

# Corning® Matribot® Bioprinter

CORNING

Welcome to the World of 3D Cell Culture and Bioprinting

Bioprinting fabricates a 3D tissue-like construct, layer-by-layer using cells, spheroids, or organoids suspended in a bioink.<sup>1</sup>

Bioprinting makes it possible to reproduce structural features seen *in vivo* and explore the cell-to-cell relationships that affect tissue functionality.<sup>2</sup>

The new Corning Matribot bioprinter is a breakthrough benchtop device that enables you to dispense and print with temperature-sensitive hydrogels such as Corning Matrigel matrix and Collagen without cold blocks, ice buckets or cold room, as well as hydrogels that require ambient temperature. Unlike other bioprinters, the Matribot bioprinter uses a syringe-based extrusion platform with a temperature-controlled printhead, insulated nozzles, printbed that can be heated, and a UV LED system, all staged in a small footprint.

## Features and Benefits

- ▶ **Convenient, Steady Temperature Control** – Dispenses a variety of materials without the need for a compressor. The syringe printhead can accommodate a variety of different materials from Corning Matrigel matrix to Collagen, as well as other ambient-temperature bioinks such as Alginate-based hydrogels, and can dispense into a variety of vessels including multiwell plates, Petri dishes, and microplates as small as 384-well, with high precision and control.
- ▶ **Lab-standard Equipment** – No need for special cartridges or custom tubing. Inks for bioprinting are also available in syringe format with standard luer locks for convenient cell mixing.
- ▶ **Cooling Syringe Printhead** – The cooling syringe printhead can chill material, perfect for when using temperature-sensitive ECM materials such as Corning Matrigel matrix. The printhead is designed to hold material steady at the desired temperature, while the bioprinter's insulator helps to reduce clogs at the nozzle tip.
- ▶ **Heated Printbed and UV Curing System** – Pre-heat the printing surface or polymerize post-print with the heated printbed, which is ideal for maintaining print structure for low viscosity materials such as Matrigel matrix or Collagen. The unit also contains a 405 nm LED curing system for inks that require UV crosslinking.
- ▶ **Compact Footprint and Easy to Clean** – The compact design allows the Matribot bioprinter to easily fit into a standard lab hood or biosafety cabinet (BSC). Its exposed surfaces are cleanable with 70% ethanol or other standard lab disinfectants and lint-free lab wipes.
- ▶ **Calibration** – Offers both automatic calibration using a surface probe or contact-free manual calibration.
- ▶ **System Flexibility** – The software accepts STL, OBJ, or AMF files and supports both Windows® (XP 32 bit/7+) or macOS X (10.6 64bit/ 10.7+) operating systems. Alternatively, users can also run custom G-code files directly on the unit using the SD card input and LCD interface.
- ▶ **Explore the World of 3D with Easy-to-use Functionality** – The user-friendly Corning DNA Studio software enables you to adjust several parameters in order to optimize dispensed volumes and printed structures for your application. Pre-loaded software programs are included that are easy to use. Bioprint layered geometries to better emulate *in vivo* environments for 2D and 3D cell culture applications.



## Ordering Information

| Cat. No. | Description                                      | Qty/Cs |
|----------|--|--------|
| 6150     | Corning Matribot bioprinter with starter package | 1      |

## Inks for Bioprinting

**Corning® Pluronics sacrificial ink** (40%) is a ready-to-print sacrificial and support ink that exhibits excellent printability. It is easy to remove once printed by washing with cold PBS. Pluronics sacrificial ink has been used for the fabrication of vascularized tissues<sup>3</sup>, channels in microfluidic devices<sup>4</sup>, and supporting scaffolds for complicated tissue constructs.

Corning Pluronics sacrificial ink can also be diluted to 25% v/v with water and used as a learning tool to mimic dispensing of temperature-sensitive hydrogels.

**Corning Start sacrificial ink** is a water-soluble gel used as a sacrificial material and ink for educational purposes. Ideal for evaluating the printing of complex structures, prior to printing with human cells.

## Ordering Information

| Cat. No. | Description                                       | Qty/Cs |
|----------|---|--------|
| 6157     | Corning Pluronics sacrificial ink, 2.7 mL/syringe | 5      |
| 6159     | Corning Start sacrificial ink, 2.7 mL/syringe     | 10     |

## Consumables

Corning Standard conical bioprinting nozzles are made from polypropylene, have a female Luer connector, and available in 22G, 25G, and 27G.

## Ordering Information

| Cat. No. | Description  | Qty/Cs |
|----------|--|--------|
| 6165     | Corning Standard conical bioprinting nozzles, 27G-200 µm (clear) | 50     |
| 6166     | Corning Standard conical bioprinting nozzles, 25G-250 µm (red)   | 50     |
| 6167     | Corning Standard conical bioprinting nozzles, 22G-410 µm (blue)  | 50     |

## References

1. Datta P, Dey M, et. al. 3D bioprinting for reconstituting the cancer microenvironment npj Precision Oncology (2020) 4:18.
2. Chen PE, Toksoy Z, et. al. 3D bioprinting of vascularized tissues for in vitro and in vivo Applications. (2021). <https://doi.org/10.3389/fbioe.2021.664188>.
3. Richards D, Jia J, Yost M, et al. 3D bioprinting for vascularized tissue fabrication. Ann Biomed Eng. (2017) Jan; 45(1): 132-147.
4. Zhou K, Dey M, Ayan B, et al. Fabrication of PDMS microfluidic devices using nanoclay-reinforced Pluronic F-127 as a sacrificial ink. 2021. Biomed. Mater. 16 045005.

**Warranty/Disclaimer:** Unless otherwise specified, all products are for research use or general laboratory use only.\* Not intended for use in diagnostic or therapeutic procedures. Not for use in humans. These products are not intended to mitigate the presence of microorganisms on surfaces or in the environment, where such organisms can be deleterious to humans or the environment. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications. \*For a listing of US medical devices, regulatory classifications or specific information on claims, visit [www.corning.com/resources](http://www.corning.com/resources).

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