



ALLEVI[®]

by  **3D SYSTEMS**[®]

**Revolutionizing the way we
engineer tissues, model disease,
test novel drugs, and study the
body outside the body.**



About Allevi by 3D Systems

Allevi became part of the 3D Systems family in 2021 as part of the company's strategic growth in advanced bioprinting and regenerative medicine. Our mission is to make it easy to design and engineer 3D tissues. Our 3D bioprinters and bioinks are used by leading researchers worldwide to find solutions to humanity's most difficult problems—to cure disease, to test novel drugs, to eliminate the organ waiting list, to build with life.

Allevi by 3D Systems builds tools to design and engineer with life. Our desktop 3D bioprinters are the most versatile, powerful and easy-to-use bioprinters on the market. Allevi is trusted by leading researchers and industry giants in hundreds of labs worldwide.

We are constantly inspired by our community of users who are performing world-class research on our platform. We believe everyone has the potential to change the course of medicine. What will you build?

WHAT IS A 3D BIOPRINTER?

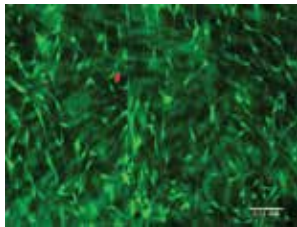
3D bioprinters are essentially 3D printers that use biocompatible materials (bioinks) mixed with cells to print living tissue. These devices build 3D tissue constructs with complex geometries by accurately depositing cell-laden hydrogels and other materials layer by layer.

WHY 3D BIOPRINT?

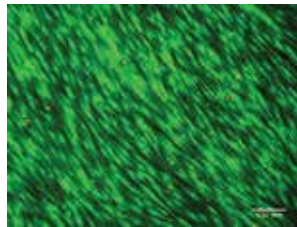
Through 3D bioprinting, researchers can create more physiologically relevant tissue models that express more accurate biomarkers than their 2D counterparts and have the potential to become more reliable, scalable, and affordable than animal models.

3D bioprinting offers design freedom and automation capabilities that allow users to study tissue and organ functions in a tunable manner.

Human Neonatal Dermal Fibroblasts in Type I Collagen



Casted



Allevi 3D Bioprinted

WHAT IS A BIOINK?

Bioinks are natural or synthetic biomaterials that mimic the extracellular matrix (ECM) to support the adhesion, proliferation, and differentiation of living cells. These materials give cells important cues they need to live, grow, and create functional 3D tissues.



Bioprinters

Key Features

PATENTED CORE PRINTHEADS

The patented Cell Optimized Removable Extruders (CORE™) are engineered to ensure high viability across a wide range of bioinks. UV and Blue LED Photocuring and homogeneous cooling and heating components allow you to print everything from hard to soft tissues without having to purchase additional printheads.

SMART CALIBRATION

Auto-calibration comes standard on Allevi 1 and Allevi 3 bioprinters. Choose any needle tip and any print dish and your bioprinter will automatically calibrate the printheads.

PRINT BED FOR EVERY DISH

The Allevi print bed is designed to fit different printing dishes with inserts for slides, petri dishes, and well plates.

VERSATILITY

Allevi bioprinters allow you to print with any cell line in any bioink to create any geometry for a variety of applications.

EXTRUSION BIOPRINTING

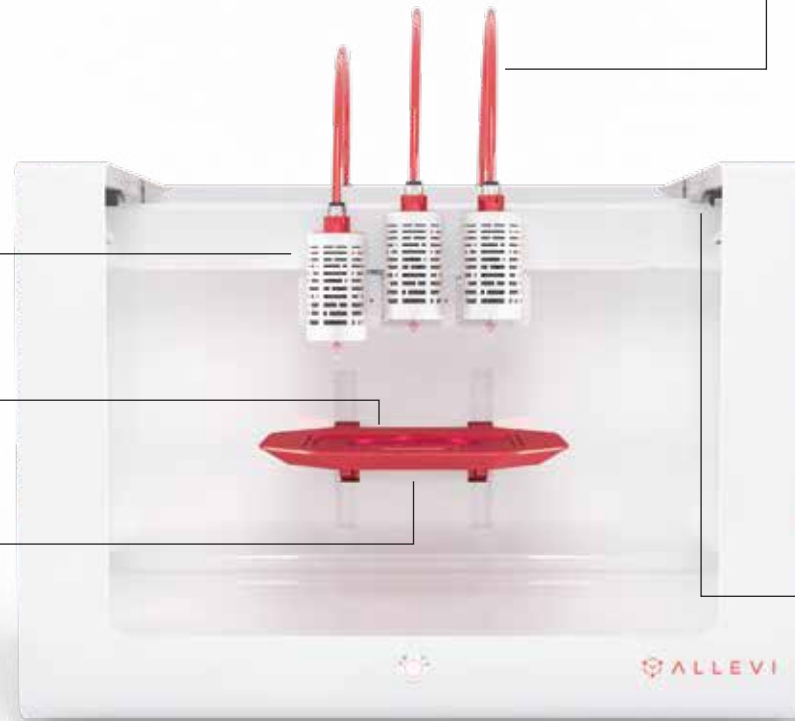
Powerful and electropneumatic pressure regulators allow you to easily control the flow of a wide range of viscosities from soft hydrogels to thermoplastics.

BIO SAFETY CABINET-COMPATIBLE

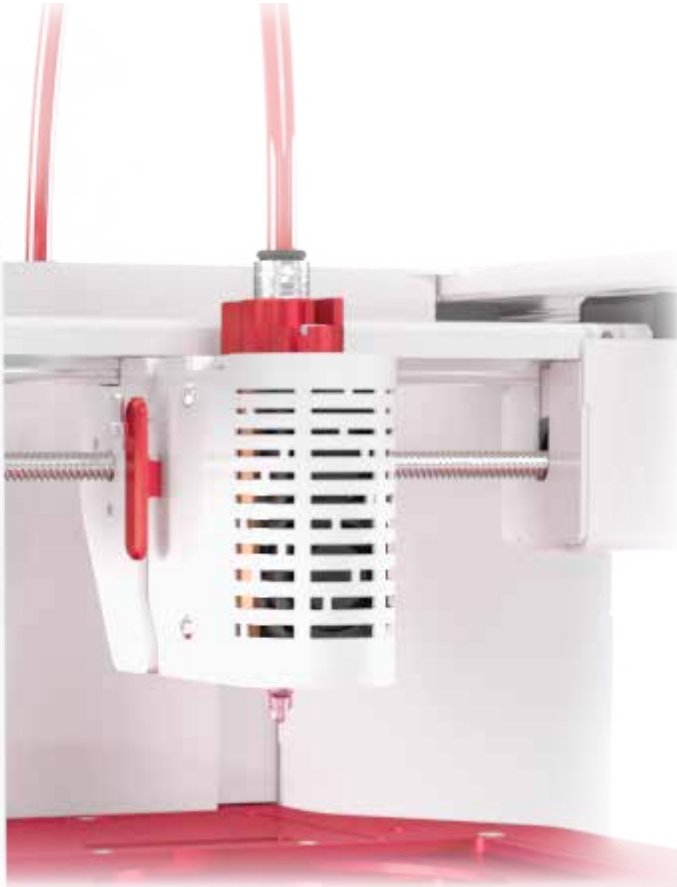
Designed with your workflow in mind. From printing acellular constructs on a bench to working with cells in a tissue culture hood, Allevi bioprinters have a small footprint to fit inside your BSCs for sterile work. No doors to get in your way.

PRECISION

Linear rails ensure single micron movements on X, Y and Z axes. This precision allows you to easily print high resolution filaments into 6, 12, 24, 48 or 96 well plates.



Allevi CORE™ Technology



The patented Allevi CORE™ printhead is standard on the Allevi 1 and Allevi 3 bioprinters.

KEY FEATURES



Temperature Control: 4°C - 160°C



Photocuring: UV (365 nm) and Blue Light (405 nm)



Syringe-Based System: 5 mL luer lock syringes



Calibration: Auto-Calibration for any needle length

Find the Allevi bioprinter that is right for your lab



Allevi 1



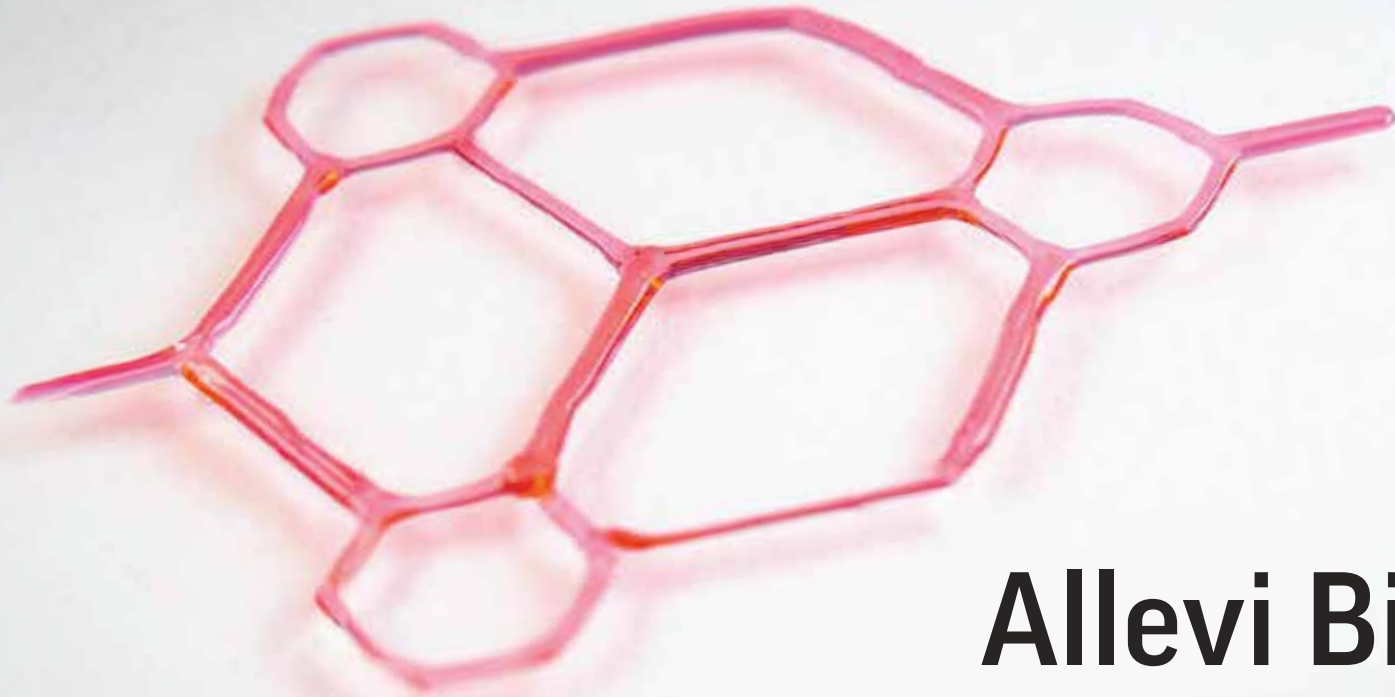
Allevi 2



Allevi 3

Number of Print Heads	One	Two	Three
Footprint (L × W × H)	12" × 10" × 10"	12" × 12" × 12"	18" × 14" × 14"
Temperature Range	Extruder 1: 4°C - 160°C	Extruder 1: RT - 160°C Extruder 2: RT - 70°C	Extruders 1-3: 4°C - 160°C
Photocuring	UV (365 nm) & Blue Light (405 nm)	Blue Light (405 nm) <small>*UV(365 nm) optional</small>	UV (365 nm) & Blue Light (405 nm)
Precision	5 microns	5 microns	1 micron
Print Bed	Room Temperature	Room Temperature	RT - 60°C

Bioinks



Allevi Bioinks

Optimal printability without sacrificing function

We have rigorously tested our bioinks in our lab to ensure that they can be easily extruded by your Allevi bioprinter without sacrificing function.

The versatility of Allevi bioprinters enables you to print biomaterials with tunable stiffnesses ranging from brain to bone, and every tissue in between. Our dedicated team of bioengineers characterizes every bioink to ensure you will achieve consistent results while bioprinting. Our syringe-based system ensures that you can continue working with your own biomaterials and custom formulations.

It is no wonder that leading researchers and industry giants worldwide rely on Allevi for their bioink needs.

Bioink for Every Application

Our bioinks are largely human and animal derived and do not contain viscosity agents that can negatively affect tissue viability and function.



LIVER

Human Hepatocytes, Type I Collagen, Methacrylated Hyaluronic Acid, Methacrylated Type I Collagen, GelMA, Allevi Liver dECM, LAP, Ruthenium

HEART

HUVECs, Type I Collagen, Acidified Type I Collagen, Methacrylated Hyaluronic Acid, Methacrylated Type I Collagen, GelMA, Alginate, Tropoelastin, Fibronectin, RGD, LAP, Ruthenium

BONE

hMSCs, Hyperelastic Bone, PCL, PLGA, Hydroxyapatite, Alginate, Fibronectin, Vitronectin, RGD

CARTILAGE

hMSCs, Acidified Type I Collagen, Methacrylated Hyaluronic Acid, Methacrylated Type I Collagen, GelMA, PCL, PLGA, Alginate, Bovine Collagen Type II, RGD, LAP, Ruthenium

KIDNEY

Type I Collagen, Methacrylated Hyaluronic Acid, Methacrylated Type I Collagen, GelMA, Alginate, Bovine Collagen Type II, RGD, LAP, Ruthenium

SKIN

Human Dermal Fibroblasts (Neonatal and Adult), Type I Collagen, Methacrylated Hyaluronic Acid, Methacrylated Type I Collagen, GelMA, Bovine Collagen Type II, Bovine Collagen Type V, Human Collagen Type III, Human Collagen Type IV, Tropoelastin, Fibronectin, LAP, Ruthenium

VASCULARIZATION

HUVECs, Type I Collagen, Methacrylated Hyaluronic Acid, Methacrylated Type I Collagen, GelMA, Pluronic, Carbohydrate Glass, Gelatin, Alginate, Coaxial and Triaxial Kits, Bovine Collagen Type V, Human Collagen Type III, Tropoelastin, Fibronectin, Vitronectin, LAP, Ruthenium

LUNG

Type I Collagen, Methacrylated Hyaluronic Acid, Methacrylated Type I Collagen, GelMA, Bovine Collagen Type V, Human Collagen Type III, Tropoelastin, LAP, Ruthenium

BRAIN

Methacrylated Hyaluronic Acid, Methacrylated Type I Collagen, Type I Collagen, Silk Fibroin, Alginate, RGD, LAP, Ruthenium

Allevi Application Protocols



Our bioengineer-designed protocols were inspired by high-impact papers published by our amazing community of users. Allevi bioink protocols are rigorously tested in our lab and include all of the steps you need to easily and quickly recreate state-of-the-art bioprints in your lab. Follow our step-by-step protocols and bring your research to the next level.

- Bone
- Organ-on-a-chip
- Skin
- Sterile GelMA
- Tumor
- Coaxial and Triaxial
- FRESH Printing
- Tissue Layering
- Vascularization

Plus an extensive library of protocols for every step of the bioprinting workflow, from cell culture to analysis. Check it out on allevi3d.com/protocols.

ALLEVI PARTNERSHIPS

Lonza

Rheolution
instruments

CORNING

FLUIDFORM
PRINTING THE IMPOSSIBLE

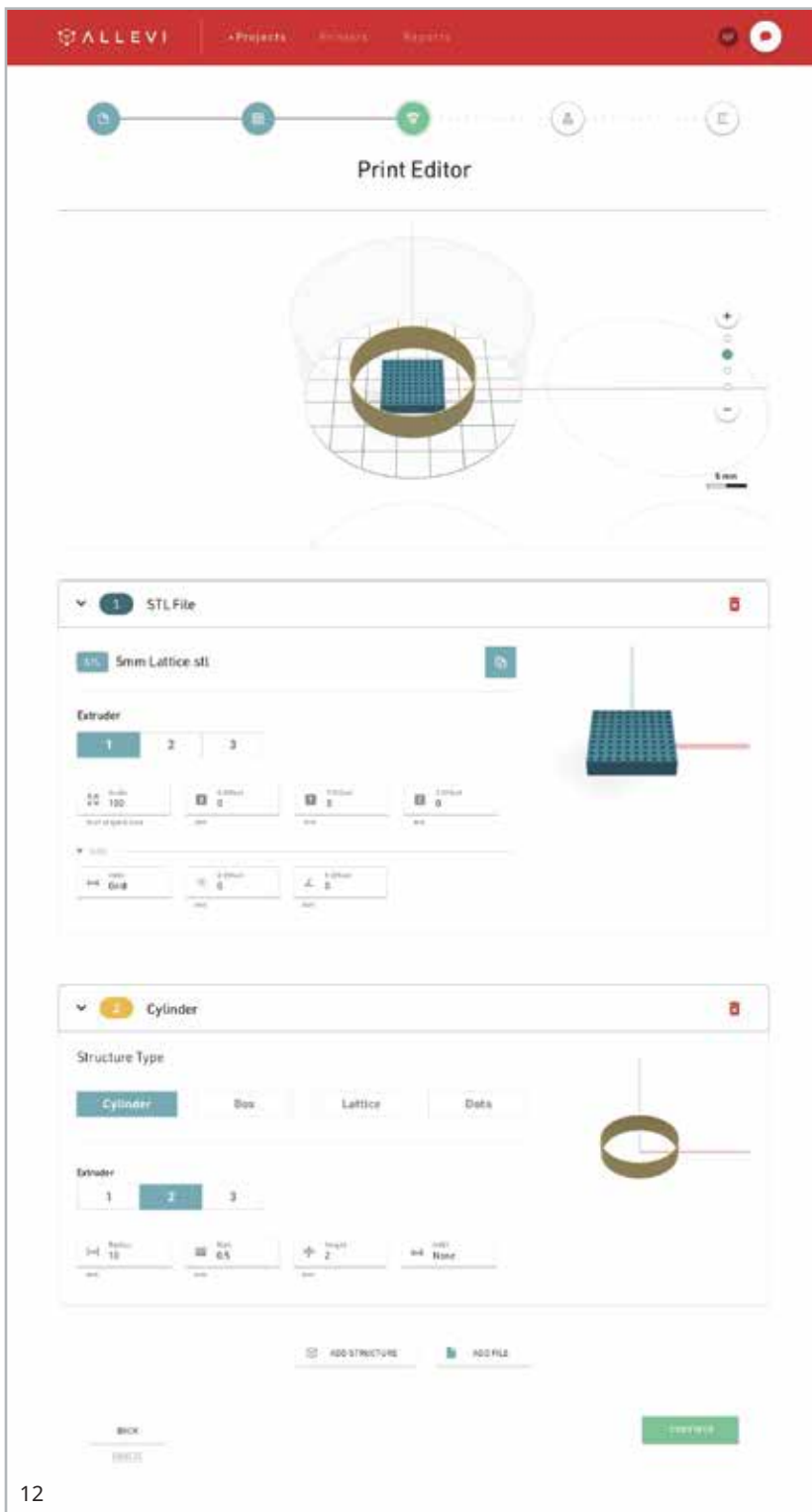
Volumetric



DIMENSION
INX

Software





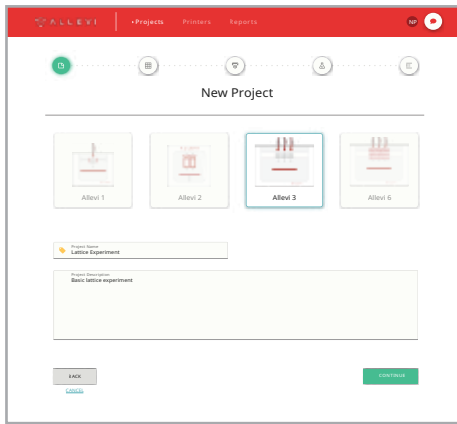
Design. Bioprint. Repeat.

Designing and building with life is easier now than ever before.

The Allevi software empowers novice and expert 3D bioprinting users alike to quickly and easily achieve their goals.

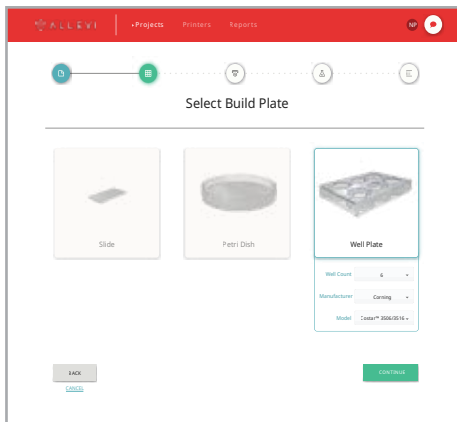
The Allevi software is going to completely change the way you run bioprinting experiments.

Bioprinting. Simplified.



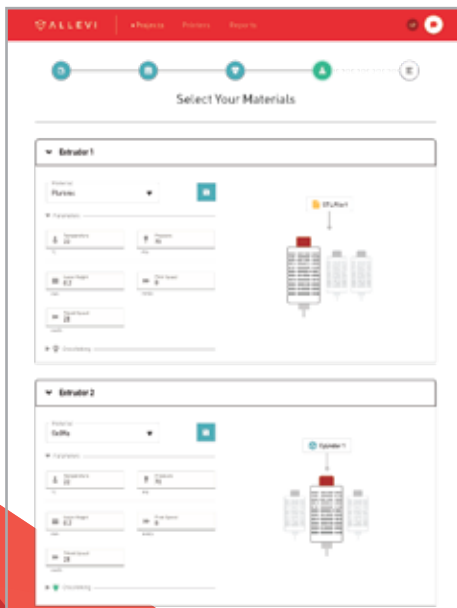
WEB-BASED WORKFLOW

Print settings and data are stored securely in the cloud
Print from any computer with no additional setup



BUILT-IN MATERIAL PROFILES, VALIDATED FOR ALLEVI BIOINKS

Ideal print parameters take the guess work out of new bioinks
Save time and money by using profiles as a jumping off point



PROJECT-BASED WORKFLOW FOR OPTIMAL PRINT REPEATABILITY

Set up your model, well plate configuration, and print parameters once,
then hit “print” to make identical copies
Easily modify projects and save additional versions



ALLEVI DYNAMIC PRINTING OPTIONS

Interpolate multiple parameters across a wellplate, to quickly determine the
best settings for your experiment, or run multiple trials simultaneously

ALLEVI PROTOCOLS

The first ever online repository for 3D bioprinting best practices and protocols.

From choosing the best materials for your application to detailed instructions for complex prints, Allevi protocols are here to help you succeed.

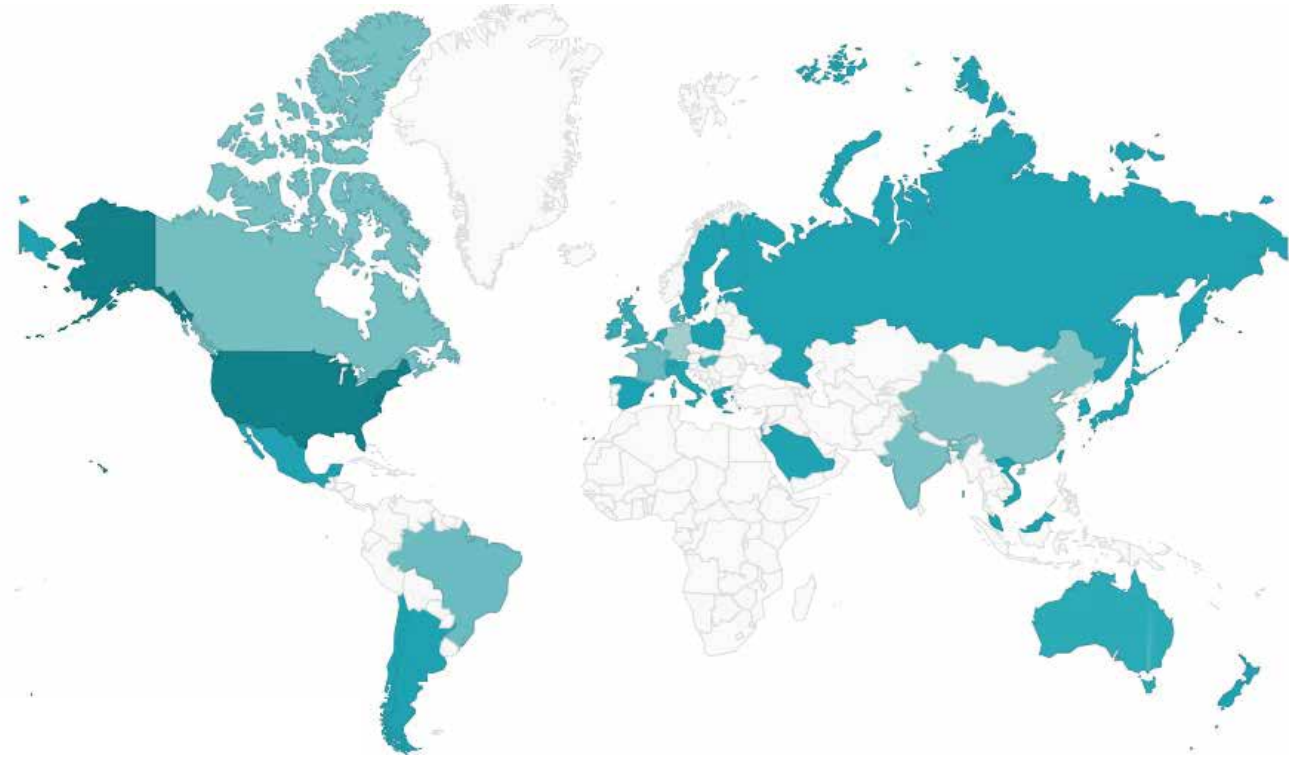
Our repository is constantly updated to have the cutting-edge techniques and best practices to help keep your research relevant.

Accelerate the pace of discovery. Build with Life.

A scientist wearing a lab coat and gloves is holding a petri dish with a hexagonal pattern of cells. The background is a blurred laboratory setting. The entire image has a warm, golden-yellow tint.

Community

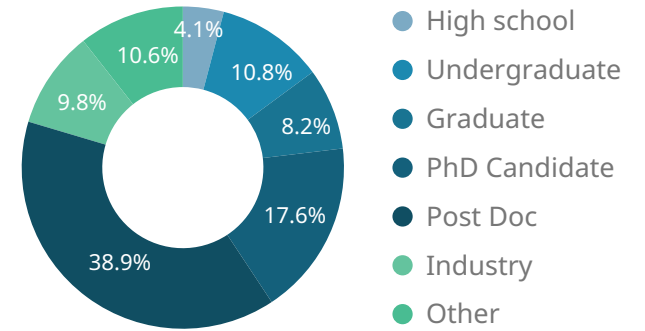
AlleVi by the Numbers



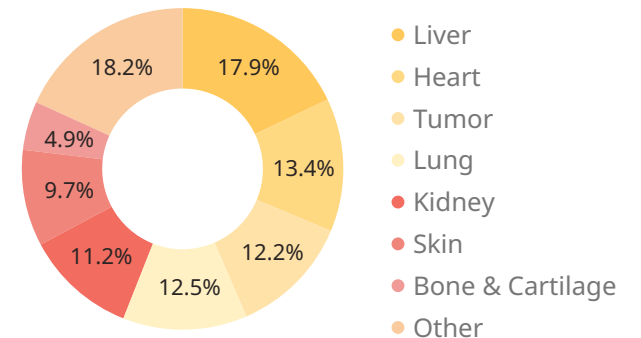
350+ LABS

40 COUNTRIES

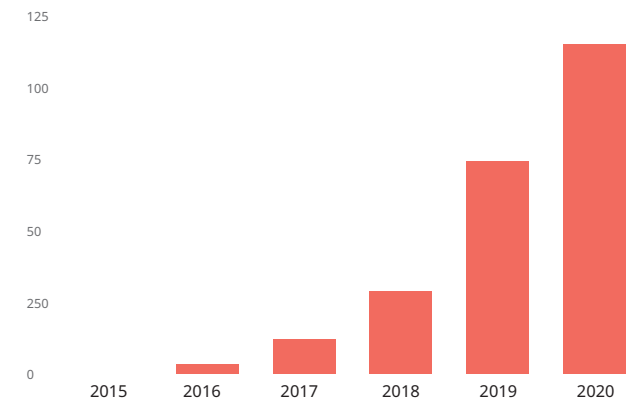
USER PROFILES



USER TISSUE TYPES



CUMULATIVE USER PUBLICATIONS BY YEAR



Dedicated to Your Success

At Allevi's core is our dedication to your success. We work to make our devices and software user-friendly and intuitive. We publish guides, write protocols, and post videos which help you bioprint faster and better.

Our relationship does not end after your purchase. We're here to help you succeed with your Allevi bioprinter and bionks. The Allevi Customer Success team has years bioprinting experience and is available to assist with everything from onboarding to application specific projects. We're here to help you reach your goals.



The Allevi Customer Success Team is incredibly helpful in terms of providing us with relevant information. They are always available, accessible and quick in responding to any of our queries. Getting started with our newly set-up equipment was much smoother with their support, and we never feel like we are experimenting on our own. Being part of the Allevi community is a privilege because they are always thinking ahead and implementing the latest technology with their systems, making making them accessible for their user.



Meysam Keshavarz
Imperial College of London



Our Allevi bioprinter and software is extremely easy to use. It works perfect with multi-material printing and provides high resolutions prints. Working with vascularized soft-tissue, we also buy bioinks from Allevi. Their LAP photoinitiator allows us to print GelMA with a blue-visible light spectrum, creating a greatly enhanced cell viability in our bioprinted tissue constructs.



Guoliang Ying
PhD at Brigham and Women's Hospital



We are currently using this technology at the University of Limerick to find new ways of regenerating cartilage tissue. Overall I have found the equipment, the software and interface are very user friendly and simple to learn for new users. The printer is very versatile as it allows the user to print a variety of bioinks including customised composite bioinks and also allows for the co-printing with thermo plastic materials. One of the main aspects of Allevi that I find invaluable is the support provided. I have found the team very quick and helpful in responding to any queries that I have had.



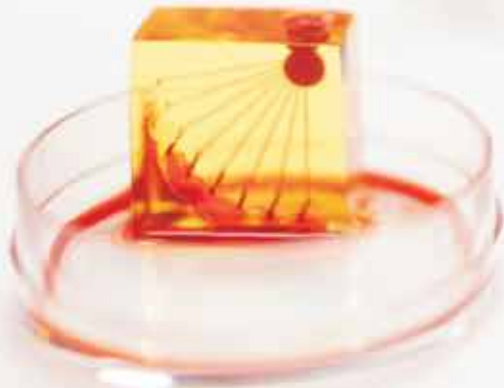
Caroline Murphy
University of Limerick

ADVANCED BIOPRINTING TECHNOLOGY DEVELOPMENT

To meet the evolving needs of the clinical and R&D communities, 3D Systems continues to push our technologies to facilitate advanced application development. Our Print to Perfusion™ process enables 3D printing of high-resolution scaffolds, which can be perfused with living cells to create tissues. In fact, together with United Therapeutics Corporation and its organ manufacturing and transplantation-focused subsidiary, Lung Biotechnology PBC, we achieved significant progress in the development of next generation bioprinting solutions for lung scaffolds that are capable of full size, vascularized, rapid, micron-level printing. We plan to continue innovating bioprinting technologies to elevate patient care through various clinical applications ranging from acellular bioresorbable devices to functionalized solid organs for transplantation.

“Today—at this point in time—we can take this step in regenerative medicine to influence the future of humankind.”

—Chuck Hull, co-founder of 3D Systems and inventor of 3D printing



Bring Your Work to Life

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