



Cornell Medical Debuts ‘Startup Boot Camp’ To Educate, Motivate Would-Be Entrepreneurs

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As part of Cornell University’s recent effort to promote a more entrepreneurial culture among its faculty and students, and encourage them to consider launching companies around their innovations, the Weill Cornell Medical College last week held a day-long “Startup Boot Camp” event on its campus in New York.

The seminar, the first of its kind for Weill Cornell, was designed to allow researchers affiliated with the school to pick the brains of individuals with experience in creating university startups, including university-affiliated entrepreneurs who have experience founding and running startup companies, intellectual property lawyers, venture capitalists, and government officials.

Approximately 50 people – mostly Cornell University faculty members, according to conference organizers – took part in the event, which Weill Cornell offered free of charge. The event also attracted some graduate students, aspiring entrepreneurs affiliated with other academic institutions, and investors, mostly from the greater metropolitan New York area.

The boot camp followed a similar event held earlier this year at Cornell University’s main campus in Ithaca, NY. Like that event, the Weill Cornell boot camp was intended to provide an entry-level educational event for university inventors considering commercializing their inventions.

“We are trying to do this on both campuses because both have lacked an entrepreneurial culture in the past,” Alan Paa, vice provost and executive director for technology transfer and economic development at the Cornell Center for Technology Enterprise and Commercialization, told *BTW* at the event.

“Just the fact that we are holding this event is a sign that we are committed” to the idea of fostering entrepreneurialism at Cornell, Paa said.

Cornell has a particularly daunting task in creating startup companies due in part to the fact that its medical school in New York is located a few hundred miles away from its main campus in upstate New York. Neither area is particularly rich in venture capital or office space.

Paa, who was previously assistant vice chancellor for technology transfer and intellectual property services at the University of California, San Diego, told *BTW* that UCSD sponsored similar events while he worked there, but that the need for such events was generally not as strong because of a well-established entrepreneurial environment in the San Diego area.

The Weill Cornell seminar was divided into three distinct discussion panels — diagnostics, biomedical devices, and therapeutics — in which panel members shared their startup experiences, mostly in a question-and-answer format.

One of the first questions to be asked, during the diagnostics panel, was what traits or features potential investor might scrutinize in a diagnostic technology.

Richard Johnson, a venture partner with Texas-based seed and early-stage venture capital fund Draper Fisher Jurvetson Mercury, said that investors have their own questions about a potential technology, such as “Can you get it through the FDA?” and “Is there a well-defined market?”

“You must get the people you want to invest to be excited about your technology,” Johnson said. A common mistake inventors make is assigning an overly broad market potential to their invention or thinking that it will end up being a standard of care, “which is really hard to do,” Johnson said.

“There is a lot of value in talking with physicians and researchers to get a good idea of how often they would use your invention or product,” Johnson offered. “It’s also important to have some sort of seed money, or to show that you’ve put something in yourself or from friends or family.”

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The next point of discussion, offered by moderator Bruce Toman, a technology commercialization and liaison officer at CCTEC, was the difference between gaining regulatory approval for an invention and gaining “market approval or uptake.”

Francis Kalush, diagnostics network leader in the Office of the Director of the Center for Devices and Radiological Health in the US Food and Drug Administration, said that in terms of regulatory approval, the FDA is looking for “reproducibility, accuracy, specificity, and sensitivity. Also, you must think carefully about who will pay for these tests; not all insurance companies will cover new diagnostics.”

Kalush and Johnson both agreed that startup companies shouldn’t fear the FDA, but work closely with the agency to determine what is needed to market a product. “Although big companies might sometimes have a reason to [fear the FDA], the agency is actually really helpful with smaller companies and startups,” Kalush said.

James McCullough, chairman and CEO of Exosome Diagnostics, a startup based on technology discovered by researchers at Harvard University and Massachusetts General Hospital, shared tips for gaining a market foothold for a nascent product.

“Go after a market niche, not the billion-dollar market, at least at first,” McCullough said. “Nothing lights up a VC like money coming through the door.” As an example, McCullough shared how Exosome, which is commercializing oncology diagnostics based on the fact that exosomes shed by cancer cells contain unique nucleic acid signatures, is first trying to develop diagnostics targeting the KRAS gene mutation associated with chemotherapy resistance, because it is a smaller cancer diagnostic market with modest revenue potential.

To even develop an invention to the point where it is applicable to any market requires time and money – a point brought up in a participant’s question about finding so-called “gap” funding to conduct proof-of-concept work.

To this, McCullough said that it was crucial for startups to “keep your overhead as low as possible — that includes phones, travel, even stationary. You do not need business cards.”

In addition, he recommended exploring grant programs such as the Small Business Innovation Research and Small Business Technology Transfer programs. “Also, try to rely on the resources that are available at your academic institution, and stay away from credit cards,” McCullough said.

Next up at the Boot Camp was keynote speaker Kathleen Denis, associate vice president in the Office of Technology Transfer at nearby Rockefeller University. Denis discussed how university startups help feed the local economy and can develop university inventions that might otherwise sit on the shelf waiting for a licensing partner.

She also shared some thoughts with the investors in the room about “classic deal breakers” for many tech-transfer offices when working with outside entities to create a startup.

Some of these deal breakers include “open-ended patent rights, or when an investor seeks rights to all future related inventions created by company founders, except in the case of sponsored research,” Denis said. Another frequent sticking point was negotiating patent costs and prosecution, she said.

Rockefeller has launched 18 startup companies in the last 20 years, seven of which went public and have returned between \$14,000 and \$8 million in equity to the university, Denis said. Two of the 18 startups have gone out of business, and nine are privately owned.

Of the seven publicly traded companies, only two are still developing the original technology they licensed from Rockefeller, which is quite common, Denis said.

The Boot Camp concluded with Q&A sessions for medical device and therapeutics expert panels.

Michael Davitz, a patent attorney and partner with Axinn, Veltrop, & Harkrider, told attendees that with all life-sciences inventions, researchers and tech-transfer offices should make efforts to “protect your IP very early on, because in many cases it takes years to get responses from patent authorities.”

Once those patents are awarded, Davitz said, it is crucial to keep in mind that there is “a world of difference between getting a patent and getting freedom to operate. The patent only lets you keep other people from doing the same thing that you are. This is especially true in the medical device space.”

Scott Coleridge, manager of life-sciences investments for Morningside Technology Advisory, said that earlier comments by Draper Fisher’s Johnson were also applicable to the medical device space. “The difference between a good idea and a commercializable product is that many of the great minds at research institutions that are responsible for these inventions don’t get to interact with real, everyday physicians to get a sense of their invention’s need or value,” Coleridge said.

One Boot Camp participant asked Coleridge at what point it made sense to start pitching a potential product to an industry giant such as Johnson & Johnson or Medtronic, to which Coleridge replied, “it depends on whether it is patented or not; if it is, then early on it’s fine. But the burden is increasingly on the inventor or startup company to show a little bit of market uptake.”

As part of the therapeutics panel, CCTEC shared with conference participants some of the resources that are available to them through Cornell to support innovative or translational research with an eye toward commercialization.

One resource is the Weill Cornell Clinical and Translational Science Center. Established in 2007, the Cornell CTSC links Weill Cornell Medical with Weill-affiliated hospitals in the five boroughs of New York; Cornell University in Ithaca; the Cornell Cooperative Extension in New York City; and the Hunter College Center for the Study of Gene Structure and Function and Hunter School of Nursing.

It also provides resources for clinical and translational research, such as dedicated laboratory space and core facilities, and is especially designed to foster collaboration between different researchers at the

affiliated institutions to increase the chances of commercial success by tapping into a diverse array of knowledge and expertise.

Julianne Imperato-McGinley, director and principal investigator of the Cornell CTSC, said that center, which opened with a \$49 million Clinical and Translational Science Award through the NIH Roadmap program, offers “gap funding” research awards such as “pilot awards,” which can be worth up to \$25,000 for an initial year-long project period and up to \$50,000 for a second year. It also offers “novel research and methodology” seed awards worth \$10,000.

Imperato-McGinley’s discussion of the CTSC’s resources led one conference participant to ask whether it was possible for a team of like-minded academics to bring a therapeutic to first-in-human clinical trials without establishing a company around it.

“Not very likely,” said Bruce Reidenberg, vice president for clinical development at Stealth Peptides, a startup based on the work of panelist and Weill professor of pharmacology Hazel Szeto.

Stealth is developing a family of small synthetic peptides designed to protect mitochondria for cardiovascular and neurodegenerative indications, and has garnered investment from Morningside Ventures.

“In my experience, you need a team of about 100 people or so, and even schools as large as Cornell Med just do not have enough resources to do this,” Reidenberg said.

A conference participant then asked whether academics could work together to repurpose an existing drug to bring it to market. “This is a very common and noble activity of academics,” Reidenberg said, and is quite achievable without starting a company, as much of the safety and pharmacology data for the drug would already be established.

The conference ended with questions about conflicts of interest that may arise when a faculty member is heavily involved in the activity surrounding a startup company. Most universities, including Cornell, have policies in place that allow their researchers to spend a small amount of time each week or month doing work related to the startup, although some schools, such as Rockefeller, don’t allow it at all.

Cornell Med’s Szeto said that this has been an extremely challenging aspect of building Stealth Peptides. “In my case this was my life’s work going into the startup, so it seemed like there was nothing left for me to do” in her research program at Cornell. She said she has adjusted to this difficulty, but it has caused her to be “schizophrenic” because she often has to shut off thinking about the startup to conduct her academic research, and vice-versa.

CCTEC’s Paau capped the discussion with some tips for managing COI in university startups. “You need to have a plan to lay out for regulatory authorities if need be,” Paau. “The key is not to avoid it, but to prepare a plan that is as transparent as possible.”