# BIONOVA X

Lighting up high resolution,
high throughput 3D bioprinting


Create the future of health

CELLINK
A BICO COMPANY

# Accelerating Your Research

**Facilitating greater insights across key applications like disease modeling, regenerative medicine, personalized medicine and tissue engineering.**

We offer the world's first digital light processing (DLP)-based bioprinter for direct printing in multi-well plates. Our rapid 3D bioprinter can print complex 3D structures, with superior resolution, speed, flexibility and scalability from computer aided design (CAD) models or medical images. The visible light-induced polymerization mechanism also allows for the incorporation of various cell types with tunable biomaterials to directly print functional tissue models in a matter of seconds. Strengthening research with high resolution, reproducibility and high speed, light-based bioprinting across key application areas.

## FEATURES DESIGNED FOR YOUR SUCCESS

### Multi-stiffness Constructs

Unlock a new degree of phsyiological relevance by implementing biomechanical gradients across prints.

### Auto Alignment

No manual alignment or focusing needed.

### Cell Friendly Printing

Maintain high cell viability with visible light (405 nm) printing.

### Temperature Control

Provide optimal printing conditions for your bioinks.

### Direct in-Well Printing

High-throughput culture and assay ready, no sample transfer needed in **6, 12** or **24** well-plates.

### Unparalleled Speed

With a patented continuous printing technology on board, print faster than ever without sacrificing print fidelity.

### Ultra High Resolution

Print down to **10 µm** resolution, enabling effortless microarchitecture bioprinting.



# Streamlined Operation

**Exceptional design to maximize output and efficiency**


Easily fits in a biosafety cabinet

Built-in UVC sterlization for optimal sterility

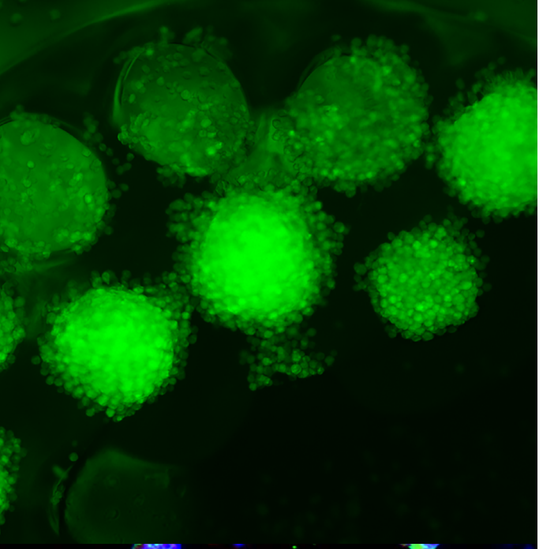
Built-in computer for seamless protocol set up

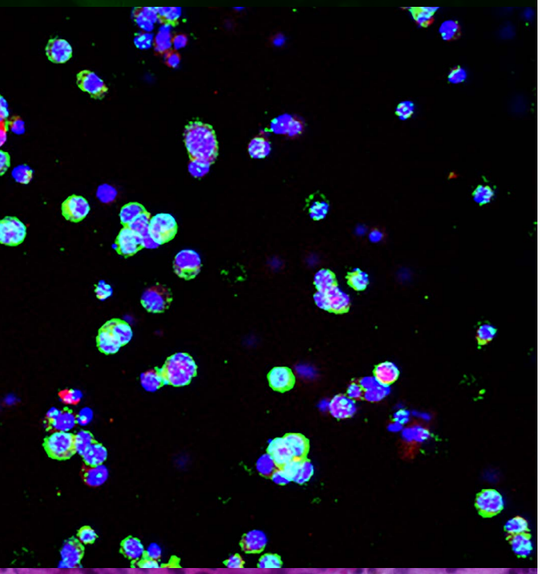
Glove friendly 10″ touch screen

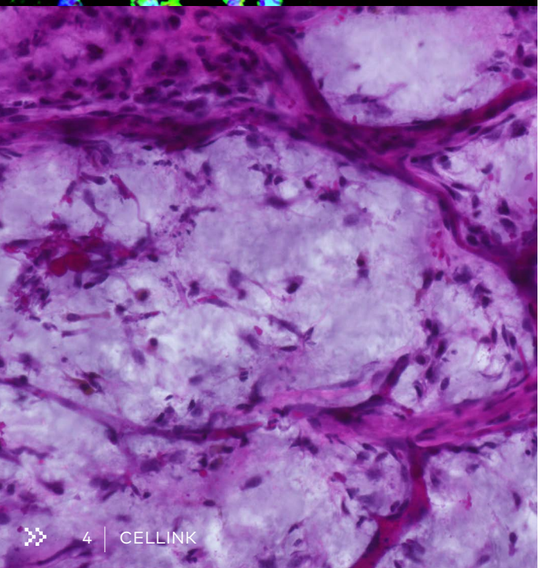

User-friendly interface

Supports STL files as well as image files

Open material platform complimented by a wide range of ready-to-use inks







## Regenerative Medicine

- Print implantable scale devices fit to patient requirements for personalized therapies.
- Develop constructs with the physiologically relevant biomechanical properties .
- Print microarray well plates to for consistent spheroid generation.

Spinal Cord  Peripheral Nerve

## Biomimetic Models

- Regionally vary stiffness with grayscale printing to create gradients mimicking in vivo conditions.
- Print with cells at high speed, maximizing cell viability.
- Open source system for maximum biomaterial compatability.

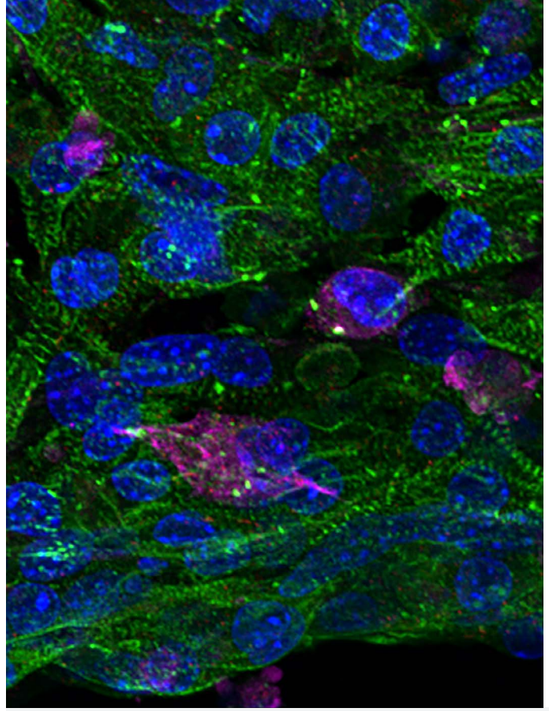
Liver  Nerve  Heart

## Precision Medicine

- Easily construct lumen like structures to promote vascularization.
- High speed printing for cell-based constructs.
- Develop patient specific models from 3D medical images.

Liver  Vascularized Tissue





## Disease Modelling

- Develop models that direct cell behaviour to model disease like conditions.
- Print in up to 24 well plates for high throughput screening assays.
- Create models ideal for long term tissue maturation.

Cardiac  Kidney  Cancer

# Accelerating research with high throughput printing

**REUSABLE PROBES**

BIONOVA X printing probes are the key for multi-well DLP bioprinting and are available for 6, 12 and 24-wells. Each probe comes sterile and is and is good for up to 24-hours of continuous, layerless printing. Extend the life of the probe by washing it before printing with different cell types.

**MULTI-WELL PLATES**

Adhesive plates use unique technology that ensures 3D bioprinted constructs are crosslinked directly at the bottom of the plates, allowing to easily continue with downstream experiments and analysis. For constructs that require transferring, non-adhesive plates are also available.

The most extensive portfolio of ready-to-print DLP compatible bioinks.

## Bioinks for every application

**Begin printing in no time with our standard bioinks**

Our family of DLP compatible bioinks are shipped ready-to-use and have been optomized for speed, accuracy and resolution.

**Bioink components for total biomaterial flexibility**

The BIONOVA X is an open-source system, enabling researchers to use their own bioinks. Choose from a variety of concentrated components in lyophilizate or powder form to fine-tune bioink properties and achieve research freedom.

| | PHOTOINK | STIFFNESS | CELL COMPATIBLE | APPLICATION |
|---|---|---|---|---|
| SOFT BIOINKS | **PhotoGel®-INK**<br>PhotoGel®-INK 50% DS<br>PhotoGel®-INK 90% DS | <br>25 kPa<br>60 kPa | <br>Yes | A methacrylate modified gelatin-based photocurable bioink for:<br>• **heart, liver, nerve, vasculature**<br>• **drug delivery** |
| | **PhotoHA®-INK**<br>PhotoHA®-INK Stiff<br>PhotoHA®-INK Soft | <br>9.7 kPa<br>1.5 kPa | <br>Yes | A methacylated hyaluronic acid-based bioink for:<br>• **brain, skin, cornea, cartilage, nerve** |
| | **PhotoAlginate®-INK** | 1.4 kPa | Yes | A novel alginate-based photocurable bioink for:<br>• **wound healing, tissue engineering**<br>• **cell encapsulation, drug delivery** |
| STIFF BIOINK | **PEGDA-Ink** | >50kPa | No | A photocurable ink with tunable mechanical properties for printing in acellular scaffolds for:<br>• **spheroids culturing and tumor modeling** |



# Specifications

| | | |
|---|---|---|
| **3D Bioprinting technology** | Direct in-well layerless printing with digital light projection-based technology | |
| **Printing resolution (XY)** | 10 µm | |
| **Z-precision (motor driven)** | 4 µm | |
| **LED wavelength** | 405 nm (FWHM ±7.5nm) | |
| **Intensity range** | 4-16 mW/cm² | |
| **Heater temperature** | Room temperature to 60 °C | |
| **Well plate format** | 24 well plate, 12 well plate, 6 well plate | |
| **Build volume** | 24 well plate | 63 mm² (Ø 9 mm) x 6 mm (Z) |
| | 12 well plate | 9 mm (X) x 9 mm (Y) x 9 mm (Z) |
| | 6 well plate | 19 mm (X) x 10 mm (Y) x 9 mm (Z) |
| **Build plate calibration** | Auto alignment | |
| **Display** | 10" touch screen, glove friendly | |
| **Connectivity** | 1x USB port (type A) | |
| **Software** | On-board software | |
| **Support file types** | .stl, .png, .bmp, .jpg | |
| **Sterility** | UVC sterilization of chamber (270 ± 10nm) | |
| **Dimensions** | 515 mm (W) x 380 mm (D) x 441 mm (H) | |
| **Weight** | 41 kg (90 lbs) | |
| **Power supply input** | 100-240VAC, 50-60Hz, 200W | |

## CELLINK, A BICO COMPANY

CELLINK is creating the future of health as part of BICO, the world's leading bioconvergence company. When CELLINK released the first universal bioink in 2016, it democratized the cost of entry for researchers around the world and played a major role in turning the then up-and-coming field of 3D bioprinting into a thriving $1 billion industry. Today, the company's best-in-class bioinks, bioprinters, software and services have been cited in over 700 publications and are trusted by more than 1,000 academic, pharmaceutical and industrial labs. At the forefront of the bioprinting industry, CELLINK aims to alleviate organ donor shortage with biofabricated transplantable organs and remains committed to reducing our dependence on animal testing and increasing efficiencies in drug development with more physiologically relevant bioprinted organ models. Visit cellink.com to learn more. BICO is listed on the Nasdaq Stockholm Main Market under BICO.

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