BIO INK

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- Precisely controlled3D models
- Lots of applications
- Bio-inks contain living cells and ECM mimics
- Lots of different building blocks of bio-inks with their own positives and negatives
- Can be used with multiple 3D print methods

More Info!

Bioink Materia Disadvantage Non-toxic Not degradable; Agarose Polysaccharide extracted from crosslinking Poor cell adhesion High stability Mild crosslinking Slow degradation Naturally-derived biopolymer from conditions (Ca2+) kinetics: Alginate Rapid gelation Poor cell adhesion brown algae High biocompatibility Polysaccharide obtained from the outer skeleton of shellfish (e.g. High biocompatibility Chitosan shrimp). Non-animal derived chitosan Antibacterial Slow gelation rate can be obtained from fungal properties fermentation. Primary structural protein found in High biological Collagen Acid-soluble skin and other connective tissues

Cells	Extrusion-based bioprinting	Inkjet-based bioprinting	Laser-assisted bioprinting	
Polymer(s)		energy-	laser-pulse donor sli	de Tissue engineering
Bioink	l la	iezoelectric layer layer	9000	
X Y	Polymer	based bioink		Drug screening
	Polymer—		Other Polymer (optional)	In vitro disease model
7. 4	Cells		Functional peptides (as growth factors or adhesion peptides)	

ı	Tissue Model	Cells Used	Bioprinter Used	Bioink Material Used
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	Cartilage	Mesenchymal Stem Cells	HP [®] Deskjet 500 printer	PEG diacrylate
	Muscle	Muscle Derived Stem Cells	In-House	Fibrin
	Bone	MC3T3-E1	In-House	Alginate/ Polyvinyl alcohol/ Hydroxyapatite