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SALAMANCA

III JORNADAS DE LAS PLATAFORMAS ISCIII DE APOYO A LA I+D+I EN BIOMEDICINA Y CIENCIAS DE LA SALUD

300K Solutions has developed innovative technology that enables the stabilisation of biological samples at room temperature.

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Introduction

Access to high-quality biological samples by researchers is essential to ensure their use for both clinical and research purposes. For this reason, a wide range of primary samples and their derivatives require processing and storage for both the short and long term. The most widespread method for the long-term storage of biological samples is deep freezing. However, maintaining these conditions involves a series of requirements and safety measures to minimise the risk of sample loss.

In this context, 300K Solutions has developed a technology based on freeze-drying for the storage of biological samples at room temperature (RT) that has the potential to become an alternative to deep freezing.

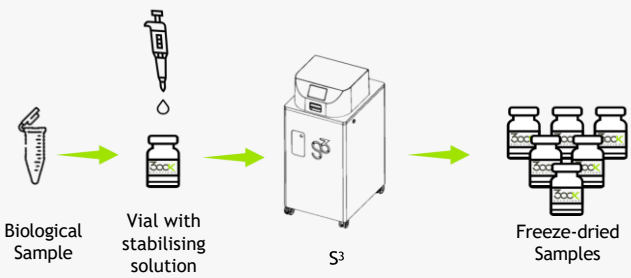
Objective

Evaluate the freeze-drying process as an alternative method for stabilising and preserving biological samples at room temperature.

Materials and methods

300K Solutions (Salamanca, España) (Salamanca, Spain) has developed its own standardised technology for the dry stabilisation of biological samples. This system consists of:

- A specialised freeze-drying device called the Sample Stabilisation System (S3). This is a freeze dryer adapted for laboratory work that ensures high homogeneity in heat transfer during freeze drying.
- Low moisture transmission vials coated with a stabilising solution specifically formulated for each type of biological sample.



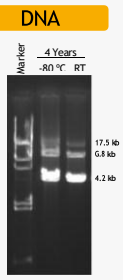
Conclusions

- *300K Solutions* has developed an innovative solution that is ready for implementation in a laboratory's normal workflow.
- This technology enables the effective stabilisation and storage at room temperature of a wide variety of biological samples, including DNA, RNA, plasma and peripheral blood.
- These results support the potential of Freeze-drying as an alternative to deep freezing.

Results

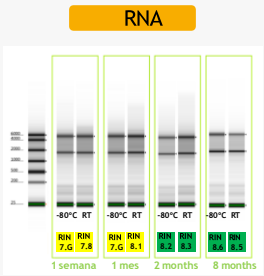
To evaluate the stabilisation of different biological samples at RT as an alternative storage method to deep-freezing, the following analyses, among others, have been carried out:

DNA



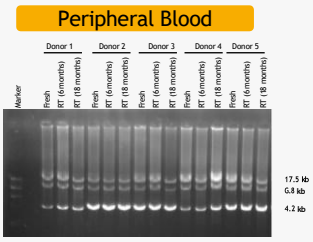
Long multiplex PCR to assess integrity and functionality

RNA



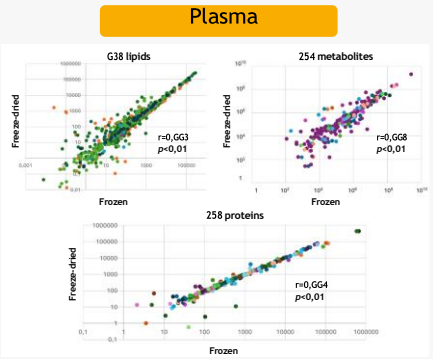
RIN measurement to assess integrity

Peripheral Blood



Long multiplex PCR to assess the integrity and functionality of DNA extracted from freeze-dried blood

Plasma



Untargeted omic analysis (lipidomics, metabolomics, and proteomics) by LC/MS after 1 year at TA