

HeartBeat.bio announces publication in *Cell* demonstrating the power of human heart organoids

- **Worldwide first self-organizing heart organoids (“cardioids”) prove to be effective as a human model system for cardiac diseases**
- **Cardioid technology may revolutionize research of heart diseases and the development of new therapies**
- **Automated and highly scalable generation of cardioids enables high-throughput drug screening applications**
- **Viennese biotech start-up HeartBeat.bio holds an exclusive license to use the cardioid technology for drug development**

Vienna, Austria – 20 May 2021 – HeartBeat.bio AG, a biotech company focusing on cardiac drug discovery based on heart organoids, announced today the publication of “Cardioids reveal self-organizing principles of human cardiogenesis” in *Cell*, one of the highest impact, peer-reviewed scientific journals. The cardioid technology was invented by the research group of Sasha Mendjan at the Institute of Molecular Biotechnology of the Austrian Academy of Sciences (IMBA) in Vienna. HeartBeat.bio holds an exclusive license to develop cardioids into a human 3D drug screening platform tackling cardiomyopathies, cardiotoxicity and heart failure.

The organoid field has revolutionized biomedical research over the past decade by mimicking organs under physiological and pathophysiological conditions *in vitro*. However, the heart was the last major organ missing such a physiological model. The researchers around Sasha Mendjan succeeded in developing the worldwide first human self-organizing cardiac organoids that contain the three-layer cell structure present in the human heart recapitulating the architecture of a pumping heart chamber.

Sasha Mendjan, co-founder of HeartBeat.bio and Principal Investigator of the Human Cardiogenesis Team at IMBA, said: “Cardioids are a major scientific breakthrough in the field of cardiogenesis. Our guiding principle has been for an *in vitro* tissue to be fully physiological and predictive of therapy, the tissue first needs to undergo organogenesis as in patients. We were able to achieve this, using the developmental principles of self-organization – which makes it such an exciting discovery. As the system is physiological, very reproducible and highly scalable, it opens up huge possibilities for cardiac drug discovery.”

Hartmut Ruetten, chairman of HeartBeat.bio’s scientific advisory board and Head Pipeline Development Cardiometabolism & Respiratory at Boehringer Ingelheim, added: “Cardioids fill the gap between single-cell-type tissue culture and *in vivo* models. They resemble crucial features of the human cardiac physiology, which will allow HeartBeat.bio to investigate the consequences of genetic modifications and to identify or validate potential novel targets. High-throughput screening of compound libraries under physiological and pathophysiological conditions is essential to discover new drugs

to treat diseases with an high unmet medical need, such as heart failure and cardiomyopathies.”

Publication:

Pablo Hofbauer, Stefan M. Jahnel, Nora Papai, Magdalena Giesshammer, Alison Deyett, Clara Schmidt, Mirjam Penc, Katherina Tavernini, Nastasja Grdseloff, Christy Meledeth, Lavinia Ceci Ginistrelli, Claudia Ctortecka, Sejla Salic, Maria Novatchkova and Sasha Mendjan. “**Cardioids reveal self-organizing principles of human cardiogenesis**”, Cell 2021. DOI: [10.1016/j.cell.2021.04.034](https://doi.org/10.1016/j.cell.2021.04.034)

About HeartBeat.bio

HeartBeat.bio AG is dedicated to developing the first high-throughput human organoid screening platform for cardiac drug discovery. The screening platform is built on self-organizing, highly scalable cardiac organoids which recapitulate the human heart physiology and enable modeling of diseases such as heart failure and cardiomyopathies as well as cardiotoxicity. The Company was founded in 2021, based on technology from the Institute of Molecular Biotechnology of the Austrian Academy of Sciences (IMBA), by a seasoned team with in-depth experience in organoid research, drug discovery and business development. HeartBeat.bio AG is funded by a seed investment of red-stars.com data AG and supported by the AWS Pre-Seed Program and Vienna’s high-tech incubator INITS via its AplusB Scaleup Program. The Company is located at the Vienna BioCenter in Austria. For further information, please visit www.heartbeat.bio or follow us on [LinkedIn](#).

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