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Ned Stafford

## [Regenerative med firm Precise Bio launches ophthalmology unit](#)

HAMBURG, Germany – Regenerative medicine startup company [Precise Bio Inc.](#) is launching a “dedicated ophthalmology business unit” to help raise funds and attract partners as it continues to develop bio-printed tissues and organs technology that one day could result in a 3D-printed cornea graft in the human eye.

Precise Bio, two of whose founders are affiliated with the Wake Forest University Institute for Regenerative Medicine (WFIRM) in Winston-Salem, North Carolina, was the first company to transplant a 3D-printed cornea grafts in animals and is working to advance the eventual use of bio-printed tissues and organs in humans.

The company is hoping to garner attention with news of the dedicated ophthalmology business unit. It also will host several events with investors and collaborators at the annual meeting of the American Academy of Ophthalmology, being held Oct. 27-30 in Chicago.

### **Cumulative value of \$10B**

“As the first company to transplant a 3D-printed corneal graft in animals, we are uniquely positioned to advance the use of bio-printed tissues in ophthalmology,” said company co-founder and CEO Aryeh Batt. “Establishing a business unit dedicated to realizing this potential will support our future financing strategies and ensure that our financial resources are aligned with the tremendous power of our technology and intellectual property in a market with an estimated cumulative value of \$10 billion.”

In addition to 3D printing, Precise Bio is developing 4D-bio-fabrication technology that can generate complex tissues in a highly reproducible manner and to apply lessons learned from the fabrication of one tissue to the next. Results of the company’s transplant a 3D-printed cornea graft in animals, the company says, establish “a foundation for future development and progress toward human trials.”

### **Unmet needs in corneal replacement**

“Precise Bio’s technology has the potential to truly transform the treatment of serious diseases, and to address the unmet needs in corneal replacement and other indications, which cannot be met by the limited number of donor tissues and organs,” said company co-founder Shay Soker, a professor at the Wake Forest Institute of Regenerative Medicine. “The company’s technology overcomes multiple challenges in scalable, reproducible manufacturing of bio-printed tissues and organs, and positions Precise Bio for leadership in the field of regenerative medicine.”

Asked by *BioWorld MedTech* how Precision Bio’s 4D printing differs from 3D printing, Batt explained that 3D printing refers to the actual deposition of cells to create a three-dimensional structure.

“However,” he said, “with human tissues and organs, the cells don’t simply exist in a particular location. Rather, they interact with surrounding tissues in ways that impact structural and functional integrity. 4D printing comprises a maturation step during which the bio-fabricated tissue develops the structural and functional integrity of native tissue. Precise Bio utilizes proprietary maturation processes, which the company believes produce superior tissue that will accurately mimic the function of native tissues and organs.”

## **Proprietary bio-fabrication technology platform**

Batt said all the company's programs use its "proprietary bio-fabrication technology platform," which allows for rapid innovation.

"Precise Bio is currently working on four ophthalmology opportunities, including corneal transplant, retinal implant and two undisclosed programs," he said. "We are also developing a cardiac patch for use in cardiology indications. In addition to these programs, we are also evaluating other cardiac related applications as well as the use of our proprietary bio-fabrication technology in skin, orthopedic, dental and other areas."

The company's first press release mentions "established collaborations with world-class partners." Batt, however, declined to name names.

"At this point, all of Precise Bio's collaborations are subject to confidentiality restrictions and cannot be disclosed publicly," he said. "The collaborations are with companies in the fields of biomaterials, cell technologies and other tissue engineering supporting technologies."

Precise Bio was founded in 2015 by Batt, Soker and Anthony Atala, director of the Wake Forest Institute of Regenerative Medicine.

## **Printing a human kidney**

Atala has a long history and global reputation in regenerative medicine. He has given two talks at the highly influential annual TED conferences, whose speakers have included Microsoft founder Bill Gates, and Google founders Larry Page and Sergey Brin. The title of Atala's 2009 Ted talk was "Growing new organs" and his 2011 talk was "Printing a human kidney," both of which can be viewed on the TED website.

Batt said Precise Bio has offices in Winston-Salem, which manages the company, and in Shoham, Israel, with about 10 employees in each location. The company thus far has raised a total of \$9 million, Batt said, of which around \$2 million was seed funding and \$7 million series A financing led by Aurum Ventures Mki, an Israeli venture capital firm. Asked about the company's future development, he said: "The next step in our pipeline development efforts is to advance our preclinical work in the cornea transplant program and initiate preclinical work in other areas. We expect to have preclinical data in a new indication early in 2019, but we do not yet have timelines for initiating clinical trials."

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