

Artidis: Cancer diagnosis in less than 3 hours



Marija Plodinec, CEO of Artidis (Img: Technologiapark Basel)

“Artidis is based on the oldest diagnostic test on earth: palpation,” says Marija Plodinec, CEO and co-founder of Artidis AG. “In a nutshell, we palpate tissue on a molecular level,” she adds with a twinkle. That’s because instead of a physician’s hand, Artidis runs a fine, high-precision 20 nanometer probe across a biopsy surface to measure local nanomechanical properties of tissue components, such as different cells and matrix scaffolds. The exciting technology yields swift and precise oncological diagnostics – in less than three hours.

Artidis’ beginnings can be placed squarely in the PhD thesis of Marija Plodinec. Already some 10 years ago, she pondered the idea to measure tissue with atomic force microscopy for cancer diagnosis. Founded as a spin-off from the University of Basel in 2014, by November 2017 Artidis had already grown enough to move to the Technologiapark Basel – where they quickly got to work: “We recognized early on that we needed patient data for clinical validation – so we launched a joint collaboration with the University of Basel and the University Hospital.”

Possibly Switzerland’s record-breaking prospective single center trial

Before long, the start-up ventured into its own clinical trials. “This made us stand out early. For most medtech companies in the field, it’s just not common to do early clinical validation”, says Plodinec. And it is still a competitive edge of Artidis: In early 2019, the company plans to complete a clinical trial currently underway in collaboration with the Pathology division and with the Breast Center, the University Hospital Basel and Biozentrum Basel, a research and teaching institute of the University. For this joint trial, Artidis and its partners are recruiting an impressive 508 breast cancer patients. That is potentially record-breaking, CEO Plodinec emphasizes: “Together, we’re running one of the biggest prospective single center trials in Switzerland!”

Artidis’ other competitive advantages are speed and precision. “Clinicians will be able to diagnose cancer within less than 3 hours – which is a great relief for patients, of course.” But it equally takes pressure off the hospital system. “You need to understand: 75 percent of patients going into a biopsy don’t have cancer. Those terrible moments of uncertainty for the patient are prolonged by a hospital that needs to run numerous procedures before diagnosis and the appropriate treatment plan are set”, explains Plodinec. Artidis’ timely results offer a solution: They ease the psychological and financial burden on both patient and health provider.

Another goal of Marija Plodinec and her team is treatment optimization based on predicting post-diagnosis cancer development. “We want to understand exactly how a metastatic cell in a breast travels to a lung, a liver or a bone. How it leaves the primary tumor, squeezes through different tissues and invades other organs.” To detect these soft, aggressive cells in the primary cancer tumors essentially means finding cells with metastatic potential before they actually start spreading and killing the patient. The high precision and sensitivity of Artidis’ technology enables the detection of such cells even though they are sparse and account only for approximately 3 percent of the tumor. Furthermore, these diagnostic results are systematically combined with individualized clinical information and cross-referenced with millions of existing data sets in the company’s ArtidisNet platform. ArtidisNet provides clinicians with AI-powered data and analytical tools needed to personalize and adjust the most promising treatment options.

“Technologiepark Basel is the place to be”

An extensive local nanotechnology tradition made Artidis’ initial choice of Basel a no-brainer. Once at home in the Technologiepark, the early-stage collaboration with the University Hospital made it easy to stay. Marija Plodinec explains: “Basel provides a unique environment: People’s workplaces and labs are always close-by and inter-connected. We can literally go across the street and talk to clinicians every day. The importance of this can’t



be overstated as clinicians need time for their patients which makes it hard to get them involved in new research and technology development.” It nearly goes without saying that in the Technologiepark Basel, Artidis also found a perfect infrastructure: A fully equipped lab, top-notch offices and administrative services at an affordable price – the complete package, according to Plodinec: “If you are a start-up and you really want to focus on your work, Technologiepark Basel is the place to be”

*Technologiepark Basel
(Img: Technologiepark Basel AG)*

As for what’s in the works for Artidis, the CEO’s vision is focused: Clinical trial completion in spring 2019, finalizing the comprehensive ArtidisNet platform, going on CE mark and FDA validation in 2019 and 2020 respectively – and get ready for growth. For application of Artidis nanotechnology is not limited to breast cancer diagnosis and treatment only, but allows disease diagnostics and treatment optimization using any type of tissue. Accordingly, Marija Plodinec is beaming with optimism: “In a not too distant future, we will be able to equip hospitals and to facilitate cancer diagnosis everywhere.”

Artidis AG

Artidis AG, a spin-off from University of Basel founded by Dr. Plodinec and colleagues, seeks to build a distinctive and independent medtech company by pursuing the development and commercialization of the Artidis platform. Artidis combines fast and precise tissue measurements at molecular length scale powered by AI driven data analytics. Based on a single test, patients can receive their diagnosis and an individual, optimized treatment proposal.

<https://www.artidis.com>

Technologiepark Basel

The Technologiepark Basel is the premier address for early-stage tech start-ups in Basel that transform knowledge into marketable products and services. It offers a collaboration-friendly, yet business-driven environment and is part of the rapidly growing Stücki Park in the dynamic northern part of Basel. Tenants are selected carefully to ensure a high level of innovation.

www.technologiepark.ch