Biobanks in Brazil: Challenges, Opportunities and Strategies for the Future

Antônio Hugo J. F. M. Campos, MD, PhD
ISBER Ambassador – Americas
Head, Biobank D'Or –D'Or Institute for Research and Education
Pathologist and National Coordinator for the Pathology Traning Program – D'Or Hospital Network

antonio.mcampos@rededor.com.br ; antonio.hugo.campos@gmail.com

Conflicts of Interest

Antônio Hugo J. F. M. Campos

- **None to declare.**

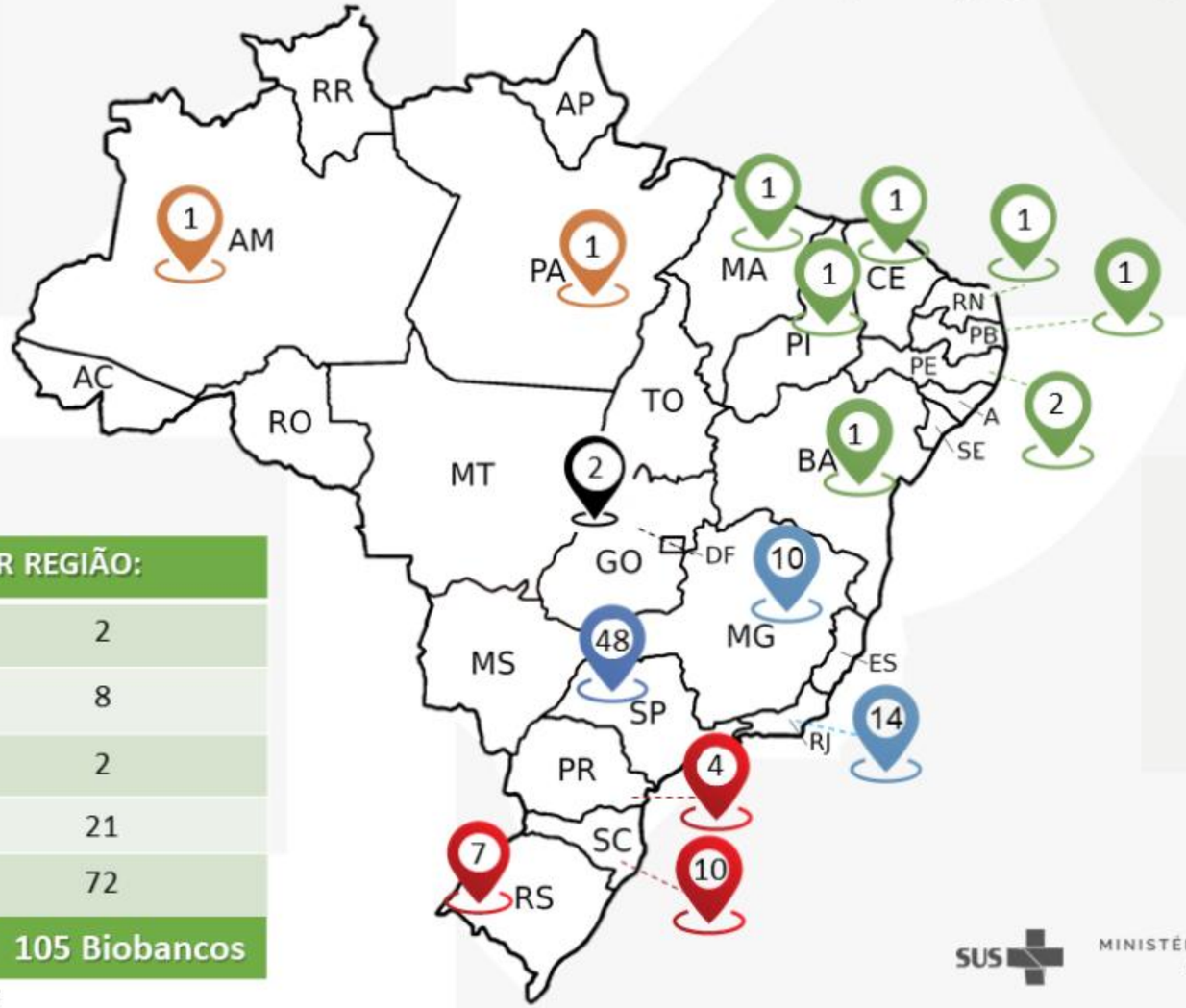
WHERE WE ARE AND WHO WE ARE?

Brazilian Biobanks – Human Biological Material

Mapa Geral dos Biobancos Credenciados (Março/2025)

GOV.BR/SAUDE

minsaude



QUANTITATIVO POR REGIÃO:	
Norte	2
Nordeste	8
Centro-Oeste	2
Sul	21
Sudeste	72
Total:	**105 Biobancos**

Dados atualizados em março de 2025

SUS MINISTÉRIO DA SAÚDE GOVERNO FEDERAL BRASIL UNIÃO E RECONSTRUÇÃO

Fonte: CNS-CONEP Biobancos

isber INTERNATIONAL SOCIETY FOR BIOLOGICAL AND ENVIRONMENTAL REPOSITORIES

INSTITUTO D'OR PESQUISA E ENSINO

ANATOMIA PATOLÓGICA

REDE D'OR SÃO LUIZ

Biobanks in Latin America

The International Journal of Biological Markers
OnlineFirst

https://doi.org/10.1177/03936155241239672

Sage Journals

Review

A systematic review of biobanks in Latin America: Strengths and limitations for biomedical research

J. Adrián Rivera-Alcántara [1], Natalia Esparza-Hurtado [1], Gabriela A. Galán-Ramírez [1,2], Ivette Cruz-Bautista [2], Roopa Mehta [2], Carlos A. Aguilar-Salinas [1,2], and Alexandro J. Martagon [1,2,3]

Methodology: systematic literature review

<u>44 BIOBANKS IDENTIFIED</u>

89%: Single disease-oriented
11%: Population Biobanks

Only 4 Brazilian Biobanks (9%)

ISBER INTERNATIONAL SOCIETY FOR BIOLOGICAL AND ENVIRONMENTAL REPOSITORIES | INSTITUTO D'OR PESQUISA E ENSINO | ANATOMIA PATOLÓGICA | REDE D'OR SÃO LUIZ

Biobanks in Latin America

SURVEY AMONG LATIN AMERICAN BIOBANKS

2020 – Preparation of the questionnaire, survey of institutions, and contact
2021 – Launch of the survey, data collection and analysis

BIOPRESERVATION AND BIOBANKING
Volume 00, Number 00, 2025

DOI: 10.1089/bio.2025.0064

Biobanks in Latin America: Insights from a Multinational Survey Conducted in 2021 During the COVID-19 Era

Antonio Hugo José Fróes Marques Campos[1] and María Teresa G. de Dávila[2]

Methodology: systematic literature review, purposive and snow-ball strategies

96 BIOBANKS IDENTIFIED

56 responded to the survey (~58% return rate)

ISBER Survey – Main Findings

✓ **Predominance of Brazilian biobanks**

Country	Number of biobanks	%
Brazil	36	64,3
Colombia	5	8,9
Mexico	4	7,1
Argentina	4	7,1
US*	2	3,6
Chile	2	3,6
Cuba	2	3,6
Costa rica	1	1,8
Total	56	100

ISBER Survey – Main Findings

- ✓ **91.5% are affiliated with hospitals, universities, research institutes, and government agencies or institutes.**
- ✓ **91% are non-profit entities in the public and private sectors.**
- ✓ **63.6% identified themselves as mature biobanks.**
- ✓ **75% reported using standard operating procedures based on international guidelines (e.g., ISBER, IARC, NCI, OECD).**

ISBER Survey – Main Findings

✓ **Biobanks serve various types of human and biodiversity research**

Research focus	Number of biobanks	%
Multiple diseases	21	37,5
Single disease (e.g., cancer)	18	32,1
Microbiology	5	8,9
Population studies	2	3,6
Veterinary research	1	1,8
Other types	9	16,1
Total	56	100

ISBER Survey – Main Findings

✓ **Heavy dependence on institutional funding and research agencies**

Main funding source	Number of biobanks	%
Institution budget	25	44,6
Research grants	18	32,1
Government funding	8	14,3
Donnations	2	3,6
Corporate funding	1	1,8
“Cost-recovery”	1	1,8
Did not respond	1	1,8
Total	56	100

ISBER Survey – Main Findings

✓ **Predominance (66%) of small to medium-sized collections (up to 50k samples)**

Catalog size	Number of biobanks	%
Up to 1k samples	11	19,6
1k-10k samples	19	33,9
10k-50k samples	7	12,5
50k-100k samples	5	8,9
100k-500k samples	11	19,6
Over 500k samples	2	3,6
Did not respond	1	1,8
Total	56	100

ISBER Survey – Main Findings

- ✓ **Collaboration predominates (~59%); Relationship with commercial companies:~52%**

Access policies	Number of biobanks	%
Extra-mural use permitted, through collaboration (including commercial companies)	23	41,1
Extra-mural use permitted, through collaboration (excluding commercial companies)	10	17,8
Extra-mural use permitted, no collaboration required (excluding commercial companies)	9	16,1
Use restricted to the biobank institution	7	12,5
Extra-mural use permitted, no collaboration required (including commercial companies)	6	10,7
Did not respond	1	1,8
Total	56	100

ISBER Survey – Main Findings

Limitation of commercial access to biological samples by Latin American biobanks

40%

20%

Discussion

✓ **Local relevance, low global visibility**

ISBER INTERNATIONAL SOCIETY FOR BIOLOGICAL AND ENVIRONMENTAL REPOSITORIES
INSTITUTO D'OR PESQUISA E ENSINO
ANATOMIA PATOLÓGICA
REDE D'OR SÃO LUIZ

Discussion

Declared Maturity vs. Persistent Bottlenecks

63.6% report a mature phase, but financing, interoperability and governance bottlenecks remain.

Collection scale and implications for multicenter research

Predominance of small/medium collections → networks/consortia and interoperable catalogs are desirable.

Financial sustainability: dependence on budget and grants

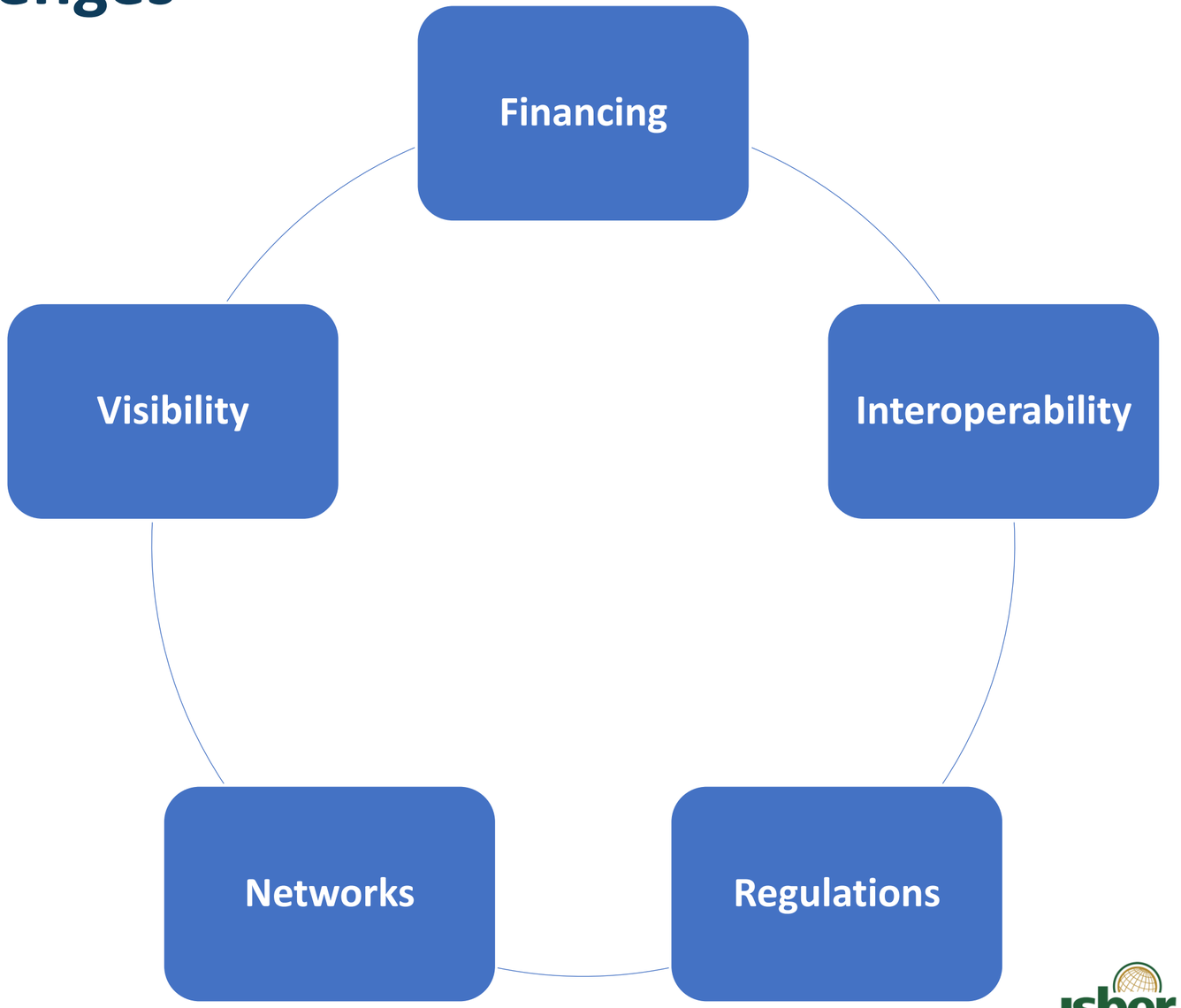
Without predictability, biobanks are vulnerable to budget cycles; hybrid financing is urgently needed.

Access policies: collaboration predominates; relationship with companies still limited

Regulatory certainty and standard contracts can expand partnerships with responsibility and transparency.

Discussion

Priority challenges



Strategic proposals for Brazil

1. Harmonize Brazilian standards with other international standards – clear national guidelines for the exchange of samples and data with ethical safeguards.

2. Hybrid financing – public baseline + fee-for-service/cost-recovery + partnerships.

3. Standards and FAIR – systematic adoption and interoperable catalogs; compliance measurement.

4. Continuous training – formal programs and certification (laboratories/personnel).

5. Increased visibility and engagement – communication with society, funding agencies, and the government; highlight the importance of biobanks for innovation in health and biodiversity.

How ISBER can help?

VISION

To be the leading network in the global biobanking and biorepository community.

MISSION

ISBER advances the expertise and quality of biorepositories and biobanking science worldwide.

CONNECTING REPOSITORIES GLOBALLY THROUGH BEST PRACTICES

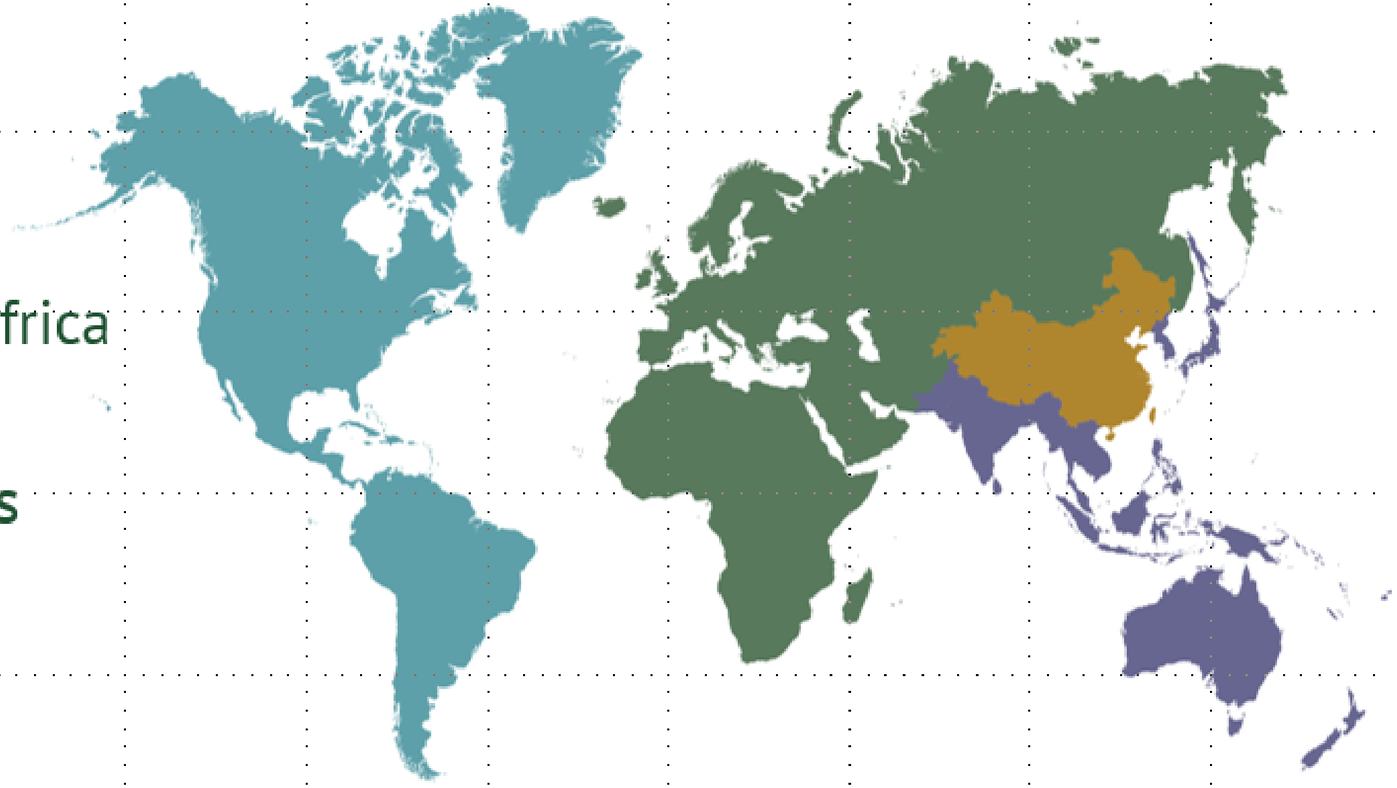
isber

INSTITUTO D'OR PESQUISA E ENSINO | ANATOMIA PATOLÓGICA | REDE D'OR SÃO LUIZ

How ISBER can help?

ISBER Is Global – Regional Charter

- 4 Regions
  - Americas
  - China
  - Europe-Middle East-Africa
  - Indo-Pacific Rim
- Regional Ambassadors

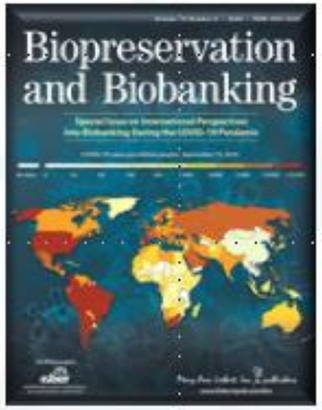


How ISBER can help?

Goals of the Society

- Disseminate information on repository management issues
- Educate and share information and tools within the society
- Act as the voice for repositories to influence regulations and policy
- Develop best practice guidelines
- Provide centralized information about existing repositories
- Bring members together to work on emerging issues

How ISBER can help?

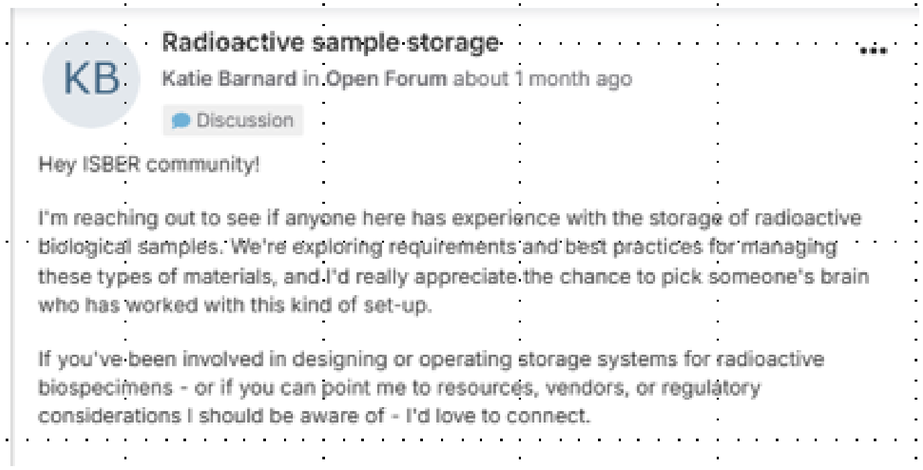


ISBER advances the expertise and quality of biorepositories and biobanking science worldwide…

How ISBER can help?

ISBER Hub

- ✓ Central Discussion Forum for all things Biobanking
- ✓ Global Event Calendar
- ✓ ISBER Mentoring Program
- ✓ Member Directory
- ✓ Many Communities to Engage with
- ✓ Hub of ISBER Activity



How ISBER can help?

Final message

Brazil has the unique opportunity to turn its existing biobanks into a national asset for science, health, and biodiversity. Moving forward requires three commitments:

- ✓ **Clear national frameworks that enable ethical and interoperable exchange of samples and data.**
- ✓ **Sustainable financing that blends public support with responsible partnerships.**
- ✓ **Public engagement to highlight the value of biobanks for patients, researchers, and society.**

By embracing these priorities, Brazil can strengthen its leadership in Latin America and enhance its global visibility in biobanking.

Obrigado!

Antônio Hugo J. F. M. Campos, MD, PhD

antonio.mcampos@rededor.com.br ; antonio.hugo.campos@gmail.com