

# HOLOGRAPH X™



State-of-the-art technology  
with infinite flexibility.





## No other technology can match the speed and resolution of the Holograph X

Holograph X is a high resolution holographic stereolithography, which enables bioprinting of extremely small structures.

The proprietary multiphoton laser system prints in biocompatible materials with up to 150,000 points of light/sec in a 3D pattern replicating a user generated structure. This allows for extremely rapid 3D printing of high-resolution structures that match human capillaries and the finest extracellular matrices. The printing process is non-toxic and can be performed in the presence of cells.

## Enabling tomorrows' applications

### Print any vascular structure you can dream of

- Researchers can re-create any structure that matches a tissue they want to study.
- Bioinks may be tuned to print with cells present for immediate local cell layering. Also, bioinks are tunable such that they may promote or delay biodegradation post transplantation.
- Reliably create and re-create specific tissue architectures to study cell and tissue development.

### Wide range of possible structures

- Any user-generated CAD file may be printed
- Software converts your tissue design into a biocompatible structure that is compatible with cellseeding, long-term cell culture, and animal transplantation.

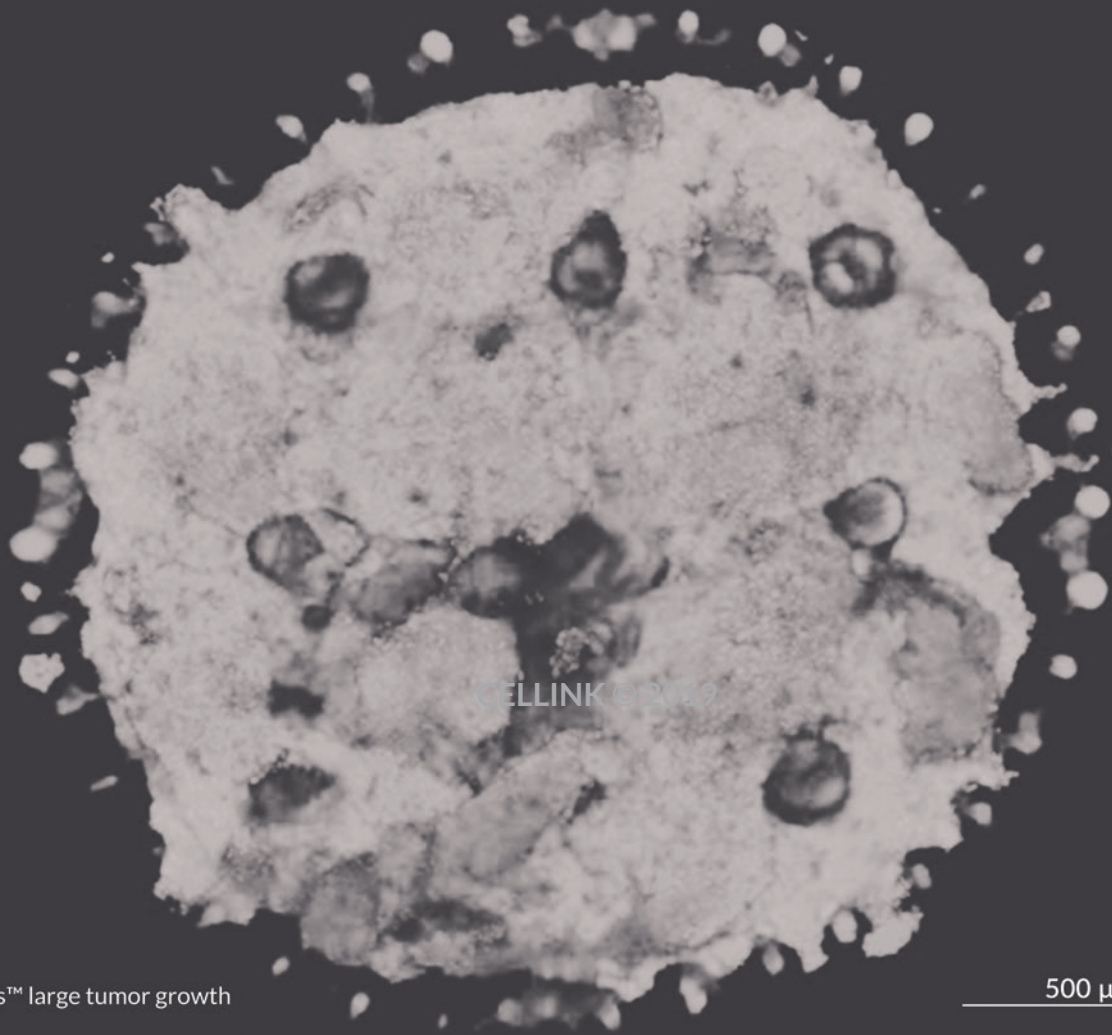
### Micro-devices

- Biocompatible devices such as stents, patches, and drug delivery systems.



\*Large Vascular Bundle™

500  $\mu\text{m}$



\*Organoids™ large tumor growth

500 μm

### Miniature organ replicas

- Mini-organs to mimic cell environments allowing for immune responses etc.
- Build your own complex organs on a chip - interfaces between microfluidics tubes as fine as 10 micrometers.

### Single-cell printing

- Single cell encapsulation 'point and encapsulate' rare cells to separate out later.

### Extracellular matrix

- Build tissue structures based on real tissue architecture. These structures can also be transplanted into animals once seeded with cells, allowing the study of human organoids
- Complex vascular systems that can be seeded with cells and used to develop 3D tissues.





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