



Cryogenic Storage of Biologic Samples

Bruce R. Wray/Market Manager, Computype.; St. Paul, MN USA

A consensus has been reached among lab managers that barcode scanning technology is the most cost-effective method of automated data collection available. And over the past several years, many laboratories have invested significantly in barcoding. They have seen data collection costs diminish while productivity has increased as data is collected both accurately and rapidly.

Yet challenges remain. In order to preserve biologic samples in an unaltered state, labs store the samples in extremely cold conditions, typically at least -80° Celsius and often as low as -196° C. In addition, there may be exposure to toluene, acetone, and DMSO prior to freezing. These conditions pose significant problems for the barcode labels affixed to the sample containers.

The development of a “cryo safe” barcode label represents a significant advancement in label engineering. A simple and elegant idea—the “wraparound” label—has been further enhanced with special label material, laminate, and adhesive to create a label that is truly impervious to liquid nitrogen storage.

Because most pressure-sensitive adhesives do not adhere well to wet surfaces, the tube or vial to be labeled must be clean and free from moisture. Applying the label at room temperature is always preferred to labeling a container that is already cold. When a “cryo hold” label is removed from the release liner, it should be applied to the vial immediately, as prolonged exposure to air will begin to dry out the adhesive. Some label materials can be applied to an already-frozen vial, but the surface should still be wiped dry prior to application.

Thermal transfer printing is the best method for producing this type of specialty label. While a detailed explanation of that process is beyond the scope of this paper, it is important to note that matching the label material with the appropriate ribbon is critical for good print results and, therefore, reliable scanning and long-term storage. Label stock and ribbon should be kitted from the supplier to ensure there is no mix-up that might compromise print quality.

Because a stored biologic sample may have life-or-death implications for patients, the importance of reliable labeling cannot be overstated. Observing the simple guidelines outlined above will ensure the optimal performance of a “cryo hold” label. And testing several samples prior to purchase is always advisable.

2285 West County Road C
St. Paul, Minnesota 55113-2567

Toll-Free: 800.328.0852
Phone: 651.633.0633
Fax: 651.633.7122

www.computype.com