

CELLINK Product Portfolio

As the leading 3D bioprinting company, CELLINK is committed to empower the innovation of future life-saving treatments by providing technologies, products and services to understand and conquer life science challenges.

We Create the
Future of Health

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Welcome to the world of 3D bioprinting

The future is created in the present, and bioprinting will change the future of health.

Traditional methods, like 2D cell culture or animal experiments, have their limitations, leading to a growing need for more precise in vitro models in the field of life sciences. 3D bioprinting is a technology that empowers researchers to construct more physiologically relevant models that can mimic living tissue, all while reducing costs and accelerating discoveries. Whether it is developing and utilizing alternatives to animal models, accelerating drug discovery, rethinking regenerative medicine or developing tissue engineered organs to treat diseases previously considered untreatable.

ADVANTAGES OF USING BIOPRINTING AND 3D CELL CULTURE



More accurate and comprehensive representation of human tissue



Reducing animal testing



More cost-effective and efficient testing with accurate data on drug performance



Patient-specific models and treatments



Faster and more robust outcomes



Increased consistency with less room for human error

The CELLINK effect

Our product portfolio is carefully designed to democratize bioprinting, driven by customers' needs and feedback. Supported by our user-friendly software solutions, each bioprinter is designed to be effortlessly operated. Furthermore, recognizing the importance of flexibility, our systems are open platforms compatible with any biomaterial.

With the largest group of biomaterialists, cell biologists, and engineers, we are proud to work around the clock assisting our customers with application and technical support, aiding them in attaining their research goals.



The largest 3D bioprinting portfolio



Proven track record with 1500+ publications from researchers across the world






High-quality customer and application support








User-friendly solutions to allow you to focus on what's important - your ideas

Selecting the optimal bioprinting modality for your project

The choice of bioprinting technology, whether it is biodepositing, extrusion or light printing depends on the desired geometry, resolution, and material properties dictated by the specific project requirements and intended applications. By leveraging the capabilities of different bioprinters, researchers can innovate in various fields, from tissue engineering to drug delivery systems, paving the way for groundbreaking discoveries and impactful solutions in science and medicine.

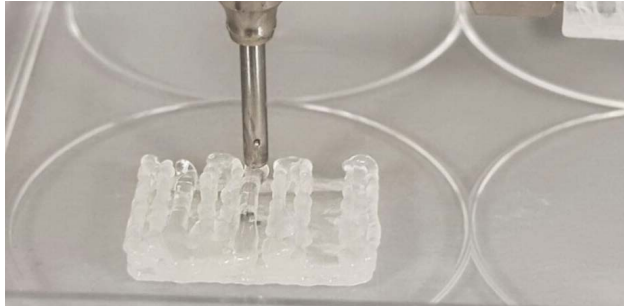
-  EXTRUSION BIOPRINTING
-  BIODISPENSING
-  LIGHT BIOPRINTING

				
SPHEROIDS	SIMPLE GEOMETRIES	MULTI-MATERIAL	MICROFLUIDICS	COMPLEX GEOMETRIES
<p>Cancer biology Drug discovery Tissue engineering</p>	<p>Cancer biology Drug discovery</p>	<p>Cancer biology Drug discovery</p>	<p>Cancer biology Drug discovery</p>	<p>Cancer biology Drug discovery Regenerative medicine</p>

In-house Data

Written by scientists for scientists, these in-house papers cover a wide range of applications. We seek to highlight novel ways to optimize your research with our devices, technologies and consumables.

EXTRUSION BIOPRINTING



Printing a complex skin construct resembling native tissue

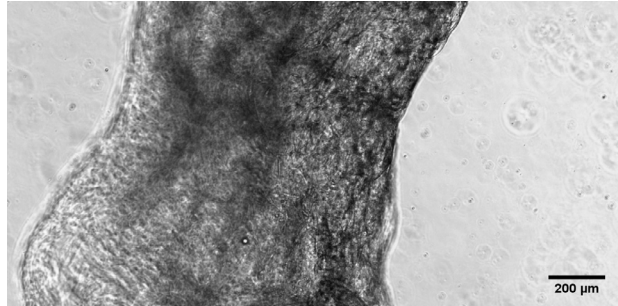
Biomimetic skin tissue has promise for clinical applications as well as pharmaceutical, cosmetic and toxicity testing.

In this app note, we showcase how the versatility of the BIO X6 allows the printing of complex tissue models, such as a complex skin model with a hypodermis, dermis and epidermis layer.



Download app note

BIODISPENSING



Developing collagen gel contraction assays

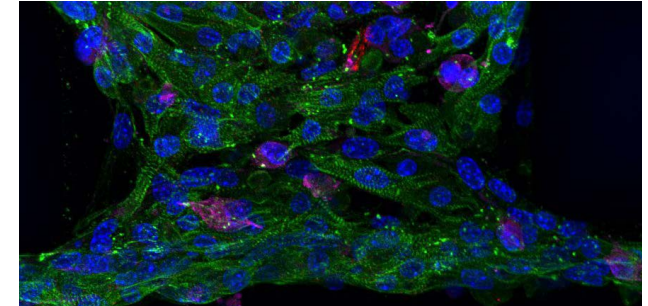
Collagen gel contraction assays are widely used to study biomechanical processes, tissue repair mechanisms and disease models.

In this app note, we show how the BIO ONE can be used to automate simple and complex biomechanical assays. In this example, we dispense collagen droplets from our cooled printhead (at 4°C) in an untreated 48-well plate.



Download app note

LIGHT BIOPRINTING



Bioprinting human microheart models

Developing relevant cardiac tissue models is key to better understanding disease mechanisms and increasing the likelihood of discovering new cardiovascular therapies.

In this app note, the BIONOVA X was used to print tissues ideal for long-term tissue maturation. Leveraging the continuous, high resolution printing mechanism, micropillar structures were printed in well plates and then seeded with iPSC-derived cardiomyocytes.



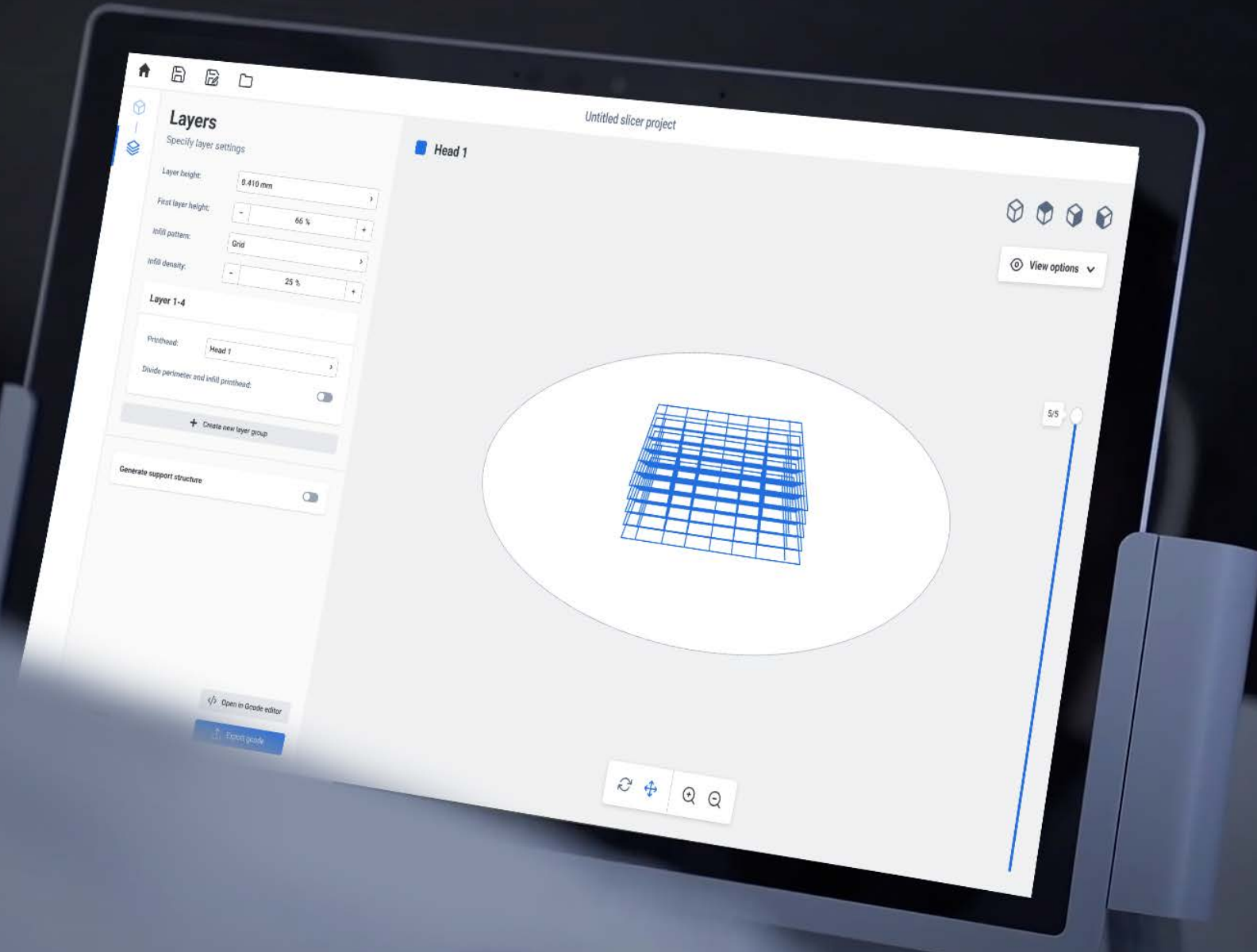
Download app note



Comprehensive Support for Your 3D Bioprinting Journey

At CELLINK, we make ease-of-use a priority in our 3D bioprinters, empowering beginners and experts alike to participate in the 3D bioprinting revolution. Beyond our intuitive, user-friendly software and hardware, we offer comprehensive technical and application support to ensure every user's success.

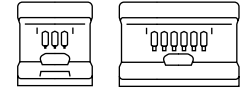
More than easy-to-use, intuitive software and hardware, we have bioprinting protocols, tutorials and troubleshooting articles, across a spectrum of topics, available to all our customers.



Leading the industry with the most diverse bioprinter solutions

Our portfolio of light- and extrusion-based bioprinter and biodispensers is designed to cater to a spectrum of needs, ensuring that you have the right tools to achieve your project goals. Whether you are a newcomer to bioprinting and looking to produce simple and straightforward models or if you are advancing into high throughput or complex model printing, we have the solution for you.

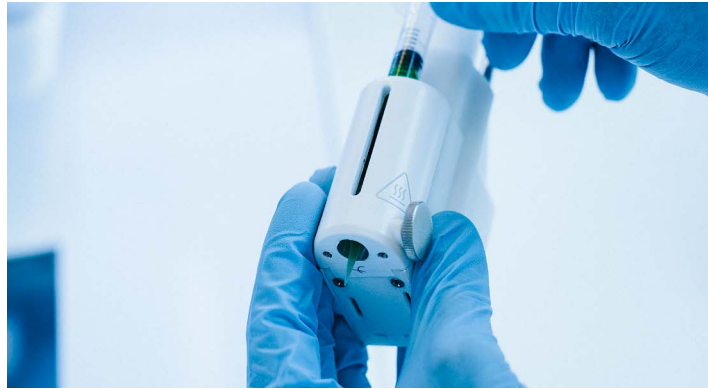




Extrusion bioprinting

The most widely used bioprinting technique, extrusion bioprinting, precisely dispenses biocompatible materials layer by layer, following tool paths generated in slices from 3D models. Our extrusion-based 3D bioprinters are designed with flexibility in mind to give researchers the freedom to work with a wider range of biomaterials, opening the door for more relevant tissue engineering.





The BIO X Series

Explore the most user-friendly and flexible bioprinters in the world.

The BIO X and the BIO X6 are the most user-friendly, flexible 3D bioprinters in the world, providing users with an unparalleled bioprinting experience. Ready-to-use right out of the box, users can start bioprinting immediately, removing the need for hours of training or tedious g-coding (but the option is there, too!).

Whether you are developing complex tissue constructs or testing new drug compounds, the BIO X Series has the advanced functionality and versatility to streamline workflows in a wide range of application areas.



PRINTHEADS

Our range of intelligent printheads and toolheads brings users the utmost flexibility and interchangeability. With an ever-growing list, the possibilities are limitless, giving you more freedom to push your research further.



SOFTWARE

The DNA Studio software streamlines the bioprinting process, eliminating the need for extensive training or manual coding. With intuitive features like layer assignment, auto-calibration, and protocol saving, users can enhance the complexity and efficiency of their workflows.



MULTI-MATERIAL PRINTING

With 3 or 6 modular printhead slots, multi-material 3D bioprinting has never been easier. With the BIO X Series users can work with a diverse range of materials, enabling the creation of complex printed structures.



OPEN MATERIAL PLATFORM

The BIO X Series allow you to either leverage CELLINK's portfolio of vetted bioinks, catering to a variety of applications and ensuring reproducibility, or to develop and use your own materials.

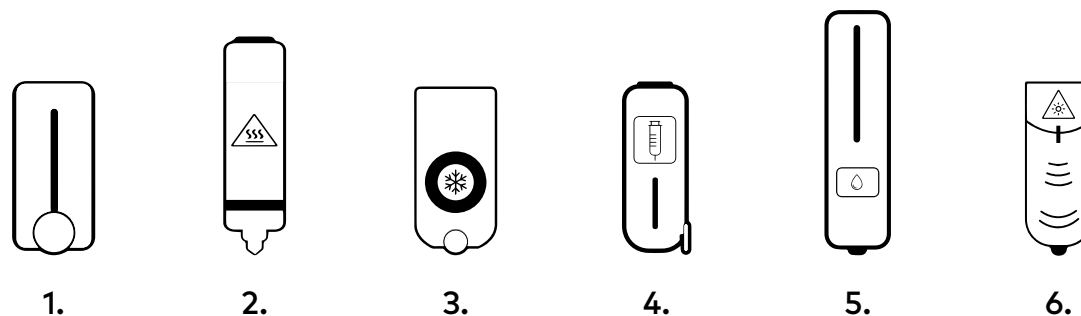


STERILITY

As part of our patented Clean Chamber Technology, both the BIO X and BIO X6 utilize HEPA filters and built-in UV sterilization, bringing increased sterility to the printing chamber.

Interchangeable Printheads

By prioritizing the flexibility of interchangeable intelligent printheads, the BIO X Series of bioprinters effectively allows multiple printing technologies on one platform. This enables researchers to tailor their BIO X or BIO X6 to their projects and fabricate even more in vivo-like tissue constructs.



1. Pneumatic Printhead

Temp: Up to 65°C

Leverage pneumatic pressure to build constructs layer by layer. Available in two sizes (3 mL and 10 mL), the Pneumatic Printhead is the workhorse for your bioprinting needs.

2. Thermoplastic Printhead

Temp: Up to 250°C

The increased upper temperature limit enables bioprinting with synthetic polymers like PCL, PLA and PLGA, greatly contributing to construct complexity and stability.

3. Temperature-controlled Printhead

Temp: 4°C - 65°C

With enhanced temperature-precision and the ability to cool, you can effortlessly print temperature-sensitive bioinks, ensuring consistent, reliable results.

4. Syringe Pump Printhead

Temp: Up to 65°C

By using a mechanically driven stepper motor, the Syringe Pump Printhead allows you to take precise control of flow rate and deposited volume, regardless of viscosity.

5. Electromagnetic Droplet Printhead

Temp: Up to 65°C

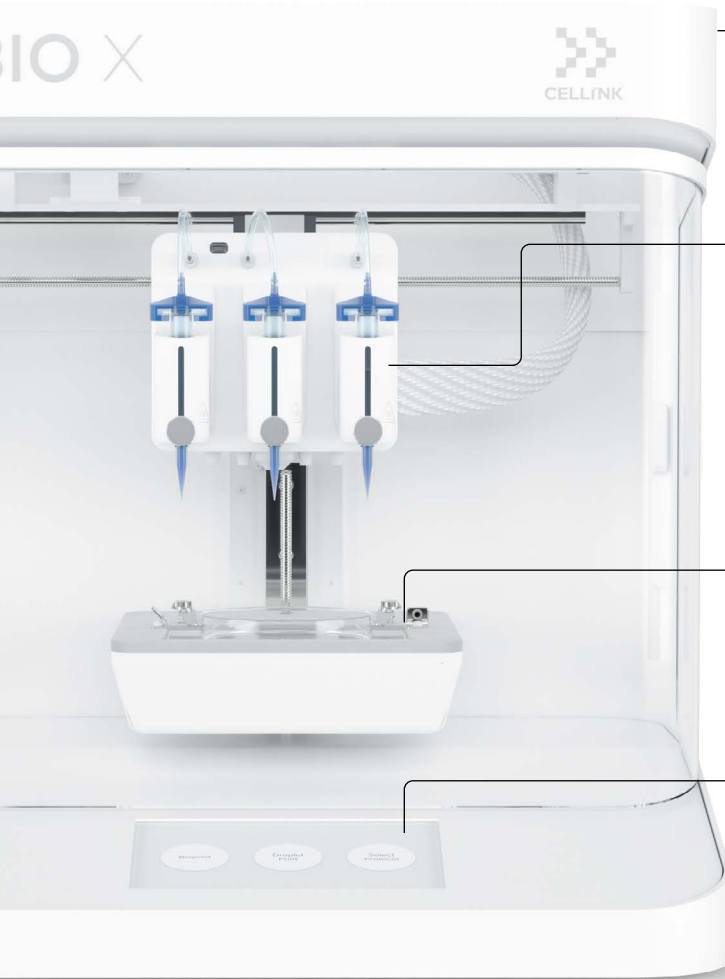
The inkjet technology allows for a high printing speed with precision. It can print a wide range of low- and medium-viscosity bioinks while also offering heat control.

6. Photocuring Toolhead

This toolhead enables targeted photo-crosslinking of biomaterials. Adjust intensity, duration, and crosslinking height based on the materials used. You can even build biomechanical gradients within a construct.

BIO X

Our flagship 3D bioprinter, the BIO X, is the go-to bioprinter for academics, researchers and innovators. Its key features combined with the DNA Studio software minimize the learning curve and ensure you have the right tool for your research.



CLEAN CHAMBER TECHNOLOGY

Powered by built-in HEPA filters and UV-C germicidal lights.

3 MODULAR PRINTHEAD SLOTS

The BIO X has 3 printhead slots which can be used modularly to interchange with 6 print- and toolheads, with temperature settings from 4°C – 250°C, to achieve unparalleled flexibility.

TEMPERATURE-CONTROLLED PRINTBED

The only system with a printbed temperature range from 4°C – 65°C.

EFFORTLESS PRINT SETUP

With a user-friendly software controlled through the on-board screen, the entire workflow can be conducted directly on the bioprinter, including saving your protocols. You can also use the external DNA Studio 4 to control the bioprinter from a distance.

4 PHOTOCURING MODULES

Four photocuring modules (365 nm, 405 nm, 485 nm, 520 nm) enabling swift curing of your printed constructs.

PRECISION MOTORS

The motors enable an XY resolution of 1 µm, giving the user total control of their printed constructs.

AUTOCALIBRATION

The printer can be autocalibrated using its own sensors, reducing the need for human intervention and risk for human error.

BUILT-IN COMPRESSOR

Capable of exerting 200 kPa of pressure right out of the box. Regulated for 700 kPa if an external compressor is connected.

BIO X6

With its 6 printheads, the BIO X6 facilitates the creation of more intricate structures, expanding the scope for complex fabrication. Additionally, its dual pressure regulation allows for coaxial printing. This, combined with the benefits from the BIO X, enables the creation of even more physiologically relevant models.

In addition to the features from the BIO X:

COAXIAL BIOPRINTING

Dual pressure chambers enable coaxial bioprinting for our temperature-controlled and pneumatic printheads.

6 MODULAR PRINthead SLOTS

An additional 3 printhead slots, enabling the possibility of even more complex printed constructs.

EFFORTLESS PRINT SETUP

Maximize sterility and printing efficiency by controlling your BIO X6 from a distance with DNA Studio 4.



	BIO X	BIO X6
3D BIOPRINTING TECHNOLOGY	Extrusion-based Bioprinting	Extrusion-based Bioprinting
NO. OF PRINTHEAD SLOTS	3	6
FILTER CLASS, CHAMBER AIRFLOW	1 x HEPA 14 filter	2 x HEPA 14 filter
UV STERILIZATION	UV-C (275 nm)	UV-C (275 nm)
PRESSURE RANGE	Internal: 0-200 kPA, External: 0-700 kPA	Internal: 0-200 kPA, External: 0-700 kPA
PRINT SURFACE COMPATIBILITY	Petri Dish, Glass Slide, Multi-Well Plate (to 384)	Petri Dish, Glass Slide, Multi-Well Plate (to 384)
MAXIMUM PRINT AREA (XYZ)	128 mm x 85 mm x 60 mm	128 mm x 85 mm x 90 mm
THEORETICAL RESOLUTION (XY)	1 μ m	1 μ m
LAYER RESOLUTION	1 μ m	1 μ m
PRINTBED TEMPERATURE RANGE	4°C – 65°C	4°C – 65°C
PRINTHEAD TEMPERATURE RANGE(S)	4°C – 250°C	4°C – 250°C
PHOTOCURING SOURCES	365 nm, 405 nm, 485 nm, and 520 nm	365 nm, 405 nm, 485 nm, and 520 nm
CALIBRATION OPTIONS	Manual and Automatic	Manual and Automatic
SOFTWARE / USER INTERFACE	External (DNA Studio 4) and On-board	External (DNA Studio 4)



Part Two

Biodispensing

Our unparalleled knowledge of 3D biology research, fueled by valued customer feedback, has led to the development of biodispensing. By merging bioprinting best practices with liquid handling technology, we introduce the world's first biodispenser. An automated and cost-effective method to rapidly create consistent and reproducible 3D models.



BIO ONE

Unlock the World of 3D Cell Culture

With exceptional cooling capabilities, precision syringe-based extrusion and an intuitive, easy-to-use desktop software in DNA Studio Core, the BIO ONE brings a new level of ease in the transition to 3D cell culture. Designed for printing temperature-sensitive materials like collagen, the BIO ONE enables scientists to develop 3D models that replicate in vivo environments, contributing to accelerated discoveries.



TEMPERATURE STABILITY

Rapidly cool the BIO ONE printhead down to 0 °C and maintain the temperature throughout the print. Thanks to a novel design, ensure temperature stability till the tip of the nozzle from start to finish.



PRECISION HYDROGEL DISPENSING

Enable total control over your print with the high-precision mechanical extrusion of the BIO ONE. The mechanism boasts a droplet volume CV of <5%.



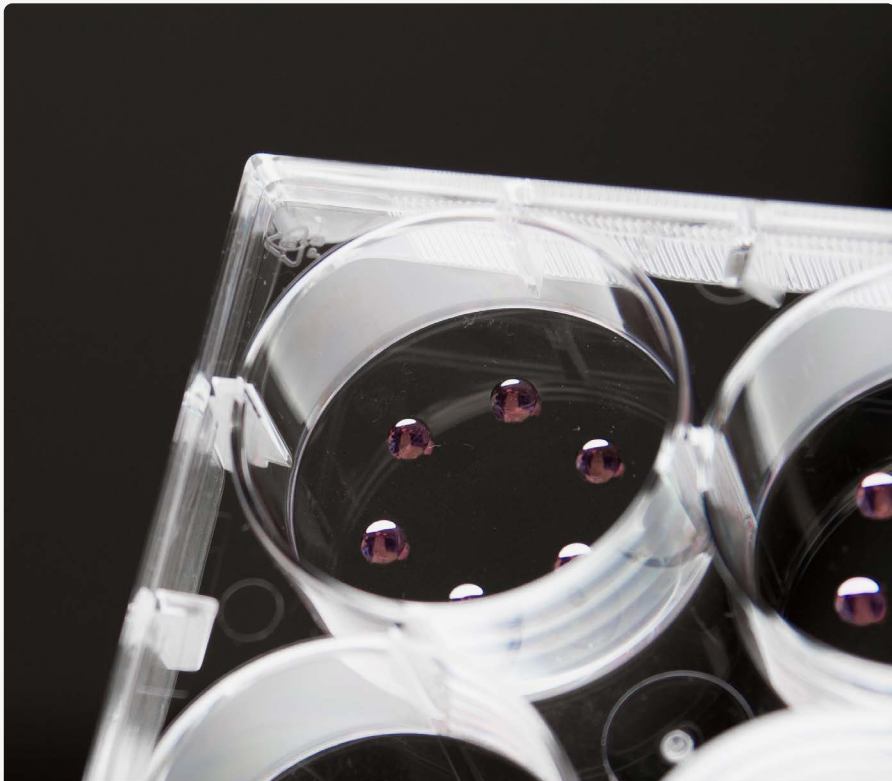
MATERIAL FLEXIBILITY

The BIO ONE is designed to be an open material platform, meaning that users can load any material into a syringe and dispense it, including temperature-sensitive materials like collagen.



MAXIMIZED REPRODUCIBILITY

Enable highly reproducible structures with limited print-to-print variation and human error, by leveraging the precision and autocalibration, and through saving your protocols to the software.

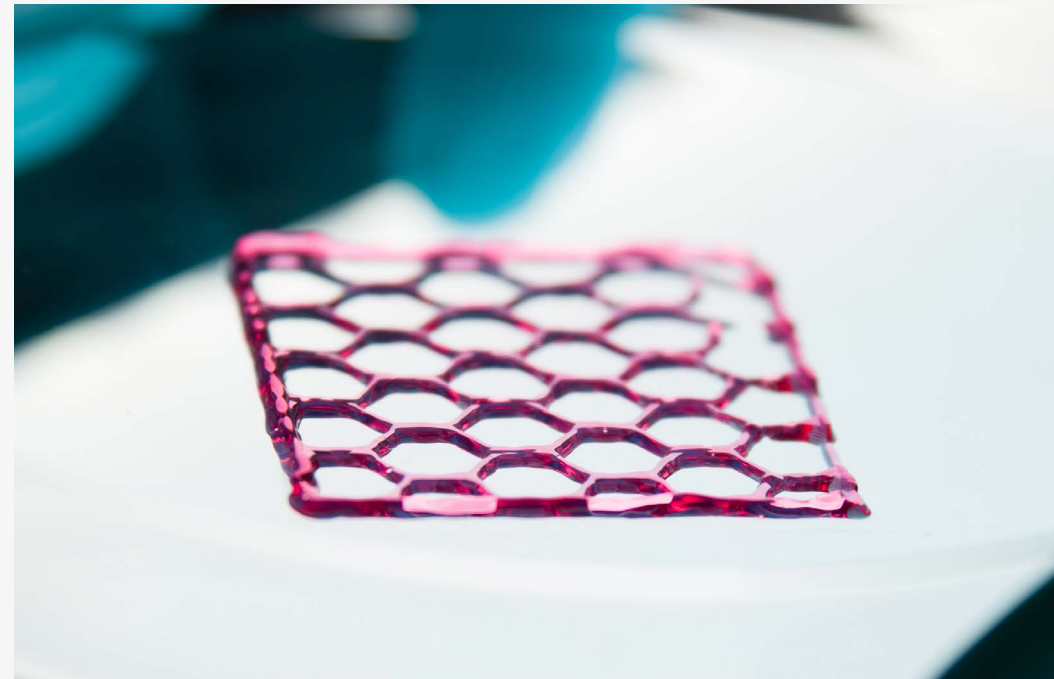


BIO ONE

3D BIOPRINTING TECHNOLOGY	Temperature-controlled Syringe-based Extrusion
NO. OF PRINTHEADS	1
PRINTHEAD VOLUME	2.5 mL
THEORETICAL VOLUME UNIT STEP	0.1 μ L
PRINTHEAD DISPENSED VOLUME CV	<5% @ 10 μ L for water
PRINT SURFACE COMPATIBILITY	Multi-Well Plates (6 to 384) and Petri Dishes
PRINTHEAD TEMPERATURE RANGE	0°C \pm 1°C - RT
PRINTHEAD FLOWRATE	1 - 50 μ L/sec
PRINTBED TEMPERATURE RANGE	RT - 65°C
PHOTOCURING SOURCES	405 nm
CALIBRATION OPTIONS	Manual and Automatic
SOFTWARE / USER INTERFACE	External (DNA Studio Core) and Integrated Display

Specification

CELLINK





Light bioprinting

Derived from SLA processes, light bioprinting solidifies photoinks (bioinks) via initiated chemical reactions upon illumination. Utilizing technologies such as DLP, it enables faster curing of entire layers simultaneously, achieving higher resolutions and intricate detail reproduction through millions of small light points. Our light-based 3D bioprinters are designed to give researchers an easy-to-use avenue for cell-friendly light-based bioprinting.



LUMEN X

The Standard for Light Bioprinting

Built from the ground up with CELLINK's cutting-edge technology, powered by 405 nm visible light, this system brings a new degree of precision and utility to the light-based 3D bioprinter space. Built on years of customer input, the next generation of LUMEN X takes every need and detail into consideration.

CELLINK





PRECISE, COMPLEX PRINTING

The pixel resolution of 35 μm combined with optimized photoinks makes working on organ-on-a-chip models and developing microfluidic chips an effortless experience.



MULTI-STIFFNESS GRADIENTS

Accurately tune the stiffness of your printed construct on demand to create biomechanical gradients that capture the finer details of in vivo biology.



TEMPERATURE CONTROL

Work with a wider-than-ever range of materials, or focus on studying the thermal properties of a single material, by setting the temperature between room temperature and 60 °C



MODULAR BUILD PLATFORMS

With an expanded range of build platforms, with a max build volume of 68x38x100 mm, print a variety of model sizes and materials with ease—and say goodbye to unnecessary waste of photoinks.

BIONOVA X

Lighting Up High Resolution 3D Bioprinting

The BIONOVA X is the world's first digital light processing (DLP)-based bioprinter designed for direct printing in multi-well plates. Utilizing a patented continuous printing technology, the BIONOVA X can print complex, layerless 3D structures with superior resolution, speed and flexibility.



CELLINK



UNMATCHED RESOLUTION AND SPEED

With a 10 µm printing resolution, the BIONOVA X is the most accurate DLP 3D bioprinter available. Effortlessly print microarchitectures, vasculature, and other complex geometries.



MULTI-MATERIAL PRINTING

The enhanced precision of BIONOVA X enables full support for multi-material bioprinting, the first light-based bioprinter to do so, which is essential for constructing more complex, biomimetic tissues.



DIRECT IN-WELL PRINTING

Increase throughput with the BIONOVA X through its in-well layer-less printing technology. Print directly in 6-, 12-, 24- and 96-well plates, depending on your research requirements.



MULTI-STIFFNESS GRADIENTS

Owed to the system's grayscale printing capabilities, you can accurately tune the stiffness of your material and create biomechanical gradients that capture the finer details of in vivo biology.

	LUMEN X	BIONOVA X
3D BIOPRINTING TECHNOLOGY	Layer-by-layer DLP Printing Technology	Layerless and Layer-by-layer In-well DLP Printing Technology
MULTI-MATERIAL SUPPORT	Not supported	Supported
UV STERILIZATION	UV-C (275 ± 10 nm)	UV-C (270 ± 10 nm)
BUILD SURFACE COMPATIBILITY	Glass bottom and metal platforms (available in three sizes)	96-, 24-, 12-, and 6-well plates
MAXIMUM PRINT AREA	68 mm x 38 mm x 100 mm	96-Well Plate Ø 3 mm x 5 mm
		24-Well Plate Ø 9 mm x 6 mm
		12-Well Plate 9 mm x 9 mm x 9 mm
		6-Well Plate 19 mm x 10 mm x 9 mm
PIXEL RESOLUTION (XY)	35 µm	10 µm
SMALLEST LAYER HEIGHT (Z)	20 µm	4 µm
LED WAVELENGTH	405 nm (FWHM 15 nm)	405 nm (FWHM ±7.5 nm)
INTENSITY RANGE	Up to 30 mW/cm ²	4 - 16 mW/cm ²
TEMPERATURE RANGE	RT - 60 °C	RT - 60 °C
SOFTWARE / USER INTERFACE	DNA Studio Illuminate (External and on-board)	On-board

Biomaterials to fulfill every need

The most extensive biomaterial portfolio, for every cell type and application.

At CELLINK, we understand your research needs may vary. That is why we stock our products in multiple different formats. Take full control of your bioink composition with our base materials, as well as additives like photoinitiators and thickeners, and build the perfect bioink for your experimental setup.

Or use a bioink from us, the first bioink company in the world – we know a thing or two about bioinks. Our ready-to-print and tissue-specific bioinks are specifically optimized for printing fidelity and maintaining cell viability.

Select from animal-based materials like collagen and gelatin, or work with plant-based materials like alginate and NFC.

CELLINK

GOOD FOR

BASE MATERIALS	Extrusion, Biodispensing, Light
READY-TO-USE BIOINKS	Extrusion and Biodispensing
TISSUE-SPECIFIC BIOINKS	Extrusion and Biodispensing
PHOTOINKS	Light





NEURAL STEM CELLS
 GelMA FIBRIN
 CELLINK / GelXA Laminink 411

IMMUNE CELLS
 CELLINK / GelXA Laminink 411
 GelMA A

LIVER CELLS
 CELLINK / GelXA Laminink 111
 CELLINK / GelXA Laminink 521

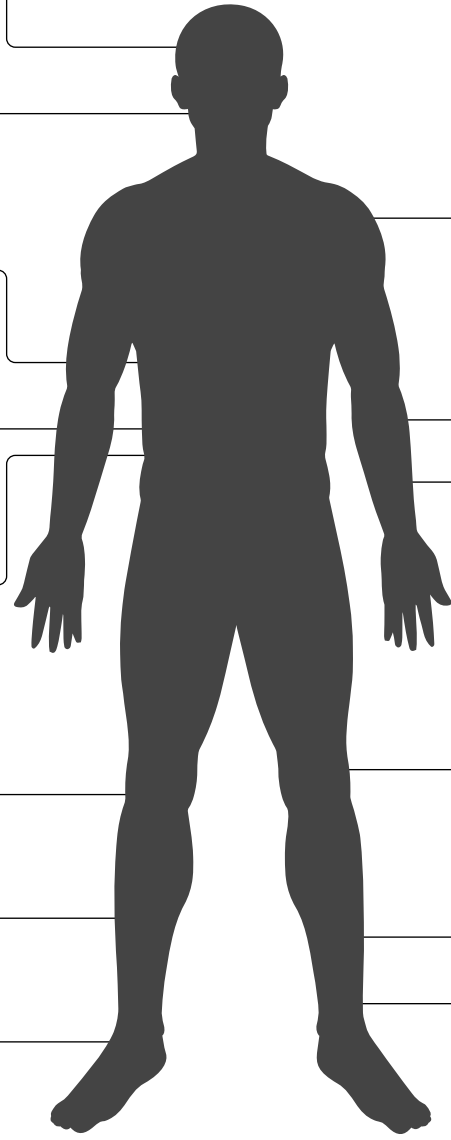
KIDNEY CELLS
 CELLINK / GelXA Laminink 111
 CELLINK / GelXA Laminink 121

PANCREATIC CELLS
 CELLINK / GelXA Laminink 411

CARTILAGE CELLS
 Lifeink
 GelXA Cartilage

CANCER CELLS
 CELLINK / GelXA Laminink
 TeloCol-10
 CELLINK Bioink

HEMATOPOIETIC STEM CELLS
 CELLINK / GelXA Laminink 411
 CELLINK / GelXA Laminink 521



UNIVERSAL INKS

CELLINK Bioink
 TeloCol-10
 PhotoGel-INK
 PhotoHA-INK
 PhotoAlginate-INK
 GelMA 95%

CARDIAC CELLS

GelMA A
 PhotoHA-INK
 CELLINK / GelXA Laminink 521

SKELETAL MUSCLE CELLS

GelMA A
 CELLINK / GelXA Laminink 121
 CELLINK / GelXA Laminink 521

INTESTINAL CELLS

CELLINK RGD
 GelMA A

VASCULATURE

CELLINK / GelMA / GelXA Fibrin
 CELLINK / GelXA Laminink 411

SKIN CELLS

CELLINK/GelXA Skin
 GelMA Fibrin
 Lifeink

BONE CELLS

CELLINK/GelXA BONE

The global leader in bioprinting

Since our inception, we have been committed to meeting our customers' needs by producing versatile, high-quality and easy-to-use systems and solutions. As industry leaders in bioprinting with the world's most robust portfolio of systems, materials, and services, we aim to facilitate the paradigm shift of 3D cell culture.

CELLINK



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