



Use of Freezerworks at VaxGen

By Mike Peterson

VaxGen

Here at VaxGen, we are currently involved in the First Phase III clinical trials in the development of an AIDS vaccine. Naturally, this necessitates the efficient tracking of the many thousands of patient samples used to evaluate the immunogenicity of our vaccine. More than 8,000 patients are enrolled in two separate studies on three continents for this effort. As Group Leader of the Immunochemistry Group, Freezerworks is my method of choice for clinical sample receipt, inventorying, and management for in-house testing distribution of more than 80,000 samples, soon to be 300,000+.

Freezerworks affords us the advantages of a database tool over use of spreadsheet software, including a user interface and built in functionality specifically developed with sample inventory management in mind. The thoughtful user interface was a prime determinant in my decision to use Freezerworks. You quickly become proficient simply by using it, exploring it, and by reference to the simple manual. You don't need much familiarity with databases and there's no new language or complex technical tools to learn. Best of all, to get this we didn't have to design user specifications, commission programming of the user interface or functionalities, or go through the demanding de-bugging required of custom software.

Having been through this latter approach, I am very happy the folks at Dataworks Development have used their wealth of experience to produce a product so well suited to this type of need. It was not difficult to justify the cost. The alternative of using spreadsheets alone would have given us an incomplete system. We could catalog the samples and their physical inventory, but the analysis of records to determine completeness of inventory transfer from our clinical labs, and to select samples systematically for analysis, required some sort of database. Without Freezerworks, the alternative would have been to develop a custom program, for which we were looking at perhaps \$50K-\$100K just for development. On top of this is the difficulty of adequately specifying the design without benefit of the years of experience and product evolution already existent in Freezerworks. Using Freezerworks kept us free from the difficult situation of needing to hire and rely upon a dedicated programmer of some sophistication to continue to manage and update the software. Try finding someone like that who will also manage the inventory! The final price for Freezerworks, including the customization we purchased, came to less than \$11,000. I believe we easily saved \$40,000 to \$100,000 and probably more in development and support costs by our decision. In return we got a reliable and powerful system that our sample management personnel can use.

There are several features of Freezerworks that I find particularly useful. The ability to enforce uniqueness in sample identifiers through use of multiple fields was critical for my application. Addition of user-specified record fields with enforcement of data integrity where desired is easy and a goodly number are available. The "notes" field aids in the proper annotation of sample records and changes to records. The audit trail captures the specific changes made and who made them. The virtual freezer map is a great tool for navigating through the inventory since it matches the physical organization. User-specified aliases identify every level and subsection of inventory structure, making it easy to find your way around. I particularly like the flexibility in configuring the virtual freezer space to define exceptions to the pattern of the surrounding



storage structure. This makes it easy to set aside areas where we store differently sized boxes or racks, and have Freezerworks correctly reflect the structure and contents in these areas.

The label making function is also one I use regularly, and the flexibility in programming and formatting the labels is nice (albeit somewhat difficult to learn). Queries and sub-queries are easy, and when exporting this data it's a snap to select any of the elements of the sample records, and to specify the delimiting of the output file.

Customization

I also chose to have Dataworks Development custom program some additional features suited to our particular needs. We get large shipments of samples – hundreds at a time - and we can now easily batch import sample records directly from spreadsheet manifests. Freezerworks is very flexible in allowing us to specify which data fields to extract from the manifests. Freezerworks finds the fields by names defined in “import maps”, ignoring extra fields, and order is not important. We can set up as many import maps as necessary to accommodate our many collaborators, each of whom may use slightly different nomenclature for the same record field. This turned out to be a real convenience. Some data integrity checks and even automatic filtering and recoding of the information in some record fields happens automatically during import. This makes us happy! Dataworks Development also set up a sample check out process that allows us to select entire boxes of samples by box number, or to query for specific subsets, and sample transfer documentation is automatically generated. Bringing these samples back into the inventory after they have been tested is easy, and Freezerworks can log how much sample volume was removed. During design of these custom features, the experience of the Dataworks Development programmer in laboratory sample management made them a creative participant and in my opinion greatly simplified the process, and yielded a very satisfactory result.

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