



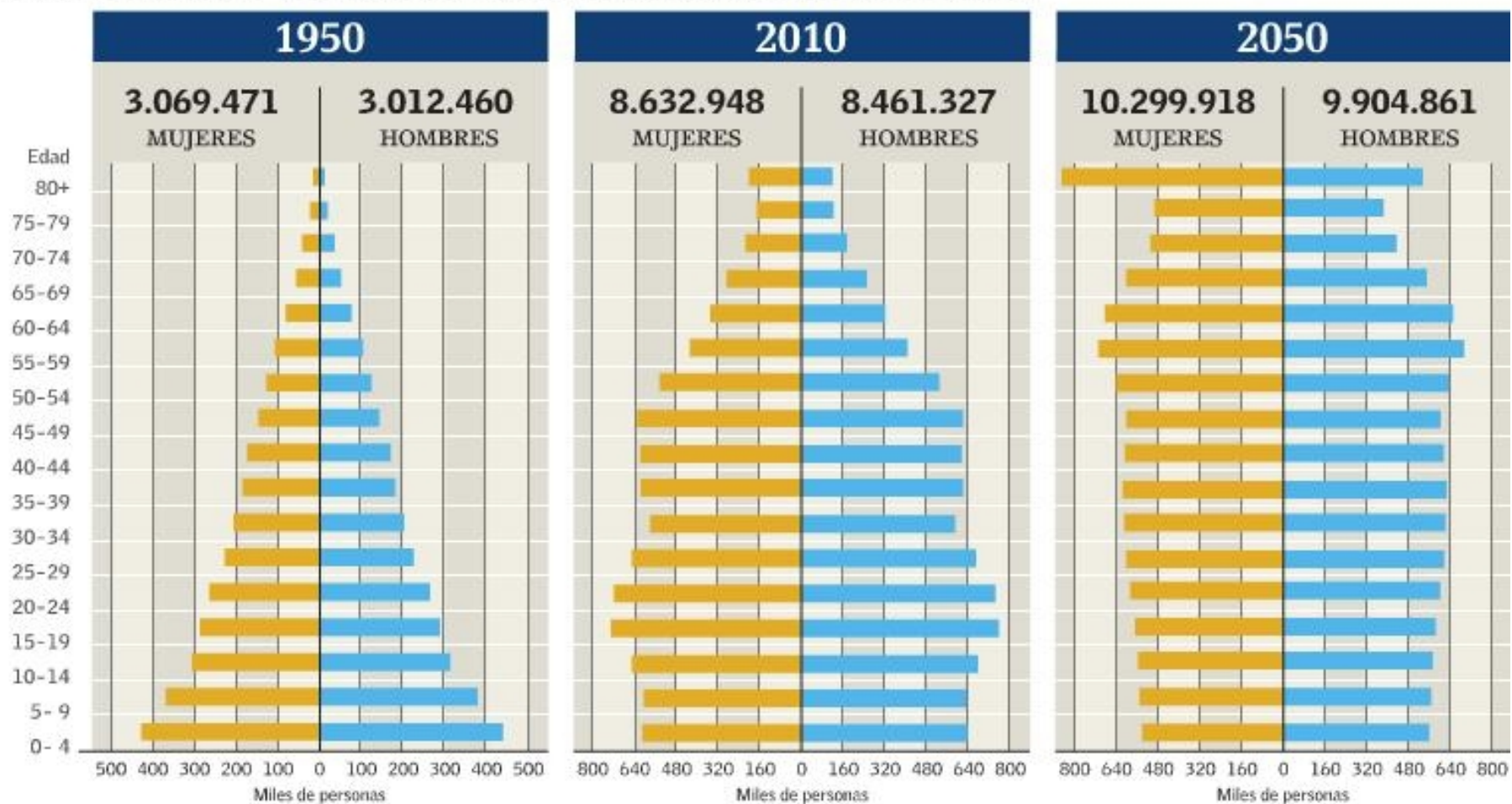
# ADVANCED CENTER FOR CHRONIC DISEASES

International Scientific Committee



April 2, 2018

## La evolución de la sociedad nacional en cien años



## Prevalence of Risk Factors in Chile



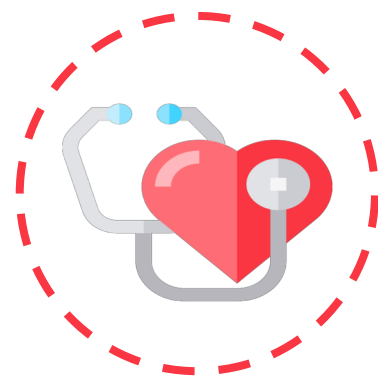
Smoking  
**33%**



Unhealthy Diet  
**74%**



Alcohol  
**12%**



Hypertension  
**28%**



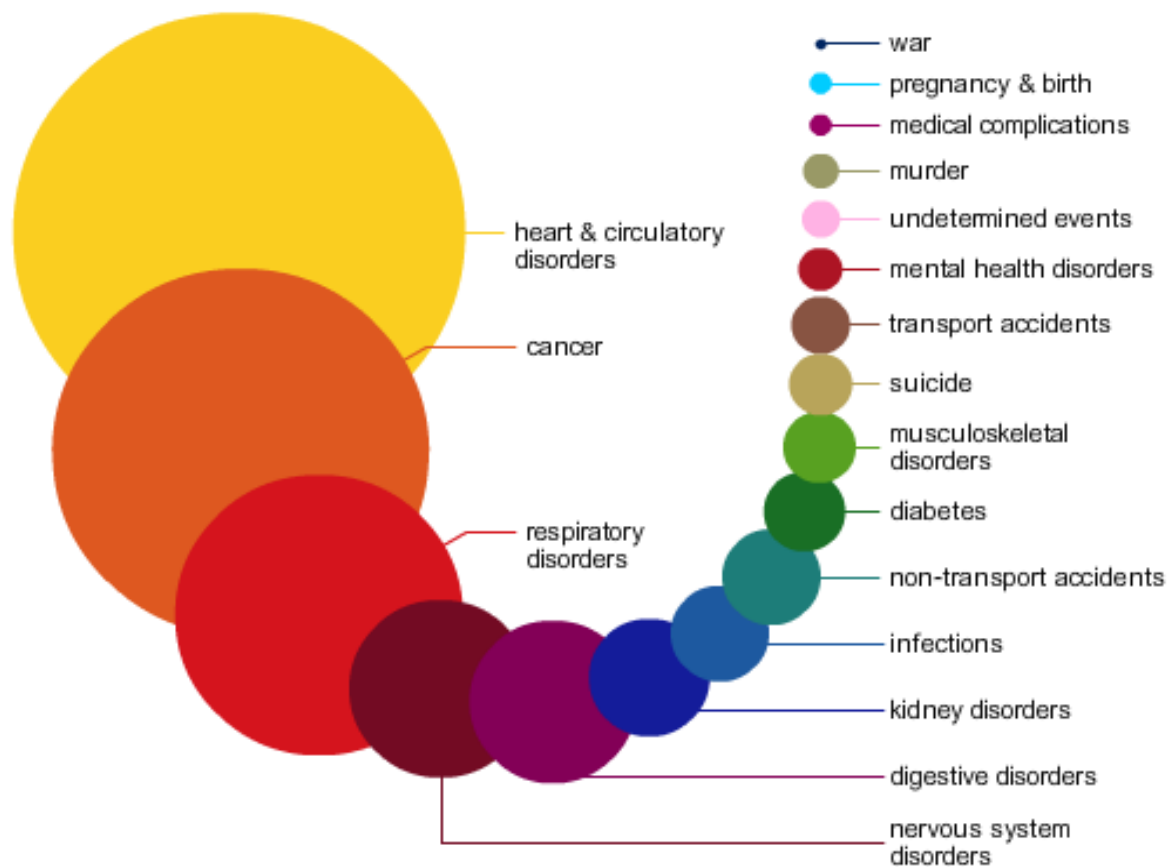
Diabetes Mellitus  
**12%**



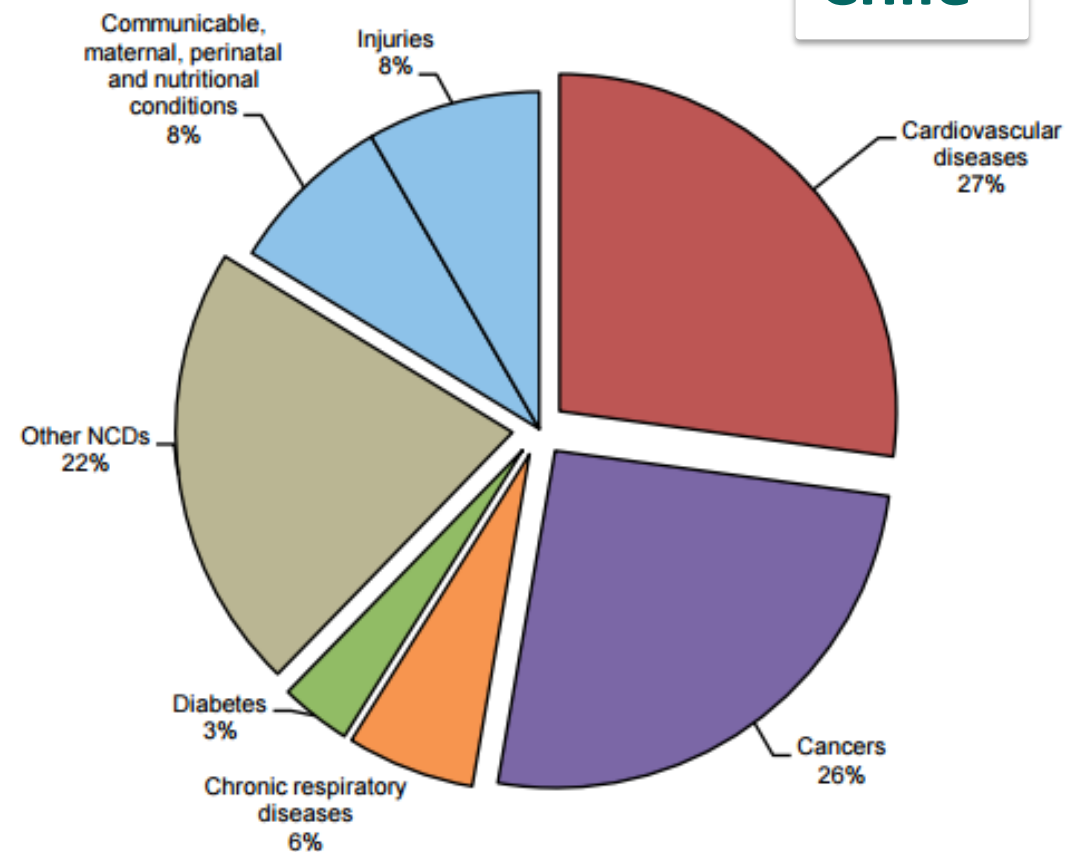
Sedentariness  
**87%**

# Leading causes of mortality in Chile

## World



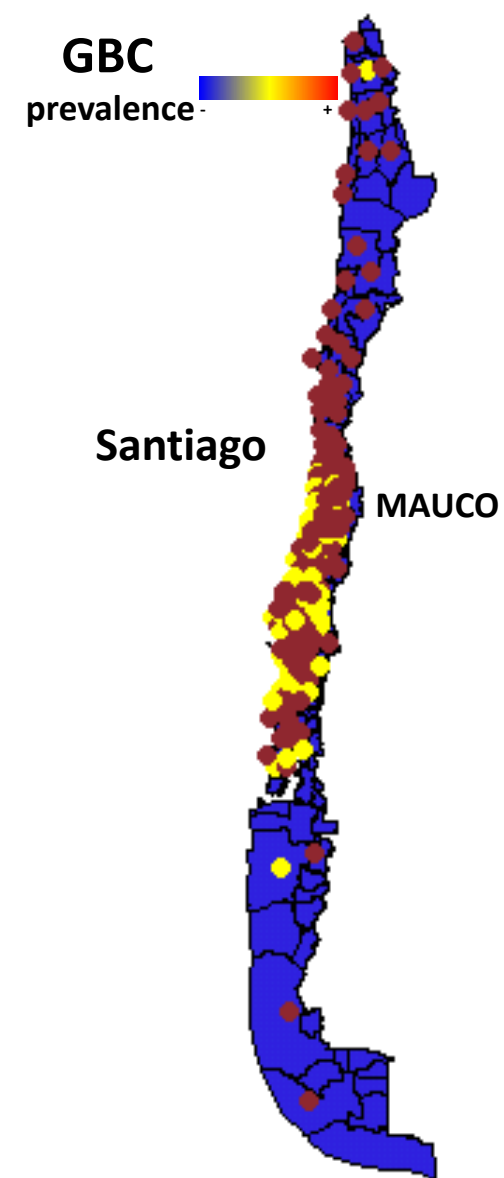
## Chile



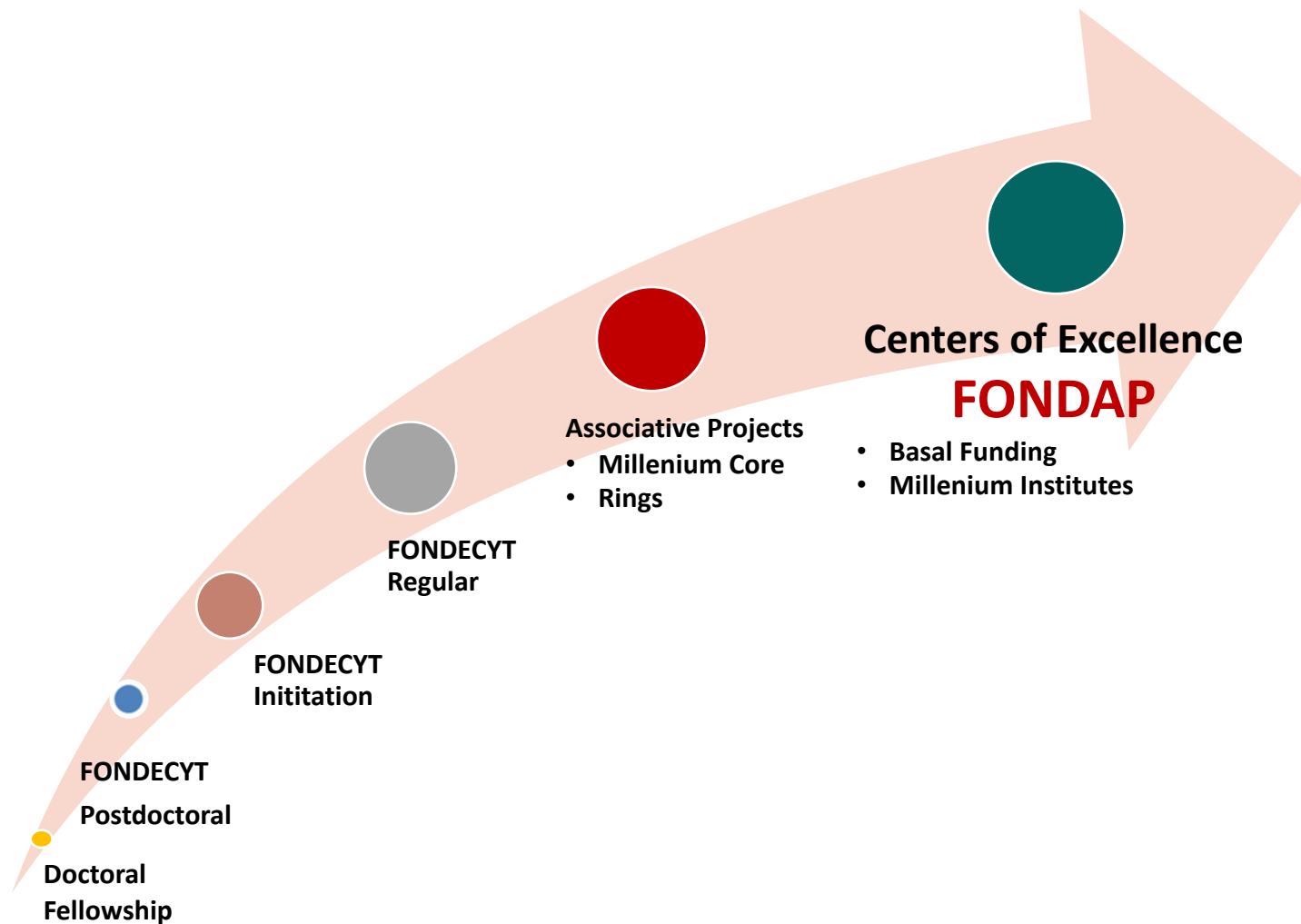
**Total Deaths: 94,000**

Non-Communicable Diseases are estimated to account for 84% of total deaths

# Prevalence of Gallbladder Cancer: World



# National Research System in Chile



## ADVANCED CENTER FOR CHRONIC DISEASES

ACCDiS

ADVANCED CENTER FOR CHRONIC DISEASES



UNIVERSIDAD DE CHILE



PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE





Comisión Nacional de Investigación  
Científica y Tecnológica - CONICYT

1

## **BASES QUINTO CONCURSO NACIONAL DE CENTROS EN INVESTIGACIÓN EN ÁREAS PRIORITARIAS - FONDAP 2013**

### **I. OBJETIVO**

Fomentar en Chile el desarrollo de Centros de Investigación científica de excelencia y alto impacto, enmarcados en áreas prioritarias que respondan a un problema de gran relevancia para el país o una oportunidad especial, donde el foco, estructura y tamaño de estos Centros permitan establecer una investigación científica que vaya más allá de aquella que es posible alcanzar con otras fuentes convencionales de financiamiento. Los proyectos deben abordarse en forma multidisciplinaria y contribuir con investigación básica de excelencia en el área prioritaria en la cual se enmarcan, a través de la asociación de investigadores(as) nacionales y extranjeros(as) en Centros en Investigación que se conviertan en un referente internacional. Los Centros deben lograr un alto nivel de desarrollo, insertarse en redes mundiales reconocidas, contar con un número significativo de investigadores(as) con productividad demostrada, y realizar una contribución científica significativa en alguna de las siguientes áreas prioritarias:

- Ciencia Antártica y Sub-antártica
- Conflicto y Convivencia en el Chile Actual
- Desarrollo Humano Temprano en Ambientes Extremos
- Procesos de Envejecimiento y Factores Asociados a la Salud y Bienestar de los Adultos
- Medicina Para Enfermedades Crónicas del Siglo XXI
- Recursos Hídricos

**Financiamiento  
por  
10 años**





# Principal Investigators

**Dr. Sergio Lavandero**  
Director ACCDiS



**CARDIOVASCULAR**

**Full Professor, UCh  
Adjunct Professor in  
Cardiology, UTSW  
Medical Center, Dallas**

- Associate Editor Circulation
- Former President Superior Council CONICYT
- Former Vice-President , of Research, UCh
- Member of the Chilean Academy of Sciences

**Dr. Pablo Castro**  
Principal Investigator  
ACCDiS



**CARDIOVASCULAR**

**Full Professor, Director of  
Cardiology, Clinical  
Hospital, PUC**

- Scientific Committee SOCHICAR SOCHICAR
- Member of the Chilean Society of Transplants
- Member of the International Society of Heart and Lung Transplantation

**Dr. Andrew Quest**  
Principal Investigator  
ACCDiS



**CANCER**

**Full Professor,  
Faculty of Medicine, UCh**

- PhD in Biochemistry, ETH Zürich.
- Director Center CEMC
- Finalist AVONNI Award in Health, 2017

**Dr. Alejandro Corvalán**  
Principal Investigator  
ACCDiS



**CANCER**

**Associate Professor,  
PUC**

- Translational research in cáncer at basic, clinical and population levels. Winner Aconni Award in Health.
- Oncologist of the Year, 2016, LatinAmerican Foundation of Oncology.

**Dr. Catterina Ferreccio**  
Deputy Director ACCDiS  
Director MAUCO



**CANCER -EPIDEMIOLOGY**

**Full Professor and  
Director  
MSc. Epidemiology  
Program, PUC**

- Part of the OMS Study Group related to the burden of Food-transmitted diseases
- Former President of the Chilean Society of Epidemiology
- Winner of the Research Award at Universities,, Banco Santander and El Mercurio

**Dr. Marcelo Kogan**  
Principal Investigator  
ACCDiS



**NANOTECHNOLOGY**

**Associate Professor, UCh**

- PhD in Organic Chemistry, University of Buenos Aires
- Director of the Laboratory of Nanomedicina and Nanobiomaterials in biomedicine for the diagnose and treatment of diseases
- Finalist AVONNI Award in Health, 2017

# Objective

ACCDiS seeks to identify common causes of the main chronic diseases (cancer and cardiovascular diseases) in the perspective of defining prevention strategies to control disease development and progression.



# Specific Aims

- To develop a multidisciplinary research initiative that will permit analyzing the natural history of cardiovascular diseases and cancer in the Chilean population.
- To establish specific research lines in the area of cancer and cardiovascular diseases covering basic, clinical and epidemiological aspects and their public health consequences.
- To set up novel common facilities that provide state of the art support for the basic, clinical and epidemiological research and training units.
- To train advanced human resources in CDs in collaboration with our international partners.
- To communicate to the general public CD-related information and educate in disease prevention.

# International collaborations

## CARDIOVASCULAR DISEASES

- **KK Griendling & A San Martin** (Emory School of Medicine)
- **JA Hill & BA Rothermel** (University of Texas Southwestern Medical Center)
- **D Yellon & S Davidson** (Hatter Cardiovascular Institute, University College London)

## CANCER

- **T Simmen** (University of Alberta)
- **J Heinecke** (U. of Washington)
- **B Frei** (LPI, Oregon State University)
- **W El-Rifai** (Vanderbilt University)
- **C Camargo** (NCI, NHI, USA)
- **L Carvajal-Carmona** (UC Davis, USA)

## EPIDEMIOLOGY (CANCER)

- **A Smith & C Steinmaus** (University of California-Berkeley and EPA Cal)
- **J Koshioll, A Hildesheim** (NCI-NIH)
- **R Herrero** (International Agency for Research on Cancer, IARC)
- **M Levine** (University of Maryland, USA)

## NANOMEDICINE

- **J Samitier** (Institute of Bioengineering of Catalonia),
- **G Rivas** (Universidad Nacional de Córdoba),
- **U Simon** (University of Aachen)
- **F Albericio** (Institute of Biomedical Research Barcelona)

# National collaborations

## RESEARCH CENTERS

- **FONDAP Center for Genomics Regulation**
- **National Lab for High Performance Computing**
- **Center for Mathematical Modeling**
- **Center for Biotechnology & Bioengineering**

## INSTITUTIONS RELEVANT TO MAUCO

- **Pontificia Universidad Católica del Maule**
- **Ministerio de Salud**
- **Servicio de Salud Maule and Molina Hospital**
- **Universidad de Talca**

## UNIVERSITIES

### In Santiago

- **Universidad de Chile**
- **Pontificia Universidad Católica de Chile**
- **Universidad de Santiago**
- **Universidad Andrés Bello (UNAB)**

### Regional Universities

- **Pontificia Universidad Católica de Valparaíso**
- **Universidad de Tarapacá**
- **Universidad de la Frontera**

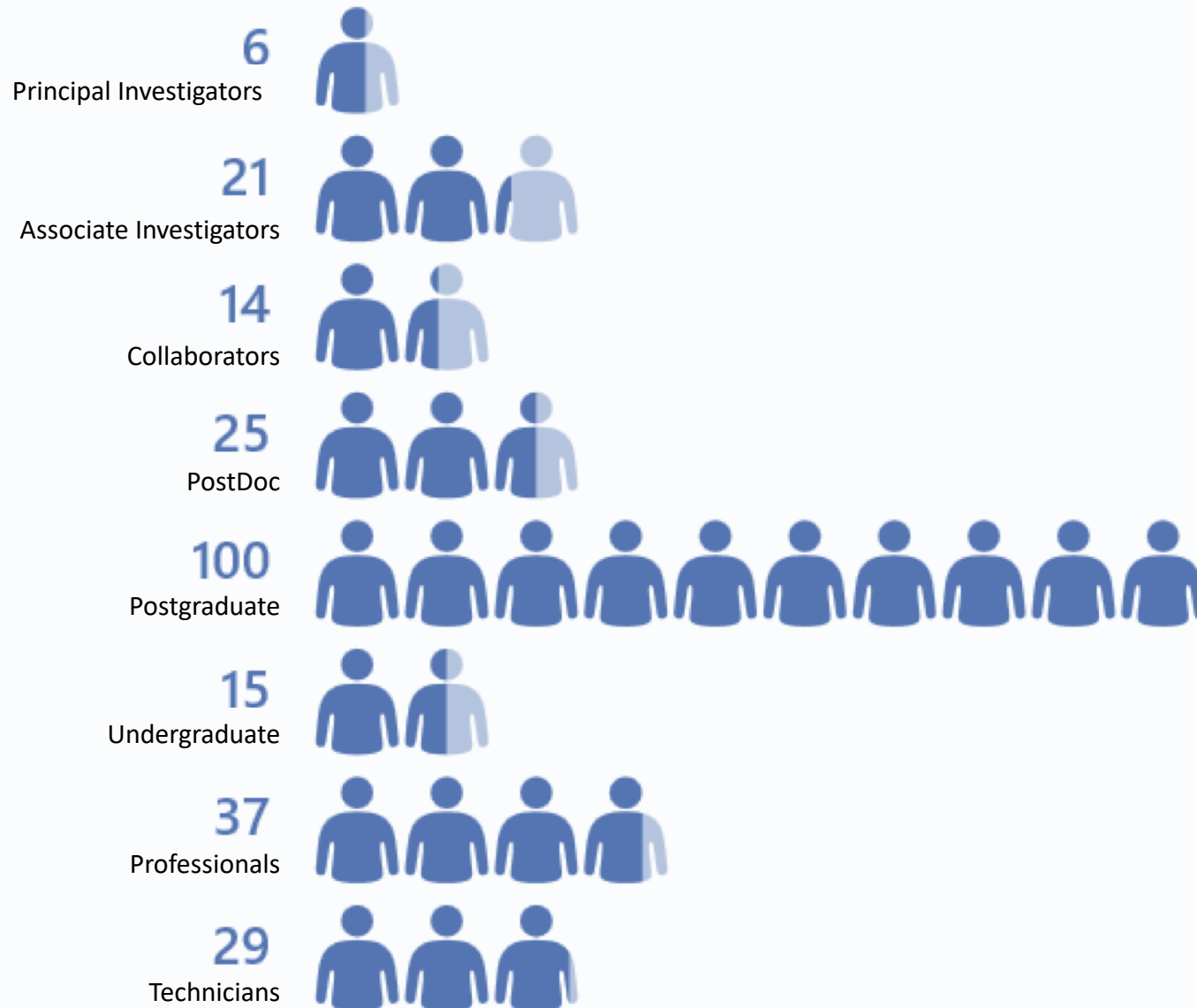
## HOSPITALS

### In Santiago

- **Clinical Hospital U de Chile**
- **Clinical Hospital Pontificia Universidad Católica de Chile**
- **DIPRECA**
- **San Juan de Dios**
- **Salvador**
- **Sótero del Río**

### Regional Hospitals

- **Temuco & Molina**



**246**

**Members**

**≈ 60%** Young people in  
academical development

# Our History



## The two key diseases associated with integration of research efforts at ACCDiS

- Focus strategic research on topics of interest in both areas – exosomes, nanotechnology, angiotensin-(1-9), chronic disease epidemiology
- To have Ph.D., MSc students and post-doctoral fellows work on (transversal) problems of interest to two or more groups
- Population-based study MAUCO
- To have Core Facilities that not only analyze samples using different techniques but also provide bioinformatics support – see Biodata Core



# Collaboration strategy: national and international

Cardiovascular  
Diseases

Cancer

Epidemiology

Nanomedicine

## *Collaborative research*

Post-graduate  
courses

Conferences  
and symposia  
organized by  
ACCDiS

Joint papers

Co-mentoring  
of PhD thesis  
students

# National and International Impact of ACCDiS

## Our Center in Numbers

**234**  
ISI Publications  
(2014- Mar 2018)

≈ **20%** articles  
in top10 Journals

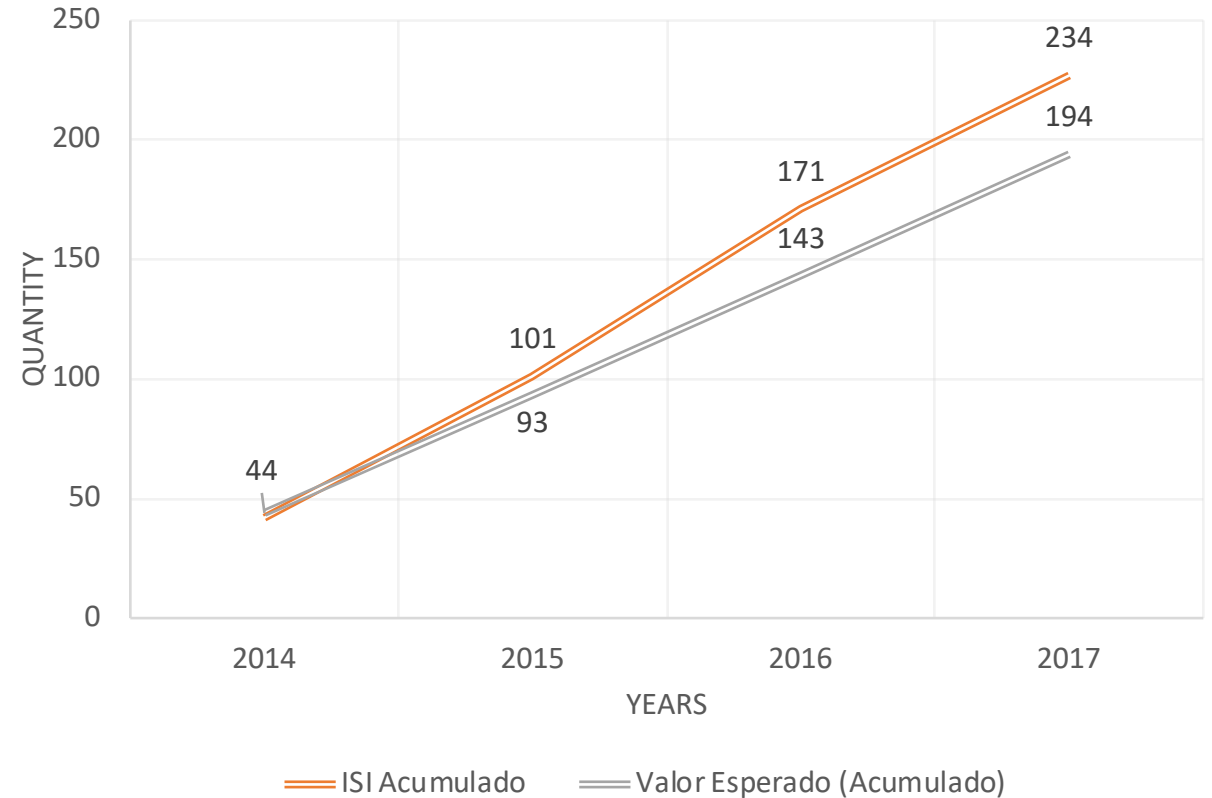
≈ **60%** articles  
in Q1 Journals

**142**  
(60%)

Number of joint  
publications with  
international institutions  
or research centers

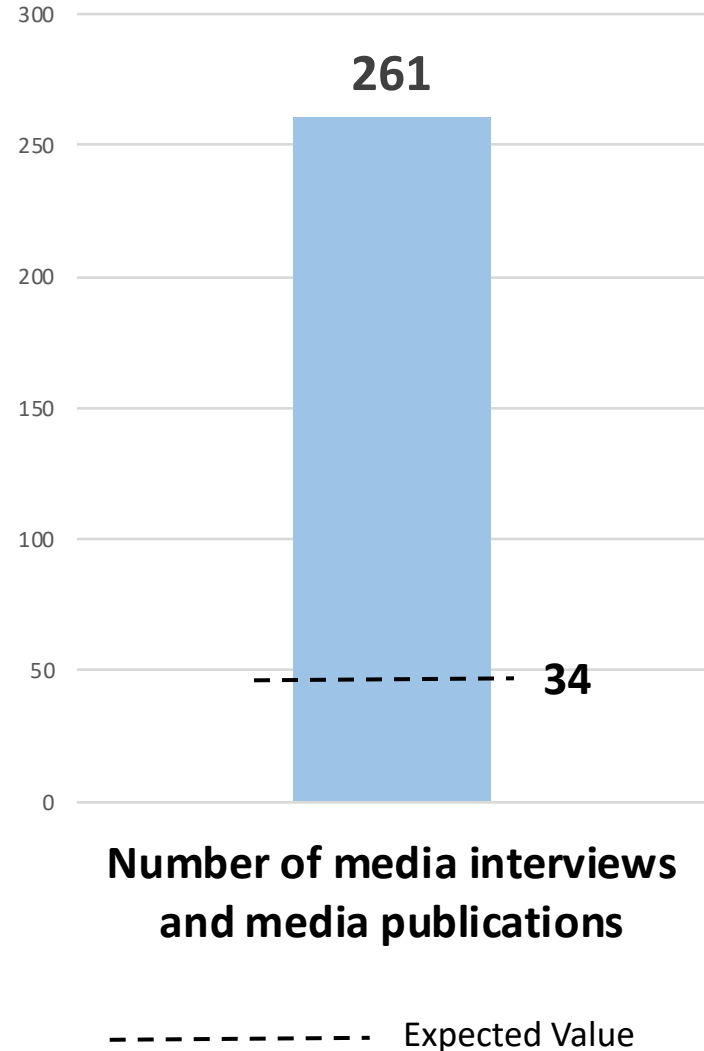
**111**  
(47%)

Number of joint  
publications with national  
institutions or research  
centers



# Outreach activities

- *ACCDiS webpage*
- *ACCDiS at Social Networks*
- *Official inauguration of ACCDiS*
- *Newsletters*
- *Outreach to Society: Activities with students and teachers*
- *Outreach in Public Media*
- *Meetings with business men/women and politicians*
- *Outreach activities in MAUCO and MAUCO web*
- *ACCDiS Seminars and Congresses*
- *Special ACCDiS integration workshops*
- *ACCDiS Annual Retreat*



## In Summary

*ACCDiS has consolidated itself in Chile as an important center for the study of Chronic Diseases*