# The Economics of Research Compounds

*a report by*
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During these times of economic downturns and uncertainty, biotechnology and pharmaceutical companies must make some tough budgetary decisions. The area of research compound handling and storage needs serious consideration.

Research companies often hold archives of research samples and synthetic procedures dating back decades. For established companies, inventories can be very large, containing hundreds of thousands of research samples. Granted, research samples imply that the amounts maintained are small, but expenses in this endeavour can be quite steep.

In order to reduce costs, companies need to consider the following measures.

## Outsourcing

Companies should consider reducing costs while still maintaining control and high standards in compound processing. When companies merge, or one organisation buys out another, research compounds often have to be relocated and combined. Also, building new compound repositories requires moving all the samples. For a smooth transition, it is necessary to achieve the smallest possible amount of downtime.

The tasks of physically moving, organising and preparing research samples in formats ready to use may be handled most economically by being outsourced. The time taken by internal staff to reorganise the samples may take several months to a year.

Outsourcing this task can reduce the time and thereby reduce the cost. It keeps the internal staff available to continue their present activities in an undisruptive manner.

Factors to consider when outsourcing are the following:

- the history of the proposed company;
- the technical level of the staff to be working with the samples;
- references from companies where past projects were completed;
- details about specific procedures; and
- a tour of the facility that will be used if the project is being conducted at the contractor's site.

The company to conduct the compound handling should be asked to supply detailed procedures as to the following:

- maintenance of the robotic instruments;
- variance or tolerance of the robotic instruments;
- policy on either the use of new pipette tips for each transfer or the procedure and data regarding contamination for reusing rinsed pipette tips; and
- tracking of all procedures so that mistakes cannot be made when transferring samples from one vial to another.

Although each compound handling activity in itself appears quite simple, there are numerous places where mistakes can occur in a complex series of transfers. Computer software that tracks each movement and does not allow for compounds to be placed into untared bottles or for samples to be placed in the wrong bottle is necessary for these tasks.

Research compounds are an irreplaceable resource. The true value of each sample includes the starting chemicals, the salary of the organic synthetic chemists, overheads and analytical techniques used to confirm the chemical structure. Therefore, the lowest quote for compound handling projects may be jeopardising the integrity of a very valuable resource.

Decisions about compound-handling projects should be made in a timely manner. This compound archive only has value if it is usable. New technologies require much less sample, since assays are conducted in 96-well or 384-well microtiter plates. Companies are losing opportunities and time

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if unusable compounds are literally taking up space and cannot perform.

### Know What You Have

Often, established companies have stored a variety of sizes of bottles containing long-forgotten compounds that should be inventoried and checked for quality and have their structures confirmed. Companies may be investing in synthesising and ordering compounds already stored in a back corner. The compounds, when characterised, may yield a material of unimagined value. With the continuing identification of new molecular targets, these dormant compounds can be screened in new assays.

### Centralise Compound Storage

With the merging of large pharmaceutical companies and the purchasing of smaller biotechnology companies by established research organisations, inventories of research compounds are now located in various sites. The expense and logistics of maintaining more than one research compound repository should be calculated and compared with the cost of having one centralised research compound repository. The contract organisations that conduct this service should be evaluated and outsourcing costs should again be compared with internal overhead costs.

### Backup of Resources

Routinely, data are backed up, correspondence files are backed up and companies even cross-train employees to be able to conduct other employee's task. Few companies have a backup for research compounds. As many as 50, 60 or more years of synthesis may have gone into the compilation of these research samples. If these resources are destroyed or damaged, they may never be able to be assembled again. The cost and time of synthesising the compounds would be prohibitive. Therefore, the care and insurance of these assets are essential.

### Questions that Need to Be Asked

- Are the research samples covered at a reasonable value?
- Are the compounds stored in a secure place?
- Is there a backup set of research compounds?

Insurance premiums have in many instances doubled. Some companies are maintaining costs by under-insuring property and inventory, or self-insuring the assets. Both of these options are based on the probability of not having to file a claim in the future. Research compounds are irreplaceable.

### Summary

In these times of mergers of pharmaceutical and biotechnology research companies, strategic decision making to reduce operating costs and to make the best use of resources needs careful and long term consideration.

As stated above, outsourcing compound handling, maintaining complete and updated inventories of research compounds, centralising the compound repository and having a backup set of these irreplaceable resources are all measures that should be taken under serious consideration. ■

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