

INTELLECTUAL PROPERTY™ Marketing Advisor

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Arizona State inks deal with Italian company

Licensing success story illustrates keys to cementing industry-university partnership

Tech transfer offices spend a good deal of time evaluating technologies and determining their market potential, but it's important to keep in mind that a good technology alone does not guarantee that your marketing efforts will be successful. Just ask **Andrea Mills**, Technology Intelligence-North America for Zcube, the research venture of Italian pharmaceutical Zambon Co. "It's important to be excellent in research and be world-class, but we have found outstanding academic talent and gurus with very little capacity of interaction in a fruitful way with industry," he notes.

Sometimes, however, all the elements come together, as demonstrated by the recently announced licensing agreement between Zcube and Arizona Technology Enterprises (AzTE), ASU's technology venturing arm. The agreement will allow Zcube to use ASU technology to develop and commercialize next-generation medical devices aimed at better monitoring and treatment of chronic respiratory diseases like asthma.

It's critical, of course, for there to be a match between the technology and the partner's goals, and in Zcube, ASU not only found a partner that believed in its technology, but that rare company that seems to *prefer* getting involved with early-stage technologies. "Our mission is to identify promising platform technologies in the field of drug delivery and medical devices which are still seated in the university labs -- very early-stage technologies where patents have just been filed, but not yet approved," explains **Lorenzo Pradella**, PhD, Zcube's general manager. "We have people like Andrea who have the goal of scouting promising technologies and connecting those sources with Zcube in Italy." After the due diligence process, he notes, technologies that meet Zcube's criteria can proceed to sponsored research within the university.

"We decided to start selecting early-stage technologies because we believe that it's the time when the technology is still suitable to be developed and modulated with the objectives we want to achieve [while] moving the technology as quickly as possible from the lab to commercialization," Pradella adds.

The beginning of a match

Tom Goodman, PhD, MBA, AzTE's director of business development, who spearheaded the deal for ASU, became aware of the technology through introductory meetings with the inventor, **N.J. Tao**, a professor in the ASU Biodesign Institute. "When I first came here three years ago he was one of the stars who were on my radar, so I talked with him and one of his colleagues," Goodman recalls. "His interest was in detecting things and making novel sensors." They talked about the various activities in Tao's lab, and Goodman commissioned an independent marketing study of all the things that could possibly be utilized with his sensors.

"One of the things that caught our attention was the concept of nitric oxide, a simple molecule that has a whole bunch of effects on the human body," Goodman continues. "It turns out it is uniquely involved in tissues when they become inflamed," and inflammation is a hallmark of worsening asthma and other respiratory illnesses.

Tao proved in principle that an extremely small, battery-operated device could measure inflammation, and that when mated with a GPS it could show the source of the inflammation. It could also potentially be integrated with Bluetooth to call a caregiver and flag abnormal readings. The creation of a single hand-held device is the goal of the Zcube partnership.

But the path to a deal was not a straight line.

"We targeted an awful lot of folks, generally without success," recalls Goodman. He notes that many of his solicitations are based on companies' statements of need and interests. "A surprising number of companies around the world have this kind of needs sheet or interest sheet," he says. "I call them up and ask them to send me a list of technologies they are interested in." Goodman says he is on "a dozen hundred mailing lists."

When Goodman and Mills first met, however, he did not have such a sheet. He had heard Mills was interested in ASU technology, so he called and they met over lunch. "I told him about a whole bunch of technologies, but he was not interested in any them," Goodman recalls. "Then I reviewed his one-pager, and right at the top there were two things: Respiratory diseases and medical instrumentation. The light bulb went off." Goodman called Mills up, described Tao's technology to him, and Mills asked him to put a proposal together.

A perfect fit

"There were three different elements that were important for us," says Pradella. "One, the technology was from the beginning designed to target a therapeutic area of interest -- asthma. Second was the expertise of Tao and his team in this field, which is necessary from a technical standpoint to develop this device. Third, in addition to Tao and his team, was the need to add clinical and pharmaceutical and commercial expertise, which is what is in our hands, so we could match with the existing skills in ASU in order to be successful in this collaboration."

Another key for Zcube, he continues, is that it seeks a very active role in its partnerships with academia. "We do not limit ourselves to investing money in sponsored research at a university, but we are also active in a way that continually provides vision, interaction, inventor understanding, and so on," he explains. "We don't just put in money and

Looking for an industry partner? Beware the "know-it-all" inventor

There are a number of errors that universities commonly make that can "turn off" a potential industrial partner, says **Lorenzo Pradella**, PhD, general manager of Zcube, the research venture of Italian pharma company Zambon Co. One of the biggest turn-offs, he notes, are inventors that have a "know-it-all" attitude. And you can find them all over the world, he says. "We've had examples like this not only in the U.S.; we do business in Israel, Europe, and the U.S.," he shares.

Pradella cites several other factors "that can create strong limitations." One is patent strategy. "We've found technologies with patents that were filed and prosecuted at a certain point where it was only possible to get it granted in the U.S.," he notes. "You can experience rigidity from the source -- poor patent strategy and market vision only limited to certain territories, and not worldwide."

Andrea Mills, Technology Intelligence-North America for Zcube, couldn't agree more. "Organizational aspects of the TTO are very important," he says. "We did some informal homework in the early days of Zcube about the characteristics of individuals and talents we like to deal with -- it's almost an HR/talent management approach."

To Mills, key considerations are not limited to how many papers or citations an inventor has produced. "That's good stuff, but it does not tell the full story," he asserts. "A lot of professors are prima donnas, and not necessarily the kind of individual we feel comfortable dealing with. They tend to be interested in diversified fields spread across the horizon and are not necessari-

ly very focused. They often have more publications than they do activities in the lab. And, if you look at their academic network, they usually collaborate with a single colleague or student, primarily for publication; they are not really a contact for new IP to grow into business innovation."

Quite often, Mills continues, companies seeking innovations can find investigators that fly below the radar. "They may not be the most famous, or the first one the TTO puts on the table, but they may be a young talent -- a professor who recently joined the faculty from another university, or someone who may not have published that much but who has a lot of patents," he explains. Zcube, he comments, is attracted to "a kind of modern day Leonardo. He dealt with a lot of intractable problems of his time, and just kept digging deep into the problem. A lot of what we do is groundbreaking."

"What is very important for us, irrespective of the kinds of connections certain professors have, is to match people with a good collaborative attitude in sensing where there is a need," adds Pradella. "Our goal is to have sponsored research in the university before the technology is very close to clinical development or a medical device very close to entering the market; we want to see a couple of years of research first. Because of that, we have to be pragmatic -- we can collaborate with a young researcher or one with a very good record, but we tend to avoid those professors who believe they know everything and know absolutely what they want." ♦

wait for results; we build a single team by putting together our people and theirs."

Of course, it takes two partners to create such a team. "We appreciated in ASU a research team and a technology that did not just reflect the competence of the inventor, but their experience and their attitude towards industry," says Mills. "I'm not saying they needed to compromise or find shortcuts to their research, but industry has a time frame; budgets and time are the constraints of the business world."

"Sometimes you encounter researchers and investigators who live in a world that is abstract and separated from reality," he continues. "They say if you give me enough money and time, I can find unlimited solutions to a problem, but that's not what we want. You have to narrow things down to something that makes sense for a medical need identified by the market. For us, the desirable innovative technology pathway is to address medical need in a way that makes sense in terms of manufacturing ability, sustainability, and scalability. We've seen some great technologies, but then you scratch underneath the surface and there's no way it makes economic sense in the real world."

Mills also tips his hat to Goodman. "He played a very important role -- especially at the beginning where we were not necessarily sold yet on the project," he says. "He comes from industry, and without him in the picture we might not be here."

Goodman sees his role as that of a matchmaker. "You start to get to know people, you talk, and you find out what their interests are," he says. "It begins with connections, it proceeds to matchmaking, and hopefully it ends up in engagement."

Mills agrees. "He was not 'selling,' but rather trying over a number of informal conversations to discover what our medical needs and technologies of interest were -- and not necessarily Tao, or ASU," he observes. "We first talked and talked and talked, sometimes in a very clueless way, about what the needs and issues were, what life-changing technolo-

gies were needed to make patients' lives easier for someone with asthma -- monitoring, diagnostics, and delivery. We looked at the narrative of treating patients before, during, and after attacks, and chronic asthma in the elderly and in children. Then we came up almost naturally to 'What about Professor Tao's technology?'"

In fact, Zcube eventually helped ASU expand its vision of the technology's market potential. "We realized together that the technology could have been the right technology matching our goal," recalls Pradella. "We then jumped to the point of having a common vision on the future potential of this medical device. At that point in time ASU's preliminary commercial vision was 100% focused on the U.S. market, but it is substantially different from the European market. We provided our vision on the European market, and both parties have now been able to develop a model that takes into consideration the market profile in the U.S. and in Europe. With our future goals in terms of market positioning and medical device characteristics, we expect to be able to comply with both sides of the ocean and bring it to full fruition."

At present, adds Goodman, "we are deep in discussions about local manufacturers, testing sites, and office space here in the valley. They are going to have to build this someplace, and do the testing, and we're already looking at local doctors and physician groups that may in the future be able to do clinical trials. We want them out here, and they like it here."

Goodman sees these activities as an integral part of the TTO's role. "We endeavor to do anything we can to create, improve, and forward economic opportunity here in the valley," he asserts. "The wheel is still in spin; our role does not end with matchmaking."

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