

15 MOST PROMISING BIOTECH STARTUPS IN EUROPE - 2019

As new technologies emerge, numerous biotech startups are launched across Europe every year. With specialised venture capital firms and technology companies pouring money into the sector, biotech startups now attract a record amount of investment. Most of these investments focus on predicting which drugs will work and be safe for humans, well before the testing process begins. In the case of diseases such as Alzheimer's, current animal models do not ensure effective evaluation of whether a drug will work in humans. But with today's biotech offerings in the market, scientists are able to convert any human cell into a stem cell to create custom' disease in a dish' models for enhanced predictability.

By leveraging modern technologies, biotech startups have also significantly reduced the expenditure of reading the entire sequence of a person's genome. With cost-effective genome sequencing, researchers are now able to screen the DNA of patients to find genetic biomarkers and in turn, select the most suitable treatment for a person based on their genetics. Building on this trend, technologies such as organoids, organs-on-chips, and 3D bioprinting are helping mimic the real behaviour of human tissues in the lab, thus improving the entire testing process.

As biotech startups continue to evolve by embracing new technologies, organisations must opt for solutions and services most relevant to their business requirements. To assist them with the same, our distinguished panel comprising key decision makers and experts along with StartupCity's editorial board has shortlisted some of the most promising biotech startups in Europe.

We present to you StartupCity's "15 Most Promising BioTech Startups in Europe - 2019."

Hudson River Biotechnology (HRB)

Recognized by **STARTUP CITY** magazine as

STARTUP CITY 15 MOST PROMISING
BioTech
STARTUPS IN EUROPE - 2019

In commendation of their relentless pursuit of excellence and innovation in the BioTech space


Kenneth Thomas
Managing Editor

COMPANY:

HUDSON RIVER
BIOTECHNOLOGY
(HRB)

KEY PERSON:

RUDI ARIAANS
CO-FOUNDER & CEO

DESCRIPTION:

A BIOTECH STARTUP THAT DEVELOPS CRISPR-ENABLING PLATFORM TECHNOLOGIES AND APPLYING THESE IN BREEDING PROJECTS FOR GENETIC CROP OPTIMIZATION TOWARDS IMPROVING YIELDS, DISEASE RESISTANCE AND NUTRITIONAL VALUE

WEBSITE:

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Hudson River Biotechnology (HRB) CRISPR Technology to Boost Molecular Plant Breeding

HUDSON RIVER
Bio technology



RudiAriaans

Hudson River Biotechnology (HRB) is an innovative agricultural biotech company specialized in optimizing crops by introducing new traits via gene-editing. HRB has been acting as the European frontrunner in the global plant biotech race, fuelled by the rise of CRISPR. Since HRB's founding in 2015, they have been working with some of the world's leading seed companies (e.g. Syngenta, BASF Vegetable Seeds), smaller specialty crop producers and other biotech companies to improve crops. The Netherlands-based company has established a name in the market as a go-to player for disruptive innovations in plants and cutting-edge technological developments.

HRB's unique approach is to develop new platform technologies that leverage or further enable CRISPR, and that make CRISPR more accessible to its customers. They often look in the biomedical sector to scout for the latest technologies and then translate these to agricultural applications to for example increase crop yields, disease resistance, drought tolerance or nutritional value.

The success encapsulates the strides taken by HRB, four years after its co-founders, Rudi Ariaans and Dr. Los, met in New York. HRB's first project involved enhancing the lutein content of marigold flowers. En route to funding their project, Ariaans and Los became recipients of the prestigious EU Horizon2020 program, an honour that opened many doors and forged HRB's partnership with Wageningen University. Thereafter, HRB branched out to molecular plant breeding for vegetables, field crops and ornamental flowers, as well as plants the extracts of which are applicable across industries such as pharmaceutical, food, and fragrances. "Whether it is enhancing lutein content in marigold flowers, or enriching vitamin content in tomatoes to make them healthier, our processes are broadly applicable," says Ariaans.

Having mastered the application of CRISPR technology, HRB can aid companies, ranging from seed and breeding companies to pharmaceutical and ingredient companies, in improving yields, reducing chemical use, and increasing

CRISPR offers a powerful way to improve crop yields and enable more sustainable food production

natural disease resistance and nutritional value, serving as a technology partner to its clients. HRB's solutions are determined by geography. For example, since the US market is authorized to generate new plant varieties using CRISPR, HRB can afford to push the envelope with its innovations. To the EU market, however, HRB offers CRISPR technology as an R&D tool to accelerate and advance traditional breeding. Since European companies are obligated to persist with traditional breeding pipelines, HRB works around challenges. "There are technical bottlenecks laboratories run into while dealing with most crops. Since we don't focus on a one-size-fits-all solution, we are able to solve all kinds of complexities with different tools that can be mixed and matched," says Los.

Before the end of 2019, HRB—a fully independent enterprise that isn't married to a solitary CRISPR protein or a specific technology—plans to expand its operations in the US. "We have two purposes—developing platform technologies, and undertaking complex breeding projects," concludes Ariaans. HRB is about to embark on a new project that involves a nano particle-based approach towards encapsulating CRISPR and delivering it into plant material.

HRB was named after the Hudson River which flows through New York City. 🌱