

# STARTUP CITY

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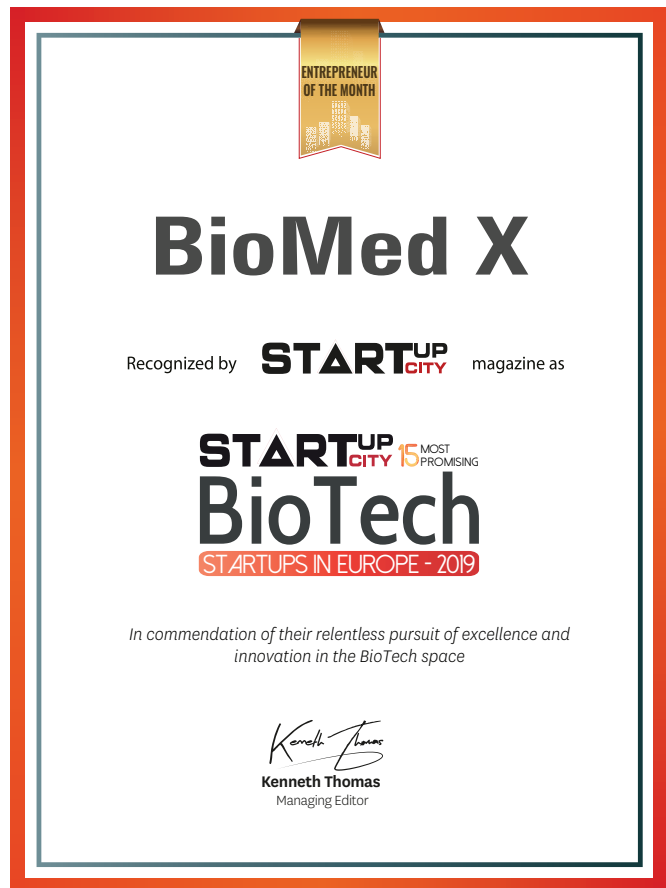
## 15 MOST PROMISING BIOTECH STARTUPS IN EUROPE - 2019

**A**s 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."



**COMPANY:**  
BIOMED X

**DESCRIPTION:**  
BIOMED X PERFORMS BIOMEDICAL RESEARCH FOR NEW THERAPIES AT THE INTERFACE BETWEEN ACADEMIA AND INDUSTRY VIA GLOBAL CROWDSOURCING AND LOCAL INCUBATION OF THE BRIGHTEST IDEAS AND TALENTS

**KEY PERSON:**  
CHRISTIAN TIDONA,  
ANN DE BEUCKELAER,  
MANAGING DIRECTORS

**WEBSITE:**  
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# BioMed X

## Welcoming Innovation in Biomedicine

Every once in a while, a new technology coupled with an old problem and different perspective come together to become an innovation. In the age of the power of the crowd, this statement stands significantly true. Over the last few years, the impact of this trend has transcended out of the realms of IT industry and has gained quite a significant traction in the biomedicine research where it has been instrumental in fueling innovation for the industry on a global front. Spearheading the success of crowd sourcing in the pharmaceutical industry is the BioMed X Innovation Center in Heidelberg, Germany, which constitutes an exciting new collaborative model at the interface

between academic research and the pharma industry. BioMed X is based on a novel innovation model that provides space for distinguished early-career scientists recruited from all over the world to work jointly on novel pre-clinical research projects in the fields of biomedicine, molecular biology, cell biology, and diagnostics.

In 2012, Christian Tidona, Managing Director of BioMed X witnessed a tremendously high failure rate of biomedical start-ups worldwide, a majority of which were failing because their research results did not generate sufficient interest of big pharma companies. Tidona collaborated with Ulrich Betz, Vice President of Innovation at the German Merck's

Biopharma Division and Bernhard Kirschbaum, who was the Global Head of Research & Development at the time. They embarked on a concept for a 'boot camp' that brought together young talented academic scientists from around the world to participate and contribute toward innovative ideas in biomedicine. Thus began the journey for BioMed X, which grew on to become the ground zero of interdisciplinary project teams conducting exceptional biomedical research in an open-innovation lab facility on the campus of the University of Heidelberg. Under the guidance of experienced mentors from academia and industry, these teams expand their scientific network and receive training in entrepreneurship and leadership.



**We are trying to bring together the best of two worlds – the freedom of curiosity-driven research, and a strict focus on products and deliverables in an environment that can foster unparalleled innovation**



Christian Tidona,  
 Managing Director



## A UNIQUE PROGRAM

For the founder of BioMed X, the first endeavor of developing the BioMed X program was to ensure the three different success factors to increase the probability of success in innovation. First one was ‘the local density of talent.’ The second was the ‘local diversity of talent’ - which meant having different people in one spot that look upon the same problem from completely different perspectives and lastly the third one, which was having a local environment, that is conducive to innovation, where scientists can experiment without the fear of failure and administrative burden.

Designed around these factors of success, was the entire structure of BioMed X’s innovation program. In collaboration with global pharma companies such as AbbVie, Boehringer Ingelheim, Janssen, Merck and Roche, the team at BioMed X posts tough pre-clinical research problems at the world’s best universities and research institutions, and invites young academic scientists to apply by submitting original project proposals to solve these problems. Normally, BioMed X receives around 200-400 project proposals from more than 70 nations worldwide, out of which the 15 brightest individuals are

selected and are invited to Heidelberg.

At Heidelberg, the selected individuals participate in a ‘five-day-long’ boot camp as they associate into five competing groups that are provided with appropriate mentorship to convert their initial ideas into a full-fledged project proposal. On the last day, the shortlisted candidates present their proposals in front of the jury, which usually consists of senior management of a sponsoring pharma company that decides the ultimate winner of the boot camp. The winner then receives a research budget between 3 and 4 million Euros for a project period of up to four years in Heidelberg. “Through paying a pre-negotiated fixed success fee, the sponsoring pharma company has the first right to acquire all the intellectual property (IP) that came out of the project otherwise the IP stays at BioMed X,” states Tidona.

## TESTAMENTS OF SUCCESS

Citing some of the successful projects that came out of BioMed X, Tidona mentions German Merck’s project on the topic of the immuno-suppressive microenvironment of tumors that focused on one specific cell type - myeloid-derived suppressor cells (MDSCs). This project resulted in the

development of new assay systems at BioMed X. These systems are currently used by Merck to identify novel compounds that can be used to control MDSCs and ensure that the immune system can recognize tumors. Another successful project by BioMed X was in the field of diagnostics, where the company collaborated with Roche Diagnostics to create a next generation point of care diagnostic. The new diagnostic was required to be a low-cost and easy-to-use disposable, which can measure all kinds of analytes in the blood of patients fast, reproducibly and with high accuracy. Within only four years, BioMed X’s project team was able to successfully design an entirely new field effect transistor layout, which checked most of the boxes in the list of criteria. Currently, this intellectual property is being transferred to Roche Diagnostics, which might take the project from an early prototype stage to a scaled up, novel point of care diagnostics platform.

Currently, equipped with around 60 employees working across a 2000 square meter lab facility situated in the heart of Europe’s largest biomedical research campus, BioMed X is focused on getting Heidelberg to critical mass. The company also plans to execute on its scaling strategy of moving into other technology fields such as medtech or health IT. BioMed X has been creating early IP for big corporations for more than five years now as the company looks forward to further developing this successful innovation model. One of the options could be to use BioMed X’s crowdsourcing process as a targeted approach to produce more startups that can fill specific gaps in the portfolio of venture capitalists. “At the end of the day, we are trying to bring together the best of two worlds – the freedom of curiosity-driven research, and a strict focus on products and deliverables in an environment that can foster unparalleled innovation,” concludes Tidona. ☺