



The Latin American Cancer Research Network (LACRN)

Andrea Llera
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Regional Meeting
**Human Genomics for Health:
Enhancing the Impact of Effective Research**

Mexico (Guadalajara)

Hospital de Especialidades CMNO-IMSS
OPD Hospital Civil de Guadalajara
Hospital de Gineco-Obstetricia CMNO-IMSS
Instituto Jalisciense de Cancerologia
Universidad de Guadalajara

Mexico (Sonora)

Hospital General Regional No. 1, IMSS
Centro Estatal de Oncología
Universidad de Sonora

Brasil

Instituto Nacional de Câncer
AC Camargo Cancer Center
Cancer Institute of São Paulo (ICESP)
Hospital de Câncer de Barretos

Argentina

Hospital Curie
Instituto Roffo
Hospital Eva Perón (San Martín)
Universidad Católica de Córdoba
Fundación Instituto Leloir

Chile

Hospital San Borja Arriarán
Hospital Luis Tisne
Hospital San José
Hospital Barros Luco Trudeau
Grupo Oncológico Cooperativo
Chileno de Investigación (GOOCHI)
Instituto Nacional del Cáncer
Universidad de Chile
Instituto de Salud Pública

USA

**Center for Global Health
National Cancer Institute**

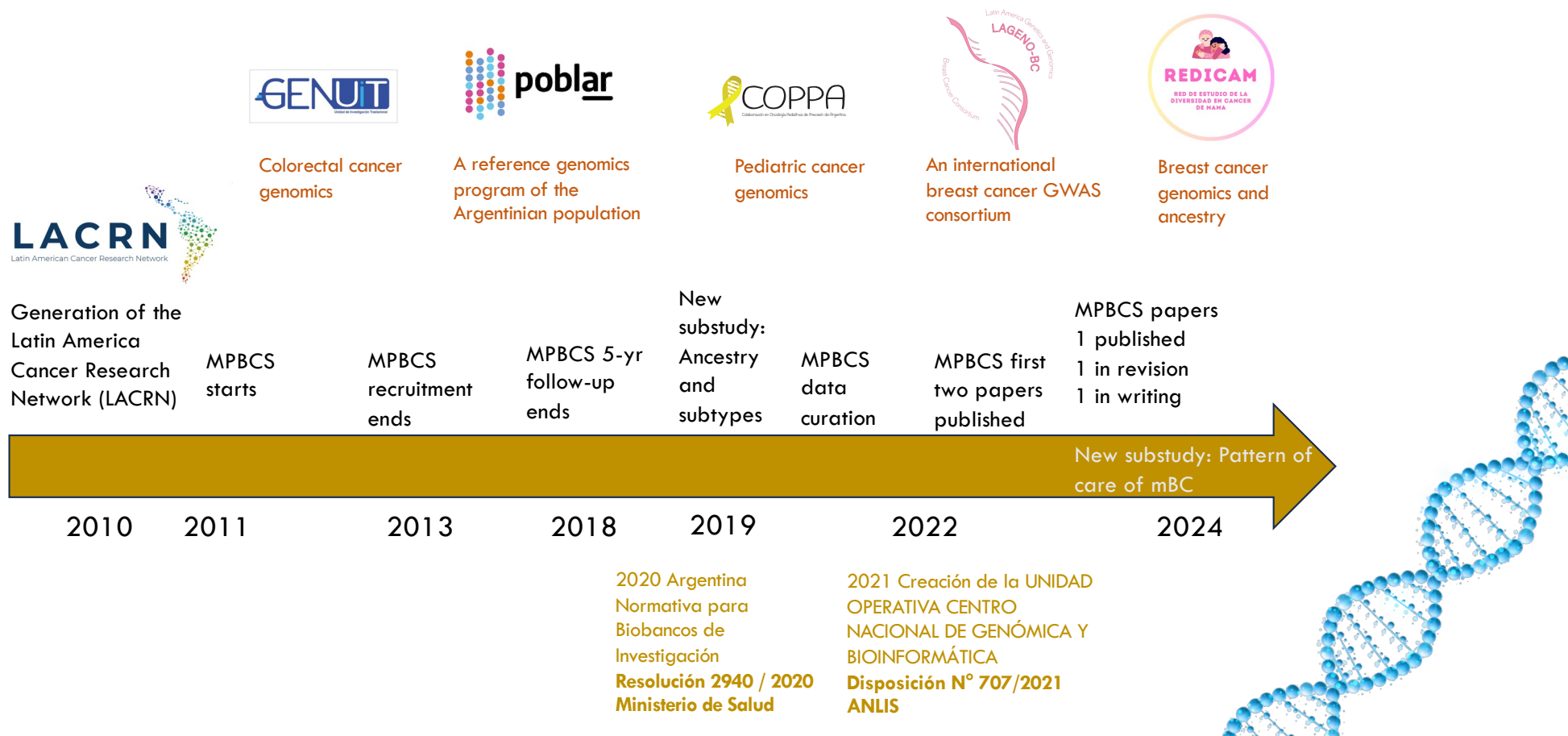
Uruguay

Hospital de Clínicas Manuel Quintela
Centro Hospitalario Pereira Rossell
Hospital Central de las Fuerzas Armadas
Instituto Nacional del Cáncer
Institut Pasteur de Montevideo

LACRN
Latin American Cancer Research Network



A timeline of a collaborative project in Latin America: The Molecular Profile of Breast Cancer Study (MPBCS)





LACRN challenges

Real-world issues – heterogeneity in access to care, delays/shortage of medication, quality of pathology supplies, etc.

A huge effort in harmonization (1 year, several meetings) – clinical practices (e.g tumor marking), biobanks and gene-expression microarrays

Difficult to implement training, lack of GCP compliance

Lack of experience in biobanking, genomic analysis



LACRN challenges

QC/QA actions were a burden to already exhausted health systems

- SOPs
- Data monitoring
- QC/QA forms (e.g. ischemia times, genomics analysis)

New procedures: biobanking, FISH/CISH, snap freezing, residual cancer burden

Infrastructure and sustainability possibilities were different for each center

Logistics, logistics, logistics



The Molecular Profile of Breast Cancer Study (MPBCS) – some results



Gene expression-based molecular signatures were better discriminators of survival than traditional biomarkers (ER/PR/HER2; NPI)

Non-genetic disparities - access to standard-of-care procedures was constrained in a real-life setting (according to ASCO-QOPI quality standards) – e.g 68% of HER2+ patients received trastuzumab

Retamales, Javier, Adrián Daneri-Navarro, Nora Artagaveytia, Daniela Alves da Quinta, Eliana Abdelhay, Osvaldo L. Podhajcer, Carlos Velázquez, et al. 2024. “Implementing Standard Diagnosis and Treatment for Locally Advanced Breast Cancer Through Global Research in Latin America: Results From a Multicountry Pragmatic Trial.” *JCO Global Oncology* 10 (May): e2300216.

Almeida, Liz Maria de, Sandra Cortés, Marta Vilensky, Olivia Valenzuela, Laura Cortes-Sanabria, Mirian de Souza, Rafael Alonso Barbeito, et al. 2022. “Socioeconomic, Clinical, and Molecular Features of Breast Cancer Influence Overall Survival of Latin American Women.” *Frontiers in Oncology* 12 (March): 845527.

Llera, Andrea Sabina, Eliana Saul Furquim Werneck Abdelhay, Nora Artagaveytia, Adrián Daneri-Navarro, Bettina Müller, Carlos Velazquez, Elsa B. Alcoba, et al. 2022. “The Transcriptomic Portrait of Locally Advanced Breast Cancer and Its Prognostic Value in a Multi-Country Cohort of Latin American Patients.” *Frontiers in Oncology* 12 (March): 835626.

Investigators of the US–Latin America Cancer Research Network. 2015. “Translational Cancer Research Comes of Age in Latin America.” *Science Translational Medicine* 7 (319): 319fs50.

Strength in numbers: The Latin America Genomics of Breast Cancer Consortium (LAGENO)

A multinational effort to address the underrepresentation of Latin American diversity in breast cancer genetics

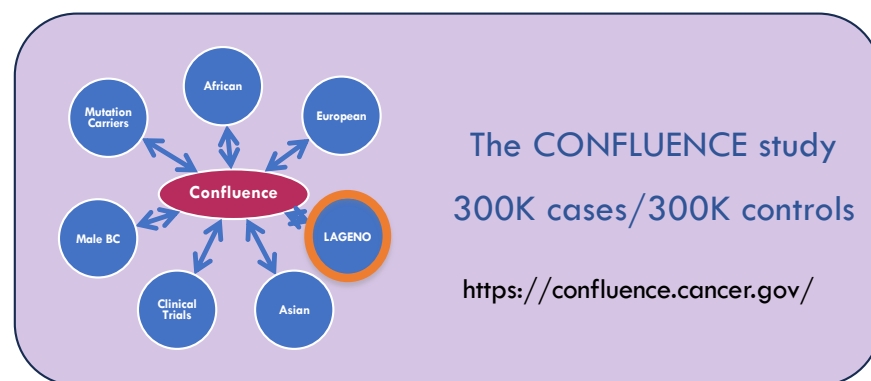


Table 1: LAGENO-BC Consortium expected number of samples with genome wide genotype data, by country.

Country	Cases	Controls	Total
Argentina	238	1158	1396
Brazil	4735	2400	7135
Chile	720	0	720
Colombia	3172	2053	5225
Guatemala	909	955	1864
Mexico	4402	2349	6751
Nicaragua	504	0	504
Peru	3333	6278	9611
Puerto Rico	709	780	1489
Uruguay	255	201	456
USA	9218	16250	25468
Total	28195	32424	60619

Broad Aims

- Discover of new breast cancer risk associated variants
- Understand mechanisms underlying associations
- Improve polygenic risk scores (PRS) in Hispanics/Latinas



<https://www.lageno-bc.org> lfejerman@ucdavis.edu



Key take-home messages for collaborative oncogenomics networks

For the genomic analyses

- Quality of genomics data: facilities vs local developments, quality control studies, external references
- FUNDING – genomics are expensive in Latam; the lack of human resources is also financially limiting

For the clinical data

- Oncogenomics data is nonsense without medical data – an extensive medical data collection is needed
- Huge support for “CRO” tasks is needed: realistic design, data entry/interpretation human resources, health record mining (AI?)



Key take-home messages for collaborative medical oncogenomics networks

For the interdisciplinary team

- Nurture the relationship between doctors and scientists – both are necessary!
- Protected time for clinical research is needed among doctors
- Genomics education/training is FUNDAMENTAL among medical professionals - Clinical education is ESSENTIAL for genomic scientists – e.g. MOLECULAR TUMOR BOARDS

For other essential players

- Institutional review boards – education on genomics-based medicine – PROTECTION VS. EXCLUSION
- Role of patient advocacy groups – engagement helps motivation, funding seeking
- Role of government engagement – stability of technical key players, education, communication



Key take-home messages for collaborative medical oncogenomics networks

For the collaborative networks

- Team building is key – rely on scientists for systematic tasks and data collection/curation
- Strong network governance and data sharing policies/committees - Team efforts are fundamental but not always easy to be recognized
- Communication – many findings are not seen by key players – multiple isolated efforts are lost
- Openness to engage other players
- **COMMITMENT**, no matter what – everything is difficult, motivation must be driven by the need to know, not by egos



Thank you

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