

# The Labstep Guide to Implementing a Lab Inventory Management System (LIMS)

## Implementing an inventory system – where to start?

Lab inventory management is a crucial, but mundane task in every lab that is often neglected. However tedious, particularly when it's shared, a well-managed lab inventory can be very helpful in keeping costs low, saving time in the long-run and allowing scientists to work in an efficient and productive team environment. Many labs still run their inventory tracking on paper, or spreadsheets. While manageable for an individual, it is near impossible to properly track the stock levels or material location when sharing inventory with a team. Often, this results in unpleasant surprises when stock has unknowingly run out, or worse, loss of expensive reagents, antibodies, cell lines etc. To overcome such pain points, designated web-based lab inventory management systems can help laboratories manage their shared inventory in a productive and cost-effective manner. The advantages of such digital systems over using paper are abound: you can gain control and keep track of everything in a single place, manage your stock levels and new orders, create alerts when stock runs low and easily track inventory locations. All this information can be seamlessly shared with all lab members, so everyone is up to date.

## The role of the lab manager

Often, the lab manager is in charge of implementing an inventory management system. As a lab manager, it is imperative that you use an intuitive and straightforward inventory system that can be quickly adopted and is easy to use for all team members, motivating lab members to use the system on a daily basis. So, before moving your consumables and chemical and biological assets (plasmids, DNA samples, cell lines, antibodies, etc.) inventory to a lab inventory management system, it is important to take the time and think about the best way to do this properly, keeping in mind the needs of all those involved. In order to help you, we have crafted a list of 6 tips to get you started.

### 1. Create a stock list & define your categories

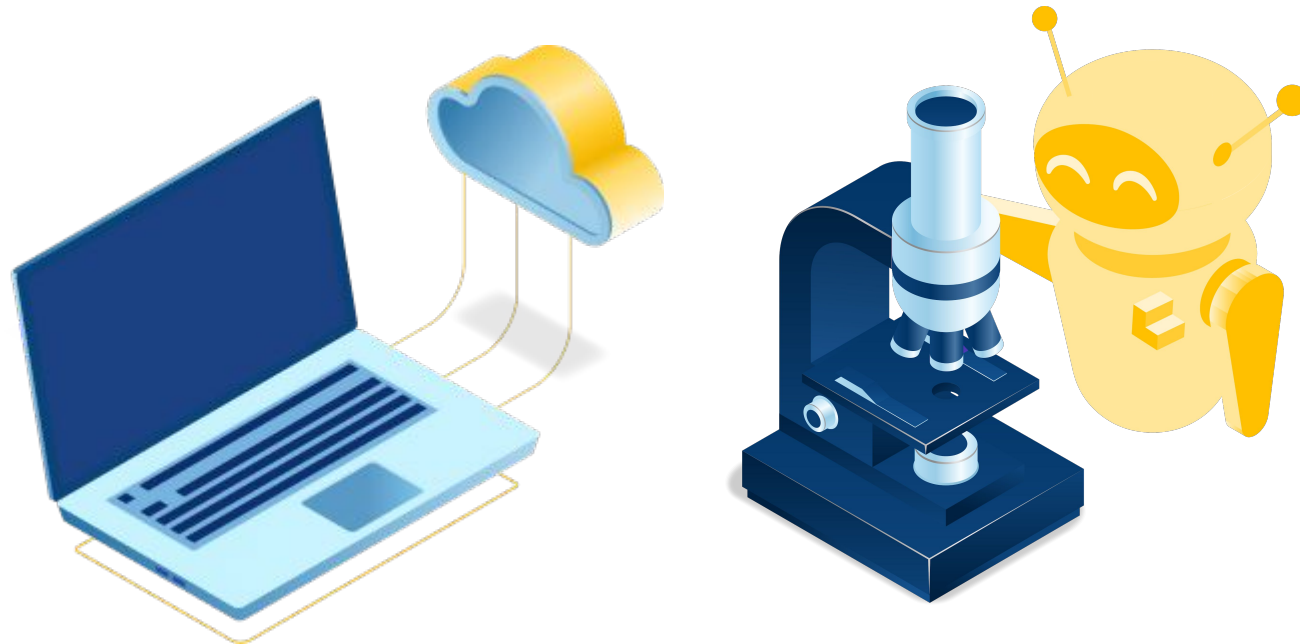
Start by creating a comprehensive list of all the stock you hold in your lab, listing the abstract resources you hold and how many physical items you have in stock. Once you have a list, divide your inventory into categories. These can be chemicals, reagents, antibodies, cell lines, plasmids, compounds, bacteria, samples, model organisms and even more distinctive categories which are unique to your type of research. We recommend managing your consumables (solutions, gloves, pipettes, tubes, etc.) in a separate 'Consumables' category.

### 2. Choose the relevant metadata field for your categories

When defining a new category, descriptive metadata fields have to be considered for the category. For example, when adding a new antibody, you may want to know its source, clonality, and application. When adding a new chemical compound, important information such as hazards, formula, and density, should be defined. Take the time to define the relevant stock item type as well: item type can be a tube, bottle, vial, flask, kit etc, that contain your inventory item.



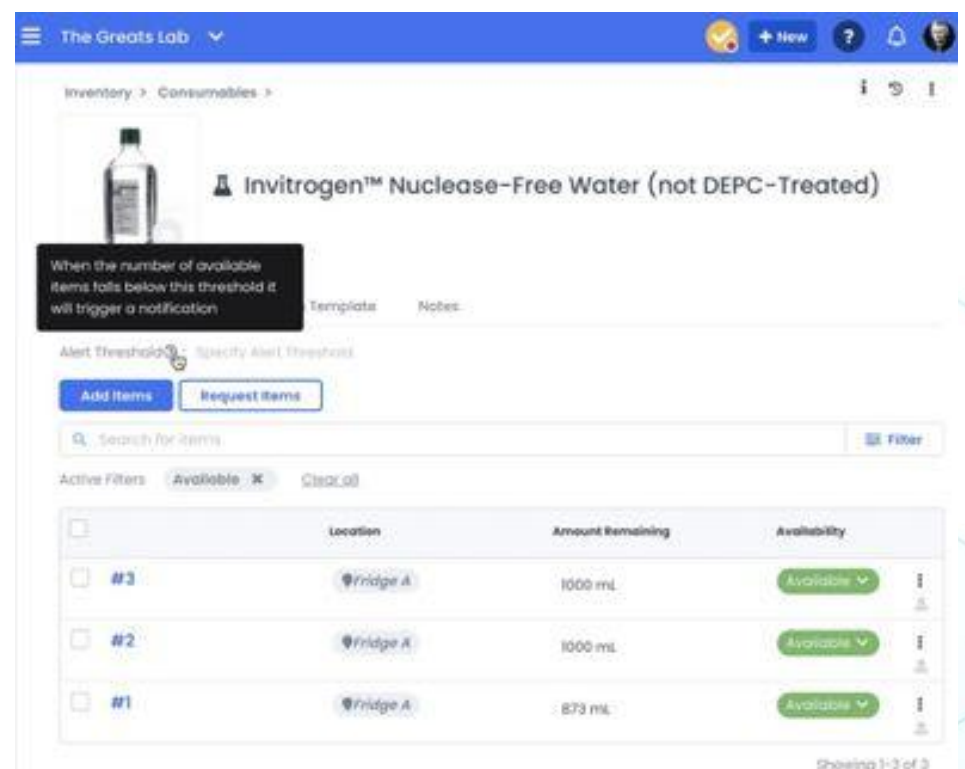
For instance, when listing items, specifics such as concentration, volume, expiration date, and location should be added to the items. Determining the descriptive fields in advance will help you populate your inventory management system in the most effective way possible. NB: When characterising a category, assess if it should be linked to one of your other categories. Here's why. Oftentimes, two inventory categories have a parent-child relationship. It can be a plasmid harboring a gene, tissues harvested from patients or animal specimens, cell lines created from transfected/infection of a plasmid and more. Defining parent-child categories can make it much easier to track down specific items and document associated information down the line.



### 3. Define storage space & locations

Once you have a list of all your lab items, you need to decide where they are physically located in the lab. Keeping track of where your items are stored is crucial. Too often, expensive resources are lost in boxes, buried beneath layers of ice or pushed to the back of the shelf and you end up buying again what you already have. To start, make a list of all the storage locations that exist in your lab. Count all the rooms, cabinets, freezers, racks, and cold rooms and add them as storage locations to your inventory management system. Don't be afraid to be thorough with this. We recommend recording sublocations, such as freezer 1 - third shelf, or cold room - top shelf - right. It is also important to take stock of all the boxes that are stored in your lab.

Define the exact location of each box, box owner, and even its colour. In case you already have a documented list of locations in Word or Excel, look for a digital inventory system that will enable you to easily import your locations and save precious time. Once you have defined all your storage locations, it will be much easier to populate your inventory management system with inventory items and add the right location information as you go. A final note on standardisation: if you want to maintain a sustainable inventory system as a unified team, ensure that all team members are working with the same, fixed list of locations. This way you avoid colleagues polluting your system with additional or duplicate locations, which can cause confusion and lead to lost or unaccounted for items.

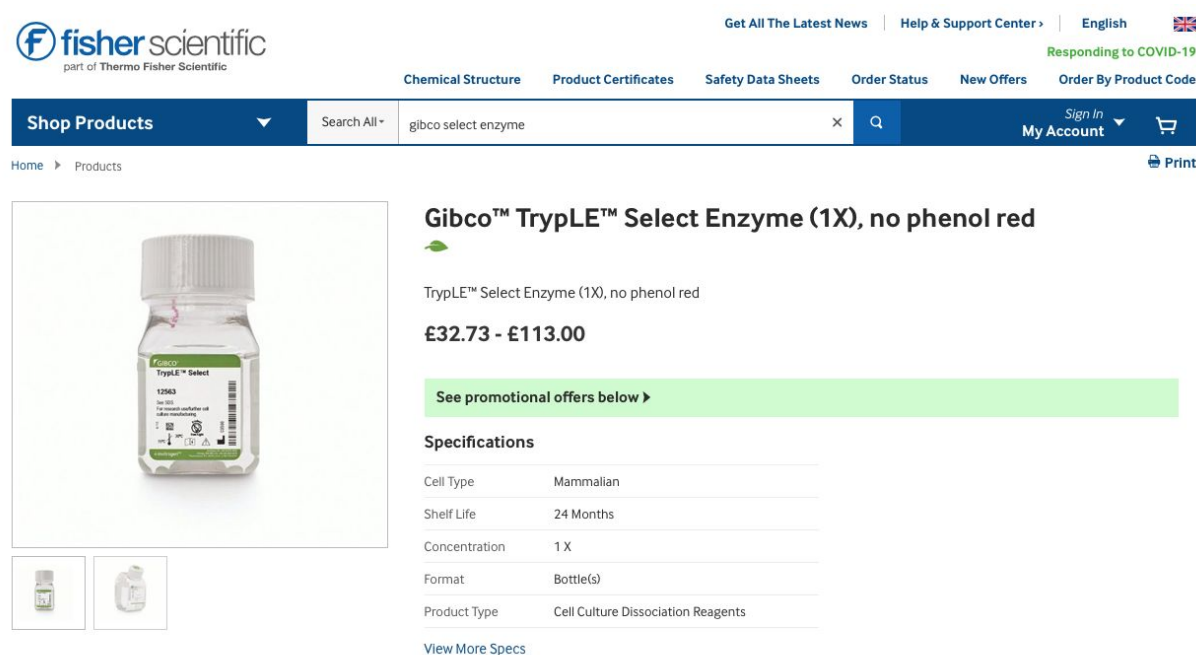


## 4. Label Everything

Organising your materials is a good start but you're not done. To complement your digital system, it is vital to label your physical items accordingly to avoid misunderstandings and loss of materials or improper use. Especially when it comes to sample or product management, it is good practise to use an inventory system that generates and prints unique barcodes or even better, QR codes. QR codes allow you to skip the extra effort and costs of purchasing barcode scanners and allow you to use the cameras on every-day mobile devices.

## 5. Populating your inventory system

Before you start populating your system, make sure you have properly defined the correct descriptive metadata fields of your inventory items, including storage location. Having an organised list of your inventory and storage locations will help you seamlessly transfer this to your digital lab inventory management system. Next, take the time and learn how to use the import tools that your inventory management system offers. A good inventory system should accept any Excel or CSV file and instantly populate your accounts. Don't be shy and ask the support team for guidance. It is important to clearly understand how the system works and to find an easy and intuitive import method that will satisfy your needs.



The screenshot shows the Fisher Scientific website interface. At the top, there is a navigation bar with links for 'Get All The Latest News', 'Help & Support Center', and 'English'. Below this is a search bar containing 'gibco select enzyme'. The main content area displays the product 'Gibco™ TrypLE™ Select Enzyme (1X), no phenol red' with a price range of £32.73 - £113.00. A green banner below the price says 'See promotional offers below'. Underneath, there is a 'Specifications' table:

Specifications	
Cell Type	Mammalian
Shelf Life	24 Months
Concentration	1 X
Format	Bottle(s)
Product Type	Cell Culture Dissociation Reagents

Below the table is a 'View More Specs' link. The product image shows a small glass vial with a white cap and a label.

Additional to private file import, being able to directly import products from vendor websites into your inventory is the easiest way to quickly and comprehensively build and manage your consumables, reagents and other materials ordered from suppliers. The Labstep Chrome extension is a custom-built software unique to Labstep that provides a direct link between your inventory system and your favourite vendor websites. The plugin enables you to add products directly from suppliers to your inventory system, including all relevant product information such as catalogue number, price and other metadata such as molarity, concentration and hazard information. The Chrome Extension instantly allows you to create order requests for products that need to be (re)ordered for your lab and integrates seamlessly with the Order Management system on Labstep. For more information, go to <https://help.labstep.com/en/articles/4618725-using-the-google-chrome-extension>.

## 6. Set ground rules for keeping your inventory organised

Once you have imported and organised your digital inventory management system and all information is in the right place, it is crucial to set ground rules for your team on how to use the system. This is important to make sure your initial effort will not go to waste and to keep your inventory organised, well documented and unified across your team. For example: All items which were consumed and thrown away should be deleted from the lab account. Moving an inventory item from one storage location to the other must be updated in the system immediately. New storage locations, including boxes, should be added to the system. Inventory items that arrive at the lab, should be recorded as received immediately and added to the stock.







Storage location must be assigned and updated. New lab members should be taught and continuously guided to update the system in the proper way.

## Conclusion

Regardless of the size of your lab, or the type of inventory stocks you maintain, a well-organised and sustainable inventory management system can always be implemented and should be easy to maintain. Once you complete the above steps and get your inventory system in place, you will find rapid increase in team efficiency and reduction in costs within a short window of time.

## About labstep

Labstep is a provider of scientific data management software for R&D organisations across industries (Biotech, Pharma, biology, Chemicals, Agriculture etc) who need to manage, capture, share and use data effectively. The Labstep platform is an end to end flexible research environment that connects your notebook, inventory, applications and data in one collaborative workspace.

To learn more about Labstep's lab inventory management module, get in touch with us at [enterprise@labstep.com](mailto:enterprise@labstep.com). Contact us for more information or book a demo today.

