

Livermore Valley Institute for Translational Biomedicine

FASTER, MORE INTELLIGENT LIFE SCIENCES FROM CONCEPT TO PRODUCT

BRINGING NEW HEALTHCARE TECHNOLOGIES TO MARKET is challenging and enormously expensive. An emerging public–private partnership promises to dramatically reduce the time and save millions of dollars during the concept-to-product timeline.

The Livermore Valley Institute for Translational Biomedicine (LVITB), sponsored by Lawrence Livermore and Sandia National Laboratories, brings together public and private entities to accelerate and improve the success rate for the development of new pharmaceuticals, medical devices, and biosecurity technologies.

Specifically, we aim to shave years off the time required to deploy new drugs and medical devices utilizing unique capabilities and expertise at the two National Laboratories. We have already demonstrated the ability to save up to two years for development of a drug candidate.

Our vision is for LVITB to be the embodiment of a public–private partnership. LVITB leverages long-term government investments in basic and applied research at Lawrence Livermore and Sandia to synergize with expertise and resources in government, universities, pharmaceutical companies, medical device firms, design engineers, legal and financial companies, biosecurity firms, public health organizations, foundations, entrepreneurs, and the investment and venture community.

In the LVITB innovation ecosystem, partners will share expertise, laboratory and office space, and core resources to spur opportunities for collaboration and the formation of new companies. LVITB resources can bridge the “valley of death” for new technologies and substantially reduce risk. LVITB partners gain a foothold in the growing Tri-Valley technology hub with access to entrepreneurs and investors, grants specialists, clinical trials, and regulatory know-how.

Lawrence Livermore and Sandia have been using multidisciplinary teams to solve pressing national problems for decades. The laboratories offer partners access to resources such as:

- A world-class high-performance computing capability that is routinely applied to computational biology, bioinformatics, computational chemistry, and other research challenges.
- An NIH National Resource for Biomedical Accelerator Mass Spectrometry for the study of pharmacokinetics and toxicity.
- An ability to study unique indigenous and exotic pathogens.
- Biophotonics expertise for monitoring drug efficacy and developing components for image-guided diagnostics and surgical systems.

- Engineering design and prototyping at micro- and nano-fabrication facilities with Class 10-1000 clean rooms.

Development and application of microfluidics platforms to rapidly and automatically prepare and analyze biological and clinical samples at the molecular and cellular level for biomarker discovery and medical diagnostics applications.

A sampling of biotechnologies that the laboratories have successfully commercialized includes:

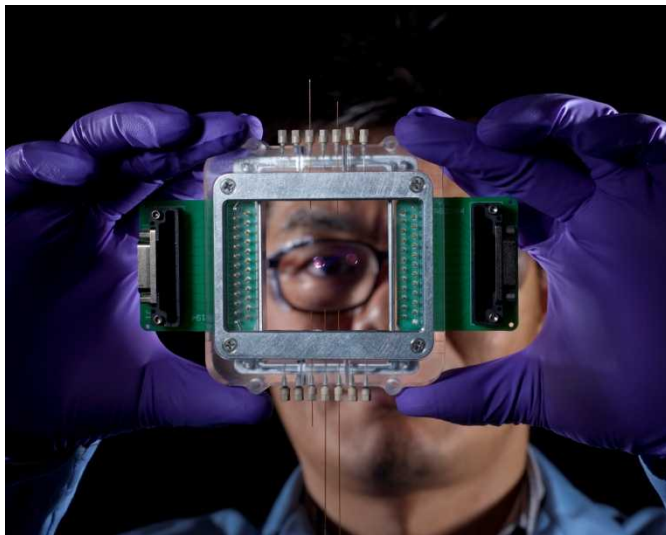
- Microbial detection array technology for fast identification of disease-causing agents to be used by food safety professionals, law enforcement, and medical professionals (Being considered for commercialization).

Medical diagnostics platforms for sensitive and rapid detection of cancer biomarkers and other applications (Being considered for commercialization)

- Chamber technology to rapidly perform a broad range of genetic tests, from identifying infectious organisms to evaluating at-risk populations for the early detection of disease (Cepheid of Sunnyvale, CA).

Design and manufacture of lab equipment for automated sample preparation and analysis (LabSmith, Livermore, CA).

- A compact proton accelerator to revolutionize therapy for cancer treatment (Compact Particle Acceleration Corporation of Livermore, CA).
- Fluid partitioning technology for digital PCR (QuantaLife of Pleasanton, CA, and RainDance Technologies of Lexington, MA).
- Microfluidics technology for use in chemical analysis, biotechnology, proteomics, drug discovery, MEMS, and microelectronics (Eksigent Technologies of Dublin, CA).



LVITB researchers have developed microfluidic platforms to rapidly and sensitively detect molecular and cellular signatures of disease in complex clinical samples.

Look to LVITB to:

- Enable the acceleration of commercializable technologies to the pharmaceutical, medical device, and biosecurity marketplaces.
- Be the premier innovation destination for public–private sector partnerships in translational biomedicine.
- Lead the growth of the next generation of entrepreneurial bioscientists and bioengineers.

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