

018/FONDECYT/FONDAP N°101/2018.

Santiago, 04 de Abril de 2018

**Señor  
Miguel Allende  
Director Centro CRG  
Facultad de Ciencias  
Universidad de Chile  
Las Palmeras 3425  
ÑUÑO A**

Estimado Sr. Allende:

En nombre de los Consejos Superiores de FONDECYT, tengo el agrado de comunicarle que se ha aprobado el informe de avance del séptimo año de ejecución del Centro de Regulación del Genoma (CRG), proyecto N° 15 09 0007, que usted dirige. Se adjuntan las evaluaciones de los especialistas extranjeros, en las cuales se describen claramente los logros alcanzados durante este periodo de ejecución, así como también las sugerencias para ser consideradas por el Centro.

Los expertos extranjeros destacan la calidad de sus publicaciones, cuyo impacto ha ido en aumento en el transcurso de los años, el nivel de los investigadores, el trabajo interdisciplinario y el fortalecimiento de los vínculos con el sector productivo. Adicionalmente, reconocen los esfuerzos realizados para incorporar investigadores jóvenes tanto en la academia como en la industria, así como también, en dar respuesta a las observaciones realizadas por el panel en evaluaciones anteriores e incorporar las sugerencias realizadas.

No obstante lo anterior, los evaluadores le sugieren, entre otras las siguientes recomendaciones:

- ✓ En los próximos años, apuntar a publicar en revistas con mayores índices de impacto,
- ✓ Fortalecer los vínculos de colaboración con otros centros sudamericanos,
- ✓ En futuros informes, ordenar las publicaciones por área de investigación

Los Consejos Superiores de FONDECYT y el Programa FONDAP reconocen los esfuerzos realizados para dar cumplimiento a los objetivos y el desempeño de los investigadores durante este período de ejecución, y les desean éxito en el octavo año del Centro.

Sin otro particular, le saluda,

  
**MARÍA EUGENIA CAMELIO R.**  
Directora Programa FONDAP  
CONICYT



C.c. : Sr. Martín Montecino, Subdirector del Centro CRG





### III. ANNUAL PROGRESS EVALUATION REPORT

#### A. RESULTS ATTAINED RELATED TO CENTER AIMS OR GOALS

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	x					
Outcomes achieved in relation to the proposal objectives and goals.	x					
Quality of achieved outcomes in relation to the proposal objectives and goals.	x					
Integration between research lines of the Center.	x					
Development and strengthening of international networks.	x					
Outreach to society.	x					
Dissemination and exploitation of results.	x					
Contribution to policy makers and other targeted groups.	x					
Responsiveness to or incorporation of suggestions by the advisory committee.	x					

#### B. RESULTS ATTAINED PER RESEARCH LINES (Please fill up as many forms as programs exist within the Center).

<b>Research Line:</b> A phylogenomic and systems biology approach to identify genes underlying plant survival in marginal soils
<b>Principal Investigator:</b> Rodrigo Gutiérrez & Fernán Federici

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	Not applicable					
Outcomes achieved in relation to the proposal objectives and goals.	x					
Quality of achieved outcomes in relation to the proposal objectives and goals.	x					
Integration between research lines of the Center.	x					
Dissemination and exploitation of results.		x				



<b>Research Line:</b> Metagenome of the altiplano soils: plant-microbiome interaction
<b>Principal Investigator:</b> Mauricio González & Verónica Cambiazo

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	Not applicable					
Outcomes achieved in relation to the proposal objectives and goals.	x					
Quality of achieved outcomes in relation to the proposal objectives and goals.	x					
Integration between research lines of the Center.	x					
Dissemination and exploitation of results.		x				

<b>Research Line:</b> Regulatory landscape plasticity as an evolutionary driver in the genomes of Cyprinidontiform fish
<b>Principal Investigator:</b> Martín Montecino, Miguel Allende & Christian Hodar

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	Not applicable					
Outcomes achieved in relation to the proposal objectives and goals.	x					
Quality of achieved outcomes in relation to the proposal objectives and goals.	x					
Integration between research lines of the Center.	x					
Dissemination and exploitation of results.	x					



<b>Research Line:</b> Identification of genomic signatures defining metabolic networks that provide unique features to cope with environmental stresses in plants
<b>Principal Investigator:</b> Ariel Orellana & Claudio Meneses

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	Not applicable					
Outcomes achieved in relation to the proposal objectives and goals.	x					
Quality of achieved outcomes in relation to the proposal objectives and goals.	x					
Integration between research lines of the Center.	x					
Dissemination and exploitation of results.		x				

<b>Research Line:</b> Gene expression control and regulatory networking
<b>Principal Investigator:</b> Alejandro Maass & Alvaro Glavic

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	Not applicable					
Outcomes achieved in relation to the proposal objectives and goals.	x					
Quality of achieved outcomes in relation to the proposal objectives and goals.	x					
Integration between research lines of the Center.	x					
Dissemination and exploitation of results.		x				

### C. GENERAL COMMENTS

Please provide an overall qualitative review of the Annual Progress of the Center goals and outcomes. Include any comments that you consider significant, highlighting the main strengths and/or weaknesses.



Seven years after its official start, the CRG is still doing a great job, and continues to have an important impact by all measurable standards for Chilean science. I'm happy to say that the CRG has successfully implemented all suggestions that I mentioned in my previous report last year.

In addition, I'm pleased to read that the CRG's young scientists have successfully been incorporated into the research field, in academia or industry, and that the number of trainees at CRG remains high. Furthermore, the opportunities for international exchanges and networking for the young scientists from CRG is at its peak thus far and has allowed for numerous new interactions with the wider community. The CRG management has also established strong links with diverse partners in the private sector, increasing the CRG role in commercial applications derived from their research.

I think that the CRG is clearly a Chilean success story, as it has firmly established itself as an excellent interdisciplinary research institute. With high records of research productivity, funding and collaboration, the center has realized remarkable potential and is surely the jewel in the crown of Chilean research. The past and current projects at the center are yielding results of national and international interest and impact, and the integration of the groups toward an actual center is progressing well. My opinion is that, in the next two years, one can expect more publications in journals with an impact factor  $>7$ , and therefore garnering much international recognition in a second funding period.

The continuous investment in CRG by the Chilean Government should be the highest priority for this country, as it is definitely the top scientific institution in Chile.



#### D. BENCHMARKING

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Performance of the Center in relation to internationally recognized centers in the field.	x					

Please elaborate:

FONDAP is doing a great job in terms of benchmarking, both nationally and internationally.

#### E. COMMENTS TO THE CENTER DIRECTOR

I'd like to congratulate the Institute Director for the achievements in the past 7 years. Several top-notch papers are expected to be accepted and published next year, therefore, I think the CRG keeps doing a great job.

#### F. RECOMMENDATIONS TO THE FONDAP PROGRAM DIRECTOR

After reading Prof. Allende's report, I realized he is concerned about the future of CRG in light of the recent changes in the Chilean Government. I'd like to stress one more time that FONDAP's idea to fund and support CRG was probably one of the best investments in science in Chile in general, and I would therefore like to use this opportunity to urge the Chilean Government to keep funding this highly productive scientific institution. With high research productivity, funding and collaboration, the CRG has realized remarkable potential and is surely the jewel in the crown of the Chilean Scientific Community.



**G. ADDITIONAL INFORMATION REQUIRED FOR THE EVALUATION OF THE ANNUAL PROGRESS REPORT**

If you decide to leave the evaluation pending and require additional information from the Center, please indicate the documentation or explanations required to complete your evaluation. In case there are additional requirements that the Center’s director has to fulfill, please explain them as clearly as possible so s/he can address them.

If you decide to reject this report (or significant portions of it) please indicate as clearly as possible the requirements that should be conveyed to the Center’s director.

**IV. EVALUATION CONCEPTS**

- 1. **Approved:** The objectives and goals are fully accomplished and all the relevant issues are properly covered in the report.
- 2. **Approved with minor observations:** The objectives and goals are accomplished, however, some comments and suggestions need to be addressed.
- 3. **Pending:** Additional information is required to fully evaluate the report.
- 4. **Rejected:** The objectives and goals have not been accomplished and/or the outcomes are deficient.

**V. RECOMMENDATION**

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
APPROVED	APPROVED WITH MINOR OBSERVATIONS	PENDING	REJECTED

**REVIEWER’S NAME:**

Reviewer 1

Date: March 15, 2018





Comisión Nacional de Investigación Científica y Tecnológica - CONICYT

## FONDAP CENTERS OF EXCELLENCE IN RESEARCH PROGRAM

### EVALUATION REPORT

#### I. PROJECT INFORMATION

<b>NAME OF THE CENTER</b> Center for Genome Regulation (CGR)	<b>CODE</b> 15 09 0007
<b>DIRECTOR OF THE CENTER</b> Miguel L. Allende	
<b>SPONSORING INSTITUTION</b> CONICYT (FONDAP)	
<b>PERIOD REPORTED</b> <b>From:</b> January 2017 <b>To:</b> December 2017	

#### II. EVALUATION PANEL

REVIEWER ´S NAME	ORGANIZATION/ INSTITUTION	E-MAIL	SIGNATURE
REVIEWER 2			



### III. ANNUAL PROGRESS EVALUATION REPORT

#### A. RESULTS ATTAINED RELATED TO CENTER AIMS OR GOALS

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	X					
Outcomes achieved in relation to the proposal objectives and goals.		X				
Quality of achieved outcomes in relation to the proposal objectives and goals.	X					
Integration between research lines of the Center.	X					
Development and strengthening of international networks.		X				
Outreach to society.	X					
Dissemination and exploitation of results.	X					
Contribution to policy makers and other targeted groups.		X				
Responsiveness to or incorporation of suggestions by the advisory committee.	X					

#### B. RESULTS ATTAINED PER RESEARCH LINES (Please fill up as many forms as programs exist within the Center).

<p><b>Research Line:</b> A phylogenomic and systems biology approach to identify genes underlying plant survival in marginal soils.</p>
<p><b>Principal Investigator:</b> Rodrigo Gutiérrez</p>

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	X					
Outcomes achieved in relation to the proposal objectives and goals.	X					
Quality of achieved outcomes in relation to the proposal objectives and goals.		X				
Integration between research lines of the Center.	X					
Dissemination and exploitation of results.	X					



<b>Research Line:</b> Metagenome of the altiplano soils: plant-microbiome interaction
<b>Principal Investigator:</b> Mauricio González

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	X					
Outcomes achieved in relation to the proposal objectives and goals.	X					
Quality of achieved outcomes in relation to the proposal objectives and goals.		X				
Integration between research lines of the Center.	X					
Dissemination and exploitation of results.		X				

<b>Research Line:</b> Regulatory landscape plasticity as an evolutionary driver in the genomes of Cyprinidontiform fish.
<b>Principal Investigator:</b> Martín Montecino, Miguel Allende

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	X					
Outcomes achieved in relation to the proposal objectives and goals.		X				
Quality of achieved outcomes in relation to the proposal objectives and goals.	X					
Integration between research lines of the Center.	X					
Dissemination and exploitation of results.		X				



**Research Line:** Identification of genome signatures defining metabolic networks that provide unique features to cope with environmental stresses in plants.

**Principal Investigator:** Ariel Orellana

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	X					
Outcomes achieved in relation to the proposal objectives and goals.		X				
Quality of achieved outcomes in relation to the proposal objectives and goals.	X					
Integration between research lines of the Center.	X					
Dissemination and exploitation of results.		X				

**Research Line:** Gene expression control and regulatory networking.

**Principal Investigator:** Alejandro Maass

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Responsiveness to or incorporation of suggestions from last evaluation report (If applicable).	X					
Outcomes achieved in relation to the proposal objectives and goals.		X				
Quality of achieved outcomes in relation to the proposal objectives and goals.	X					
Integration between research lines of the Center.	X					
Dissemination and exploitation of results.		X				



### C. GENERAL COMMENTS

*Please provide an overall qualitative review of the Annual Progress of the Center goals and outcomes. Include any comments that you consider significant, highlighting the main strengths and/or weaknesses.*

1. The center is a success. The director, the coordinators and the responsible scientists should be applauded for their achievements. The center puts Chile firmly on the map in an area of science, which is pivotal for many other, related activities. The impact goes well beyond the mere scientific progress. Chile is being recognised as a serious player and thus a serious partner. The center – and the government – could take advantage of this positive situation for the better of Chilean science, industry and society. To achieve this, setting up permanent funding and a permanent structure are essential. See more suggestions on this in section F: recommendations to the FONDAP program director.
2. The center's impact is fine, although currently not growing. Growth is difficult, though, for the lack of increasing funding. In order to convince the international research community and thus indirectly the national funding sources and politics that permanent and possibly more funding is required and would be well spent, the center should strive for landmark publications above an impact factor of 10. This reviewer is very well aware of the difficulties connected to this, including the partially difficult and biased reviewing process of some of the high-impact journals. Sometimes, it is scientifically a waste of time and resources to aim at publications in such journals. However, it is politically important for the center to get such papers published since a single one will create more attention than a lot of solid but less hyped publications. Therefore, the effort should be made.
3. Organisation of a nation-wide collaboration between centers (1000 Genomes Project) is a very good idea and may lead the way to a more permanent nation-wide structure that would promote landmark science in areas that are of national interest to Chile. See also section F on this.
4. The center should think about adapting its structure so as to accommodate changes in the scientific focus. For example, modelling is likely to become a major issue for the work done and could actually provide a competitive edge with respect to work on stress factors and their regulation. As more money is unlikely to materialise, maybe some re-direction should be considered. This could also serve as a preparation for an application for the extension of the center's funding beyond 10 years.
5. The number of postdocs and PhD students shrunk further in 2017, although their number is fine nevertheless. Every effort should be made to get young scientists to the center. This should not be at a cost to the science done there, however.
6. The center may consider teaming up with other, similar activities in South-America in order to form an international, South-American network. Apart from the positive aspects of linking and possibly coordinating activities between countries, impact and thus the ability to attract both governmental and private/industry funding could increase from such international cooperation. Possibly international programmes could be set-up within South-America similar to EMBO.
8. For future evaluations, it would be good, if the publications could be ordered according to the subprojects (Aims) from which they originate.



#### D. BENCHMARKING

Item	Outstanding	Very Good	Good	Regular	Poor	Not Qualify
Performance of the Center in relation to internationally recognized centers in the field.	X	X				

Please elaborate:

The work done at CGR is of very high quality. Its international impact is level to research done in eminent institutes worldwide, although funding is less than what international competitors can spend. Having picked the topics wisely, the center defined a niche for itself, in which it is at the forefront of science and based on which it can enter other fields close to its core competences in a competitive manner. What is missing to an extent are showcase publications, which do not necessarily add to quality but create attention.

#### E. COMMENTS TO THE CENTER DIRECTOR

Nothing beyond the statements in the GENERAL COMMENTS.

#### F. RECOMMENDATIONS TO THE FONDAP PROGRAM DIRECTOR

Permanent funding of the center will be required so as to avoid wasting all the money that went into establishing it. Only then, Chile as a nation will be able to take advantage of its financial investment and the developments and achievements of CGR. As a matter of course, any continuous funding must be based on evaluating performance. Also, changes in structure and personnel may be considered, although the performance is indeed very good to outstanding at current.

##### **Permanent funding should be the goal. It would serve Chile well !**

It may be modeled on structures established elsewhere internationally. An overarching organization could be established that is made up by a group of national centers. Each center pursues particular objectives of national interest, but they nevertheless collaborate. The overarching structure should **NOT** be in charge of directing the centers. Each center should be independent and scientifically directed by a director and a small group of principle investigators. The overarching structure would only **serve** the centers so as to facilitate the self-governance of the organization made up by them.

A global and stable budget should be assigned to the overarching structure. From this, the funding will be given to the different centers based on performance. Funding should be allocated on the basis of international evaluations and should get adapted every three years. Outstanding centers will get more, while ill performing centers will



get less and may drop out altogether after a period of 9 years. This would also provide a chance of getting new national centers added and established as part of the overarching organizational structure that represent novel research areas and concepts.

As a matter of fact, FONDAP/CONICYT could be the overarching administrative structure, with the centers' directors making up a scientific directorate.

#### **G. ADDITIONAL INFORMATION REQUIRED FOR THE EVALUATION OF THE ANNUAL PROGRESS REPORT**

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#### **IV. EVALUATION CONCEPTS**

- 1. *Approved:*** The objectives and goals are fully accomplished and all the relevant issues are properly covered in the report.
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#### **V. RECOMMENDATION**

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
APPROVED	APPROVED WITH MINOR OBSERVATIONS	PENDING	REJECTED

**REVIEWER'S NAME:** REVIEWER 2

**DATE:** 23 February 2018

