The Venture Forum – December 2013 Meeting Summary

Personalized Medicine

December's TVF meeting focused on the evolving pharmaceutical industry and the growth of custom-tailored therapies for patients. Sean Mackay, CEO of Immunotherapy start-up IsoPlexis, was the featured case presenter, outlining his company's novel approach to immunotherapy and drug development.

Mackay described his company's effort to provide drug developers with better, more accurate, scalable tools designed to help them develop more effective therapies by monitoring how patients react to a specific drug or combination of drugs. Isoplexis plans to do this by producing a relatively low-cost prototype biochip and software suite that will provide single cell resolution for a wide range of proteins, enabling the discovery of novel biomarkers and accurately test molecules for clinical activity.

Founded in 2012, IsoPlexis is a Yale University start-up supported by the Yale Entrepreneurial Institute and Office of Cooperative Research. The company is looking to raise approximately $1 million in seed money for its development program managed by IsoPlexis's chief technology advisor and Yale researcher, Dr. Rong Fan.

After his presentation, Mackay took questions and advice from a panel of experts that included investor and Synergy Partners principal Emily Levy; Office of Technology Management UMass Medical School executive director James P. McNamara; and medical device and diagnostics development consultant Gail Radcliffe, principal of Radcliffe Consulting.

The keynote address was given by Michael Drues, president of medical and bioscience consulting firm Vascular Sciences. Drues, a vocal advocate of pharmacogenomics – also known as "personalized medicine " – provided insights into the current state of drug development and manufacturing and the creation of personalized therapies based on a patient's individual genome.

Drues sees a sea-change coming in how therapies are developed and delivered, predicting the demise of mass-processed, "one-size-fits-all" pharmaceuticals. He believes mass production will be replaced by highly-specialized, custom-tailored drugs that could be created on-the-spot for patients – perhaps even through vending-type machines -- based on their genetic make-up and profile.

To facilitate the diversity, speed, and cost-efficiency of this pharmaceutical business model, Drues also predicts the rise of sophisticated, low-cost, synthetic molecules that will be the basis for all drug manufacturing. By producing custom-tailored synthetic molecules designed to provide specific results, pharmaceutical development time and cost will be dramatically reduced compared to what he called today's inefficient and costly "going to the rainforest" methodology.

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