

# A challenging yet encouraging year of important advances



*"Fluicell's technology is the first of its kind to enable single-cell resolution bioprinting with precision, speed and reproducible accuracy, even in 3D, in a way that was not possible before".* These are the words of Dr. Luiz E. Bertassoni of Oregon Health and Science University and comes from a very insightful [review](#) of the Biopixlar platform from October this year. The ability to innovate an area of technology to enable something that was previously thought not possible has been a defining feature for us at Fluicell from the start and is what lies behind many of our achievements during 2021, which has been a year where we both have faced difficult challenges but also taken important steps forward in the development of the company.

Dr. Bertassoni repeated the notion that he expressed in his review in a review article, published in November in the prominent scientific journal [Advanced Materials](#). The positive appraisal from Dr. Bertassoni is especially encouraging for us since we greatly value the dialog that we have been having focusing on establish a long-term association and collaboration with him and his research group that stretches beyond individual instruments, something we very much look forward to.

In his comments, Dr. Bertassoni particularly focused on the way that Biopixlar's microfluidic technology makes it possible to arrange cells with high precision in a way that creates cellular microenvironments that resemble native tissues. There is an increasing realization of the limits of conventional extrusion bioprinting and a growing interest for alternative high-precision techniques that we see in both our own interactions with researchers, and which is reflected in the research field as a whole. This is exemplified for instance in a market review article published in [SLAS Technology](#) earlier this year.

One of our missions this year was to expand the global awareness for our bioprinting method and our instrument Biopixlar. The growing recognition of Biopixlar and its technical advantages within the bioprinting field fills us with confidence and encourages to continue to push the state of the art of bioprinting forward, creating new opportunities for biological research and medicine.

When we entered this year, we did so on the back on several important advancement for the company, including placing the first Biopixlar platform in the US, being awarded a major EU

research grant and validating the Biopixlar technique through a major scientific publication. We also did so with the hope that the newly released vaccines would lessen the impact of the covid-19 pandemic on the global business. Unfortunately, we have during this year, with a few exceptions, still not been able to visit customers to perform hands on demonstrations or attend conferences in person. This, together with administrative delays also caused by the pandemic, has had an impact on our sales this year.

We took notice of these long-term effects and have been working to further adapt our business model by adding flexibility into our business and product offerings while at the same time focusing on revenue optimization. In addition to this, we have made considerable efforts into product improvements, market development and to increase market penetration for our existing products, something we believe will add great value going forward.

Despite the continued effects of the pandemic, the interest in our technology has not lessened and the value that we see in the company has not diminished. On the contrary, this year we have taken some of the most important steps forward in the history of Fluicell in terms of creating long-term value for the company that gives us a very large growth potential and that will enable us to target a larger market than ever before.

## Advances in regenerative medicine

Perhaps most important of all for the development of Fluicell during 2021 was our real entry into the world of regenerative medicine research and development. In May this year, we announced our ambition to develop biocomposites based on Biopixlar-bioprinted tissues to treat diseases that today lack adequate treatment options, primarily in the areas of eye and cardiac diseases and diabetes. On [September 16](#), we announced that we had made significant progress in developing insulin-producing biocomposites and that we were intensifying our development efforts towards bioprinted therapeutics for treating type 1 diabetes.

Since the announcement, we have continued our in-house research work across these areas to optimize bioprinting strategies and material combinations to improve tissue functionality. We are pleased to see that the work performed by the R&D team is giving

successful step-by-step results providing us the indication that it is going in the direction we want. This work constitutes our first milestone and will continue during 2022, with the aim to initiate in vivo preclinical testing.

Our continued development efforts are also fueled by the directed issue that we completed on September 22, together with the ongoing TO2 and TO3 warrant programs. With the added funding, we have the means to intensify our developments efforts. Our ambition to become a leading force in what is arguably one of the most important areas for healthcare development right now and we believe that we have the right technology and know-how to do it.

### Exciting new collaboration agreements

In addition to our entry into regenerative medicine, 2021 is year where we have made important advancements on several fronts. One of the highlights was the sale of a Biopixlar platform to the National Institutes of Health in June. That an important and renowned actor such as NIH decides to invest in Biopixlar is a powerful badge of quality and a testament to the value that the platform can provide to researchers. It is not the first time that NIH purchase one of our instruments and we are very happy for this renewed trust. It will be very exciting to follow how the platform will be used in their future research, which is focused towards studying diabetes, digestive and kidney diseases.

We are also very happy for being able to sign a Biopixlar leasing agreement with Dr. Artemis Stamboulis of University of Birmingham. Dr. Stamboulis has a great interest in Biopixlar and being able to offer her a leasing agreement was a great way for us to enable her to use the platform in her research while waiting for research grants to fund a full purchase order. The agreement is also a good example of that way the we have done to increase the flexibility of our sales agreements to better adapt to the needs and conditions of our customers.

2021 has also been colored by very exciting research and development collaborations. This year, the work in the **BIRDIE** project has started for real. The BIRDIE project aims at combining high-resolution bioprinting with stem cell and organ-on-chip technologies to create functional kidney models for medical research and drug testing. As part of the project, we have installed a Biopixlar platform at Maastricht University and a BioPen system at Nantes University. The collaborative spirit in the consortium is really great and we all very much look forward to continuing the research together over the coming years.

This year, we have also initiated new important collaborations, one focusing on research platform development together with the US and Netherlands-based IonOptix and one focusing on bioprinted in vitro heart models together with a major Switzerland-based pharmaceutical company. Both projects are proceeding according to plan, and we have high hopes for the final outcomes. Getting more collaborations in place this year was one of our goals and will continue to be one of our focuses coming forward.

R&D collaborations is not only an additional source of revenue outside product sales and contract research, but also a very important way for us to test our technologies “in the field” and to find new opportunities for further product development.

### Much to look forward to in 2022

In addition to advancing our regenerative medicine program, the coming year brings many things to be excited about. Not least among the things we look forward to is the coming product release, which will take place during Q1 2022 as announced. The new product is something that our development team has been working on for quite some time and will be an exciting new addition to our bioprinting product portfolio. It is quite amazing for me to see how productive and inventive our CTO is. In parallel to this new product, Gavin and his team are working on adding new features and capabilities into our existing products and trying new things which are important to diversify our offering within microfluidics and for which the production team is involved.

Our increased efforts within regenerative medicine goes hand in hand with developing and providing new research solutions in bioprinting and single-cell biology, as evidenced by the company's development throughout this year. This combination of perspectives gives Fluicell a unique position where research and development builds on each other, making the totality more than the sum of the parts. You could call this the Fluicell model if you will.

2021 has brought many challenges, but also many exciting new developments and opportunities for Fluicell. This year, we have met many of our internal goals, and I would like to thank Fluicell's team for putting their heart and soul into their work and our long-term investors for their continued support.

## Victoire Viannay

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