

Flexible Labs - Accelerating & Enabling the new Bio-Economy

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With a mission to accelerate innovative bio-technologies to the market, IndieBio created an environment to stimulate scientific collaboration, enhance business outcomes and incubate revolutionary ideas aimed at addressing problems of scale. In this article, we will discuss how IndieBio's unique business model and approach to accelerating scientific development drove the creation of a flexible and robust laboratory design in their San Francisco, CA headquarters.

IndieBio is a venture backed synthetic biology accelerator focused on discovering and accelerating new technologies to the market. 'Classes' of bio-tech start-ups are selected from a pool of applications received from all corners of the globe every 6 months. Each class of up to fifteen (15) start-ups is supported by a monetary infusion of two-hundred fifty thousand dollars, \$250K, in exchange for an equity stake, laboratory work space, office space and access to veterans of the biotech and business communities in the Bay Area.

When IndieBio sought space to setup shop in San Francisco's red hot real estate market – their search led them to sign a lease in the South-of-Market (SOMA) area of the city. The 15,000 square foot space contains two levels including the ground floor and basement. IndieBio's desire to locate the laboratory space in the basement was both strategic and challenging. RMW's design team worked closely with IndieBio to plan and design a robust, efficient and modular lab environment to support the company's goals.

The laboratories house a wide range of research including tissue culture, molecular biology and chemistry. The design solution created an open wet laboratory environment in a glass enclosed room adjacent to a smaller Bio-Safety Level 2 (BSL-2) lab for cell culture research. A hardware and electronics lab is tucked into an open area adjacent to the BSL-2 lab. The total footprint of the laboratory space is approximately 2,000 square feet. An open office plan adjacent to the labs with collaboration and break room nearby completes the space.

Laboratories contain shared equipment including ultra-low temperature freezers, centrifuges, a ductless fumehood, biosafety cabinets, incubators, sequencers and a small benchtop autoclave. With benchtop space at a premium, each lab user receives 4 lineal feet of benchtop space in addition to access to shared equipment. Start-ups entering IndieBio's accelerator program are required to develop a scientific plan *before* they arrive to ensure unique requirements, equipment or processes can be incorporated into their workflow. Start-ups are to be operational day-one in the laboratory. Commonly used reagents and chemicals are stocked in the lab to optimize uptime.

With limitations in space at IndieBio, it was imperative to understand and define what services would not be provided onsite. Work with radioactive isotopes, optical/laser labs, high-powered microscopy and animal work would be outsourced as required. Unique work that has been accommodated onsite include greenhouses using grow lights to develop plant based protein sweeteners, development of meat protein cells for animal-free meat, creation of synthetic human skin for cosmetics testing and development of human breast milk proteins for infant formula to name a few.

To support a wide range of scientific work, infrastructure is carefully managed with electrical circuits inventoried for a clear understanding of what equipment can be accommodated in the labs. 24/7 environmental monitoring of the laboratory is provided via wireless sensors sending a stream of data points to the cloud. Variances beyond normal operating parameters in equipment or environmental conditions result in alerts to IndieBio staff.

IndieBio's business approach to ensuring successful utilization of the lab by each of its startups is to engender every lab user with a sense of responsibility, trust and investment in mutual success. This form of social engineering fosters a strong sense of community and collaboration between companies that may have highly divergent products or technologies in development.

With its fourth class of companies, IndieBio continues to build on its history of launching revolutionary technologies and products into the market place. Over 70% of IndieBio startups have secured some additional funding from investors. The IndieBio laboratories continue to evolve to accommodate each company's unique business model to deeply impact the food science, material science, bio-informatics and the medical device industries.



Caption: View of the labs and offices at IndieBio. Credit: Gregory Cortez.



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