Sobarzo	Interaction networks that govern genome structure in communities of organisms.	Chilean	F	10-09-1982	Biology	D	Universidad de la Frontera	Assistant Professor	[2]
Liane Bassini Ney	Genomics for conservation, ecosystem health and sustainable food production.	Brazilian	F	23-01-1984	Veterinary Medicine	D	Universidad San Sebastián	Professor	[2]
Claudio Meneses Araya	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	M	07-08-1977	Agronomy	D	Pontificia Universidad Católica de Chile	Full Professor	[2]

Martín Montecino Leonard	Functional genomics of adaptation and convergent evolution.	Chilean	M	24-04-1964	Biochemistry	D	Universidad Andrés Bello	Full Professor	[2]
Mauricio Latorre Mora	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	17-09-1981	Biotechnology	D	Universidad de Chile	Associate Professor	[2]
Claudio Latorre Hidalgo	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	08-05-1968	Biology	D	Pontificia Universidad Católica de Chile	Full Professor	[2]

2.4 Young Researchers

Full Name	Research Line	Nationality	Gender	Date of birth	Profession	Academic Degree	Affiliation	Current Position	Relation with Center
Victor Aliaga Tobar	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	01-12-1989	Biotechnology	D	Universidad Mayor	Assistant Professor	[2]
Joaquín Ignacio Rilling Tenorio	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	25-10-1990	Biotechnology	D	Universidad de la Frontera	Young Researcher	[2]
Violeta Natalia Kallens Meza	Functional genomics of adaptation and convergent evolution.	Chilean	M	26-07-1988	Biotechnology	D	Universidad de Chile	Young Researcher	[2]
Gerardo Núñez Lillo	Genomics for conservation,	Chilean	M	03-11-1990	Agricultural Engineering	D	Pontificia Universidad Católica de Valparaíso	Postdoc	[2]

	ecosystem health and sustainable food production.								
Ignacia Hernández Figueroa	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	F	25-04-1990	Agricultural Engineering	D	Universidad de Concepción	Young Researcher	[2]
Eleodoro Riveras Hernandez	Functional genomics of adaptation and convergent evolution.	Chilean	M	27-11-1986	Biochemist	D	Pontificia Universidad Católica de Chile	Young Researcher	[2]
Alexis Ignacio Gaete Silva	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	M	20-12-1988	Biotechnology	D	Universidad de Chile	Young Researcher	[2]
Daly Noll Vergara	Functional genomics of adaptation and convergent evolution.	Chilean	F	16-12-1984	Marine Biology	D	Universidad de Los Lagos	Academic	[2]
Camilo Valdivieso Guerrero	Functional genomics of adaptation and convergent evolution.	Chilean	M	01-10-1986	Biotechnology	D	Universidad de Chile	Young Researcher	[2]
Laura Jimenez Jimenez	Interaction networks that govern genome structure in communities of organisms.	Mexican	F	04-04-1986	Biology	D	Universidad de Chile	Researcher	[2]
Jaime Alcorta Loyola	Interaction networks that govern genome	Chilean	M	25-05-1991	Biochemistry	D	Universidad de Alicante	Young Researcher	[2]

	structure in communities of organisms.								
Constanza María Andreani Gerard	Interaction networks that govern genome structure in communities of organisms.	Chilean	F	23-11-1993	Agronomy	M	Universidad de Chile	Young Researcher	[2]
Iñaki Hojas	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	17-06-1992	Computer Science	U	Universidad de Chile	Young Researcher	[2]
Pamela Morales Henríquez	Functional genomics of adaptation and convergent evolution.	Chilean	F	12-11-1982	Biology	D	No aplica	Data Manager 1000 Genomas Chile	[2]
Daniel Palma	Interaction networks that govern genome structure in communities of organisms. Genomics for conservation, ecosystem health and sustainable food production.	Chilean	M	01-02-1996	Biochemistry	U	Universidad de Chile	Bioinformatician	[2]
Sebastián Nelson Mendoza Farías	Interaction networks that govern genome structure in communities of organisms.	Chilean	F	22-11-1988	Mathematics	D	Universidad de Chile	Researcher	[2]
Felipe Loyola	Interaction networks	Chilean	M	10-11-	Biochemistry	M	Universidad Mayor	Not applicable	[2]

	that govern genome structure in communities of organisms.			1995					
Fernanda Valentina Frederickson Quilodrán	Interaction networks that govern genome structure in communities of organisms.	Chilean	F	25-07-1990	Biology	D	Universidad Mayor	Lecturer	[2]
Javiera Ortíz Severín	Interaction networks that govern genome structure in communities of organisms. Genomics for conservation, ecosystem health and sustainable food production.	Chilean	F	04-05-1987	Biology	D	Universidad de Chile	Assistant Professor	[2]
Ricardo Palma	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	24-03-1992	Computer Science	U	Universidad de Chile	Bioinformatician	[2]
Wilson Elías Castillo Inaipil	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	15-03-1997	Marine Biology	M	Instituto Max Planck para la Microbiología Marina	Not applicable	[2]
Catalina Ibarra	Functional genomics of adaptation and convergent evolution.	Chilean	M	10-10-1985	Biology	D	Pontificia Universidad Católica de Chile	Not applicable	[2]

María Paz Covarrubias Becerra	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	F	26-01-1989	Biotechnology	D	Pontificia Universidad Católica de Chile	Postdoc	[2]
Jonathan Elias Maldonado Soto	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	M	07-02-1982	Biotechnology	D	Universidad de Santiago de Chile	Assistant Professor	[2]

2.5 Postdoctoral Researchers

Full Name	Research Line	Nacionality	Gender	Date of birth	Profession	Academic Degree	Affiliation	Current Position	Relation with Center
Carola Cañón Valenzuela	Functional genomics of adaptation and convergent evolution.	Chilean	F	07-12-1983	Biology	D	Pontificia Universidad Católica de Chile	Postdoc	[2]
Constanza Schapheer Carrasco	Interaction networks that govern genome structure in communities of organisms.	Chilean	F	20-11-1987	Agronomy	D	Universidad de Chile	Assistant Professor	[2]
Emiliano Matías Molina Reyes	Functional genomics of adaptation and convergent evolution.	Chilean	M	20-11-1989	Biochemistry	D	Universidad de Chile	Postdoc	[2]
Pamela Constanza Aguado Norese	Interaction networks that govern genome structure in communities of organisms.	Chilean	F	31-01-1987	Biotechnology	D	Universidad de Chile	Postdoc	[2]
Fabiola Leon Miranda	Functional genomics of adaptation	Venezuelan	F	09-07-1974	Biology	D	Pontificia Universidad	Postdoc	[2]

	and convergent evolution.						Católica de Chile		
Karin Rothkegel Agurto	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	F	16-06-1989	Biotechnology	D	Pontificia Universidad Católica de Chile	Postdoc	[2]
Marianne Buscaglia	Interaction networks that govern genome structure in communities of organisms.	Chilean	F	10-09-1987	Biology	D	Universidad de Chile	Postdoc	[2]
Pablo Vergara Barros	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	29-03-1990	Biochemistry	D	Universidad Mayor	Postdoc	[2]
Barbara Casas Atala	Functional genomics of adaptation and convergent evolution.	Chilean	F	02-01-1990	Biochemistry	D	Universidad Andres Bello	Postdoc	[2]
Francisco González Pinilla	Functional genomics of adaptation and convergent evolution.	Chilean	M	08-07-1984	Biology	D	Pontificia Universidad Católica de Chile	Postdoc	[2]
Patricio Olmedo Miraflores	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	M	07-01-1988	Biotechnology	D	Pontificia Universidad Católica de Valparaíso	Postdoc	[2]
Moises Adolfo Ariel Rojas Navarrete	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	30-09-1988	Biochemistry	D	Universidad Bernardo O'Higgins	Postdoc	[2]
Jouseph Gallardo Hidalgo	Genomics for conservation, ecosystem	Chilean	M	27-08-1983	Veterinary Medicine	D	Universidad San Sebastián	Postdoc	[2]

	health and sustainable food production.								
Francisco Issotta Contardo	Interaction networks that govern genome structure in communities of organisms.	Chilean	M	15-09-1989	Biochemistry	D	Pontificia Universidad Católica de Chile	Postdoc	[2]
Sebastián Arredondo Barros	Functional genomics of adaptation and convergent evolution.	Chilean	M	22-09-1991	Biochemistry	D	Universidad Andres Bello	Postdoc	[2]
Alvaro Miquel Poblete	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	M	27-08-1961	Biotechnology	D	Universidad Andres Bello	Postdoc	[2]
Ana Karina Madriaza Maturana	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	F	10-01-1992	Biology	D	Pontificia Universidad Católica de Chile	Postdoc	[2]
Víctor Alfonso García Gutiérrez	Genomics for conservation, ecosystem health and sustainable food production.	Venezuelan	M	27-11-1980	Biology	D	Pontificia Universidad Católica de Chile	Postdoc	[2]
Ivana Gajardo Urrutia	Functional genomics of adaptation and convergent evolution.	Chilean	F	18-01-1990	Biology	D	Universidad de Chile	Postdoc	[2]
Blanca Lidia Águila Llanquilef	Interaction networks that govern genome structure in communities of organisms.	Chilean	F	26-05-1984	Biology	D	Universidad Mayor	Postdoc	[2]

Pamela Ubilla	Functional genomics of adaptation and convergent evolution.	Chilean	F	25-03-1987	Biology	D	Pontificia Universidad Católica de Chile	Postdoc	[2]
Patricio Tapia Reyes	Genomics for conservation, ecosystem health and sustainable food production.	Chilean	M	24-09-1988	Biology	D	Pontificia Universidad Católica de Chile	Postdoc	[2]

<u>NOMENCLATURE:</u> [Gender] [M] Male [F] Female [ND] Does not Declare	[Academic Degree] [U] Undergraduate [M] Master [D] Doctoral	[Relation with Center] [1] Full time [2] Part time
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Annex 3.- Publications (Total or partially financed by MSI)

3.1.- WOS Publications or Similar to WOS Standard

3.1.1 Principal Researchers

N°	Title	Authors	DOI	Quartile	Lines of Research	N° principal researchers of the center
1	Cistanthe longiscapa exhibits ecophysiological and molecular adaptations to the arid environments of the Atacama Desert	Paulina Ossa, Adrián A Moreno, Daniela Orellana, Mónica Toro, Tomás Carrasco-Valenzuela, Anibal Riveros, Claudio Meneses, Ricardo Nilo-Poyanco, Ariel Orellana	10.1093/plphys/kiaf068	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1
2	NAC072 Interacts with HB12, HAT9, and	Gerardo Núñez-Lillo,	10.1007/s00344-023-11153-2	Q1	Genomics for conservation,	1

	MYBR1 in a Temporal Regulatory Network Controlling Peach Fruit Development	José Zabala, Victoria Lillo-Carmona, José Miguel Alvarez, Romina Pedreschi, Claudio Meneses			ecosystem health and sustainable food production.	
3	Resilient plants, sustainable future	Seung Y Rhee, Daniel N Anstett, Edgar B Cahoon, Alejandra A Covarrubias-Robles, Eric Danquah, Natalia Dudareva, Hiroshi Ezura, Kadeem J Gilbert, Rodrigo A Gutiérrez, Michelle Heck, David B Lowry, Ron Mittler, Gloria Muday, Clare Mukankusi, Andrew DL Nelson, Silvia Restrepo, Hatem Rouached, Motoaki Seki, Berkley Walker, Danielle Way, Andreas PM Weber	10.1016/j.tplants.2024.11.001	Q1	Functional genomics of adaptation and convergent evolution.	1
4	Ultrasound-enhanced enzymatic hydrolysis for efficient production of low molecular weight oligogalacturonides	David Campos, José Sanchez, Ana Aguilar-Galvez, Diego	10.1016/j.fbio.2025.107123	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1

	from polygalacturonic acid	García-Ríos, Rosana Chirinos, Romina Pedreschi				
5	Effect of temperature on circadian clock functioning of trees in the context of global warming	Maximiliano Estravis-Barcala, Sofía Gaischuk, Marina Gonzalez-Polo, Alejandro Martinez-Meier, Rodrigo A. Gutiérrez, Marcelo J. Yanovsky, Nicolás Bellora, María Verónica Arana	10.1111/nph.20342	Q1	Functional genomics of adaptation and convergent evolution.	1
6	High ectomycorrhizal relative abundance during winter at the treeline	Luis A Saona, Christian I Oporto, Pablo Villarreal, Kamila Urbina, Cristian Correa, Julian F Quintero-Galvis, Paulo Moreno-Meynard, Frida I Piper, Juliana A Vianna, Roberto F Nespolo, Francisco A Cubillos	10.1093/ismeco/ycaf010	Q1	Functional genomics of adaptation and convergent evolution.	1
7	Microbial Communities in Permafrost, Moraine and Deschampsia antarctica Rhizosphere	Daniel E Palma, Alexis Gaete, Daríel López, Andrés E	10.3390/d17020086	Q3	Interaction networks that govern genome structure in	1

	Soils near Ecology Glacier (King George Island, Maritime Antarctic)	Marcoleta, Francisco P Chávez, León A Bravo, Jacqueline J Acuña, Verónica Cambiazó, Milko A Jorquera			communities of organisms.	
					Genomics for conservation, ecosystem health and sustainable food production.	
8	In Vivo Host-Pathogen Dynamics and Immune Responses to <i>Piscirickettsia salmonis</i> using the zebrafish model	Javiera Ortiz-Severín, Julia I Tandberg, Hanne C Winther-Larsen, Miguel L Allende, Verónica Cambiazó, Francisco P Chávez	10.1016/j.micpath.2025.107349	Q2	Functional genomics of adaptation and convergent evolution.	2
					Genomics for conservation, ecosystem health and sustainable food production.	
9	From Metagenomes to Functional Expression of Resistance: <i>floR</i> Gene Diversity in Bacteria from Salmon Farms	Javiera Ortiz-Severín, Iñaki Hojas, Felipe Redín, Ervin Serón, Jorge Santana, Alejandro Maass, Verónica Cambiazó	10.3390/antibiotics14020122	Q1	Interaction networks that govern genome structure in communities of organisms.	2
					Genomics for conservation, ecosystem health and sustainable food production.	
10	Ironing out the conflicts: iron supplementation reduces negatives bacterial interactions in the rhizosphere of an Atacama-endemic perennial grass	Aguado-Norese C, Maldonado JE, Hodar C, Galvez G, Palma DE, Cambiazó V, Gonzalez M	10.1186/s40793-024-00661-7	Q1	Interaction networks that govern genome structure in communities of organisms.	2

					Genomics for conservation, ecosystem health and sustainable food production.	
11	On partial rigidity of S-adic subshifts	Sebastián Donoso, Alejandro Maass, Tristán Radic	10.1017/etds.2025.4	Q3	Interaction networks that govern genome structure in communities of organisms.	1
12	Advances and shortfalls in knowledge of Antarctic terrestrial and freshwater biodiversity	LR Pertierra, P Convey, A Barbosa, EM Biersma, D Cowan, JAF Diniz-Filho, A De los Rios, P Escribano-Álvarez, CI Fraser, D Fontaneto, M Greve, HJ Griffiths, M Harris, KA Hughes, HJ Lynch, RJ Ladle, XP Liu, PC le Roux, R Majewska, MA Molina-Montenegro, LS Peck, A Quesada, C Ronquillo, Y Ropert-Coudert, LG Sancho, A Terauds, G Varliero, JA Vianna, Annick Wilmotte, SL Chown, MÁ Olalla-Tárraga, J Hortal	10.1126/science.adk2118	Q1	Functional genomics of adaptation and convergent evolution.	1

13	Lipid Production in Cultivable Filamentous Fungi Isolated from Antarctic Soils: A Comprehensive Study	Victor Gallardo, Jéssica Costa, Marcela Sepúlveda, Yasna Cayún, Christian Santander, Excequel Ponce, Juliana Bittencourt, César Arriagada, Javiera Soto, Romina Pedreschi, Vania Aparecida Vicente, Pablo Cornejo, Cledir Santos	10.3390/microorganisms13030504	Q2	Genomics for conservation, ecosystem health and sustainable food production.	1
14	Genomic Introgression and Adaptation of Southern Seabird Species Facilitate Recent Polar Colonization	Josefina Jorquera, Lucila Morales, Elize YX Ng, Daly Noll, Luis R Pertierra, Patricio Pliscoff, Ulises Balza, Thierry Boulinier, Amandine Gamble, Tatiana Kasinsky, Julie C McInnes, Juan Carlos Marín, Silvia Olmastroni, Pierre Pistorius, Richard A Phillips, Jacob	10.1093/molbev/msaf053	Q1	Functional genomics of adaptation and convergent evolution.	2

		González-Solís, Louise Emmerson, Elie Poulin, Rauri CK Bowie, Christopher P Burridge, Juliana A Vianna				
15	Seed-fruit multiomics integration of sweet cherry cultivars with different maturity time shows alternative molecular landscapes at the transition from development to ripening, unveiling a role of small RNAs, SPLs, lignin and inositol pathways	Jonathan E Maldonado, Orlando Acevedo, Mirna Melo, Carlos Núñez, Matías Zavala, Marcela Menares, Romina Pedreschi, Excequel Ponce, José Manuel Donoso, Lee Ann Meisel, Nathalie Kuhn	10.1016/j.scienta.2025.114099	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1
16	On recurrence for $\{Z\}^d$ -Weyl systems	Sebastián Donoso, Felipe Hernández, Alejandro Maass	10.1007/s00605-025-02088-9	Q1	Interaction networks that govern genome structure in communities of organisms.	1
17	Integration of lipidomics and transcriptomics provides new insights into lipid metabolism in response to water deficit in <i>Prunus</i> spp. rootstock leaves	Patricio Olmedo, Gerardo Núñez-Lillo, Guillermo Toro, Ismael Opazo, Ariel Salvatierra, Claudio Meneses, Romina Pedreschi, Paula Pimentel	10.1016/j.envexpbot.2025.106185	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1
18	PavSPL Expression Dynamics in Fruits and	Matías Zavala,	10.3390/horticulturae11060706	Q1	Genomics for conservation,	1

	Seeds and in Relation to Endocarp Lignification Status During the Transition from Development to Ripening in Sweet Cherry	Marcela Menares, Orlando Acevedo, Mirna Melo, Carlos Nuñez, Camila Arancibia, Romina Pedreschi, José Manuel Donoso, Lee A Meisel, Jonathan E Maldonado, Nathalie Kuhn			ecosystem health and sustainable food production.	
19	Characterisation of avocado fruits from different Iberian regions: Integrating ion mobility in non-targeted LC-MS metabolomics	Irene Serrano-García, Lucía Olmo-García, Romina Pedreschi, José Luis Vélchez-Quero, José Jorge González-Fernández, José Ignacio Hormaza, Alegría Carrasco-Pancorbo	10.1016/j.foodchem.2025.143937	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1
20	Exploring the eco-evolutionary role of plasmids and defense systems in 'Fervidacidithiobacillus caldus' extreme acidophile	Pacheco-Acosta S, Castro-Toro G, Rojas-Villalobos C, Valenzuela C, Haristoy JJ, Zapata-Araya A, Moya-Beltrán A, Sepúlveda-Rebolledo P, Pérez-Rueda E, Ulloa R, Giaveno A, Issotta F,	10.3389/fmicb.2025.1610279	Q1	Interaction networks that govern genome structure in communities of organisms.	1

		Díez B, Beard S and Quatrini R				
21	Harvest maturity modulates the synchronization between exocarp color change and mesocarp softening in avocado cv. Hass: A multiomics perspective	Arancibia-Guerra, Camila., Núñez-Lillo, Gerardo., Hernández, Ignacia., Ponce, Excequel., Kuhn, Nathalie., Carrasco-Pancorbo, Alegría., Olmo-García, Lucía., Carrera, Esther., Baños, Jorge., Campos, David., Defilippi, Bruno., Campos-Vargas, Reinaldo., Meneses, Claudio., Pedreschi, Romina.	10.1016/j.postharvbio.2025.113787	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1
22	Nucleotide Sugar Transporters: Orchestrating Luminal Glycosylation in Plants	Berit Ebert, Ariel Orellana	10.1146/annurev-arplant-083123-075017	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1
23	Combined multi-omics and physiological approaches to elucidate drought-response mechanisms of durum wheat	Osvin Arriagada, Claudio Meneses, Romina Pedreschi, Gerardo Núñez-Lillo, Carlos Maureira, Samantha	10.3389/fpls.2025.1540179	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1

		Reveco, Valentina Villarroel, Úrsula Steinfert, Francisco Albornoz, Patricia Cabas- Lühmann, Manuela Silva, Iván Matus, Andrés R Schwember				
24	Tracking HPAIV H5 through a geographic survey of Antarctic seabird populations	Fabiola León, Céline Le Bohec, Eduardo J. Pizarro, Loicka Baille, Robin Cristofari, Aymeric Houstin, Daniel P. Zitterbart, Claudia Ulloa- Contreras, Gonzalo Barriga, Elie Poulin & Juliana A. Vianna	10.1038/s41598-025-14651-3	Q1	Functional genomics of adaptation and convergent evolution.	1
25	Novel sources of phenolic compounds from the Peruvian biodiversity with bioactive and antimicrobial properties: Cedroncillo (<i>Aloysia herrerae</i> Moldenke) and pampa muña (<i>Hedeoma mandoniana</i> Wedd.)	Ana Aguilar- Galvez, Doris Pilar Huaracha Quispe, Milagros Lopez, Diego García-Ríos, Andrés Figueroa- Merma, Rosana Chirinos, Emilio Yábar, Romina Pedreschi, David Campos	10.1093/ijfood/waf161	Q2	Genomics for conservation, ecosystem health and sustainable food production.	1

26	Nitrate sensing and signaling in plants: comparative insights and nutritional interactions	Sandrine Ruffel, J del Rosario, Benoît Lacombe, Hatem Rouached, Rodrigo Gutierrez, Gloria Coruzzi, Gabriel Krou	10.1146/annurev-arplant-083123-053039	Q1	Functional genomics of adaptation and convergent evolution.	1
27	Integrated strategies for reducing acrylamide, 5-HMF, and furan in colored native and commercial potato chips: Synergistic effects of nutrient solution conductivity and pre-frying treatments	Diego García-Ríos, Franco Pedreschi, María Salomé Mariotti-Celis, Carolina Contreras, David Campos, Juan E Alvaro, Romina Pedreschi	10.1016/j.lwt.2025.118398	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1
28	A pointwise ergodic theorem along return times of rapidly mixing systems	Sebastián Donoso, Alejandro Maass, Vicente Saavedra-Araya	10.1112/blms.70184	Q1	Interaction networks that govern genome structure in communities of organisms.	1
29	Non-linear analysis of incidence and mortality time series of COVID-19 reveals unprecedented unpredictability	M. Canals, A. Maass, J. Monreal	10.1007/s10441-025-09499-z	Q3	Interaction networks that govern genome structure in communities of organisms.	1
30	Modeling the emergent metabolic potential of soil microbiomes in Atacama landscapes	Constanza M. Andreani-Gerard, Natalia E. Jiménez, Ricardo Palma, Coralie Muller, Pauline	10.1186/s40793-025-00749-8	Q1	Interaction networks that govern genome structure in communities of organisms. Genomics for conservation,	3

		Hamon-Giraud, Yann Le Cunff, Verónica Cambiazo, Mauricio González, Anne Siegel, Clémence Frioux & Alejandro Maass			ecosystem health and sustainable food production.	
		Felipe Gajardo-Escobar, Camilo Valdivieso, Alex Di Genova, Luisa Pereiro, Maria Jose Arezo, Gino Nardocci, Natalia Rojas, Verónica Gutiérrez, Nicolás G. Papa, Nibia Berois, Ariel Orellana, Rodrigo A. Gutiérrez, Mauricio González, Marco A. Mendez, Martín Montecino, Christian Hodar, Alvaro Glavic, Alejandro Maass, Graciela García & Miguel L. Allende			Functional genomics of adaptation and convergent evolution.	
					Interaction networks that govern genome structure in communities of organisms.	
31	A recent and rapid genome expansion driven by the amplification of transposable elements in the Neotropical annual killifish <i>Garcialebias charrua</i>		10.1186/s40659-025-00649-8	Q1		5
32	Effect of Elevated CO2 on Photosynthesis,	Vincen Maldonado,	10.1007/s42729-025-02540-7	Q2	Interaction networks that	1

	Root Exudates, and Soil Bacteria Recruitment in Wheat Rhizosphere	Miguel Garriga, María Dolores López-Belchi, José Ortiz, Luisa Bascuñan-Godoy, Patricia Aguila, Antonio Roldán, Fuensanta Caravaca, Mauricio Gonzalez, Daniel Palma & Mauricio Schoebitz			govern genome structure in communities of organisms.	
33	Characterization of Bacterial Communities in Volcanic Soil from Northern Patagonian Area of Chile	Patricia Aguila-Torres, Mauricio González, Marcela Hernández. Constanza Aguado-Norese, Jonathan E. Maldonado. Richard M. Miranda, Roxana González-Stegmaier, Daniel E. Palma, Luis A. Rojas, Macarena Mellado	10.3390/microorganisms13112519	Q2	Interaction networks that govern genome structure in communities of organisms.	1
34	Cultivar-Specific Differences in C6 and C7 Sugar Metabolism During Avocado Ripening: Comparative Insights from Bacon, Fuerte, and Hass.	María Beiro-Valenzuela, Romina Monasterio, Irene Serrano-García, Elena Hurtado-Fernández,	10.3390/plants14182856	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1

		María Sánchez-Arévalo, Jorge Fernández-Sánchez, Romina Pedreschi, Lucía Olmo-García, Alegría Carrasco-Pancorbo				
35	Chemical characterisation, antimicrobial, and bioactive properties of essential oils from Cedroncillo (<i>Aloysia herreriae</i> Moldenke) and Pampa muña (<i>Hedeoma mandoniana</i> Wedd.) Peruvian folk medicinal plants	Ana Aguilar-Galvez, Carla Rivadeneira-Mallqui, Diego García-Ríos, Andrés Figueroa-Merma, Rosana Chirinos, Romina Pedreschi, David Campos	10.1093/ijfood/vwaf223	Q2	Genomics for conservation, ecosystem health and sustainable food production.	1

***Q4:** Ingresar esta opción para aquellos artículos que no posean cuartil.
 Ingresar solamente los apellidos de investigadores(as) del centro, para el resto de los(as) autores(as), utilizar la expresión "et al." para indicar que hay más autores(as).

3.2.- SCOPUS Publications or Similar to SCOPUS Standard

3.2.1 Principal Researchers

3.3.- SCIELO Publications or Similar to SCIELO Standard

3.3.1 Principal Researchers

3.4.- Scientific Books and Chapters

3.4.1 Principals Researchers:

N°	Title	Authors	URL/Link	ISBN	Lines of Research	N° principal researchers of the center
1	Calidad global de palta 'Hass': bases para responder a los desafíos en manejo de postcosecha. Santiago, Chile. Boletín INIA - Instituto de Investigaciones Agropecuarias, N° 510.	Alejandro Antúnez B., Ana L. Valencia D., Bruno Defilippi B., Camila Arancibia G., Cristina Vergara H., Daniel Manríquez B., Daniela Olivares Z., Edgard Álvarez R., Gerardo Nuñez-Lillo, Gonzalo Salinas G., Pablo Ulloa F., Raúl Ferreyra E., Reinaldo Campos-Vargas, Romina Pedreschi P.	https://biblioteca.inia.cl/server/api/core/bitstreams/cf6a8176-831c-4802-9780-b7712f756ebd/content	0717 - 4829	Genomics for conservation, ecosystem health and sustainable food production.	1

3.5.- Other Publications

3.5.1 Principals Researchers

3.6.- Other researchers: “WOS Publications or Similar to WOS Standard”, “SCOPUS Publications or Similar to SCOPUS Standard” “SCIELO Publications or Similar to SCIELO Standard”, “Books and chapters in books” y “Other Publications [Other Researchers]”:

N°	Publication Category	Title	Authors	DOI	Quartile	Research Line	N° Researchers
1	ISI/WOS o Similar a ISI/WOS standard	Fossil evidence of proboscidean frugivory and its lasting impact on South American ecosystems.	Erwin González-Guarda, Andrea P. Loayza, Ricardo A. Segovia, Florent Rivals, Alia Petermann-Pichincura, Iván Ramírez-Pedraza, Lidiane Asevedo, Carlos Tornero, Rafael Labarca & Claudio Latorre	10.1038/s41559-025-02713-8	Q1	Interaction networks that govern genome structure in communities of organisms.	1
2	ISI/WOS o Similar a ISI/WOS standard	Redescription of <i>Moluchia brevipennis</i> and description of two new species of	Constanza Schapheer, Cristian A Villagra, Alejandro Vera	10.1093/jisesa/ieaf069	Q1	Interaction networks that govern genome structure in communities	1

		Moluchia (Blattodea: Blattellidae), the dark cockroaches of the Mediterranean-type zone of Central Chile				s of organisms.	
3	ISI/WOS o Similar a ISI/WOS standard	Causal interactions among phytoplankton and Pseudo-nitzschia species revealed by empirical dynamic modelling	Ishara Uhanie Perera, So Fujiyoshi, Daiki Kumakura, Carolina Medel, Kyoko Yarimizu, Oscar Espinoza-González, Leonardo Guzmán, Shinji Nakaoka, Felipe Tucca, Alexander Jaramillo-Torres, Yukako Tohsato, Jacqueline J Acuña, Milko A Jorquera, Hansoo Lee, Fumito Maruyama	10.1016/j.marpolbul.2024.117432	Q1	Interaction networks that govern genome structure in communities of organisms.	1
4	ISI/WOS o Similar a ISI/WOS standard	Exploring the genomic and antimicrobial resistance tapestry: comparative insights into Salmonella enterica serotypes Agona, Braenderup, Muenchen, and Panama in Latin American surface waters	Zhao Chen, Enrique J Delgado Suárez, Raquel R Bonelli, Celso JB Oliveira, Andrea I Moreno-Switt, Aiko D Adell, Angélica Reyes-Jara, Christopher J Grim, Marc W Allard, Sandra M Tallent, Eric W Brown, Rebecca L Bell, Magaly Toro, Jianghong Meng	10.1128/spectrum.m.01706-24	Q2	Genomics for conservation, ecosystem health and sustainable food production.	1
5	ISI/WOS o Similar a ISI/WOS standard	Past responses of modern phytoplankton and subfossil diatoms to volcanism in an Andean lake (central Chile)	María Laura Carrevedo, Luciano Caputo, Fernando Alfaro, Ana Luisa Herrera, Matías Frugone-Álvarez, Blas Valero Garcés, Claudio Latorre	10.1080/0269249X.2024.2432356	Q2	Interaction networks that govern genome structure in communities of organisms.	1

6	ISI/WOS o Similar a ISI/WOS standard	Two antagonistic gene regulatory networks drive Arabidopsis root hair growth at low temperature linked to a low-nutrient environment	Tomás Urzúa Lehuedé, Victoria Berdion Gabarain, Miguel Angel Ibeas, Hernán Salinas- Grenet, Romina Achá-Escobar, Tomás C. Moyano, Lucia Ferrero, Gerardo Núñez-Lillo, Jorge Pérez-Díaz, María Florencia Perotti, Virginia Natali Miguel, Fiorella Paola Spies, Miguel A. Rosas, Ayako Kawamura, Diana R. Rodríguez- García, Ah-Ram Kim, Trevor Nolan, Adrian A. Moreno, Keiko Sugimoto, Norbert Perrimon, Karen A. Sanguinet, Claudio Meneses, Raquel L. Chan, Federico Ariel, Jose M. Alvarez, José M. Estevez	10.1111/nph.204 06	Q1	Genomics for conservatio n, ecosystem health and sustainable food production.	2
7	ISI/WOS o Similar a ISI/WOS standard	Assemblage of Bacteria Communities and Resistome Enrichment by Dairy Flurries Along the Rhizosphere– Bulk Soil Continuum on Dairy Farms	Joaquin Rilling, Constanza Venegas, Marco Campos, Milko A Jorquera, Jacqueline J Acuña	10.3390/agrono my15020397	Q1	Interaction networks that govern genome structure in communitie s of organisms.	2
8	ISI/WOS o Similar a ISI/WOS standard	Differentiation of microbial communities in coastal seawater before and during an Akashiwo sanguinea (Dinophyceae) bloom in the urban area of Antofagasta	Jingming Hu, Henry Cameron, Joaquín I Rilling, Marco Campos, Tay Ruiz- Gil, Mariela A Gonzalez, Gonzalo Gajardo, Karen Vergara, Leonardo Guzmán, Oscar Espinoza-González, Gonzalo Fuenzalida, Carlos Riquelme, Shoko Ueki, Satoshi	10.1016/j.hal.202 4.102782	Q1	Interaction networks that govern genome structure in communitie s of organisms.	2

		city (northern Chile)	Nagai, Fumito Maruyama, So Fujiyoshi, Kyoko Yarimizu, Ishara Uhanie Perera, Andrés Ávila, Jacquelinne J Acuña, Qian Zhang, Milko A Jorquera				
9	ISI/WOS o Similar a ISI/WOS standard	Insights into the Molecular Basis of Fruit Development in Prunus Species	Germán Ortuño- Hernández, Paula Sandoval-Belmar, David Ruiz, Pedro Martínez-Gómez, Claudio Meneses, Juan A Salazar	10.1007/s11105- 025-01548-8	Q1	Genomics for conservatio n, ecosystem health and sustainable food production.	1
10	Libros y Capítulos de Libros	Sentinel hydrological processes: Informing drought management strategies in Chile	Aurora Gaxiola, Camilo del Río, Marcelo D Miranda, Francisco Suárez	10.1007/978-3- 031-85040-0_15	Q4	Genomics for conservatio n, ecosystem health and sustainable food production.	1
11	ISI/WOS o Similar a ISI/WOS standard	Chemotactic Effect of 1- Aminocyclopr opane-1- Carboxylic Acid (ACC) on Plant- Associated Bacteria Dispersed by the Fungal Mycelium of Mucor sp.	Javiera Manquían, Susett González- González, Paulina Molinet, Constanza Venegas, So Fujiyoshi, Milko A Jorquera, Jacquelinne J Acuña	10.1007/s42729- 025-02432-w	Q2	Interaction networks that govern genome structure in communitie s of organisms.	1
12	ISI/WOS o Similar a ISI/WOS standard	β -Propeller Phytase Gene as Marker for the Quantification of Seed- Endophytic Bacillus Sp. S- 30 during Post- Germination of Tomato	Constanza Morales, Constanza Venegas, Nitza G Inostroza, Jacquelinne J Acuña, Angela Sessitsch, Deb Jaisi, Milko A Jorquera	10.1007/s42729- 025-02524-7	Q2	Interaction networks that govern genome structure in communitie s of organisms.	1

13	Libros y Capítulos de Libros	Remote Sensing Phenology as a Tool for Monitoring the Impact of Drought on Forest Ecosystem Productivity in Temperate Forests of South America	Marcelo D Miranda, Aurora Gaxiola, Valentina Bravo	10.1007/978-3-031-85040-0_14	Q4	Genomics for conservation, ecosystem health and sustainable food production.	1
14	ISI/WOS o Similar a ISI/WOS standard	Hydroclimatic variability drove human-megafauna-environment interactions during the late Pleistocene/Early Holocene in central Chile	Matías Frugone-Álvarez, Rafael Labarca, Josu Aranbarri, Matías Briceño, Leonardo A Villacís, Carolina Godoy-Aguirre, Antonio Delgado-Huertas, José Blanco, Claudio Latorre, Erwin González-Guarda, Natalia Villavicencio, Carlos Tornero, José Iriarte, Blas Valero-Garcés	10.1016/j.gloplacha.2025.104876	Q1	Interaction networks that govern genome structure in communities of organisms.	1
15	Scopus	Evaluating the genetic diversity in farmed populations of Nile tilapia (<i>Oreochromis niloticus</i>) from Brazil using SNP markers	Vito Antonio Mastrochirico-Filho, Baltasar Fernandes Garcia, Lieschen Valeria Guerra Lira, Antonio Ramon do Amaral Neto, Rodrigo Marín-Nahuelpi, Jouseph Gallardo-Hidalgo, Liane Ney Bassini, Fabio Porto-Foresti, Diogo Teruo Hashimoto	10.1016/j.aaf.2025.05.004	Q2	Genomics for conservation, ecosystem health and sustainable food production.	2
16	ISI/WOS o Similar a ISI/WOS standard	Seasonal transcriptome profile across three different tissues of the Andean Killifish <i>Orestias ascotanensis</i>	Rodrigo Maldonado-Agurto, Elvis Acevedo, Vinicius Maracaja-Coutinho & Martin Montecino	10.1038/s41597-025-05345-6	Q1	Functional genomics of adaptation and convergent evolution.	1

17	ISI/WOS o Similar a ISI/WOS standard	Written in bones: palaeoclimate histotaphono mic history inferred from a complete Megatherium skeleton preserved in the Atacama Desert	Vivien G Standen, Susana Monsalve, Paula C Ugalde, Sergey Sedov, Teresa Pi Puig, Alan Ulises Loredó-Jasso, Francisco J Caro, Gabriela M Jarpa, Patricia Hernández- Michaud, Claudio Latorre, Calogero M Santoro	10.1111/pala.700 11	Q1	Interaction networks that govern genome structure in communitie s of organisms.	1
18	ISI/WOS o Similar a ISI/WOS standard	Characterizati on of Bunch Compactness in a Diverse Collection of Vitis vinifera L. Table Grape Cultivar Genotypes Reveals New Candidate Genes Associated with Berry Number	Marco Meneses, Claudia Muñoz- Espinoza, Sofía Reyes-Impellizzeri, Erika Salazar, Claudio Meneses, Katja Herzog, Patricio Hinrichsen	10.3390/plants14 091308	Q1	Genomics for conservatio n, ecosystem health and sustainable food production.	1
19	ISI/WOS o Similar a ISI/WOS standard	Fruit-specific overexpressio n of lipoyl synthase increases both bound and unbound lipoic acid and alters the metabolome of tomato fruits	María Paz Covarrubias, Felipe Uribe, Daniela Arias G, Pamela Cabedo, Michael Handford	10.3389/fpls.202 5.1545011	Q1	Genomics for conservatio n, ecosystem health and sustainable food production.	1
20	ISI/WOS o Similar a ISI/WOS standard	Functional and Genomic Evidence of L- Arginine- Dependent Bacterial Nitric Oxide Synthase Activity in Paenibacillus nitricinens sp. nov.	Diego Saavedra- Tralma, Alexis Gaete, Carolina Merino-Guzmán, Maribel Parada- Ibáñez, Francisco Nájera-de Ferrari, Ignacio Jofré- Fernández	10.3390/biology1 4060733	Q1	Interaction networks that govern genome structure in communitie s of organisms.	1
21					Q1		1

	ISI/WOS o Similar a ISI/WOS standard	Atmosphere, Vegetation, and Soil Water Coupling Determined by Stomatal Regulation of Transpiration	Adrian V. Rocha, Juan J. Armesto, Jorge F. Perez-Quezada, Bethany Blakely, Puja Sharma & Aurora Gaxiola	10.1007/s10021-025-00981-w		Genomics for conservation, ecosystem health and sustainable food production.	
22	ISI/WOS o Similar a ISI/WOS standard	Environmental and Evolutionary Forces Shaping Penguin Geographic Limits	Amanda Mourão Santos, Ubirajara Oliveira	10.1111/jbi.15179	Q1	Functional genomics of adaptation and convergent evolution.	0
23	ISI/WOS o Similar a ISI/WOS standard	Uncovering Allele-Specific Expression Patterns Associated with Sea Lice (<i>Caligus rogercresseyi</i>) Burden in Atlantic Salmon	Pablo Cáceres, Paulina López, Carolina Araya, Daniela Cichero, Liane N. Bassini, José M. Yáñez	10.3390/genes16070841	Q2	Genomics for conservation, ecosystem health and sustainable food production.	1
24	ISI/WOS o Similar a ISI/WOS standard	Genetic and in silico functional characterization of a novel structural variant in the PAH gene by long-reads sequencing and structural modeling	Gallardo V, Gaete A, Maldonado J, Morales P, Peña A, Hamilton V, Faundes V and Santa María L	10.3389/fgene.2025.1669007	Q2	Interaction networks that govern genome structure in communities of organisms.	2
25	ISI/WOS o Similar a ISI/WOS standard	Exploring evolutionary mechanisms of genomic divergence in marine intertidal limpets	Paulina Carimán, Marie-Laure Guillemain, Emily C. Giles, Gabriela Narváez, Ana V. Suescún & Pablo Sáenz-Agudelo	10.1038/s41437-025-00782-w	Q1	Functional genomics of adaptation and convergent evolution.	0
26	ISI/WOS o Similar a ISI/WOS standard	Long-term dynamics of soil water erosion in Chile:	I Núñez-Hidalgo, M Pfeiffer, A Gaxiola	10.1016/j.catena.2025.109377	Q1	Genomics for conservation, ecosystem	1

		interactions between climate variability and land-cover change				health and sustainable food production.	
27	ISI/WOS o Similar a ISI/WOS standard	Multi-trait GWAS for growth under contrasting thermal rearing conditions in rainbow trout (<i>Oncorhynchus mykiss</i>)	Jouseph Gallardo-Hidalgo, David A. Tapia, Baltasar F. Garcia, Rodrigo Marin-Nahuelpi, Pablo Cáceres, Liane N. Bassini, Vito A. Mastrochirico-Filho, Carolina Araya & José M. Yáñez	10.1007/s00438-025-02263-5	Q3	Genomics for conservation, ecosystem health and sustainable food production.	2
28	ISI/WOS o Similar a ISI/WOS standard	Airborne bacterial communities present in particulate matter (PM2.5 and PM10) samples collected during different seasons in Temuco City in Chile	Tay Ruiz-Gil, Joaquín I Rilling, Marco Campos, So Fujiyoshi, Fumito Maruyama, Jacqueline J Acuña, Milko A Jorquera	10.1007/s10453-025-09877-7	Q2	Interaction networks that govern genome structure in communities of organisms.	2
29	ISI/WOS o Similar a ISI/WOS standard	Genomic diversity and environmental factors associated with <i>Listeria monocytogenes</i> presence in surface water	Magaly Toro, Daniel Weller, Camila Solar, Ana María Quesille-Villalobos, Hee Yin Kwon, Aiko Adell, Andrea Moreno-Switt, Yi Chen, Rebecca L Bell, Jianghong Meng, Angélica Reyes-Jara	10.1016/j.scitotenv.2025.180449	Q1	Genomics for conservation, ecosystem health and sustainable food production.	1
30	ISI/WOS o Similar a ISI/WOS standard	Tracing Ice-Age Legacies: Phylogeography and Glacial Refugia of the Endemic Chiton <i>Tonicina zschauizi</i> (Polyplacophora: Ischnochitoni)	M. Cecilia Pardo-Gandarillas, Carolina Márquez-Gajardo, Pamela Morales, Jennifer Catalán, Poni, K., Sebastián Rosenfeld, Angie Díaz, Kevin M. Kocot & Christian M. Ibáñez.	10.3390/d17090626	Q3	Functional genomics of adaptation and convergent evolution.	1

		dae) in the West Antarctic Region					
31	ISI/WOS o Similar a ISI/WOS standard	Polyplacophoran Assemblages in Shallow Waters of the West Antarctic Peninsula: Patterns of Diversity, Composition and Abundance	Christian M. Ibáñez, Sebastián Rosenfeld, Ivka Carvajal, Jennifer Catalán, Germán Zapata-Hernández, Manuel Gacitúa-Leible, Rocío Vargas, Pamela Morales, Angie Díaz, Sergio A. Carrasco, Javier Sellanes, Sadie Mills & María Cecilia Pardo-Gandarillas	10.3390/ecologies6010023	Q1	Functional genomics of adaptation and convergent evolution.	1
32	Libros y Capítulos de Libros	Seed Inference in Interacting Microbial Communities Using Combinatorial Optimization	Chabname Ghassemi Nedjad, Sebastián Nelson Mendoza, Clémence Frioux & Loïc Paulevé	10.1007/978-3-032-01436-8_20	Q4	Interaction networks that govern genome structure in communities of organisms.	1

3.7.- Collaborative publications:

Category of Publication	1 researcher		2 researchers		3 researchers		4 or more	
	Nº	%	Nº	%	Nº	%	Nº	%
ISI/WOS Publications or Similar to ISI/WOS Standard	36	52,94%	14	20,59%	4	5,88%	7	10,29%
SCOPUS Publications or Similar to SCOPUS Standard	0	0,00%	1	1,47%	0	0,00%	0	0,00%
SCIELO Publications or Similar to SCIELO Standard	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Books and chapters	3	4,41%	1	1,47%	0	0,00%	0	0,00%
Other Publications	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Total of publications	39	57,35%	16	23,53%	4	5,88%	7	10,29%

Annex 4.- Education and capacity building

Annex 4.- Short-term Traineeships of MSI students

4.1 List of Internships

Student Name	Institution	Country	Advisor	Project Description	Starting Date	Ending Date
Lucila Morales	Museo Nacional de Ciencias Naturales de Madrid	Spain	Luis Pertierra	Enhance our understanding of how skua populations might respond to emerging climate change scenarios.	01-09-2025	25-11-2025
Eduardo Fabián Jiménez Delgadillo	Pontificia Universidad Católica de Río Grande del Sur	Brazil	Eduardo Eizirik	Learn and apply new methods for analyzing natural selection, as well as discuss candidate genes under positive selection in order to assess their functional enrichment and identify the associated intraspecific biological processes.	10-03-2025	10-05-2025
Gabriela Fernanda Narváez Guíñez	Universidade Federal do Rio de Janeiro (UFRJ)	Brazil	Cassia Mônica Sakuragui	Integrated research, training, and scientific exchange activities, with an emphasis on plant systematics and the application of genomic and nomenclatural tools to the study of species of the genus <i>Nothofagus</i> .	28-04-2025	18-06-2025
Camila Arancibia Guerra	Universidad de Granada	Spain	Alegría Carrasco Pancorbo	Analytical advances and applications of metabolomics	15-07-2025	25-07-2025
Luciano Nicolás Arancibia Romero	Universidad Nacional Agraria La Molina	Peru	David Campos Gutiérrez	Analytical advances and applications of metabolomics	10-07-2025	20-07-2025
Lucila Morales	Pontificia Universidad Católica de Río Grande del Sur	Brazil	Eduardo Eizirik	Strengthen strategies to support chromosome-level de novo assembly of <i>Stercorarius chilensis</i> , with the aim of generating the first chromosome-level reference genome for the family Stercorariidae. In addition, the project sought to advance the identification of structural variants in the genomes of these species and evaluate their role in differentiation processes, particularly those influenced by past and recent introgression events between species.	17-03-2025	17-06-2025

Laura Belén Sepúlveda Prelaz	Nouvelle Aquitaine INRAE Bordeaux	France	Benedicte Wenden	How climatic incidents (e.g., heat waves) affect dormancy and acclimation in Prunus species	02-01-2025	03-03-2025
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4.2 List of External Internships

Intern Type	Intern Name	Academic Degree	Home Institution	Destination Institution	Country	Project Description	Starting Date	Ending Date
Estudiante	Estefanía Herrera Aravena	Pregrado	Universidad Mayor	Pontificia Universidad Católica de Chile	Chile	Professional internship carried out at the National Forestry Corporation (CONAF), Protected Areas Department, under the supervision of Miguel Díaz Gacitúa. During this internship, a list of vertebrate wildlife species considered priorities for the National System of State Protected Wild Areas (SNASPE) was prepared. Based on this work, a protocol was also edited for the collection of tissue samples from deceased specimens of these priority species, within the framework of the 1000 Genomes Project.	06-01-2025	27-06-2025
Investigador	Anne Siegel	Doctorado	CNRS-Rennes	Universidad de Chile	Francia	Research in Metabolic Modeling	09-01-2025	17-01-2025
Investigador	Clemence Frioux	Doctorado	INRIA-Bordeaux	Universidad de Chile	Francia	Research in Metabolic Modeling	09-01-2025	17-01-2025
Estudiante	Dyess Harp	Pregrado	Virginia Tech	Pontificia Universidad	Estados Unidos	Studying penguin DNA to	03-03-2025	31-12-2025

				Católica de Chile	de America	understand biodiversity and improve conservation strategies against threats like climate change and overfishing		
Estudiante	Jessy Silva	Doctorado	Biology Department, Faculty of Sciences, University of Porto	Universidad Andrés Bello	Portugal	Functional characterization of genes encoding putative GlcA Transferases involved in AGP biosynthesis	03-03-2025	05-06-2025
Estudiante	Miguel Sampiao	Doctorado	Biology Department, Faculty of Sciences, University of Porto	Universidad Andrés Bello	Portugal	Functional characterization of genes encoding putative GlcA Transferases involved in AGP biosynthesis	03-03-2025	05-06-2025
Estudiante	Agustina Esperanza Muñoz López	Pregrado	Universidad de Chile	Pontificia Universidad Católica de Chile	Chile	Develop technical expertise in molecular biology techniques, including PCR, RT-qPCR, and plasmid DNA extraction, among others, to further advance the understanding of biological phenomena.	01-08-2025	12-12-2025
Investigador	Jeroni Galmés	Doctorado	Universidad de las Islas Baleares	Universidad Mayor	España	Meeting and discussion regarding the collaborative Spanish National Plan project	07-05-2025	08-05-2025
Investigador	Fernando Santos	Doctorado	Universidad de Alicante	Universidad Mayor	España	Meeting and sampling activities for Fondecyt Regular	18-08-2025	27-08-2025

						Project No. 1230217		
Estudiante	Amanda Mourão Santos	Pregrado	Universidade Federal de Minas Gerais	Pontificia Universidad Catolica de Chile	Brasil	Short-term research stay involving collaboration on seabird genomic data analysis, including ecological modeling and ancestral area reconstruction, as well as participation in scientific discussions and an international conference in Valdivia.	02-08-2025	07-08-2025
Estudiante	Amanda Mourão Santos	Pregrado	Universidade Federal de Minas Gerais	Pontificia Universidad Catolica de Chile	Brasil	Short-term research stay including collaboration on genomic data analyses of seabirds, with focus on ecological modeling and ancestral area reconstruction, along with technical training (drone course) related to field research	16-10-2025	25-10-2025
Investigador	Harris Lewin	Doctorado	Arizona State University	Pontificia Universidad Católica de Chile	Estados Unidos de America	Participation as a keynote speaker at the 1000 Genomes workshop and in coordination meetings for collaborative work.	21-04-2025	29-04-2025
Investigador	Patrick Wincker	Doctorado	Genoscope - National Center of Sequencing	Pontificia Universidad Católica de Chile	Francia	Participation as a keynote speaker at the 1000 Genomes workshop and in coordination meetings for	21-04-2025	29-04-2025

					collaborative work.		
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Annex 5- Networking and other collaborative work

5.1. Formal Collaboration networks

Network Name	Network Scope	Researchers				Institutions
		From the Center		External		
		Researchers	Postdocs / Students	Researchers	Postdocs / Students	
Go-See	I	4	2	30	10	CNRS, University of Arizona, Imperial College London
INRIA-Équipe Associé	I	5	1	3	2	CNRS-Rennes; INRIA-Bordeaux
1000 Genomas Chile	N	10	1	43	0	Instituto Milenio Centro de Regulación del Genoma, Instituto Milenio de Biología Integrativa, Centro Avanzado de Enfermedades Crónicas, Instituto Milenio de Ecosistemas Antárticos y Subantárticos, Centro de Modelamiento Matemático, Centro Internacional Cabo de Hornos, Instituto de Ecología y Biodiversidad
Earth Biogenome Project	I	3	0	50	0	Global Genome Biodiversity Network (GGBN), Global Invertebrate Genome Alliance (GIGA), European Reference Genome Atlas (ERGA) Vertebrate

						Genomes Project, Primate Genome Project, Polar Genomes Project, Plant and Fungi Trees of Life, Ocean Genomes, entre otros.
Proyecto Europeo Bluetools	I	1	1	14	1	Universidad Autonoma de Madrid, Universidad De Alicante, Centro Astrobiología Madrid
Tara Ocean	I	4	2	10	3	Fundacion Tara Ocean
Red IM-CRG - Centro SYSTEMIX	N	3	8	0	0	IM-CRG y Centro SYSTEMIX
Red IM-CRG - CR2	N	3	14	0	0	IM-CRG y CR2
Red IM-CRG - CMM	N	2	3	0	0	IM-CRG y CMM
Red IM-CRG - iBio	N	6	10	0	0	IM-CRG e iBio
Red IM-CRG - BASE	N	4	20	0	0	IM-CRG y BASE.
Red IM-CRG - IEB	N	8	37	0	0	IM-CRG e IEB
Red IM-CRG - ACCDIS	N	9	0	0	0	IM-CRG y ACCDIS
Red IM-CRG - Núcleo Milenio de Neuroepigenética y Plasticidad EpiNeuro	N	1	4	0	0	IM-CRG y EpiNeuro
Red IM-CRG - CHIC	N	6	0	0	0	IM-CRG y CHIC
Red IBT-UNALM - PUCV	I	1	1	0	0	IBT-UNALM y PUCV
Red con el Instituto de Biología Molecular y Celular de Plantas CSIC– Universidad Politécnica de Valencia (España)	I	1	3	0	0	Instituto de Biología Molecular y Celular de Plantas CSIC– Universidad Politécnica de Valencia (España)
Red IM-CRG - Centro BIOSAV	N	2	8	0	0	IM-CRG y Centro BIOSAV
Red IM-CRG - U. Bordeaux	I	3	0	0	0	IM-CRG y U. de Bordeaux
MeBioS – Katholieke Universiteit Leuven (Bélgica)	I	1	3	0	0	Katholieke Universiteit Leuven (Bélgica)
Instituto de Investigaciones	N	1	3	0	0	Instituto de Investigaciones

Agropecuarias – INIA La Platina						Agropecuarias – INIA La Platina
Universidad de Granada - Agrifood Lab Metabolomics Group	I	2	2	0	0	Universidad de Granada y PUCV
European Reference Genome Atlas (ERGA)	I	2	0	0	0	ERGA
Fundación Allende Connelly - Fundación CGR	N	9	0	0	0	Fundación Allende Connelly y Fundación CGR
Red IM-CRG - Congreso Futuro	N	5	7	0	0	Fundación Encuentros del Futuro (Congreso Futuro)

NOMENCLATURE:**[Network Scope]**

[N] National [I] International [LA] Latin American

Annex 5.2.- Collaboration Network

Activity Name	Objective	Description	Co-Participants Institutions	Number of Research from the Center	Number of Postdocs/Students from the Center	Number of External Research	Number of External Postdocs/Students	Product	Name of the Center Associate Researchers Participating in the activity
International network on avocado metabolomics applied to improving the sustainable producti	Analytical advances and applications of metabolomics	International network on avocado metabolomics applied to improving the sustainable production and supply chain (FOVI240006)	Universidad de Granada	2	3			1, Pasantía internacional	Romina Pedreschi Plasencia. Patricio Olmedo Miraflores.

on and supply chain FOVI240 006									
Session with the Natural Sciences and Engineering Research Council of Canada (NSERC)	Advance new lines of scientific and technological cooperation	The Center for Mathematical Modeling (CMM), including IM-CRG Principal Investigator Dr. Alejandro Maass, hosted an NSERC delegation as part of ongoing efforts to consolidate strategic partnerships that strengthen interdisciplinary research and the transfer of knowledge to productive sectors.	NSERC	1	0			1, Reunión	Alejandro Maass Sepúlveda.

Annex 6. - Outreach

6.1. Outreach activities throughout the period

Event Title	Type of Event	Scope	Target Audience	Date	Country	Region	N° of Student from the Center	N° of Attendees	Duration in days	Participating Researchers	Responsible for the activity
Sharing experiences in Antarctica	Otra	International	Sector público Profesionales de	12-05-2025	Chile	Región Metropolitana de Santiago	0	50	1	Juliana De Abreu Vianna.	Juliana Vianna

			otras áreas								
EMOL Protagonists 2030	Charla / Conferencia	Nacional	Profesores de enseñanza básica Profesores de enseñanza a media Público general	22-07-2025	Chile	Región Metropolitana de Santiago	0	1000	2	Mauricio Latorre Mora.	El Mercurio
RNA Club	Charla / Conferencia	Local	Público general	08-01-2025	Chile	Región Metropolitana de Santiago	1	200	1	Álvaro Glavic Maurer.	Facultad de Ciencias Químicas y Farmacéuticas de la Universidad de Chile
Antarctic journey: penguins, science, and avian influenza	Charla / Conferencia	Local	Público general	03-10-2025	Chile	Región de Valparaíso	1	45	1		Eduardo Pizarro
Talk: “Exploring the Invisible World: How DNA Reveals the Secrets of Nature”	Exhibición o instalación en museo	Regional	Público general Profesores de enseñanza a media	19-11-2025	Chile	Región de los Lagos	0	50	1	Daly Noll Vergara.	Museo Interactivo Osorno
Workshop: “Neuroscientists for a Day”	Taller	Local	Estudiantes de enseñanza a básica	11-01-2025	Chile	Región Metropolitana de Santiago	1	20	1	Álvaro Glavic Maurer.	Departamento de Biología de la Facultad de Ciencias Universidad de Chile y Equipo NeuroFest
Roundtable : “Protecting Biodiversity in the Oceans” at	Actividad de participación ciudadana	Internacional	Público general Otro	16-01-2025	Chile	Región Metropolitana de Santiago	0	100	1	Alejandro Maass Sepúlveda.	Fundación Encuentros del Futuro, CMM,

“La Noche de las Ideas” during Congreso Futuro 2025											Instituto Francés
1000 Genomas booth at Congreso Futuro 2025	Actividad de participación ciudadana	Internacional	Público general Medios de comunicación	13-01-2025	Chile	Región Metropolitana de Santiago	9	1000	6	Juliana De Abreu Vianna. Daly Noll Vergara. Alexis Ignacio Gaete Silva.	Comisión Desafíos del Futuro del Senado de Chile, Fundación Encuentros del Futuro, Academia Chilena de Ciencias, Cámara de Diputadas y Diputados y universidades de Chile.
Teletón Chile Summer Week 2025	Taller Interactivo	Local	Estudiantes de enseñanza básica Estudiantes de enseñanza media	14-01-2025	Chile	Región Metropolitana de Santiago	4	200	5	Daly Noll Vergara.	Teletón
Antarctic Science – Secrets of Marine Microorganisms	Charla / Conferencia	Local	Estudiantes de enseñanza media	21-04-2025	Chile	Región de Coquimbó	1	53	1		Diego Beecher
Workshop on Genomic Biodiversity of Extreme Environments in Rapa Nui, with an	Taller Interactivo	Local	Estudiantes de enseñanza media Estudiantes de enseñanza básica	28-04-2025	Chile	Región de Valparaíso	3	50	4	Miguel Allende Connelly	Municipalidad de Rapa Nui E Instituto Milenio CRG

open fair and photographic exhibition			Público general							Juliana De Abreu Vianna. Ariel Orellana López. Beatriz Diez Moreno. Alejandr o Maass Sepúlveda. Alexis Ignacio Gaete Silva. Daly Noll Vergara. Camilo Valdivieso Guerrero.	
Community science fair	Exhibición o instalación en museo	Local	Estudiantes de enseñanza media Estudiantes de enseñanza básica Público general	30-04-2025	Chile	Región de Valparaíso	1	250	1	Miguel Allende Connelly. Juliana De Abreu Vianna. Ariel Orellana López.	Municipalidad de Rapa Nui

										Beatriz Diez Moreno. Alejandro Maass Sepúlveda. Alexis Ignacio Gaete Silva. Daly Noll Vergara. Camilo Valdivieso Guerrero.	
Outreach project: “Commitment to Regional Health: Research and Scientific Engagement Days”	Taller	Regional	Estudiantes de enseñanza media	10-06-2025	Chile	Región de Antofagasta	4	192	4	Alexandra Galetovich Carabantes.	Alexandra Galetovich y Universidad de Antofagasta
Santiago Marble Challenge 2025 Thinky Award Ceremony	Concursos sobre ciencias (para público no académico)	Regional	Estudiantes de enseñanza media Profesores de enseñanza media	02-09-2025	Chile	Región Metropolitana de Santiago	0	25	1	Angélica Reyes Jara.	Thinky y American Spaces
Valparaíso Marble Challenge 2025 Thinky Award Ceremony	Concursos sobre ciencias (para público no académico)	Regional	Estudiantes de enseñanza media Profesores de enseñanza media	04-09-2025	Chile	Región de Valparaíso	0	15	1	Romina Pedreschi Plasencia.	Thinky y American Spaces

Workshop: “Biodiversity and Food Sovereignty in Chile: The Legacy of the Potato”	Taller Interactivo	Local	Estudiantes de enseñanza básica Estudiantes de enseñanza media	29-09-2025	Chile	Región de los Lagos	4	45	3	Miguel Allende Connelly . Romina Pedreschi Plasencia. Alexis Ignacio Gaete Silva.	Romina Pedreschi
Workshop: “Genes, Genetics, and Genomes”	Taller	Local	Profesores de enseñanza media	02-10-2025	Chile	Región de los Lagos	1	30	1	Miguel Allende Connelly . Alexis Ignacio Gaete Silva.	Miguel Allende
Gene Hunters at the MIM	Taller Interactivo	Local	Público general	19-07-2025	Chile	Región Metropolitana de Santiago	4	70	1	Miguel Allende Connelly .	Miguel Allende y Agrupación de Estudiantes por la Ciencia
CRISPR and Genetic Modification in Animals	Charla / Conferencia	Local	Profesores de enseñanza básica Profesores de enseñanza media	15-10-2025	Chile	Región de Valparaíso	0	80	1	Miguel Allende Connelly .	Complejo Educacional Apumanque
TEDxFrutillar Panel Discussion	Otra	Local	Público general	24-10-2025	Chile	Región de los Lagos	0	45	1	Miguel Allende Connelly .	TEDx Frutillar

										Alejandro Maass Sepúlveda.	
Hands-on activity at Escuela Particular Artística El Trigal de Maipú	Taller Interactivo	Local	Estudiantes de enseñanza media	29-10-2025	Chile	Región Metropolitana de Santiago	4	11	1	Miguel Allende Connelly. Álvaro Glavic Maurer. Alexis Ignacio Gaete Silva.	Alexis Gaete
Science Fair at Liceo Nacional de Maipú	Concursos sobre ciencias (para público no académico)	Local	Profesores de enseñanza básica Profesores de enseñanza media	30-10-2025	Chile	Región Metropolitana de Santiago	1	200	1		Liceo Nacional de Maipú
Ladera Sur Festival	Actividad de participación ciudadana	Nacional	Público general Sector privado Profesores de enseñanza básica Profesores de enseñanza media	28-11-2025	Chile	Región Metropolitana de Santiago	11	900	3	Miguel Allende Connelly.	Ladera Sur
Workshop: Exploring the Genome of Chilean Biodiversity, at the Ladera Sur Festival	Actividad de participación ciudadana	Regional	Profesores de enseñanza básica Niños y niñas en etapa pre-escolar	29-11-2025	Chile	Región Metropolitana de Santiago	4	35	1		Ladera Sur
	Taller	Local			Chile		3	25	1		

An Introduction to the Model Organism: <i>Drosophila melanogaster</i>			Estudiantes de enseñanza media	21-08-2025		Región Metropolitana de Santiago				Pamela Morales Henríquez.	Facultad de Ciencias de la Universidad de Chile y Liceo Experimental Manuel de Salas
Science fair for the Dalcahue school community	Exhibición o instalación en museo	Local	Estudiantes de enseñanza básica Estudiantes de enseñanza media Niños y niñas en etapa pre-escolar	01-10-2025	Chile	Región de los Lagos	4	300	1	Miguel Allende Connelly. Romina Pedreschi Plasencia. Alexis Ignacio Gaete Silva.	Romina Pedreschi
School Science Outreach Workshop Project: “Urban Agriculture for Healthy Eating”	Taller Interactivo	Local	Profesores de enseñanza básica	08-10-2025	Chile	Región de Valparaíso	3	30	1	Romina Pedreschi Plasencia.	Romina Pedreschi y PUCV
XVII School Philosophy Meeting: “Dare to Think... Philosophy in the Interspace”	Charla / Conferencia	Local	Profesores de enseñanza básica Profesores de enseñanza media	09-10-2025	Chile	Región de Coquimbó	1	600	2		Colegio Teresa Videla en La Serena
	Taller	Local			Chile		1	20	1		INTA

INTA Scientific Route			Estudiantes de enseñanza básica	23-10-2025		Región Metropolitana de Santiago				Verónica Cambiazo Ayala. Mauricio González Canales.	
1000 Genomas booth at TEDxFrutillar 2025	Actividad de participación ciudadana	Nacional	Público general	23-10-2025	Chile	Región de los Lagos	0	300	1	Miguel Allende Connelly Alejandro Maass Sepúlveda.	TEDX Frutillar
Outreach Workshop – Air Plants and Paleogenomics	Taller Interactivo	Local	Estudiantes de enseñanza media	13-11-2025	Chile	Región de Atacama	2	30	1	Miguel Allende Connelly Claudio Latorre Hidalgo.	Claudio Latorre
Charla: Extremófilos en sistemas termales de El Tatio	Charla / Conferencia	Local	Estudiantes de enseñanza media	07-05-2025	Chile	Región Metropolitana de Santiago	2	90	1	Beatriz Díez Moreno. Blanca Lidia Águila Llanquilef.	CRG -

Annex 6.2- Organization of Scientific Events

Title of the Event	Type of Event	Date	City	Country	Scope	Number of Attendants	Number of MSI Expositors	Number of Foreign Expositors Non-MSI	National Number of Expositors Non-MSI	Duration (Days)	Target Audience	Responsible Researcher
Metabolic Club 2 – Reloaded	Scientific event focused	13-01	Rancagua	Chile	International	40	1	2	3	1	Profesionales de	Alejandro Maass

	on biologica l systems and bioinfor matics	- 20 25									otras áreas. Profesio nales del área del centro.	Sepúlve da
"How mRNA modificatio ns are linked to (eye) disease?" by Sebastian Leidel, University of Bern (Suiza)	Conferen cia	16 - 01 - 20 25	Santiag o	Chile	Naciona l	25	0	1	0	1	Profesio nales del área del centro. Profesio nales de otras áreas. Docente s universit arios. Estudian tes universit arios de pregrado . Estudian tes de postgrad o.	Álvaro Glavic Maurer
Global Ocean Systems Ecology and Evolution (GOSEE) Chile 2025: “An eco- systems biology view of ocean genomics”	Worksho p	24 - 03 - 20 25	Punta Arenas	Chile	Internac ional	40	3	10	15	5	Profesio nales del área del centro. Profesio nales de otras áreas.	Aleja ndr o Maass Sepúlve da
Genomic history of Nothofagus in southern	Conferen cia	31 - 05 -	Río de Janeiro	Brasil	Internac ional	20	1	0	0	1	Estudian tes universit	Juliana De Abreu Vianna

South America		2025									arios de pregrado	
											Estudian tes de postgrad o.	
Seminar of the Department of Biology, Faculty of Sciences, Universidad de Chile: "Connecting mRNA translation dynamics and cellular quality control" by Sebastian Leidel, University of Bern (Switzerland)	Seminario	17 - 01 - 2025	Santiago	Chile	Nacional	40	0	1	0	1	Profesionales del área del centro. Profesionales de otras áreas. Estudian tes universitarios de pregrado Estudian tes de postgrad o. Docentes universitarios.	Álvaro Glavic Maurer
PhD Student Interactomics: "Exploring the epitranscriptome: the relationship between codons, tRNAs, and their modifications as a mechanism"	Seminario	21 - 01 - 2025	Santiago	Chile	Nacional	30	0	0	2	1	Profesionales del área del centro. Estudian tes universitarios de pregrado Estudian tes de	Miguel Allende Connell y

for regulating gene expression,” by Diego García-Ríos (PUCV), and “Mitigation of emerging contaminants in colored and conventional potato chips: a metabolomic approach,” by Valentina Muñoz-Madrid (UCH)											postgrado.	
Women and Science: Their Journey in STEM and Antarctic Exploration	Foro	11 - 02 - 20 25	Santiago	Chile	Nacional	70	1	0	4	1	Público general. Sector público.	Daly Noll Vergara
IAP Webinar: Building Trust in Science Through Science Education	Seminario	11 - 03 - 20 25	Online	Otro	Internacional	460	7	0	8	1	Profesionales del área del centro. Profesionales de otras áreas. Sector público. Otro.	Miguel Allende Connell y
International School of Science Education (ISSE)	Workshop	16 - 06 -	Heidelberg	Alemania	Internacional	16	1	15	0	2	Profesionales de otras áreas.	Miguel Allende Connell y

		20 25										
Challenges and Strategies for the Use of ONT Long and Ultra-Long Reads in Latin America	Workshop	30 - 06 - 2025	Online	Otro	Internacional	51	2	7	1	1	Profesionales del área del centro. Profesionales de otras áreas.	Ariel Orellana López
Interactomics "Limited consensus of viral diversity techniques in marine environments" por Manuel Martínez García de la Universidad de Alicante	Conferencia	19 - 06 - 2025	Alicante	España	Internacional	24	0	1	0	1	Estudiantes universitarios de pregrado. Estudiantes de postgrado. Profesionales del área del centro. Profesionales de otras áreas.	Beatriz Díez Moreno
Interactomics: "Unveiling quality and bioactive traits in fruit crops through genomics and quantitative genetics" by Igor Pacheco (INTA), and	Seminario	24 - 07 - 2025	Online	Otro	Nacional	30	0	0	2	1	Profesionales del área del centro. Profesionales de otras áreas. Estudiantes universitarios de	Miguel Allende Connell y

“Of genomes and interactions : a journey through the CRG” by Christian Hodar (INTA)											pregrado .	
Second Meeting of PhD Students in Biotechnology	Simposio	24 - 07 - 2025	Santiago o	Chile	Nacional	180	2	0	32	2	Estudiantes de postgrado o.	Claudio Meneses Araya
Freedom and Scientific Responsibility: Challenges and Opportunities	Seminario	25 - 07 - 2025	Santiago o	Chile	Internacional	40	1	2	6	1	Docentes universitarios. Estudiantes universitarios de pregrado . Estudiantes de postgrado o.	Miguel Allende Connell y
Antumapu Seminar: “Beyond the Individual: Ecology and Sustainability in the World of Holobionts ”	Seminario	30 - 07 - 2025	Santiago o	Chile	Nacional	20	2	0	0	1	Profesionales del área del centro. Profesionales de otras áreas. Estudiantes universitarios de pregrado .	Constanza Schapher Carrasco

											Estudian tes de postgrad o.	
Interactomi cs: “Exploring predictors of dormancy and flowering in sweet cherry trees using omics and remote sensing data,” by Andrea Miyasaka (Universida d Mayor)	Seminari o	21 - 08 - 20 25	Santiag o	Chile	Naciona l	24	0	0	1	1	Profesio nales del área del centro. Estudian tes de postgrad o. Estudian tes universit arios de pregrado .	Romina Pedresc hi Plasenc ia
Antumapu Seminar: From Atoms to Ecosystems : Functional Genomics Applied to Agricultural and Forestry Biotechnol ogy	Seminari o	03 - 09 - 20 25	Santiag o	Chile	Naciona l	20	1	0	0	1	Profesio nales del área del centro. Profesio nales de otras áreas. Estudian tes universit arios de pregrado . Estudian tes de postgrad o.	Maurici o Gonzále z Canales
"Post- transcriptio nal modificatio ns in RNAs in response	Conferen cia	14 - 10 - 20 25	Santiag o	Chile	Naciona l	20	1	0	0	1	Profesio nales del área del centro.	Álvaro Glavic Maurer

to UV irradiation as a stressor" at the 7th IM-CRG Scientific Meeting											Estudiantes de postgrado.	
Talk: "Genomic Footprints in a Glacial Landscape: Evolutionary History and Population Structure of the Huemul," at the 7th IM-CRG Scientific Meeting	Conferencia	14 - 10 - 20 25	Santiago	Chile	Nacional	20	1	0	0	1	Profesionales del área del centro. Estudiantes de postgrado.	Juliana De Abreu Vianna
Talk: "Skin Genomics in Fish," at the 7th IM-CRG Scientific Meeting	Conferencia	14 - 10 - 20 25	Santiago	Chile	Nacional	20	1	0	0	1	Profesionales del área del centro. Estudiantes de postgrado.	Miguel Allende Connell y
Talk "Marchantia polymorpha as a model to study nitrate perception mechanisms in land plants" at the 7th IM-CRG Scientific Meeting	Conferencia	14 - 10 - 20 25	Santiago	Chile	Nacional	20	1	0	0	1	Profesionales del área del centro. Estudiantes de postgrado.	Rodrigo Gutiérrez Ilabaca
Talk: "Facilitation as an	Conferencia	14 - 10	Santiago	Chile	Nacional	20	1	0	0	1	Profesionales del	Rodrigo Gutiérrez

Evolutionary Mechanism in Arid Systems," at the 7th IM-CRG Scientific Meeting		- 2025									área del centro.	z Ilabaca
Talk "Connecting molecular regulation with microbial function in extreme environments" at the 7th IM-CRG Scientific Meeting	Conferencia	14 - 10 - 2025	Santiago	Chile	Nacional	20	1	0	0	1	Profesionales del área del centro. Estudiantes de postgrado.	Beatriz Diez Moreno
Talk "Viruses in extreme systems of Chile" at the 7th IM-CRG Scientific Meeting	Conferencia	14 - 10 - 2025	Santiago	Chile	Nacional	20	1	0	0	1	Profesionales del área del centro. Estudiantes de postgrado.	Beatriz Diez Moreno
EMBO Practical Course: Measuring translational dynamics by ribosome profiling	Workshop	23 - 03 - 2025	Heidelberg	Alemania	Internacional	39	0	16	0	6	Profesionales del área del centro. Profesionales de otras áreas. Estudiantes de postgrado.	Álvaro Glavic Maurer
Talk: "Diversity and	Conferencia	14 - 10	Santiago	Chile	Nacional	20	1	0	0	1	Profesionales del	Beatriz Diez Moreno

Adaptation s of Giant Viruses in Extreme Marine Ecosystems of Chile and Antarctica,” at the 7th IM-CRG Scientific Meeting		- 20 25									área del centro. Estudian tes de postgrad o.	
Talk "Identificati on of Microbial Biomarkers in the Carpospher e of Persea americana for the Early Prediction of Physiologic al Disorders" at the 7th IM-CRG Scientific Meeting	Conferen cia	14 - 10 - 20 25	Santiag o	Chile	Naciona l	20	1	0	0	1	Profesio nales del área del centro. Estudian tes de postgrad o.	Claudio Menese s Araya
Talk: “A Multi- Omics Approach to Understand ing the Desynchron ization of Exocarp Color and Mesocarp Firmness in Avocado cv. Hass,” at the 7th IM- CRG Scientific Meeting	Conferen cia	14 - 10 - 20 25	Santiag o	Chile	Naciona l	20	1	0	0	1	Profesio nales del área del centro. Estudian tes de postgrad o.	Romina Pedresc hi Plasenc ia
				Chile		20	1	0	0	1		

Talk: “Genetic Modulation of Root Architecture in Commercial Grapevine Rootstocks through the Editing of Nucleotide Sugar Transporters (NSTs),” at the 7th IM-CRG Scientific Meeting	Conferencia	14 - 10 - 20 25	Santiago		Nacional						Profesionales del área del centro. Estudiantes de postgrado.	Ariel Orellana López
Talk: “Deciphering the Mechanisms Used by <i>Piscirickettsia salmonis</i> to Survive and Replicate in the Intracellular Environment,” at the 7th IM-CRG Scientific Meeting	Conferencia	14 - 10 - 20 25	Santiago	Chile	Nacional	20	1	0	0	1	Profesionales del área del centro. Estudiantes de postgrado.	Verónica Cambiazo Ayala
Fisheries, Fur and Feathers: Conservation Management of Southern Ocean Marine Predators". Dr. Andrew Lowther from The Norwegian	Seminario	27 - 03 - 20 25	Santiago	Chile	Nacional	45	1	1	2	1	Profesionales de otras áreas. Profesionales del área del centro.	Juliana De Abreu Vianna

Polar Institute												
Launch of the Núcleo Milenio EpiNeuro and presentation of research progress	Seminario	28 - 04 - 2025	Santiago	Chile	Nacional	80	1	0	2	1	Profesionales del área del centro. Profesionales de otras áreas. Estudiantes de postgrado. Sector público.	Martín Montecino Leonard
Inauguration of the Advanced Genomics Unit (UGA) at the University of Chile	Conferencia	14 - 05 - 2025	Santiago	Chile	Nacional	25	1	0	3	1	Profesionales del área del centro. Profesionales de otras áreas. Estudiantes universitarios de pregrado. Estudiantes de postgrado.	Juliana De Abreu Vianna
Soirée Plankton: Bringing the Invisible Majority to the Ocean Conference	Conferencia	11 - 06 - 2025	Niza	Francia	Internacional	75	1	5	1	1	Sector público. Sector privado.	Alejandro Maass Sepúlveda

, United Nations Ocean Conference (UNOC3)											Docentes universitarios.	
											Público general.	
Keynote Lecture: “Seeds of Innovation: The Role of Plants in Global Challenges,” on the International Day of Biotechnology at Universidad Santo Tomás	Conferencia	17 - 06 - 2025	Santiago	Chile	Nacional	150	1	4	0	2	Estudiantes universitarios de pregrado. Estudiantes de postgrado.	Ariel Orellana López
Challenges and Strategies for the Use of ONT Long and Ultra-Long Reads in Latin America	Workshop	30 - 06 - 2025	Online	Otro	Internacional	51	2	7	1	1	Profesionales del área del centro. Profesionales de otras áreas.	Juliana De Abreu Vianna
Metabolic Club 2 – Reloaded	Evento Científico enfocado en sistemas biológicos y bioinformática	13 - 01 - 2025	Rancagua	Chile	Internacional	40	1	2	2	1	Profesionales del área del centro. Profesionales de otras áreas.	Mauricio Latorre Mora
Annual Meeting of the Society for Molecular Biology & Evolution	Conferencia	20 - 07 - 2025	Beijing	China	Internacional	450	2	398	0	5	Profesionales de otras áreas. Profesionales del	Juliana De Abreu Vianna

											área del centro.	
Aquatic Ecosystems Webinar	Seminario	02 - 09 - 2025	Online	Otro	Nacional	25	1	0	1	1	Estudiantes universitarios de pregrado. Estudiantes de postgrado.	Beatriz Díez Moreno
Talk: "Deciphering the Mechanisms Used by <i>Piscirickettsia salmonis</i> to Survive and Replicate in the Intracellular Environment," at the 7th IM-CRG Scientific Meeting	Conferencia	14 - 10 - 2025	Santiago	Chile	Nacional	20	1	0	0	1	Estudiantes de postgrado. Estudiantes universitarios de pregrado. Docentes universitarios.	Álvaro Glavic Maurer
Interactomics "Transposable elements: From junk DNA to major source of adaptation"	Seminario	23 - 10 - 2025	Santiago	Chile	Internacional	25	0	0	1	1	Profesionales del área del centro. Estudiantes universitarios de pregrado. Estudiantes de postgrado.	Ariel Orellana López
				Chile		20	1	0	0	1		

Antumapu Seminar: Waters Under the Lens: Detection and Monitoring of Pathogens to Protect Public Health	Seminario	05 - 11 - 2025	Santiago		Nacional						Docentes universitarios. Estudiantes universitarios de pregrado. Estudiantes de postgrado.	Angélica Reyes Jara
Interactomics: “From the Genome to Molecule Development: Bioinformatics Applications in Health and Biotechnology,” by Adrián Turjanski (UBA, CONICET)	Seminario	20 - 11 - 2025	Santiago	Chile	Internacional	25	0	1	0	1	Profesionales del área del centro. Estudiantes universitarios de pregrado. Estudiantes de postgrado.	Miguel Allende Connell y
Copernicus LAC Seminar: “Exploring Functional Aspects of Marine Microbiomes Using Satellites”	Seminario	21 - 11 - 2025	Santiago	Chile	Nacional	100	2	0	0	1	Docentes universitarios. Estudiantes de postgrado.	Alejandro Maass Sepúlveda
Talk at the Research Days – Medical Internship, University of Antofagasta	Seminario	06 - 12 - 2025	Antofagasta	Chile	Nacional	50	1	0	0	1	Estudiantes universitarios de pregrado.	Miguel Allende Connell y

Antumapu Seminar: 1000 Genomas Chile	Seminario	10 - 12 - 20 25	Santiago	Chile	Nacional	25	1	0	0	1	Docentes universitarios. Estudiantes universitarios de pregrado. Estudiantes de postgrado.	Miguel Allende Connell y
Workshop: “Digital Sequence Information (DSI) on Genetic Resources: A Perspective from the Convention on Biological Diversity (CBD) in the Context of the 1000 Genomas Chile Initiative”	Workshop	12 - 12 - 20 25	Santiago	Chile	Nacional	35	1	0	3	1	Docentes universitarios. Profesionales del área del centro. Profesionales de otras áreas. Estudiantes de postgrado.	Juliana De Abreu Vianna
Seminar: “Planning and Establishment of a Biobank in Chile: Experiences and Challenges”	Seminario	18 - 12 - 20 25	Santiago	Chile	Internacional	100	1	5	10	2	Sector público. Sector privado. Profesionales del área del centro.	Juliana De Abreu Vianna

											Profesionales de otras áreas. Docentes universitarios. Estudiantes universitarios de pregrado. Estudiantes de postgrado.	
“Presentation of Pathogen Surveillance Results in Irrigation Water” at the Workshop on Emerging Food Safety and Sustainability Issues	Seminario	23 - 10 - 2025	Sao Paulo	Brasil	Internacional	45	1	0	0	1	Estudiantes de postgrado.	Angélica Reyes Jara
Metabolic Club 2 – Reloaded	Evento Científico enfocado en sistemas biológicos y bioinformática	13 - 01 - 2025	Rancagua	Chile	Internacional	40	2	2	0	1	Profesionales del área del centro. Profesionales de otras áreas.	Mauricio Latorre Mora

6.3.- Articles and Interviews

Type of Media and Scoupe	Local / Regional		National		International		Total
	N° Interviews	N° Articles	N° Interviews	N° Articles	N° Interviews	N° Articles	
Written	0	3	1	5	0	2	11
Internet	0	9	9	67	2	14	101
Audiovisual	0	3	9	11	0	0	23
Total	0	15	19	83	2	16	135

6.4 Products of Projection to the External Environment (PME) (OPTIONAL)

N°	Date	Product	Objective	Researchers	Target audience	Type	Scope
1	30-04-2025	Public fair featuring a photographic exhibition of Chilean biodiversity as part of the Workshop on Genomic Biodiversity of Extreme Environments in Rapa Nui	To bring scientific knowledge on genomics and biodiversity closer to the Rapa Nui community through a genomic sequencing workshop focused on an endemic species of the island, complemented by a public fair and a photographic exhibition of Chilean biodiversity. The exhibition included more than 50 photographs of endemic Chilean species, which were displayed during the event and later donated and installed on the island as	Alejandro Maass Sepúlveda. Alexis Ignacio Gaete Silva. Ariel Orellana López. Daly Noll Vergara. Camilo Valdivieso Guerrero. Beatriz Diez Moreno. Juliana De Abreu Vianna, Miguel Allende Connelly	Estudiantes de enseñanza media. Público general	Exposición/Stand	Nacional

			permanent material for the community. Through educational workshops and hands-on DNA extraction and sequencing activities, students and local participants were introduced to genomic concepts and gained an understanding of the importance of conserving island ecosystems, thereby strengthening the connection between the Rapa Nui community and the Millennium Institute Center for Genome Regulation. The fair took place at Mara'e Hapa Piko.				
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Annex 7. - Connections with other sectors

Activity	Type of Activity	Institution Country	Agent Type	Economic Sector
Meeting with CMPC	[4]	Chile	[1]	Forestal
Microbiological characterization and shelf life of foods	[2]	Chile	[1]	Alimentos Procesados y bebidas no alcohólicas
State, Science, and Business	[4]	Chile	[2]	Actividades empresariales
Meeting with Anglo American	[4]	Chile	[1]	Minería
Session with Universitas Gadjah Mada and the Embassy of Indonesia	[4]	Indonesia	[3]	Educación
Meeting with GBIF at the Ministry of the Environment	[4]	Chile	[2]	Medio ambiente
Second Workshop on Genetic Resources and the Nagoya Protocol	[4]	Chile	[2]	Sector público
In-Person: Scientific Dialogues for Climate Action in Chile 2025	[4]	Chile	[2]	Medio ambiente
Meeting with the Chilean Network of Botanical Gardens and the Chagual Botanical Park Corporation	[4]	Chile	[2]	Floricultura
Genetic modulation of root architecture in commercial grapevine rootstocks through the editing of nucleotide sugar transporters (NSTs)	[2]	Chile	[1]	Vitivinícola
Cultivated Meat Project	[2]	Chile	[1]	Biotechnología
Project: Key Ocean Planktonic Areas	[2]	Francia	[3]	Medio ambiente
Project: Algal Metabolism – C. merolae	[2]	Japón	[1]	Biotechnología
Meeting with Pura Hoja	[1]	Chile	[1]	Agricultura
Analysis of cross-contamination in the probiotic manufacturing process	[2]	Chile	[1]	Alimentos Procesados y bebidas no alcohólicas
Training Course: Food Microbiology	[3]	Chile	[2]	Medicina y salud humana

NOMENCLATURE:

[Type of Activity] [1] Development of Studies [2] Project Implementation [3] Training [4] Prospective Activity [5] Scientific Training [6] Installation of Scientists [7] Others (specify at the table foot other types of activity)

[Agent Type] [1] Industry and Services [2] Organizations and Public Services [3] Educational Sector

Annex 8.- Relevant materials, products and activities carried out by the center

Our year in pictures



MI-CGR was part of Congreso Futuro 2025, held in January 2025 at CENIA, Santiago, for the general public, with an audience of 900 people



MI-CGR took part in Teletón Summer Week 2025, an activity held in January 2025 at PDI, which reached an audience of 200 people.



1000 Genomes Workshop on April 25th, 2025, at the Salón de Honor of the Universidad de Chile Main Building. The event brought together more than 150 researchers and featured Harris Lewin, Director of the Earth BioGenome Project (EBP), and Patrick Wincker, Director of Genoscope France, as keynote speakers



MI-CGR organized the Workshop on Genomic Biodiversity in Extreme Environments of Easter Island, held from April 28th to 30th, 2025, at Colegio Aldea Educativa de Rapa Nui, Easter Island.



MI-CGR hosted the workshop “Biodiversity and Food Sovereignty in Chile: The Legacy of the Potato”, which took place from September 29th to October 1st, 2025, at Colegio San Francisco de Asís in Castro, Chiloé. The activity was intended for students from 8th grade to 12th grade and reached 36 participants.



MI-CGR held Genes: Genomics in Frutillar, an activity held on October 2nd, 2025, at the Universidad de Chile Experimental Station in Frutillar, aimed at students from 8th grade to 12th grade, and attended by 60 children and teenagers.



As part of its science outreach efforts, MI-CGR carried out the workshop “Air Carnations and Paleogenomics” on November 13th and 14th, 2025, in the Tillandsiales Desert and at Liceo Pozo Almonte, Iquique. The activity was designed for 7th and 8th grade students and involved 30 schoolchildren.



Through its participation in Festival Ladera Sur 2025, MI-CGR contributed to an activity held from November 28th to 30th, 2025, at Parque Santa Rosa de Apoquindo, Las Condes, aimed at students from 8th grade to 12th grade and attended by 900 people

Outstanding Project – 1000 Genomas Chile

In 2025, the Chilean 1,000 Genomes initiative significantly expanded its institutional and international projection, reinforcing its role as a strategic platform for biodiversity genomics within the MI-CGR. This international positioning was further strengthened by the participation of Deputy Director Juliana Vianna in the Earth BioGenome Project (EBP), where she represents 1,000 Chilean Genomes and takes part in regular coordination meetings, helping sustain a strong and active international collaboration network for the initiative.

At the national level, 1000 Genomas Chile also strengthened its articulating role by contributing to the coordination of researchers, institutional nodes, and distributed technical capacities linked to biodiversity genomics. This function was relevant for identifying priority gaps in sequencing infrastructure, bioinformatics, specimen-associated metadata, and data management practices, while promoting shared criteria for long-term capacity building and interoperability. In this context, and following discussions held in December 2025, the need to advance a national dialogue on biodiversity biobanking became evident, leading to the initiation of a Biobanks Committee as a complementary coordination space among collections, researchers, and institutions involved in biodiversity research.

At the regional level, 1000 Genomas Chile also played an important articulating role in the development of a new Latin American network for biodiversity genomics. Throughout a series of meetings held during 2025, the initiative contributed to convening researchers and emerging national groups from several countries in the region, with discussions focused on shared scientific and structural challenges such as the generation of reference genomes, access to sequencing technologies, bioinformatics training, governance models, and collaborative funding opportunities. These exchanges helped position the Chilean initiative as a relevant regional actor and contributed to the transition from largely independent national efforts toward a more coordinated Latin American agenda in biodiversity genomics.

Taken together, these developments demonstrate that, in 2025, 1000 Genomas Chile advanced not only in scientific terms, but also in its capacity to build durable collaborative structures at both the international and regional levels. Through the strengthening of national coordination, and its active participation in the formation of the Latin American network, the initiative helped establish conditions for longer-term impact, greater technical autonomy, and stronger integration of Chile into the global biodiversity genomics community.

Annex 9.- Statement on Ethical Compliance and Safeguards

	<i>Ethical Caution Statement</i>	<i>Declaration of no ethical concerns</i>
<i>During the year reported, please indicate which of these statements your center signed.</i> <i>Mark with an X</i>	☒	
<i>Attach the certificate from the Ethics Committee.</i> <i>Only if you have completed the Ethical Caution Statement, you must attach the Ethics Committee certificate(s) in PDF format to this report as part of the Annexes.</i>		<i>Not applicable</i>

Comité de Ética del Centro de Regulación del Genoma (CRG)

Santiago, marzo de 2026

CERTIFICADO

El Comité de Ética del Centro de Regulación del Genoma (CRG) certifica que, de acuerdo con la revisión de las metodologías generales declaradas para las tres líneas de investigación institucionales, las actividades propuestas se enmarcan en el quehacer científico del centro y resultan compatibles con las normas y resguardos bioéticos aplicables.

Las líneas de investigación revisadas corresponden a:

- **Línea 1. Genómica funcional de la adaptación y evolución convergente:** estudios de genómica comparativa, transcriptómica y bases moleculares de la adaptación en plantas, peces y microorganismos de ambientes extremos.
- **Línea 2. Redes de interacción que gobiernan la estructura genómica en comunidades de organismos:** análisis de metagenomas, redes de co-ocurrencia e infección fago-bacteria, y caracterización de interacciones taxonómicas, funcionales y ambientales.
- **Línea 3. Genómica para conservación, producción sustentable de alimentos y biotecnología:** investigación en patogenicidad microbiana, compuestos bioactivos de cianobacterias, biotecnología aplicada y diversidad genética de sistemas CRISPR-Cas.

Sobre la base de los antecedentes revisados, este Comité estima que las metodologías propuestas se enmarcan en principios de respeto, seguridad y responsabilidad en investigación, y que cumplen con la normativa y resguardos éticos, de bioseguridad, ambientales y regulatorios aplicables, incluidos los casos que involucren animales u otros sujetos especialmente cautelados.

Se deja constancia de que el presente certificado respalda las metodologías declaradas por el CRG para el desarrollo de sus líneas de investigación, conforme a los principios y resguardos éticos que orientan su actividad científica.



Beatriz Díez
Presidenta Comité de Ética CRG