Genomic Epidemiology Data and Biospecimen Access Policy

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1. Introduction

1.1. Establishment and mission of GEM Repository

The Genomic and Epidemiology Branch ("**GEM**") of the International Agency for Research on Cancer, the specialized cancer research agency of the World Health Organization ("**IARC/WHO**") coordinates large consortia that have been contributing to a better understanding of environmental and genetic risk factors associated with different cancers and to an increase in the representation of non-European populations in epidemiological and genomic studies. These efforts have resulted in a large repository containing biospecimens and well-annotated clinical and exposure data from thousands of cancer patients and controls.

This repository hosted by GEM at IARC/WHO constitutes an outstanding research resource. Institutions contributing to the repository are therefore formally establishing the GEM Repository, as it is their mission to maximize the lifetime value of these collections, ensuring their optimal use for the benefit of public health.

The GEM Resources held within the GEM Repository are therefore made available to the international research community, with as few restrictions as possible, for investigators who seek to answer important questions on cancer within a research project that is in line with the GEM Repository Scientific Mandate. Such research projects must be conducted in compliance with internationally recognised standards and applicable laws and regulations, and in a manner that is consistent with the legal and ethical frameworks of IARC/WHO and the Providing Centres, as laid out in this Policy.

1.2. GEM Repository Scientific Mandate

In line with IARC/WHO's mandate in the global fight against cancer, the GEM Repository provides resources and scientific evidence for the understanding of causes of cancer, and to improve early detection and survival rates of cancer patients.

The Providing Centres are committed to facilitating the use of GEM Resources by the wider research community for research within its scientific mandate, which includes:

Global Collaboration: fostering international collaboration in cancer research, bringing together expertise and resources from across the globe to tackle the complex challenges of cancer prevention and control.

From Understanding Cancer Causes to Early Detection and Survival: aiming, through rigorous research, to identify the various causes of cancer, to inform strategies and interventions for cancer prevention, early detection and to improve cancer outcomes.

Supporting Low- and Middle-Income Countries (LMICs): recognizing the disproportionate burden of cancer in LMICs, conducting research and building partnerships in these regions. Collaborating with local researchers to tailor prevention strategies that are both effective and culturally relevant.

1.3. Purpose and scope of the Policy

This Policy outlines how the use of biospecimens and data gathered within the GEM Repository is governed, and the principles and procedures according to which the use of and access to biospecimens and data may be granted.

2. Definitions

In addition to the capitalized terms defined elsewhere in this Policy, the following terms shall have the meaning as defined here below, whether used in singular or plural.

GEM Repository:	repository of data and biospecimens gathered within the Contributing Projects and hosted by IARC/WHO.
Providing Centre:	an institution that has contributed data and/or biospecimens to the GEM Repository. All together referred to as "**Providing Centres**".
Contributing Project:	research project from which a Providing Centre has contributed data and biospecimens to the GEM Repository.
Local PI:	local Principal Investigator of and affiliated with a Providing Centre.
Coordinating Centre:	the institute responsible for managing the GEM Repository acting as its host and custodian. IARC/WHO is the designated Coordinating Centre.
GEM Repository AC:	GEM Repository Access Committee consisting of three designated scientists of the Coordinating Centre responsible for clearing Proposals.
Study Participants:	individuals who participated in Contributing Projects through which their data and/or biospecimens are held within the GEM Repository.
GEM Biospecimens:	biospecimens that are part of the GEM Repository that have been collected from Study Participants within a Contributing Project and that were transferred to IARC/WHO by the Providing Centres.
GEM Data:	data that are part of the GEM Repository. These include the de-identified individual-level data collected from the Study Participants at baseline or during the follow-up, that were transferred to IARC/WHO by the Providing Centres; and the biological data or variables derived from the use of GEM Resources, including all laboratory results such as, e.g., genome sequencing results, results of biochemical analysis, scanned

	histopathological images, etc., all of which may qualify as Personal Data.
GEM Resources:	GEM Data and GEM Biospecimens held in the GEM Repository.
Personal Data:	any information relating to an identified or identifiable natural person (for the purpose of this Policy, 'natural person' refers to Study Participant).
Research Applicant:	a 'bona fide' scientist affiliated with a public, academic, or non-profit research institution, who wants to apply for access to/use of the GEM Repository for a research project consistent with the GEM Repository Scientific Mandate.
Cleared Research Project:	a research project proposed by the Research Applicant for which clearance of the GEM Repository AC, as well as approval of the IARC Ethics Committee and the relevant local ethic(s) committee(s), as may be required by the respective Providing Centre(s), has been obtained.
Approved Investigator:	a Research Applicant whose Proposal has resulted in a Cleared Research Project and who has been granted access to/use of the GEM Repository for the purpose of conducting the Cleared Research Project. For the purpose of this Policy, all obligations applying to the Approved Investigator, in particular in relation to the use of GEM Repository, shall also apply to scientists who are affiliated to the same institute as the Approved Investigator, involved in the Cleared Research Project and who shall be under the direct supervision and responsibility of the Approved Investigator ("***Approved Users***").
Research Results:	all scientific results obtained from the use of GEM Resources held within the GEM Repository within a Cleared Research Project.
Agreement:	an agreement established between IARC/WHO and the Approved Investigator's institute, to lay out the terms and conditions of use of, access to and/or transfer of GEM Resources. This agreement must be signed by an authorized legal representative of the Approved Investigator's institute, the Approved Investigator and, if applicable, the Approved Users.
Policy:	the present Genomic Epidemiology Data and Biospecimen Access Policy, including its appendices and other referenced forms and documents.

3. Governance of the GEM Repository

3.1. GEM Repository Access Committee

The GEM Repository Access Committee ("**GEM Repository AC**") consists of three designated scientists of the Coordinating Centre responsible for evaluating and clearing GEM Repository Research Project Proposal forms ("**Proposals**").

Research Applicants can submit a Proposal to use the GEM Repository. The Proposal will be evaluated by the GEM Repository AC to ensure that the Proposal falls within the GEM Repository Scientific Mandate, taking into account as well the Access Limitations mentioned in Clause 6 of this Policy.

The GEM Repository AC will meet on an ad-hoc basis, as required, and will clear or reject a Proposal and communicate that decision to the Research Applicant within two (2) months of submission of the Proposal. Discussions and clearance decisions on Proposals are documented in minutes and archived appropriately.

3.2. Providing Centres and Local PIs

The basis for the GEM Repository was laid at the start of the first Contributing Project and has since been developed in collaboration with Providing Centres from Africa, Asia, Europe, North America and South America.

Each Providing Centre is represented by a designated Local PI, who acts as the scientific liaison between their Providing Centre and the Coordinating Centre. The incoming contributions of resources from the Providing Centres to the GEM Repository, including how their resources within the GEM Repository can be used and accessed by IARC/WHO and possible third parties, are governed by a separate agreement that has been established between each Providing Centre and IARC/WHO (such as a Material Transfer Agreement ("**MTA**") or a Data Transfer Agreement ("**DTA**") etc.). Additional legal instruments governing transfer of data and biospecimens will be established if required by new Providing Centres.

The Providing Centres retain ownership of the GEM Resources they contributed to the GEM Repository and decisions on use of their respective GEM Resources remains at their discretion. Following clearance from the GEM Repository AC, the Providing Centres from which GEM Resources are requested to be used within a Proposal can choose to participate in the proposed research project through approval by their designated Local PI, as authorized in their respective agreement (MTA/DTA) with IARC/WHO.

A list of the Providing Centres and their designated Local PI can be found on the GEM Repository website.

3.3. IARC Ethics Committee

All research projects using the GEM Repository require approval of the IARC Ethics Committee ("**IEC**"). The IEC is composed mainly of external independent members with diverse expertise and backgrounds. The current IEC composition and mandate as well as information on submission procedures, reference guidelines and useful resources are available on the IEC website: https://ethics.iarc.fr.

3.4. IARC/WHO: Coordinating Centre, host and custodian of GEM Repository

The International Agency for Research on Cancer is the cancer research agency of the World Health Organization, a Specialized Agency of the United Nations, headquartered in Lyon, France. IARC/WHO has served as Coordinating Centre and the host and custodian of the GEM Repository since its establishment.

As an intergovernmental institution of the UN System, IARC/WHO operates within a particular legal and regulatory framework, under the general principles of public international law and the applicable international treaties and conventions. To ensure the independent exercise of its functions and fulfilment of its public health mandate, it enjoys privileges and immunities

under international law, and is subject to IARC/WHO's rules, regulations, and policies, as adopted by its governing bodies.

Accordingly, IARC/WHO has the obligation to ensure the highest ethical and professional standards are adhered to in any of its research activities, including any research project using the GEM Repository. This includes, without being limited to, matters related to research with human biological material, and data protection and privacy related matters. For such matters, in addition to its governing bodies and the IARC/WHO regulatory framework, IARC/WHO seeks guidance from the IEC (see 3.3) and the IARC Data Protection Officer ("**IARC DPO**") as appropriate (see 4.3).

3.5. IARC Biobank

The GEM Biospecimens hosted by IARC/WHO will be stored in the IARC Biobank ("**IBB**"). The IBB is a centralized biological resource storage facility for samples collected from studies conducted worldwide by IARC/WHO in collaboration with international partners (https://ibb.iarc.who.int). It also provides support for pre-analytical sample processing and shipment.

4. General Principles governing use of the GEM Repository

4.1. Conditions for use and access of GEM Resources

It is the Research Applicants' responsibility to ensure that they have read and understood the Policy and the GEM Repository Publication Guidelines and that they, as well as their institution and other potential Approved Users under their direct supervision and responsibility who may need access to GEM Resources, as applicable, will be able to fully comply with the Policy and the GEM Repository Publication Guidelines. To this effect, Research Applicants should liaise with their institution's administration at the earliest stage to avoid potential complications or issues arising down the line.

Chapter 6 of this Policy on 'Access Limitations' set outs other conditions for the use of and access to GEM Resources.

4.2. Ethical principles

As a general principle, any research project requiring the use of or access to the GEM Repository must comply with internationally recognized ethical standards and must be ethically and scientifically reviewed and approved by an appropriate independent board or committee.

By approving the use of their GEM Resources within a proposed research project, the Local PI confirms that the proposed analysis complies with their respective ethical approvals, unless it is indicated an additional ethical clearance is required. Restrictions on the use of their contributed GEM Resources may be imposed based on specific regulatory requirements applicable to a Providing Centre.

All research projects using the GEM Repository require approval of the IEC.

The Approved Investigator and their institution remain responsible for ensuring that they comply with applicable laws, rules, regulations, research governance and ethical guidelines, or other regulatory requirements that may apply to the proposed research project and use of the GEM Repository.

4.3. Data protection and privacy principles

GEM Data that are part of the GEM Repository held at IARC/WHO are de-identified, the individual identifiers being kept solely by the respective Providing Centre.

IARC/WHO, as the custodian and Coordinating Centre of the GEM Repository, in collaboration and close consultation with relevant bodies such as the GEM Repository AC, the IEC and the IARC DPO shall ensure the compliance of the storage, use, processing and/or transfer of GEM Resources, with internationally recognized data protection standards, including but not limited to the IARC Data Protection Policy.

Approved Investigators are expected to adhere to the highest standards of data protection, confidentiality and privacy principles. Under no circumstances may Approved Investigators attempt to identify Study Participants from the GEM Resources.

IARC/WHO acknowledges that Approved Investigators and their respective institutions may be subject to national/regional data protection legislations.

For the avoidance of doubt, by virtue of their privileges and immunities under national and international law, IARC/WHO is not subject to any national/regional/federal data protection legislation. Notwithstanding the foregoing, ensuring the appropriate protection of Personal Data is of the utmost importance to IARC/WHO. To this effect, IARC/WHO shall process Personal Data in accordance with its data protection framework, which is in line with internationally recognized data protection standards. IARC's data protection framework includes, without being limited to, the Personal Data Protection and Privacy Principles for UN System Organizations, UN-HCLM 2018 (the "UN Principles"), and the IARC Data Protection Policy.

5. Process of research project Proposals and conditions of use of the GEM Repository

5.1. Proposal submission

Research Applicants who are interested in using the GEM Resources held in the GEM Repository for their research project are invited to fill in and submit the required GEM Repository Research Project Proposal form ("**Proposal**") to the Gem Repository AC via GEP@iarc.who.int. The Proposal includes information about the Research Applicant's team, the background, aims, and methods of the proposed research project, the GEM Resources which are envisaged to be used, availability of budget and the project timeline.

5.2. Proposal evaluation and clearance

Submitted Proposals are evaluated and if eligible cleared by the GEM Repository AC to ensure that the Proposal falls within the GEM Repository Scientific Mandate, taking into account as well all access limitations mentioned in Chapter 6 of this Policy.

The GEM Repository AC will meet on an ad-hoc basis, as required, and will clear or reject a Proposal and communicate that decision to the Research Applicant within two (2) months of submission of the Proposal.

5.3. Approval of use of GEM Resources by Providing Centres

Following clearance from the GEM Repository AC, the Providing Centres from which GEM Resources are requested to be used within a Proposal can choose to participate in the

proposed research project through approval by their designated Local PI, as authorized in their respective agreement (MTA/DTA) with IARC/WHO.

For Proposals that are cleared by the GEM Repository AC, and obtained approval of the IARC Ethics Committee and, as may be required, the relevant local ethic(s) committee(s) ("**Cleared Research Project**"), each Providing Centre from whom use of their GEM Resources is requested within the Cleared Research Project has the option to approve or decline the use of their GEM Resources within the Cleared Research Project.

The Coordinating Centre sends the Proposal of a Cleared Research Project to the designated Local PI of the Providing Centre, for their consideration and approval on behalf of the Providing Centre as authorized in their respective agreement (MTA/DTA) with IARC/WHO. Each Providing Centre is requested to provide their approval or refusal of the usage of their GEM Resources within the Cleared Research Project within 30 days after receiving the initial request.

The Coordinating Centre shall be authorized to provide access to GEM Resources to a Research Applicant only if a Local PI on behalf of their Providing Centre has explicitly approved the usage of their GEM Resources within the Cleared Research Project.

Providing Centres that did not reply or send a refusal are considered to be not participating and their GEM Resources may therefore not be used within the Cleared Research Project. A Providing Centre can at any time still approve their participation in and the usage of their GEM Resources within a Cleared Research Project by notifying the Coordinating Centre accordingly.

5.4. Providing access to the GEM Repository for a Cleared Research Project

Following the approval by the respective Providing Centres of the use of their GEM Resources, an Agreement will be signed between IARC/WHO and the institution of the Approved Investigator who will use the GEM Resources within the Cleared Research Project. The Agreement sets out the terms and conditions governing the use of the GEM Resources. The terms and conditions stipulated in the Agreement are in principle non-negotiable.

Once the Agreement is established, IARC/WHO will prepare and provide (either by transfer or remotely) the GEM Resources that were requested and approved to be used within the Cleared Research Project to the Approved Investigator.

The cost of the GEM Biospecimens retrieval, processing, packaging and shipment will be charged by IARC/WHO to the institution of the Approved Investigator at the latest rate posted on IARC/Biobank website (https://ibb.iarc.who.int/access-policy/). If GEM Data is provided via the IARC SIT Platform a reasonable cost may be charged to the institution of the Approved Investigator as well.

5.5. During a Cleared Research Project

Formal progress reports are not required. However, the GEM Repository AC reserves the right to request updates for progress of specific Cleared Research Projects, also upon request of participating Providing Centres. In cases where a Cleared Research Project is not progressing, and other investigators have requested to pursue the same topic, the GEM Repository AC reserves the right to terminate the use of the GEM Resources after a probationary period of 12 months.

Providing Centres that are participating in a Cleared Research Project also retain the right to request, in exceptional cases, that their GEM Resources be removed from a particular Cleared Research Project up until the point when a manuscript has been submitted and in line with the IARC Data Protection Policy.

5.6. End of use of GEM Resources

Access to the GEM Repository is provided to an Approved Investigator for the time that there is a need to access the GEM Repository for a Cleared Research Project during the term of the Agreement. The Agreement may be extended if required. Access to the GEM Repository is, at the latest, ended after (a) publication of the final manuscript from the Cleared Research Project or (b) at the end of the Cleared Research Project, whichever is earlier.

5.7. Completion of a Cleared Research Project

Upon completion of a Cleared Research Project, the Approved Investigator and its institute must:

- Return to IARC/WHO, destroy or delete any unused GEM Biospecimens or GEM Data, as stated in the applicable Agreement and in accordance with instructions from IARC/WHO, unless otherwise agreed upon with IARC/WHO;
- Provide IARC/WHO with a copy of any derived data that have been generated within the project through use of the GEM Resources (e.g., results of biochemical analyses or genotyping) ("**Research Results**"), in raw data or other relevant format as agreed upon with the GEM Repository AC;
- If requested, provide IARC and the GEM Repository AC with a report on compliance with applicable data protection regulations, in particular where the research is deemed to give rise to additional risks to the rights and freedom of Study Participants (e.g., due to an increased risk of re-identification or the use of genomic data).

6. Access Limitations

Access to the GEM Repository is restricted to 'bona fide' researchers, who are affiliated with academic, non-profit, or governmental research institutions, and who have no links to the tobacco or arms industries and whose Proposal has resulted in a Cleared Research Project ("**Approved Investigator**").

The Coordinating Centre cannot grant access to the GEM Repository to commercial entities and/or for commercial purposes, including development of patents.

Access to the GEM Repository may be denied for various reasons. The following list, while not exhaustive, provides examples:

- The Proposal falls outside the GEM Repository Scientific Mandate (see 1.2).
- The Proposal overlaps with ongoing or planned projects/analyses leading to unnecessary duplication of work and waste of resources;
- The scientific quality of the Proposal is considered inadequate;
- The GEM Resources held in the GEM Repository are not suitable to answer the research question mentioned in the Proposal;
- There are ethical or legal issues with the Proposal, including, for example, when the proposed use of the GEM Resources is not compatible with the original

informed consent of the Study Participants, or if the proposal is non-compliant with the applicable data protection regulations;

- The Proposal is not compatible with the goals of public health;
- The institution and IARC/WHO are not able to agree on the terms and conditions of the Agreement under which access to GEM Resources would be provided;
- The Agreement under which access to GEM Resources was provided has expired;
- The proposed research project is considered not to be in compliance with the general guiding principles of this Policy such as: committed to respecting and protecting the rights, privacy, and consent of their Study Participants at all times.

As a general principle, the GEM Repository AC reserves the right to refuse clearance of a Proposal for which an appropriate explanation will be provided. The Providing Centres have the ultimate authority over the use of their respective GEM Resources held in the GEM Repository and may each refuse the use of their GEM Resources within a Cleared Research Project, no explanation on their refusal will be required.

7. Publication of Research Results, authorship and intellectual property rights

7.1. Publication

Approved Investigators, their Approved Users and institute are obliged to follow the GEM Repository Publication Guidelines for any publication arising from the use of GEM Repository.

As a general and prevailing principle, the Approved Investigator is expected to disseminate the Research Results to the public through appropriate means, most importantly through peer-reviewed scientific publications. To this end, the Research Results should be submitted for peer-reviewed publication in a timely manner, i.e., within three (3) years after receiving access to the GEM Resources held in the GEM Repository, or otherwise as agreed upon with the GEM Repository AC, if deemed necessary, after consultation with the Providing Centres.

Any research conducted by an Approved Investigator using GEM Resources is by definition conducted in collaboration with the involved Providing Centres and the Coordinating Centre as the originating sources. Accordingly, any publication arising from the use of GEM Resources must acknowledge the involved Providing Centres and the Coordinating Centre and comply with the Publication Guidelines for the use of GEM Repository (the "GEM Repository Publication Guidelines").

7.2. Intellectual property and use of Research Results

As indicated in clause 3.2, the Providing Centres retain ownership of the GEM Resources they contributed to the GEM Repository and decisions on use of their respective GEM Resources remain at their discretion.

The institute of the Approved Investigator generating the Research Results within their Cleared Research Project, the respective originating Providing Centres that participated in the Cleared Research Project and IARC/WHO as the Coordinating Centre of the GEM Repository shall all be granted a non-exclusive, irrevocable, non-transferable, worldwide, royalty-free right to use the Research Results arising from the Cleared Research Project for non-commercial academic and research purposes, subject to any applicable confidentiality

obligations. Any other use or exploitation of such Research Results shall be subject to a separate agreement to be negotiated in good faith with IARC/WHO.

Notwithstanding the foregoing and as general principles, the following is recognized and acknowledged by all parties, the importance of working together in a collaborative, rather than proprietary, spirit; and sharing Research Results and other research outputs from a Cleared Research Project in a manner that benefits patients, supports cancer research efforts, advances public health, and enhances the general public good. Accordingly, involved institutes shall first and foremost endeavour to disseminate the Research Results and research outputs arising from a Cleared Research Project to the public, including through peer-reviewed scientific publications, in a collaborative and open access manner.

Any Research Results arising from the use of the GEM Resources shall be used for the on-going enrichment of the GEM Repository and, in line therewith, the Approved Investigator and its institute agree to provide to IARC/WHO, upon the latter's request, a copy of any derived data/variables arising from the use of the GEM Resources within a Cleared Research Project.

Reference Documents

- Genomic Epidemiology Data and Biospecimen Access Policy (current document): https://www.iarc.who.int/wp-content/uploads/2024/07/GEM-Repository-Access-Policy.pdf
- GEM Repository Research Project Proposal form: https://www.iarc.who.int/wp-content/uploads/2024/09/GEM-Repository-Proposal-Form.pdf
- GEM Repository Publication Guidelines: https://www.iarc.who.int/wp-content/uploads/2024/07/GEM-Repository-Publication-Guidelines.pdf
- IARC/WHO Data Protection Policy: https://www.iarc.who.int/wp-content/uploads/2024/07/IARC-Data-Protection-Policy.pdf