BioLizard

The future of biomarkers: where are they heading?

Liesbeth Ceelen, General manager at BioLizard

Biomarkers come in many shapes and sizes. It's an ever-evolving subject with many under-discovered possibilities. **Let's look at some ways biomarkers are looking to evolve.** Whether we're talking about how to gather data, how to analyse the collected data, or new ways to conduct your newly developed test – we've got you covered. **These insights could play a massive role in the success of your biomarker.**
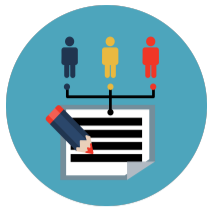
The future of data collection

Let's start with a surprising – but true – statement: **people diagnosed with HIV have a longer life expectancy than those who don't.** Most of us don't expect this to be true, but it makes sense when you really think about it. **HIV patients have yearly medical check-ups.** During those check-ups, their entire physical status gets evaluated. **In the case that something looks abnormal, doctors can act fast. Usually, healthy people only go to a doctor when they feel ill. In some cases, by then it's already too late.** Cancer can be present for a couple of years, and before you notice it, it might already be too late.

The future of data collection plays a massive role here. People think it's a huge effort to go to the doctor's office every year. **There must be more efficient ways to monitor someone's health, right? A lot of research & development points in the direction of liquid biopsies.** Why bother going to the hospital to give a urine sample? In the future, we could **add some automatic biomarkers detectors in toilets at home.** This way, home toilets measure the most indicative health metrics on a daily basis. The toilet will warn the patient when it spots something shady in their urine. **It will tell them when to see a doctor before it's too late.**

Wearables also play a massive role in the future of data collection. Live diagnostics tell you a large amount of data: heart rate, oxygen levels, blood pressure, temperature, etc. This comes in handy when you're developing a drug. **Give your test panel a smartwatch that can measure these values.** You can now monitor more closely how your drug affects the subject.
Besides drug development, these wearables give valuable information to individuals. It might **warn them when they're falling sick** before they notice it themself.

The future of analysing biological data

The amount and types of data are ever-evolving. Today, almost everything can be measured. This is an advantage for biomarker development: more data means more diagnostic opportunities. **The growing amount of data also comes with a challenge. Analysing large amounts of data becomes trickier.** There are more variables to take into account and possibly overlook.

Today you combine a person's clinical data with the information a biomarker gives you. This is called **multimodality testing.** Additionally, you can add images and digital biomarkers to further enhance the diagnostic potential. **Artificial intelligence (AI)** also plays a huge role in this evolution. Where a radiologist makes decisions based on a couple of thousand images they have seen during their

lifetime, AI has built its predictive knowledge on hundreds of thousands of images. **This makes AI better at recognising less obvious differences in medical scans (like RX, MRI, etc.) than the average radiologist,** therefore improving diagnostic resolution.

In the near future, biomarkers will combine all these elements:

1. clinical variables

2. molecular variables

3. images, which you can even take with a smartphone

Using AI you will be able to combine all this information and get clearer outcomes which you wouldn't have found otherwise.

The future of conducting tests

In the present day world, most of the time, **people need to go to a doctor or a hospital to get tested.** It's important to think about whether this makes sense in today's world. Why would you go to a place where people come together when they are sick or in a weakened physical state? **The risk of getting or spreading diseases is way higher in this environment,** not to mention the development of multidrug-resistant diseases.

In comes a perfect solution: **near-patient testing. People get their testing kits mailed to their homes. They need to test themselves and send their samples back.** You don't need to go to a hospital or any other place where people come together when they are already sick with remote sampling.

Some risks do come with this type of sampling. Can you trust people in taking their own tests? Let's say you need a throat swab. This is a simple test to take, however, it is very uncomfortable for the patient. In this case, a patient can easily perform the test incorrectly in order to save themselves the discomfort. **Currently, we are still seeing doctors because they guarantee a correct test.**

A time-saving solution comes within tele-testing. **Through an online meeting, a doctor can guide a patient while he/she is doing his/her tests.** This way, the doctor can perform more tests within a day, and the patient doesn't have to come to a high-risk environment.

What's your biomarker future looking like?

Like we have previously discussed: **the field of biomarker research is constantly changing, and so is everything around it: from gathering data to performing tests.** As a result, great opportunities will arise, but so will some challenges.

In our opinion, the biggest challenge will be with handling the data. This makes or breaks the whole project. **BioLizard specialises in strategically investigating your biological data.** With extensive knowledge and experience in biological sciences as well as machine learning approaches, we add valuable insight that improves your biomarker development.

Need an extra pair of eyes in your biomarker development project?

Get in touch