

BIORESOURCE PAPER

Public Oncologic Serum Biobank

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The Public Oncologic Serum Biobank is a not for-profit organization that has been established within the academia setting since 2009, which aims to prospectively collect and store serum samples from cancer patients and volunteers and their associated clinical and epidemiological data, with the ultimate goal to distribute them to the local and international research community focusing in understanding and improving cancer diagnosis and treatment.

Funding Statement: Grant PICT 2008-Minister of Science and Technology, Argentina.

(1) Overview

Project description

The aim of our work has been to build and to strengthen a **Public Oncologic Serum Biobank (BPMSO)** that collects and stores high quality biosamples with corresponding clinico-pathological associated data, providing an invaluable resource of information for research on cancer and discovering serum tumour biomarkers.

The primary goal for the biobank establishment was to invite and recruit patients with “clear cell type Renal Carcinoma”, in any stage of the disease and undergoing different types of treatment, for which serum levels of different cytokines were measured, in order to understand how these molecules are associated with, not only early diagnosis of this tumour type but also with the outcome of treatment.

All patients had previously consented to participate signing a written IC document.

All clinical and epidemiological data are gathered by well trained professionals. These data are saved and stored in a secure way – link anonymized- so as to protect patient’s privacy and confidentiality respecting data access rules.

Clinical patient’s medical records are periodically revised as to be sure the databases are reviewed and updated.

Between the different molecules described in “renal cell carcinoma”[1, 2, 3], it seems clear to us that many can be involved in metabolic pathways deregulation[4, 5], but carbonic anhydrase IX (CAIX) and angiotensin-2 (Ag2) have been demonstrated to have an active and prominent role[6, 7].

As a “Public Oncologic Serum Biobank” associated research project, our multidisciplinary research team has

focused in studying different and circulating serum biomarkers in patients with renal carcinoma.

So far, the Public Oncologic Serum Biobank has collected the number and type of biosamples as indicated below:

- Renal Cancer: 270
- Breast Cancer: 68
- Ovarian cancer: 10
- Donor Volunteers: 78
- N° Total alicuots: 9394

Every research protocol requesting samples from our biobank, must always be previously submitted to the IRB for approval.

Even though we have not yet established in our Best Practices, how long the biosamples will be stored, and also if the leftover material might be re-used once the samples has been utilized by the researchers, we work in close collaboration with the Research Ethic Committee (REC) for open consultation concerning this issue and others that might arise in the course of biobanking management.

Classification (1)

Human

Species

Human samples

Classification (2)

Biological samples and associated data

Keywords

Serum Biobank; Cancer research; Serum Biomarkers as prognostic indicators in cancer patients, for an earlier diagnosis and with the aim to implement a better personalised therapy.

Context**Spatial coverage**

Latitude-Longitude

-34.596933, -58.49458

Description: Argentina- Buenos Aires-Institute of Oncology "Ángel H. Roffo"-University of Buenos Aires- Av. San Martín 5481- PC:1417.

- Northern boundary: +/- x.x
- Southern boundary: xx
- Eastern boundary: +/- x.x
- Western boundary: +/- x.x

Temporal coverage

Start date: March 2008. End date: not applicable (the prospective cohort will be followed-up as long as possible); this implies that we do not have any time limitation for data and sample collection process.

(2) Methods

Venous blood samples (15-20 ml) are collected by venipuncture from recruited patients and donor volunteers, in 10 ml tubes with beads as clot activator and without any anticoagulant, after an overnight fast.

Stabilization/preservation

The samples are transported to the laboratory for processing as soon as possible.

The blood is left to stand for 10 min at room temperature and then centrifuged in a hematologic refrigerated centrifuge(4°C) (3000 rpm x 10 min).

Serum is fractionated in sterile conditions (SBC: Security Biological Cabinet), in approximately 20-22 aliquots of 400 ul each.

Type of long-term preservation

Vertical ultra-cold temperature freezers

Storage temperature

- Samples are stored at -80° C
- Long term future storage duration is not defined yet (may be 20 years or more)

Shipping temperature from patient/source to preservation or research use

Transportation from each collection site to the central lab, at room temperature in no more than 15-20 min

Shipping temperature from storage to research use

Transportation to the central Biobank to research use within 24 hours in dry-ice.

Quality assurance measures

We follow at all time our local SOPs for "best practices", adapted from international standards documents: NCI-ISBER-IARC-OECD Guidelines for Biorepositories.

Source of associated data

Questionnaires, personal health data from medical records with other comorbid conditions such as diabetes, hypertension, tobacco, COPD, etc.

Personal and family cancer history background is also registered.

Ethics statement

National Law N° 25352 on personal data privacy protection (Approved by Parliament) and other regulations. Revised and updated to January 2008.

Constraints

None, except National Regulation on personal data and biological materials.

(3) Bioresource description**Object name**

Collecting serum samples from cancer patients.

Bioresource name

Public Oncologic Serum Biobank (BPMSO: Biobanco Público de Muestras Séricas Oncológicas). We work in separate areas but in conjunction with the "Tumor tissue Bank".

Bioresource location

Institute of Oncology "Ángel H. Roffo"

Research Área

University of Buenos Aires

Av. San Martín 5481

PC1417- Buenos Aires

Argentina

Bioresource contact

Email:

prondotuba@hotmail.com

pedrorondotradio@ymail.com

lydiapur@yahoo.com

informes@institutoroffo.com.ar

Bioresource URL

<http://www.institutoroffo.com.ar/>

Identifier used

N/A

Bioresource type

Oncologic Serum Biobank

Type of sampling

Prospective population cohort, not only from cancer patients but also healthy donors.

Anatomical site

Any type of cancer

Disease status of patients/source

Patients with cancer, before going to surgery or any other kind of treatment (QT); registering all events occurring during their treatment follow-up.

Clinical characteristics of patients/source

All Cancer patients aged >18-70 at enrolling time since 2009. Personal and health data retrospective and prospectively collected.

Vital state of patients/source

- Living patients and healthy controls.
- Personal clinical records, with periodic and timely reviewing every 4-6 months, for data up-date.

Clinical diagnosis of patients/source

For cancer and other clinical or comorbid conditions, confirmation is made through medical records.

Pathology diagnosis

- Available through medical records.
- TNM staging or ICD-10 classification.

Control samples

Most of the cohort volunteers are healthy women and men, who donate blood at the "hemotherapy and transfusion department.

Biospecimen type

Only serum for the moment. We plan to store plasma and buffy-coat too, in the near future.

Size of the bioresource

582 participants at present; collecting project still continuing.

Release date

Cancer serum biosamples are already available to be distributed and used by the research community at large, national and international.

Access criteria

According to national law and local IRB, every research group (public or private; national or international) is entitled to apply for a research project through a formal local application designed with that purpose (objectives; type and number of samples requested; data needed; timetable); the PI must present an approved research protocol, and all legal and ethical authorizations must be provided.

In the case of transferring samples across borders, signing a MTA is necessary.

As a cost-recovery plan, a financial contribution is asked in the case of biosamples transfer or shipment.

(4) Reuse potential

Researchers must use the samples and associated data respecting the Data Privacy Local Act, in accordance with the MTA which must be signed in total agreement between the parties.

Author roles

1. Reviews the "research protocols" that are associated with the biobank, approves and submits them to the "Institutional Review Board" for consideration and final approval, in close collaboration with the Deputy-CEO.
2. Director- Curator of data- Samples collect & processing. Samples tracking & custodianship. Control of databases with encryption. Guarantees patients' privacy and confidentiality respecting national and international norms regarding data access rules.

Acknowledgements

The Institute of Oncology "Angel H. Roffo"

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How to cite this article: Rondot Radío, P and Puricelli, L 2014 Public Oncologic Serum Biobank. *Open Journal of Bioresources*, 1: e5, DOI: <http://dx.doi.org/10.5334/ojb.ae>

Published: 07 October 2014

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