Patrick Soon-Shiong

Straight talk with… Patrick Soon-Shiong

Patrick Soon-Shiong has only one mode of thinking: big. The South Africa-born surgeon-scientist pioneered islet transplants to treat diabetes and nanoparticle drug delivery for cancer, and he has founded two multi-billion-dollar pharmaceutical firms—Abraxis BioScience, now part of Celgene Corporation headquartered in New Jersey, and American Pharmaceutical Partners, acquired by the German company Fresenius Kabi. He's now setting his sights on transforming the entire US biomedical system from bench to bedside, starting with a modern, high-speed data network. Together with his wife, Michele Chan, the Los Angeles–based entrepeneur founded the Chan Soon-Shiong (CSS) Institute for Advanced Health in early 2011. The project has already spent a quarter of a billion dollars, much of it Soon-Shiong's.

With locations thus far at the Saint John's Health Center in Santa Monica, California and the University of Arizona College of Medicine in Phoenix, the CSS Institute aims to network everyone with a stake in health care—from bench researchers to clinicians and patients to insurers—so that they can collaborate using easily-shared health records, medical images, genomes and any other kind of data. The Institute is in the midst of launching its first major project, the Cancer Knowledge Alliance Network. But that's just the beginning. **Amber Dance** sat down with Soon-Shiong to talk about how uniting physicians and scientists will surmount the most pressing challenges in biomedicine and cancer research.

What are you planning to do with the CSS Institute for Advanced Health?

It's what we call a virtual organization. If our Institute can create this glue, or this infrastructure, around the nation, and allow bright minds to find other bright minds and pursue a common passion, I think that's the key to biomedical research. In order to get information across the entire nation, we need to connect them together and to the supercomputer, so we funded the National LambdaRail, a network built for big science, to move large pieces of data. We are moving genetic data, CAT scans, X-rays...we don't know [every way] it will be used.

Can you give an example of the kind of project that the CSS Institute is taking on?

We're now launching the Cancer Knowledge Alliance Network. A decade has passed since the human genome was decoded, and we have the opportunity now to get all the way down to the proteome and transcriptome. The challenge we face is, how do we actually make use of that information for a patient dying of cancer as we speak? We are building on the knowledge from the NIH's [US National Institutes of Health's] Cancer Genome Atlas and translating it for the clinicians.

What is the Cancer Knowledge Alliance Network going to do for the biomedical researcher trying to come up with a treatment for cancer?

That biomedical researcher does not have a supercomputer. He probably wouldn't have a sequencing center. He does not have a bioinformatics team. He does not have the ability to move gigabytes or half a terabyte of data and get information with regard to the abnormal genome or proteome. So we are creating a centralized sequencing center. We can provide sequencing at the lowest cost because of the economies of scale. We will be able to provide information about the abnormal genome and proteome pathway to the researcher within three days. Scientists' current knowledge could be translated, in real time, to the practicing clinicians; at the same time researchers can get feedback from the clinicians in the trenches who see the outcomes [of different treatments].

When do you expect this network to come online?

It is already online in pieces. The supercomputer is up and running. We've connected every sequencing center that's part of The Cancer Genome Atlas. We created secure data centers, a bioinformatics team and wireless technology. We're in the process of setting up the sequencing center now, at the John Wayne Cancer Research Institute at Saint John's. If we're lucky, this [sequencing service] will be available within six months.

How many CSS Institute sites will there be, eventually?

We don't know. We're going to start out with the John Wayne Cancer Institute at Saint John's. We're going to work with the University of California system and the University of Arizona.

How did you decide to locate the supercomputer and data centers in Arizona?

[Abraxis] built a nanoparticle facility there. The mayor of Phoenix, Phil Gordon, started supporting organizations like TGen [the Translational Genomics Research Institute; Gordon will head the CSS Institute's Arizona location]. There are very forward-looking people in the area.

Many investors have tried to impart this kind of connectivity to health care without a lot of success. What is different about your approach?

I think they looked at this as a silo activity; investors and organizations are saying, "I'm going to just create a new electronic medical record," or, "I'm just going to create a hospital information system." Nobody has looked at it with a systems approach, where you need to integrate everything at once: the knowledge domain—the academic system, the research system—with the delivery domain—the hospitals. People like mathematicians, physicists, biologists, surgeons, clinicians and computer scientists, all the way down to a nurse's aid, working with a nurse, working with a pharmacist—they have never all been put together before. The most important thing we're doing differently is to take this [scientific data] almost instantaneously to the clinical world.