



How Konica Minolta and Invicro are shaping the future of healthcare

In September 2017, Invicro, LLC was welcomed into the Konica Minolta precision medicine family. Invicro is a Boston-based, global company giving new meaning to the Clinical Research Organization (CRO) market through its pioneering imaging and software services. CROs assist pharmaceutical, biotechnology and medical device companies to advance their drug discoveries and development projects through outsourced research services and solutions. Invicro provides the industry's top pharma and biotech companies, and other leading research institutions quantitative imaging biomarkers and imaging data analytics, as well as software solutions from molecular-discovery through late-phase clinical trials.

Invicro's foundation was built from a software and analytics platform, VivoQuant™ and iPACS®, that streamlines and organizes large-scale data analytics across any quantitative biomarker readout. This novel platform has provided pharma and biotech companies enhanced productivity and efficiencies through unconventional visualization and analysis of image data sets, combined with a robust data management and reporting tool. Together with Konica Minolta's global bio-healthcare technologies, including their proprietary pathology capabilities, Invicro's industry-leading informatics platform will play a significant role with its sponsors and collaborators in advancing precision medicine, and developing new technologies across all therapeutic targets in the most cost-effective way.

Today, we welcomed Dr. Jack Hoppin, co-founder and CEO of Invicro, to share the Invicro story.

How did you start Invicro?

Invicro started in my tiny Boston apartment along with co-founders Dr. Christian Lackas, Janna Murgia, and Dr. Jacob Hesterman in late 2008. We officially opened our doors for business in January 2009. In a previous life we started our careers in the medical hardware industry, and considered evolving our business within this space. However, together we quickly realized offering research services, data analytics, and solving scientist's informatics problems would warrant more value than producing and introducing another imaging system into the market. And, based on that philosophy we embraced the opportunity and built the business organically from ground-level to the Invicro, LLC we know today.



Who is Invicro and what are its strengths?

No other CRO can offer Invicro's level of innovation and services, with scalable data analytics capabilities and comprehensive data management platform. The way we process medical imaging data for our pharmaceutical sponsors provides a consultative, streamlined approach, which allows us to expand beyond the typical role of a preclinical discovery imaging CRO.

I truly believe our talented team is a big contributor to the value proposition we offer our customers. Invicro has about 75 team members in its software, IT and analytics groups, a third of which are Ph.D.'s – collectively, that is a unique market distinction. In fact, within Invicro's 330 employee base, over 60 have an MD or Ph.D. degree. Such sound academic expertise allows us to provide a more robust imaging research team.

Additionally, when you combine Konica Minolta's bio-healthcare team, and Ambry Genetics who was recently acquired by Konica Minolta, with Invicro— we are over 530 researchers strong, with over 140 MDs and Ph.Ds. This level of expertise within one organization is a rarity in the current marketplace.

Another significant differentiator that puts Invicro a cut-above the rest, is our ability to offer quantitative biomarker assays from gene-to-protein-to-cell-to-organ from discovery research through late-phase clinical trials. This comprehensive mix of solutions puts us in the unique position to offer complete translational capabilities. We can move through all phases of the clinical study and trial processes, even administrate first in-human studies within our clinics, and then translate that research project into a global multi-center trial – this outlines A to Z capabilities offered by no other than Invicro.

Finally, a core value of our business is that we're not just offering services, but we're innovating much needed solutions in the marketplace and then offering them as a service.

Biomarker strategies are more and more becoming the guiding principle to improve the performance of drug development. As an informatics-driven quantitative biomarker company, Invicro is leading a trend in the marketplace to front-load biomarker strategies in the beginning phases of the drug development process. Of course, patient involvement is key to any trial, but biomarker strategies are leading the way to help advance the efficiencies and performance of drug development.

Who are your customers?



With offices and labs throughout North America and Europe, Invicro has a positive reputation within the healthcare and life sciences sectors. Our relationships go deep with the top twenty pharma and biotech companies, as well as leading research universities and national labs.

The ability to translate our services into clinical services is truly extraordinary. To help prepare our customers for the FDA, we will often collaborate with other CROs to better integrate patient enrollments with biomarker strategies.

Why did Invicro join Konica Minolta and how do you work together?

We were not for sale and had plenty of suitors approach us; yet, we were not interested in selling the company. However, given the fast growth trajectory of the company and the market, we were interested in having a strategic partner to ensure we were in a sound position to move forward.

Quality reigns supreme with Invicro and that's something that really attracted us to Konica Minolta. We both live or die on our quality – our visions and values align in that way. Joining the Konica Minolta's precision medicine vision seemed ideal, because it complemented nicely with our ever-evolving platform that houses an array of relevant data. This unity with Konica Minolta is truly a dream come true, it allows us to go beyond the medical imaging sector, to embrace broader applications. We now can provide our customers a one-stop shop by adding to our already full suite of imaging and software capabilities, advanced genomics and digital pathology services. This unique collaboration accelerated our mission by a couple of years.

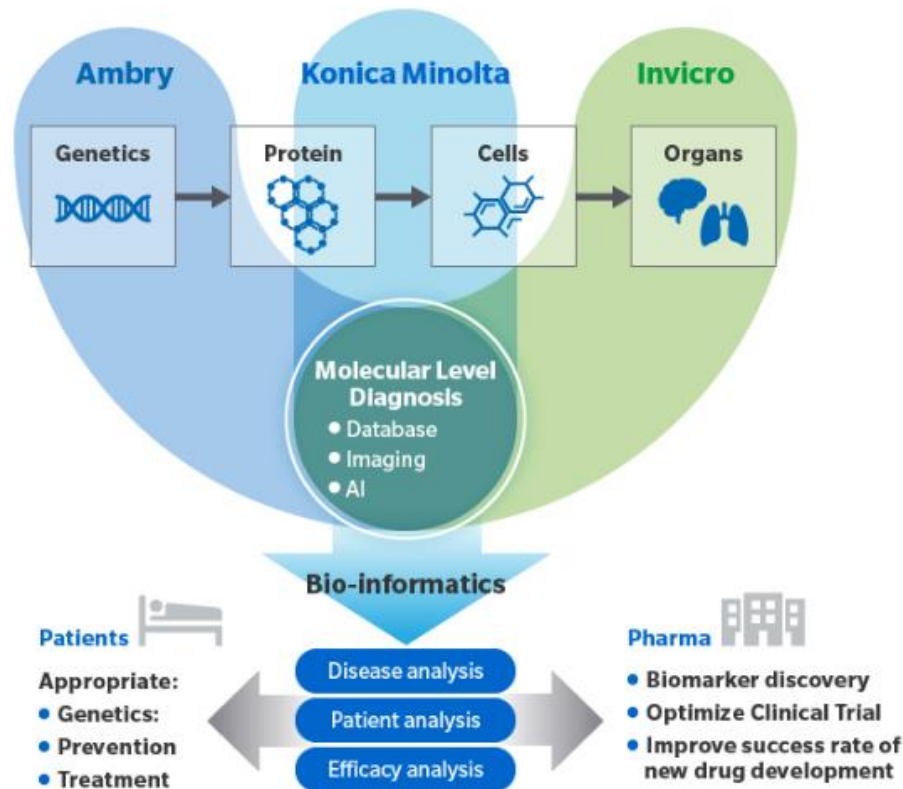
Ambry Genetics is truly best-in-class when it comes to genomics sequencing and associated informatics in the clinical diagnostics space. Combine Invicro's informatics platform with Ambry's unparalleled sequencing and informatics team, and the value we offer our customers is unprecedented. This synergy allows for a common, unified platform on which all data resides and can be processed – a synergy we are immediately realizing.

As Invicro is continuously innovating, the head of healthcare from BIC spent a week at our offices. Together we are looking at where we can expand and leverage machine learning AI capabilities. We're going to approach it from two angles, one based on our internal informatics strategy, and the other leveraging what Konica Minolta's technology

can offer. Konica Minolta has created a translational feedback loop offering, where innovations can be translated from pharmaceutical research services into clinical services, and ultimately into clinical products. This type of forward thinking is what attracted Invicro to Konica Minolta and we are extremely excited to be a part of it going forward.

I'm a very nerdy person, especially when it comes to science, so I'm really impressed with Konica Minolta's Nanofabrication capabilities — I love their innovation center — and I'm super impressed with their dedicated R&D focus.

By the way, when I was a child I used to play soccer on a Konica Minolta field in Ramsey, New Jersey where I grew up, so I knew about Konica Minolta from an early age.



How does Invicro fit in with SHINKA?

In order to expand, we need to stop thinking about CROs in the traditional sense. I think they've become associated with patient enrollments, which Invicro is not. We're a decision-enabling informatics company. It's important to think of Invicro as a quantitative biomarker solutions company that can transform from research services to clinical services. Our services are being integrated, while our platforms are also being integrated to ensure customers receive the most comprehensive imaging and informatics solutions available.

Corporate development is like evolutionary biology in a lot of respects. SHINKA means that a business inherently must evolve. When we started Invicro, our plan was to do just one thing; but, we've evolved by listening to the customer and the market. Everyone needs to evolve their core competencies to realize new value. From my perspective, I really see the SHINKA evolution in Konica Minolta, especially when they realized the value of their proprietary pathology High-Sensitivity Tissue Testing (HSTT) and nanoparticles offerings. That is the kind of evolution and clever breakthrough that resonates with me. We're honored to be part of the evolution.