

MALIGNANT MESOTHELIOMA BIOLOGY BANK REPORT

A Biology Bank or “Biobank” is defined as *a non-profit service aimed at collecting, preserving and distributing human biological material together with the relative clinical data for biomolecular research and diagnosis purposes.*

Malignant Mesothelioma Biology Bank

In the 1990s, the Anatomical Pathology complex of the Alessandria Hospital began to spontaneously yet systematically collect biological malignant mesothelioma (MM) samples.

Officially sanctioned by the local hospital ethics committee in 2005, these collection activities expanded and grew over time as a result of a collaboration with many departments and professionals at the S. Spirito Hospital in Casale Monferrato.

Later (**DGR no. 5-11258 of 23 April 2009**), the Region appointed the Alessandria Hospital as the regional center for the collection of biological/clinical data and biological material at the Anatomical Pathology complex, which is now the headquarters of the MM Biology Bank.

The Mesothelioma Biology Bank provides services for the collection, preservation, distribution and use of biological material (whole blood, plasma, serum, pleural liquid, surgical and biopsy tissue samples) obtained from patients with a histological or clinically suspected diagnosis of MM or other pleuro-pulmonary disease for scientific research purposes only. The Biology Bank also prepares and preserves MM cell lines from effusion samples it has received.

The validity of the data obtained from Biobank samples for translational research purposes greatly depends on the reliability of the starting material. Consequently, the hallmark of a biobank is the **quality** of its samples, which must be ensured by stringent quality controls during the collection and processing phase.

This requirement is supported by several studies that have demonstrated that there are many pre-analytical factors that can compromise the integrity and stability of the analytes and thus the interpretation of the research data.

Our sample quality improvement project could be implemented with the acquisition of some basic instruments such as:

- 1) **Automated DNA/RNA extractor**: Automatically extracts and purifies nucleic acids from different biological matrices using cartridges with magnetic beads.
- 2) **Spectrophotometer/fluorimeter**: Once the isolated DNA/RNA has been extracted, the next step is to quantify it. The spectrophotometer can measure the amount of radiation absorbed by matter, which is proportional to the amount of matter itself. Alternatively, there are gel electrophoresis systems that separate the nucleic acids based on their molecular weight when an electric field is applied.

These instruments cost an estimated €30,000 in total and will be installed in the new BB premises that are currently undergoing renovation.