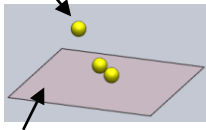


# Organ printing

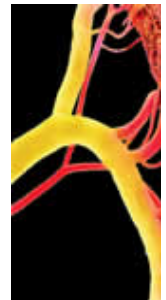
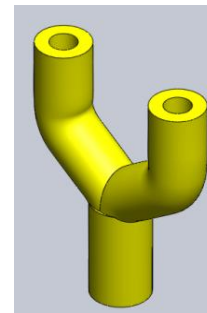
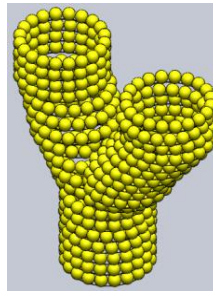
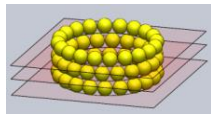
## Organ printing:

A computer-aided, layer-by-layer additive biofabrication of 3D functional human tissue and organ constructs using self-assembling tissue spheroids as building blocks.

Microsphere  
as bioink



Biopaper



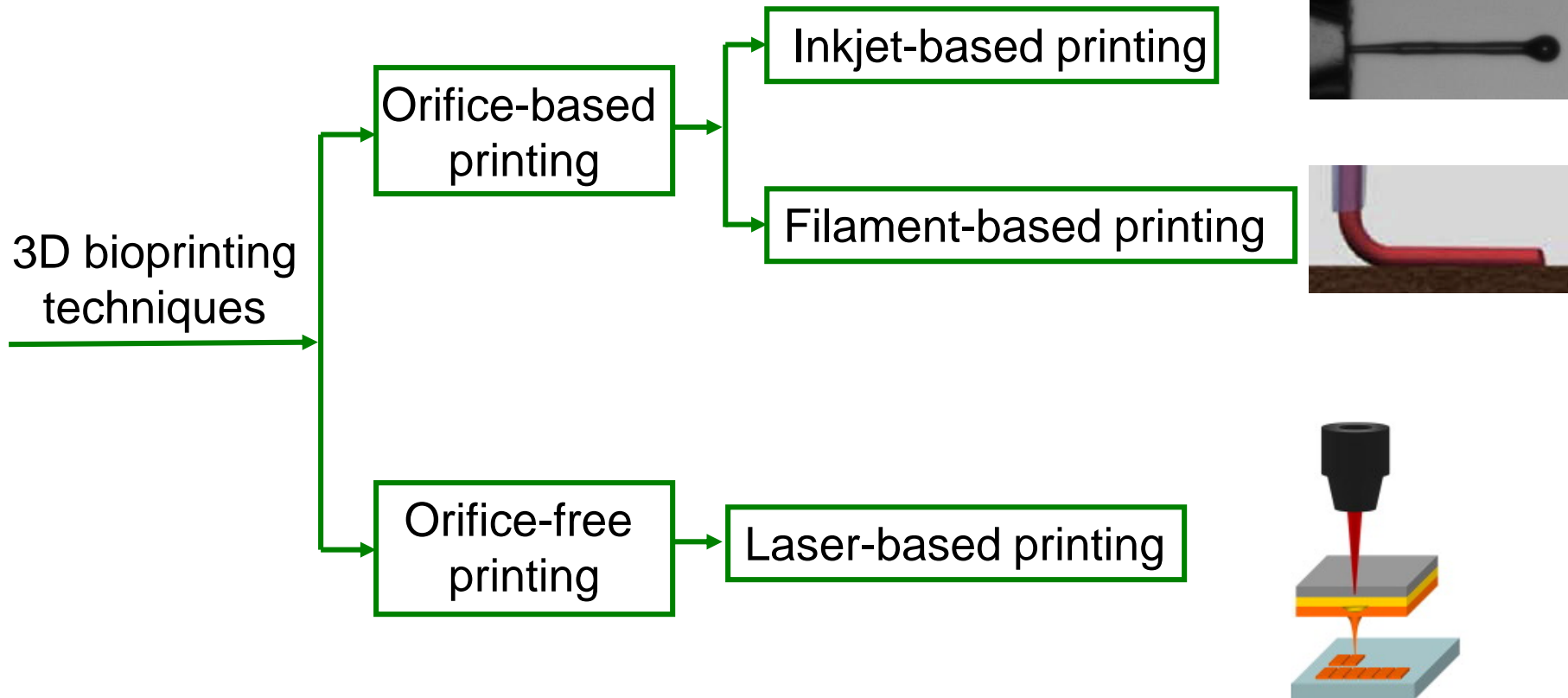
**Biofabrication of a vascular tree**

**Tissue fusion**

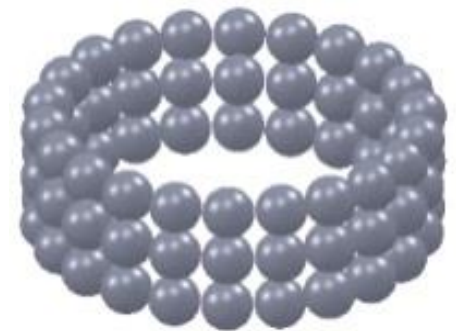
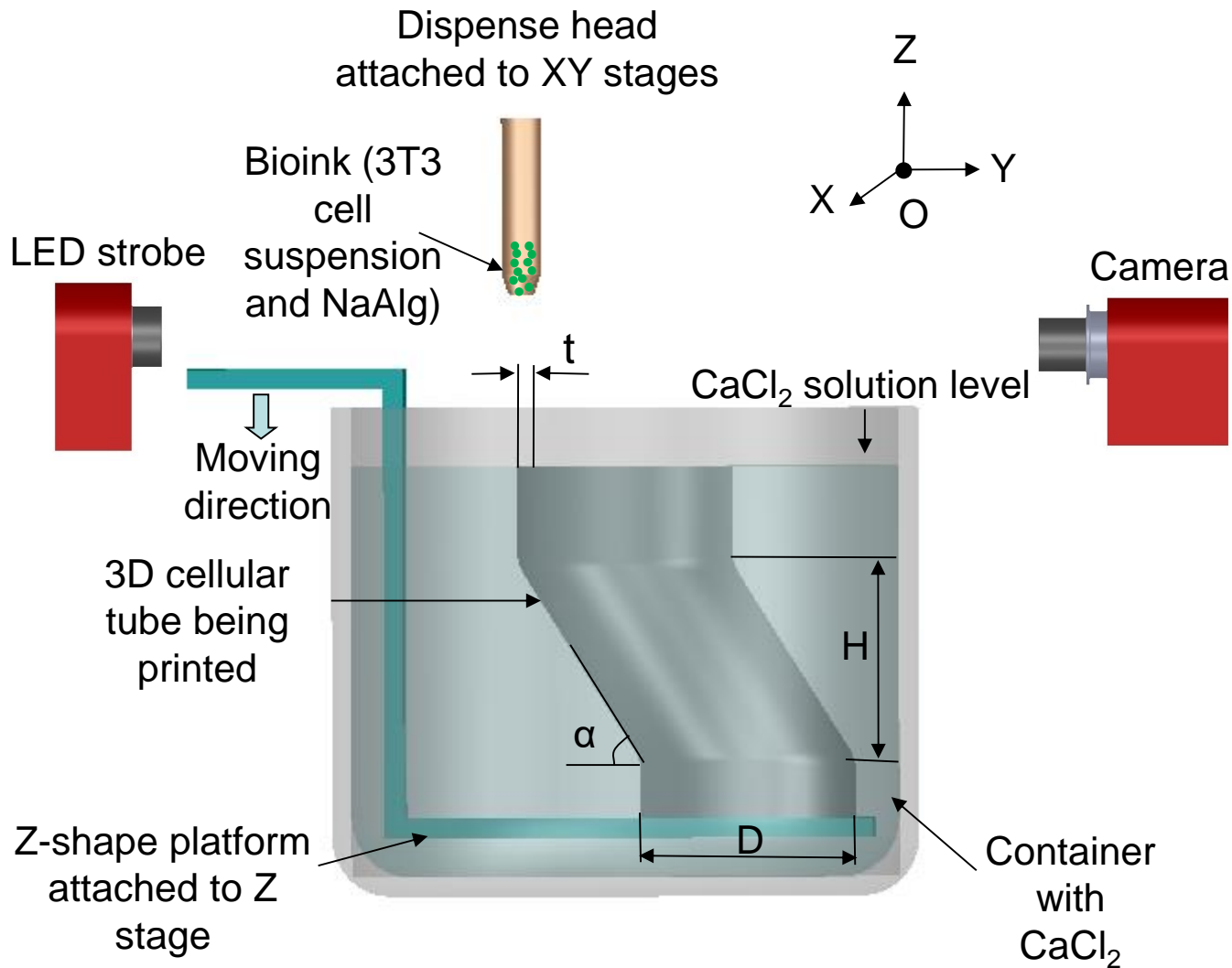
**Tissue maturation**

3D tissue fabrication process

# 3D bioprinting techniques



# Inkjet printing system



# PRINTED CELLULAR TUBES

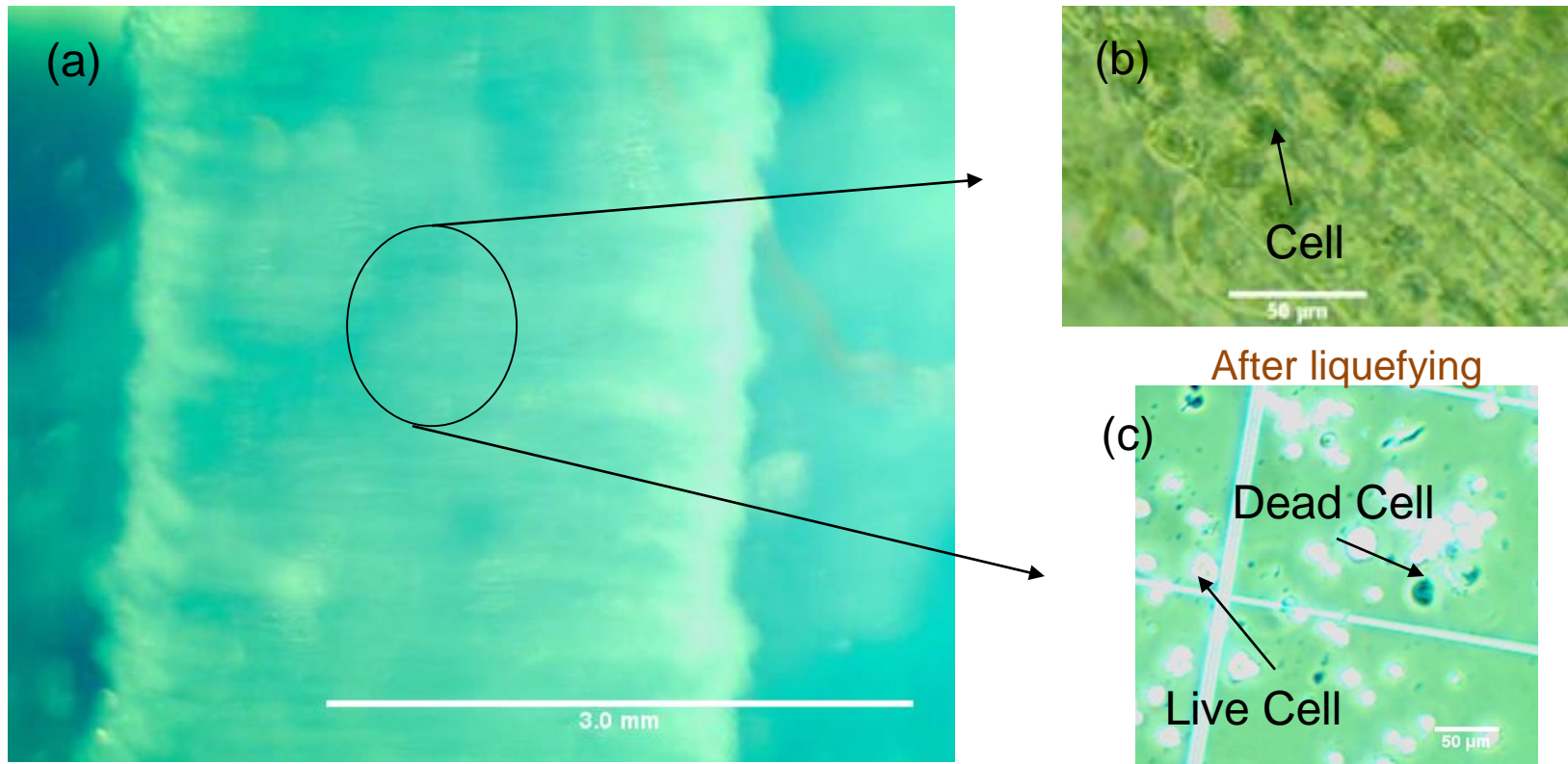
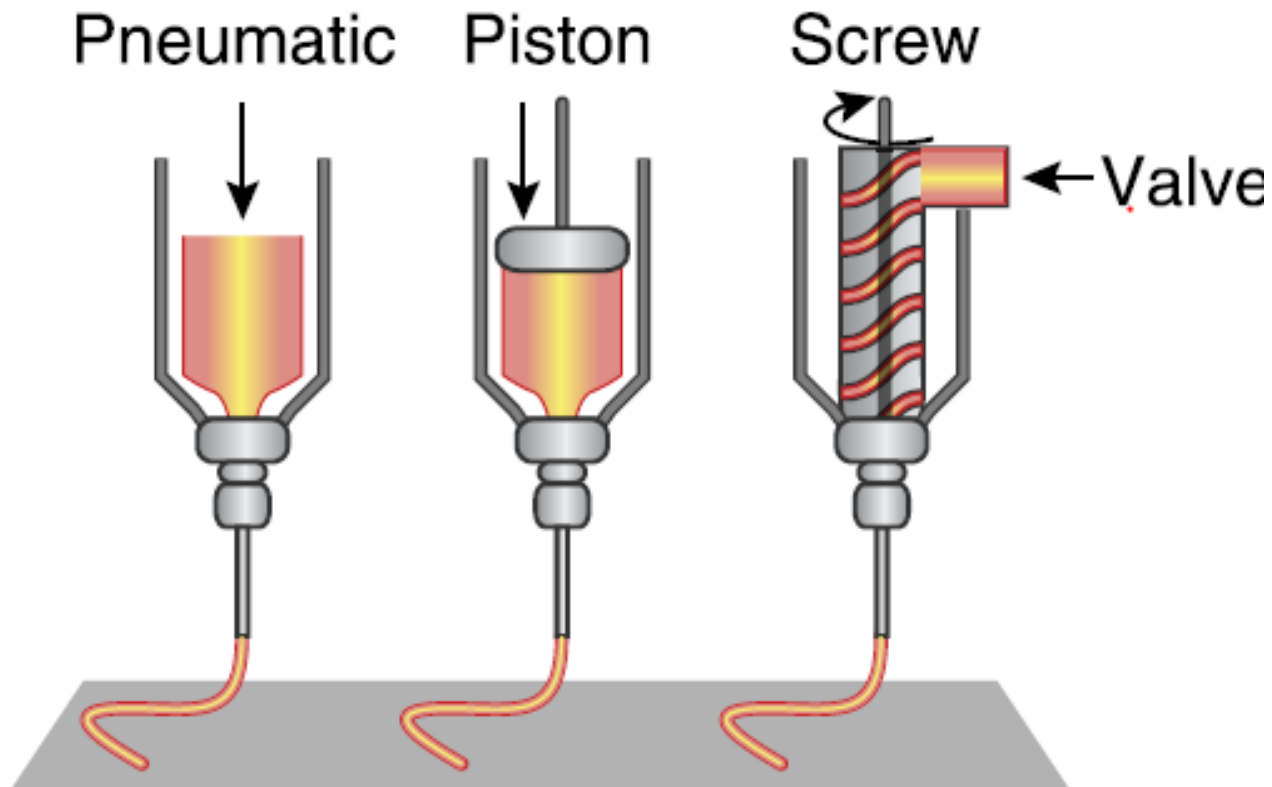


Fig. (a) Printed tube and (b) tube surface and (c) cell viability test after liquefying

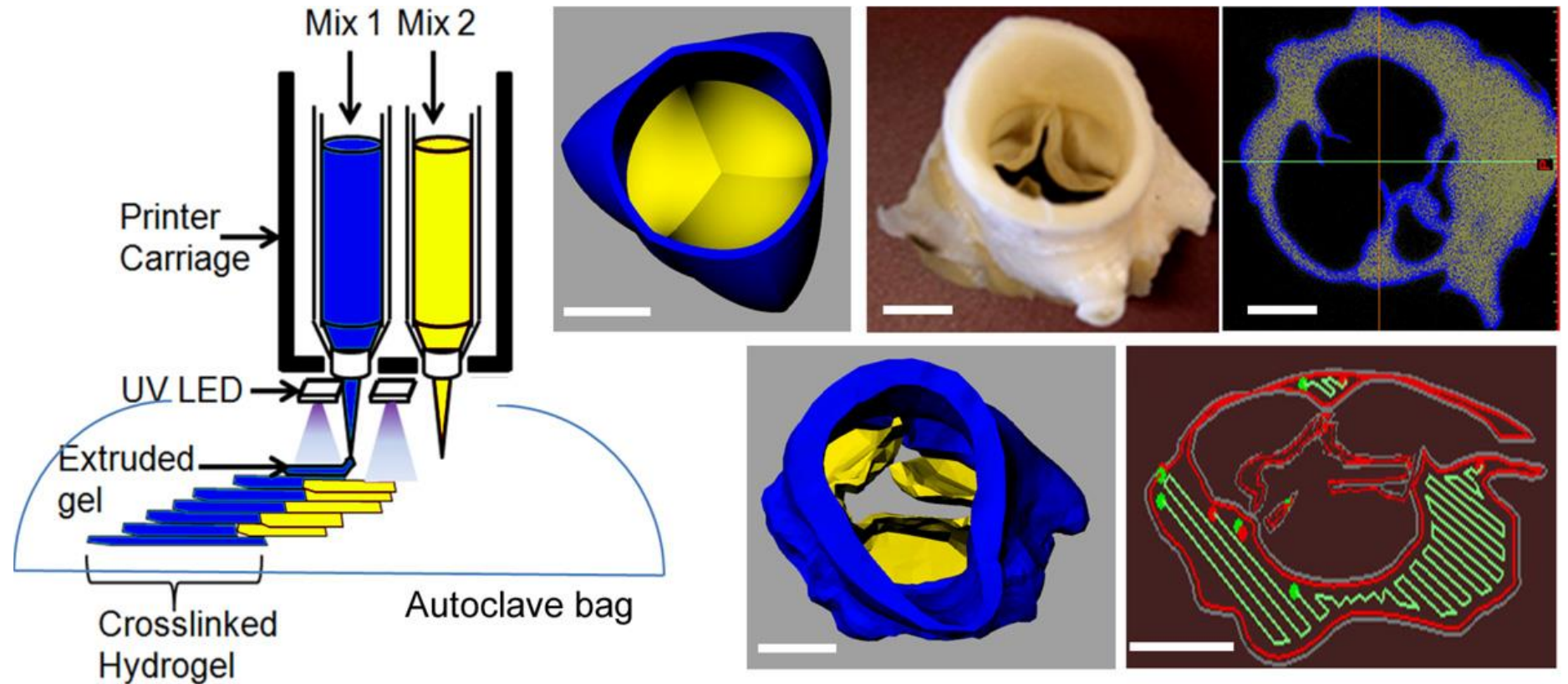
# Extrusion

## Microextrusion bioprinter



[Murphy2014]

# Printed aortic valve

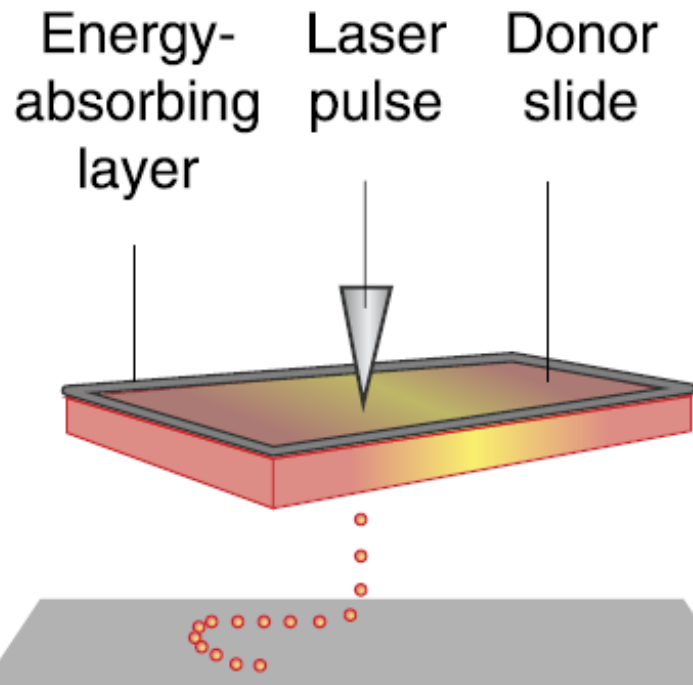


[Hockaday2012]

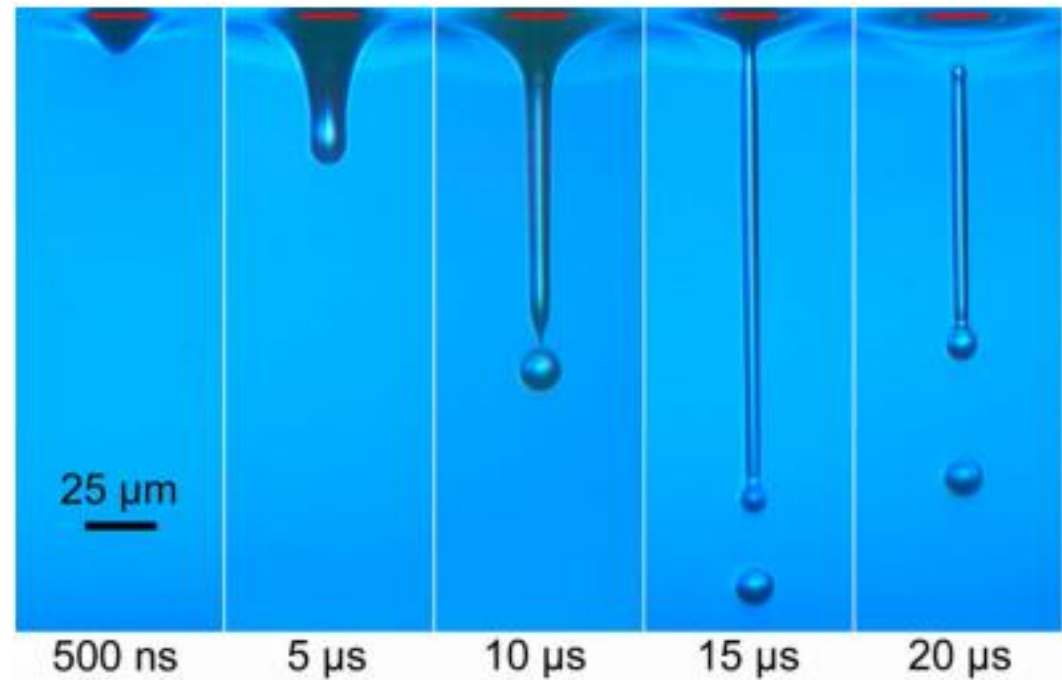


# Laser-assisted bioprinting

## Laser-assisted bioprinter

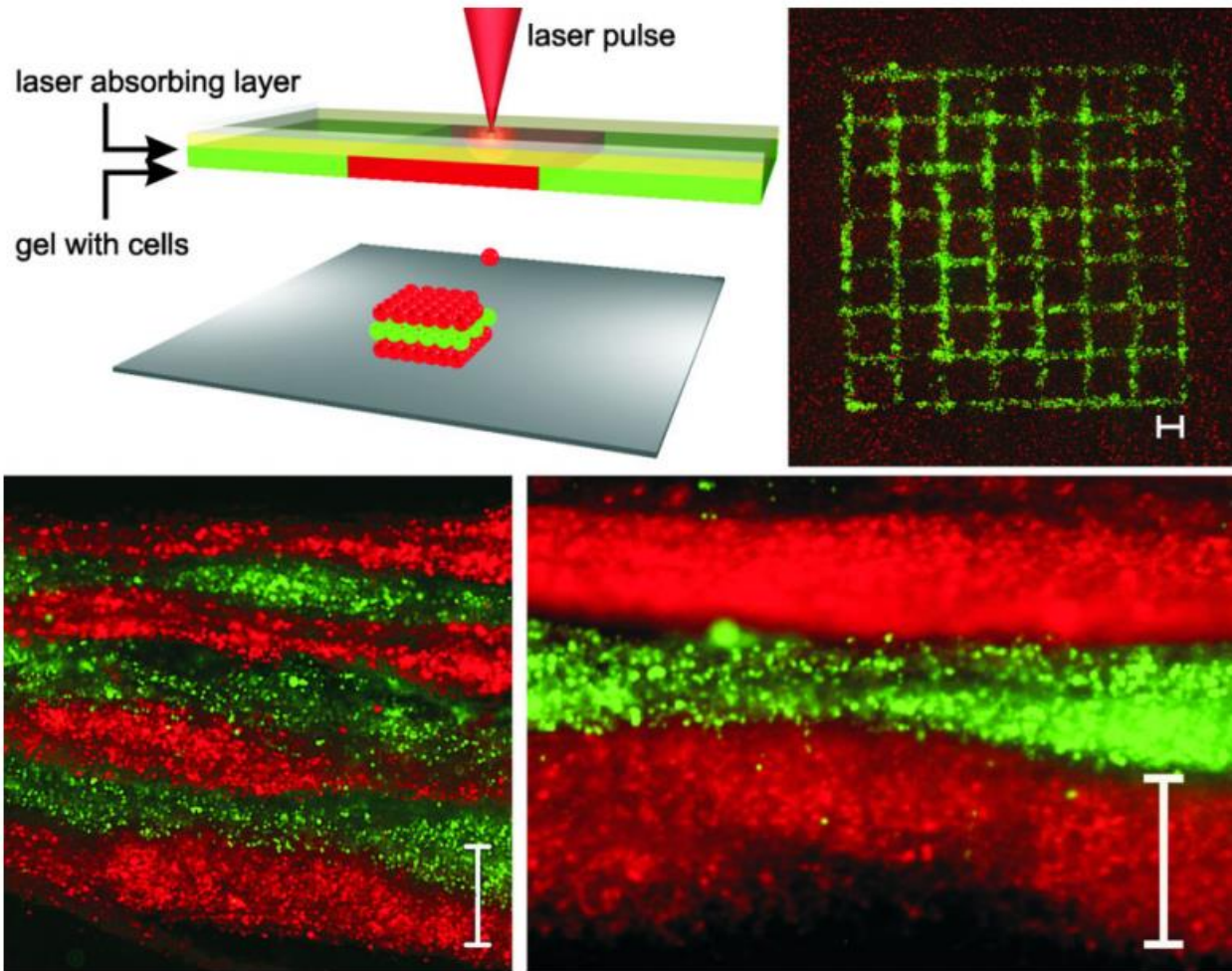


[Murphy2014]



[Brown2010]

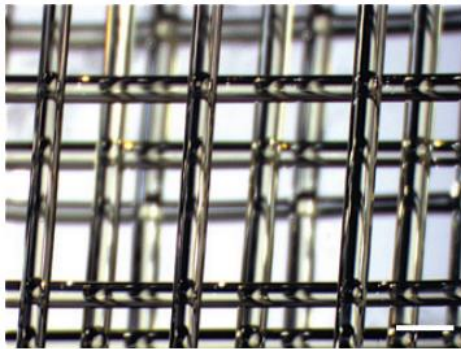
# Printed cellular structures



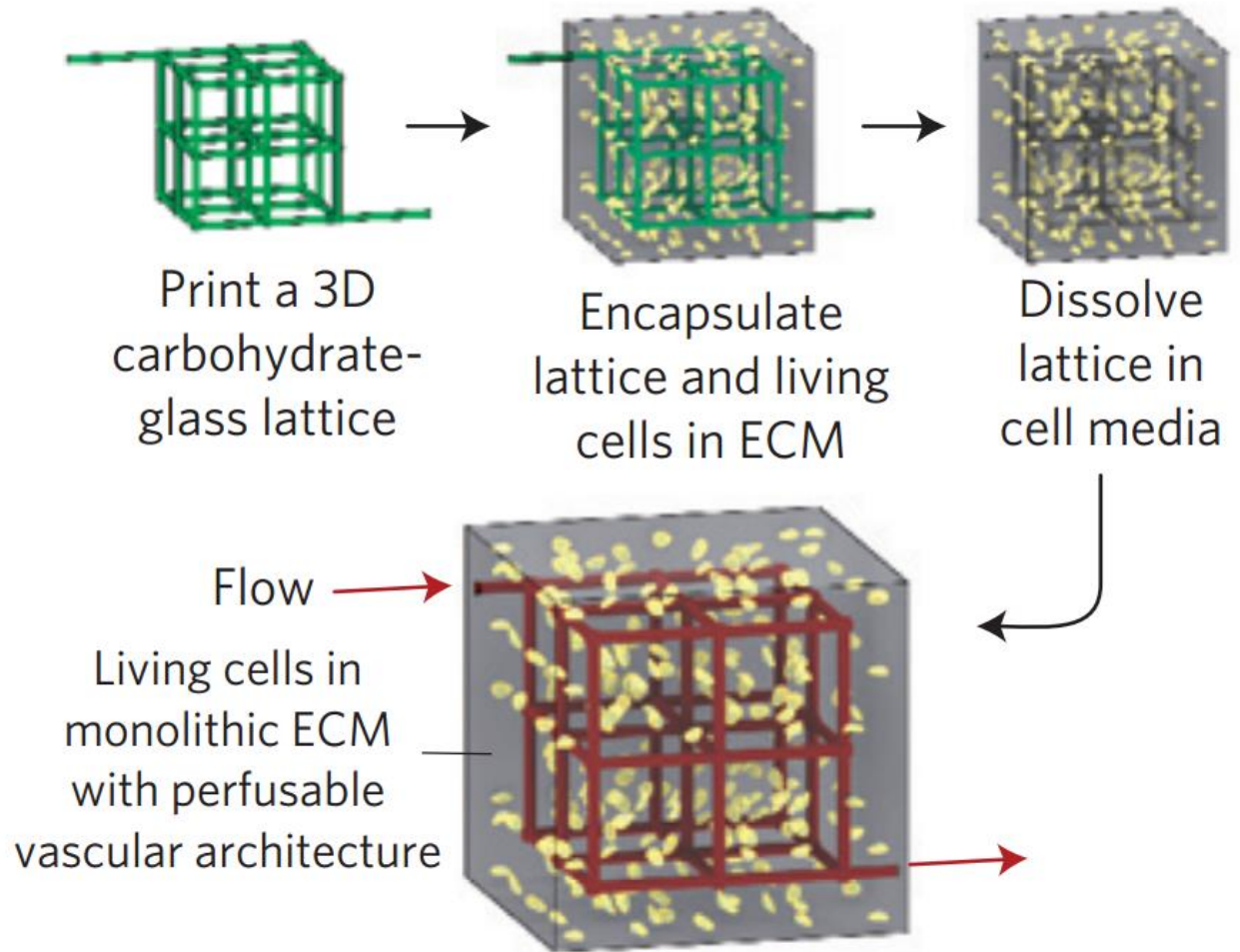
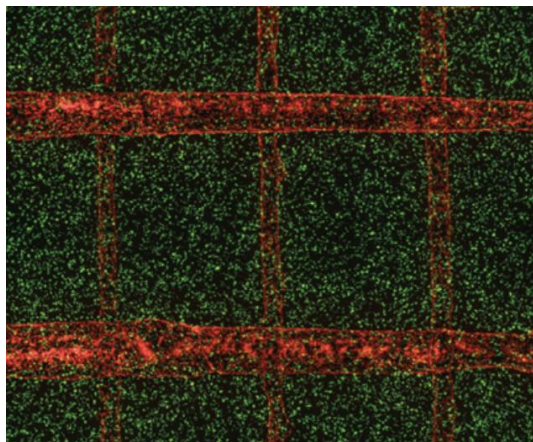
[Koch2012]



# Conceptual organ



3D lattice of filaments



[Miller2012]

# References

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