



Olivia Newton-John
Cancer Research Institute

FreezerPro Customer Case Study

Source - Mark Frewin, Laboratory and Facilities Manager, Olivia Newton-John Cancer Research Institute



Background

The Olivia Newton John Cancer Research Institute (ONJCRI) in Victoria, Australia is uniquely positioned within a hospital, the ONJ Cancer and Wellness Centre. It is the oncology centre under the greater umbrella of the Austin Hospital (Austin Health) in Heidelberg, Victoria. Cancer patients are primarily Australian and the institute is able to focus on a broad spectrum of cancer types. Laboratories are directly opposite patient wards, so that researchers can see the impact their research is making directly and accelerate learning between the bench and the bedside.

The mission of the ONJCRI is to discover and develop breakthrough cancer therapies to provide the best health outcomes for patients. The 7 core research programs are investigating and developing treatments for a broad spectrum of cancer types including breast, bowel, liver, lung, melanoma, gastrointestinal and brain cancer.

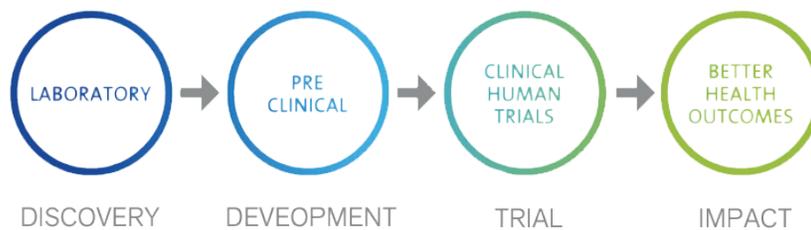
Emerging discoveries from the laboratory are made available through trials for the benefit of cancer patients with institute investigators overseeing 60-70 clinical trials at any one time. Observations from the clinic are then investigated by their research team, thereby creating a continual cycle of learning and improvement between scientific research and care. This approach ensures the rapid translation of scientific discovery to breakthrough therapies.

The ONJCRI is integrated within the ONJ Cancer and Wellness centre for excellent translational research. Researchers and Clinicians are able to work together with patients towards the development of immunotherapies, targeted therapeutics and personalized cancer medicine. Researchers at the ONJ Wellness & Research Centre are committed to making scientific discoveries that benefit patients living with cancer.

Regulatory Influences

Compliance and regulatory requirements within Australia are very similar to most countries in regards to collection of patient samples for research purposes. However, there is an added complexity since each individual Australian state and territory has their own Human Tissue Act which must also be complied with, although in theory they are all closely aligned.

All of The ONJCRI's clinical trials are covered by the Therapeutic Goods Administration (TGA) and by a number of human ethical approvals set by the funding agency National Health & Medical Research Council (NHMRC). The ONJCRI has its own hospital human research ethics committee.



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FreezerPro at ONJCRI

FreezerPro® is a biological sample management inventory system with over 800 installations globally. It provides laboratories with a secure web based application for managing samples. FreezerPro is an intuitive, fast, reliable and secure solution which enables users to know precisely where a laboratory sample is located even before opening the freezer door.

The ONJCRI has implemented an on-premise installation of FreezerPro which suits this single site organization. Cloud technologies, particularly for services, are actively used by the institute where there is a significant cost/scale/feature benefit, but only minimal amounts of research data is exposed to the cloud due to regulatory, IP and privacy exposure concerns. The main driver behind The ONJCRI's decision to implement FreezerPro was that they needed a solution that was user friendly, highly secure and was customizable to the needs of each individual laboratory groups different sample types.

Samples and Storage Facilities

At The ONJCRI there is a liquid nitrogen facility that houses five large vapour phase tanks, each with a capacity to hold around 41,600 samples, giving a total capacity of over 200,000 samples. This space is shared by the Institute's 9 different laboratory groups and managed by a Cell Banking Support Group under the direction of The Laboratory and Facilities Manager. Samples stored include clinical samples from consenting donors (e.g. tissue, peripheral blood cells, cell digests), continuous cancer cell lines and their derivatives, and antibody producing cell lines / hybridomas for medical research. All the samples are stored in the same building, however, master banks are stored in a separate location from working banks.

Researchers have been collecting clinical samples and cell lines for over ten years. Their research encompasses many different research programs across a wide range of cancer types and they are involved in many clinical trials. Better management of clinical and research samples was required as sample collections increased. A Cell Banking support group was created.

FreezerPro Deployment at the ONJCRI

As the software runs as a self-contained virtual machine, the time taken to install and activate FreezerPro was minimal. The majority of the effort was in configuration of the data schema to ensure the required information was captured using a suitable workflow. This configuration occurred over a number of weeks, particularly as a number of iterations were required. The final phase of the implementation involved the importing of data from old repositories, which had been using spreadsheets. This process required a significant investment in time and effort to cleanse then reformat the data.

What processes do you manage using the software?

From an IT Perspective: As a self-contained unit the software requires minimal intervention apart from regular automated backups, scheduled software updates.

From an Operational Perspective: "Administration" tasks are overseen by The ONJCRI Cell Bank Co-ordinator. Tasks includes assigning new users to appropriate security groups for access permissions, creation of new sample sources, periodic audits of space and information, helping with "global" searching across all lab groups and the setting up of new freezers with appropriate, levels, boxes and access permissions when required.

The role of Cell Bank at The ONJCRI is to quarantine and quality test all new non-clinical samples / cell lines, then create master and working banks. Cell Bank manages stock level alerts, accurate input of information of new / quarantined samples to be stored and copying information for creation of sample derivatives to create new banks.

Laboratory group users are responsible for their own accurate: input of information of any samples to be stored and, the creation of barcoded labels for samples before freezing; movement of information to appropriate location upon storage in liquid nitrogen space, searching for frozen samples within their lab group and deleting information upon removal of frozen samples from storage to maintain their records correctly.

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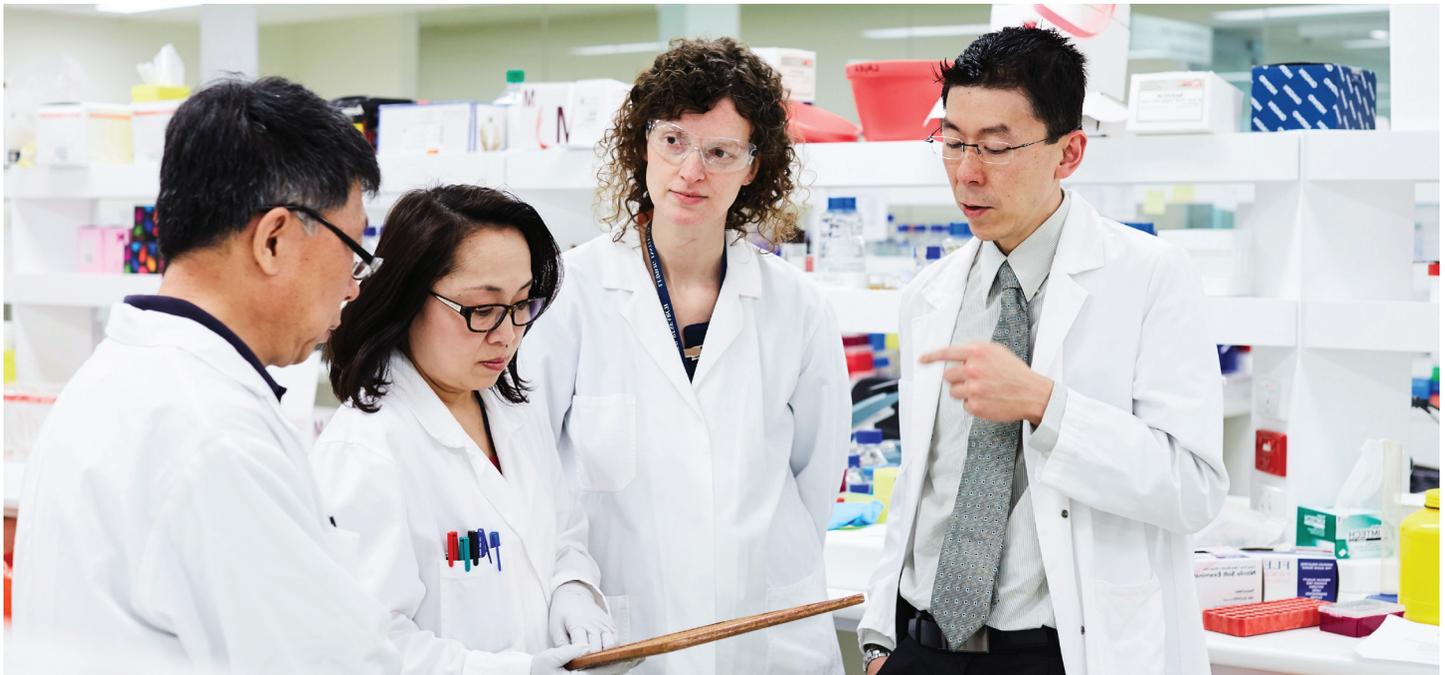
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Benefits of FreezerPro implementation

Overall, the deployment of FreezerPro has resulted in a better biobanking quality system. These standards have been implemented and applied to all the samples stored. Standardized processes have been implemented across the creation of master and working banks, mycoplasma testing and including the introduction of authentication by STR profiling.

A move from many small liquid tanks to fewer larger vapour phase tanks has improved safe handling whilst retrieving vials without loss of sample traceability.

Standardization of consumables such as freezer boxes and cryovials in use and an infallible barcoded labelling system were also implemented for safer, easily identifiable storage over the long term that samples will be held by the ONJCRI.

Tangible benefits that have been observed since the implementation at ONJCRI

- Greater accuracy in inventory records has been achieved. There is improved ability to audit and manage available space.
- Greatly improved ability to record, link together and trace information available for each sample and its source.
- Greater capacity to search out and share quality resources institute wide saving time and money.
- Greatly improved ability to control stock levels and ensure no resource is lost with the ability to set alerts on minimum levels.

"FreezerPro was implemented to move from inaccurate inaccessible individual paper trails to one accurate accessible database institute wide."

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Features

| Features | Basic | Standard | Enterprise | Elite |
|---|-------|----------|------------|-------|
| Truly web based - install once, access from anywhere | ✓ | ✓ | ✓ | ✓ |
| Complete sample management | ✓ | ✓ | ✓ | ✓ |
| Track sample in and out of freezers | ✓ | ✓ | ✓ | ✓ |
| Icon based display of box contents | ✓ | ✓ | ✓ | ✓ |
| Sample inventory alerts | ✓ | ✓ | ✓ | ✓ |
| Easy to follow workflow | ✓ | ✓ | ✓ | ✓ |
| Virtual freezers | ✓ | ✓ | ✓ | ✓ |
| Reporting and data export/import - HTML, CSV, PDF, TXT formats | ✓ | ✓ | ✓ | ✓ |
| Live search, instant search by word or part of the keyword | ✓ | ✓ | ✓ | ✓ |
| Smart search | ✓ | ✓ | ✓ | ✓ |
| Live Query builder and smart folders | ✓ | ✓ | ✓ | ✓ |
| Full audit trails | ✓ | ✓ | ✓ | ✓ |
| Mobile devices support | ✓ | ✓ | ✓ | ✓ |
| Multi-language support | | ✓ | ✓ | ✓ |
| Comprehensive barcode label and RFID tag designer | | ✓ | ✓ | ✓ |
| 2D barcode plate scanners support (FluidX, Visionmate, Biosero, Ziath) | | ✓ | ✓ | ✓ |
| Support for sample sources | | ✓ | ✓ | ✓ |
| Support for sample groups | | ✓ | ✓ | ✓ |
| Support for pick lists | | ✓ | ✓ | ✓ |
| Report templates (visual report builder) | | ✓ | ✓ | ✓ |
| Support for freezer sensors | | | ✓ | ✓ |
| Permission based access restriction to sample locations and information | | | ✓ | ✓ |
| Available shipping module | | | ✓ | ✓ |
| Available workflow module | | | ✓ | ✓ |
| Available RFID kit module | | | ✓ | ✓ |
| GLP mode for strict operations | | | ✓ | ✓ |
| Support for custom vials identifiers | | | ✓ | ✓ |
| SSL data encryption | | | ✓ | ✓ |
| HIPAA compliance | | | ✓ | ✓ |
| User authentication via active directory domain services (LDAP) | | | ✓ | ✓ |
| Customer PostgreSQL, MYSQL, Microsoft SQL, Oracle Database support | | | ✓ | ✓ |
| Application programming interface (API) | | | ✓ | ✓ |
| Hyper-V support on Microsoft Windows Server | | | ✓ | ✓ |
| Advanced workflow management | | | | ✓ |
| Shipping module included | | | | ✓ |
| Email tied communications and alerts | | | | ✓ |
| Clinical data management | | | | ✓ |
| Advanced reporting suite | | | | ✓ |
| Configurable charting and graphing | | | | ✓ |

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