

Supplementary Files

List of the analyzed scientific manuscripts

1. Abelseth E, Abelseth L, De la Vega L, Beyer ST, Wadsworth SJ, Willerth SM. 3D Printing of Neural Tissues Derived from Human Induced Pluripotent Stem Cells Using a Fibrin-Based Bioink. *ACS Biomater Sci Eng* 2019;5(1):234–43.
2. Acosta-Vélez GF, Linsley CS, Craig MC, Wu BM. Photocurable bioink for the inkjet 3D pharming of hydrophilic drugs. *Bioengineering* 2017;4(1):11.
3. Acosta-Vélez GF, Linsley CS, Zhu TZ, Wu W, Wu B. Photocurable Bioinks for the 3D Pharming of Combination Therapies. *Polymers (Basel)* 2018;10.
4. Acosta-Vélez GF, Zhu TZ, Linsley CS, Wu BM. Photocurable poly(ethylene glycol) as a bioink for the inkjet 3D pharming of hydrophobic drugs. *Int J Pharm* 2018;546(1):145–53.
5. Admane P, Gupta AC, Jois P, Roy S, Chandrasekharan Lakshmanan C, Kalsi G, mfl. Direct 3D bioprinted full-thickness skin constructs recapitulate regulatory signaling pathways and physiology of human skin. *Bioprinting* 2019;15(April):e00051.
6. Ahlfeld T, Cidonio G, Kilian D, Duin S, Akkineni AR, Dawson JI, mfl. Development of a clay based bioink for 3D cell printing for skeletal application. *Biofabrication* 2017;9(3):34103.
7. Ahlfeld T, Doberenz F, Kilian D, Vater C, Korn P, Lauer G, mfl. Bioprinting of mineralized constructs utilizing multichannel plotting of a self-setting calcium phosphate cement and a cell-laden bioink. *Biofabrication* 2018;10(4):45002.
8. Ahmed J, Mulla M, Maniruzzaman M. Rheological and Dielectric Behavior of 3D-Printable Chitosan/Graphene Oxide Hydrogels. *ACS Biomater Sci Eng* 2020;6(1):88–99.
9. Ahn G, Min K-H, Kim C, Lee J-S, Kang D, Won J-Y, mfl. Precise stacking of decellularized extracellular matrix based 3D cell-laden constructs by a 3D cell printing system equipped with heating modules. *Sci Rep* 2017;7(1):8624.
10. Ahn SH, Lee HJ, Lee J-S, Yoon H, Chun W, Kim GH. A novel cell-printing method and its application to hepatogenic differentiation of human adipose stem cell-embedded mesh structures. *Sci Rep* 2015;5(1):13427.
11. Aldrich A, Kuss MA, Duan B, Kielian T. 3D Bioprinted Scaffolds Containing Viable Macrophages and Antibiotics Promote Clearance of *Staphylococcus aureus*

- Craniotomy-Associated Biofilm Infection. *ACS Appl Mater Interfaces* 2019;11(13):12298–307.
12. Ali M, PR AK, Yoo JJ, Zahran F, Atala A, Lee SJ. A Photo-Crosslinkable Kidney ECM-Derived Bioink Accelerates Renal Tissue Formation. *Adv Healthc Mater* 2019;8(7):1800992.
 13. Allig S, Mayer M, Thielemann C. Workflow for bioprinting of cell-laden bioink. *Lek a Tech* 2018;48(2):46–51.
 14. AnilKumar S, Allen SC, Tasnim N, Akter T, Park S, Kumar A, mfl. The applicability of furfuryl-gelatin as a novel bioink for tissue engineering applications. *J Biomed Mater Res Part B Appl Biomater* 2019;107(2):314–23.
 15. Apelgren P, Amoroso M, Lindahl A, Brantsing C, Rotter N, Gatenholm P, mfl. Chondrocytes and stem cells in 3D-bioprinted structures create human cartilage in vivo. *PLoS One* 2017;12(12):e0189428.
 16. Apelgren P, Karabulut E, Amoroso M, Mantas A, Martínez Ávila H, Kölby L, mfl. In Vivo Human Cartilage Formation in Three-Dimensional Bioprinted Constructs with a Novel Bacterial Nanocellulose Bioink. *ACS Biomater Sci Eng* 2019;5(5):2482–90.
 17. Arab W, Rauf S, Al-Harbi O, Hauser CAE. Novel ultrashort self-assembling peptide bioinks for 3D culture of muscle myoblast cells. *Int J Bioprinting* 2018;4(2):129.
 18. Arai K, Tsukamoto Y, Yoshida H, Sanae H, Ahmad Mir T, Sakai S, mfl. The development of cell-adhesive hydrogel for 3D printing. *Int J Bioprinting*; Vol 2, No 2 2016;
 19. Armstrong JPK, Burke M, Carter BM, Davis SA, Perriman AW. 3D Bioprinting Using a Templated Porous Bioink. *Adv Healthc Mater* 2016;5(14):1724–30.
 20. Arya N, Forget A, Sarem M, Shastri VP. RGDSP functionalized carboxylated agarose as extrudable carriers for chondrocyte delivery. *Mater Sci Eng C* 2019;99:103–11.
 21. Athirasala A, Tahayeri A, Thirivikraman G, França CM, Monteiro N, Tran V, mfl. A dentin-derived hydrogel bioink for 3D bioprinting of cell laden scaffolds for regenerative dentistry. *Biofabrication* 2018;10(2):24101.
 22. AU - Skardal A, AU - Devarasetty M, AU - Kang H-W, AU - Seol Y-J, AU - Forsythe SD, AU - Bishop C, mfl. Bioprinting Cellularized Constructs Using a Tissue-specific Hydrogel Bioink. *JoVE* 2016;(110):e53606.
 23. AU - Zhang YS, AU - Pi Q, AU - van Genderen AM. Microfluidic Bioprinting for Engineering Vascularized Tissues and Organoids. *JoVE* 2017;(126):e55957.

24. Baena J. Volume-by-volume bioprinting of chondrocytes-alginate bioinks in high temperature thermoplastic scaffolds for cartilage regeneration. *Cytherapy* 2019;21(5, Supplement):S23.
25. Bakirci E, Toprakhisar B, Zeybek MC, Ince GO, Koc B. Cell sheet based bioink for 3D bioprinting applications. *Biofabrication* 2017;9(2):24105.
26. Bal N, Houshyar S, Gao Y, Kyrtzis IL, Padhye R, Nayak R. Digital Printing of Enzymes on Textile Substrates as Functional Materials. *J Fiber Bioeng Informatics* 2014;4:595–602.
27. Bandyopadhyay A, Dewangan VK, Vajanthri KY, Poddar S, Mahto SK. Easy and affordable method for rapid prototyping of tissue models in vitro using three-dimensional bioprinting. *Biocybern Biomed Eng* 2018;38(1):158–69.
28. Banks A, Guo X, Chen J, Kumpaty S, Zhang W. Novel bioprinting method using a pectin based bioink. *Technol Heal Care* 2017;25:651–5.
29. Bejleri D, Streeter BW, Nachlas ALY, Brown ME, Gaetani R, Christman KL, mfl. A Bioprinted Cardiac Patch Composed of Cardiac-Specific Extracellular Matrix and Progenitor Cells for Heart Repair. *Adv Healthc Mater* 2018;7(23):1800672.
30. Benning L, Gutzweiler L, Tröndle K, Riba J, Zengerle R, Koltay P, mfl. Cytocompatibility testing of hydrogels toward bioprinting of mesenchymal stem cells. *J Biomed Mater Res Part A* 2017;105(12):3231–41.
31. Berg J, Hiller T, Kissner MS, Qazi TH, Duda GN, Hocke AC, mfl. Optimization of cell-laden bioinks for 3D bioprinting and efficient infection with influenza A virus. *Sci Rep* 2018;8(1):13877.
32. Bertlein S, Brown G, Lim KS, Jungst T, Boeck T, Blunk T, mfl. Thiol–Ene Clickable Gelatin: A Platform Bioink for Multiple 3D Biofabrication Technologies. *Adv Mater* 2017;29(44):1703404.
33. Betsch M, Cristian C, Lin Y-Y, Blaeser A, Schöneberg J, Vogt M, mfl. Incorporating 4D into Bioprinting: Real-Time Magnetically Directed Collagen Fiber Alignment for Generating Complex Multilayered Tissues. *Adv Healthc Mater* 2018;7(21):1800894.
34. Bhuthalingam R, Lim PQ, Irvine SA, Venkatraman SS. Automated robotic dispensing technique for surface guidance and bioprinting of cells. *JoVE (Journal Vis Exp)* 2016;(117):e54604.
35. Bhuthalingam R, Lim PQ, Irvine SA, Agrawal A, Mhaisalkar PS, An J, mfl. A novel 3D printing method for cell alignment and differentiation. *Int J Bioprinting*; Vol 1, No 1 2015;

36. Biswas A, Malferrari S, Kalaskar DM, Das AK. Arylboronate esters mediated self-healable and biocompatible dynamic G-quadruplex hydrogels as promising 3D-bioinks. *Chem Commun* 2018;54(14):1778–81.
37. Boere KWM, Blokzijl MM, Visser J, Linssen JEA, Malda J, Hennink WE, mfl. Biofabrication of reinforced 3D-scaffolds using two-component hydrogels. *J Mater Chem B* 2015;3(46):9067–78.
38. Brinkmann F, Hirtz M, Greiner AM, Weschenfelder M, Waterkotte B, Bastmeyer M, mfl. Interdigitated Multicolored Bioink Micropatterns by Multiplexed Polymer Pen Lithography. *Small* 2013;9(19):3266–75.
39. Bulanova EA, Koudan E V, Degosserie J, Heymans C, Pereira FDAS, Parfenov VA, mfl. Bioprinting of a functional vascularized mouse thyroid gland construct. *Biofabrication* 2017;9(3):34105.
40. Byambaa B, Annabi N, Yue K, Trujillo-de Santiago G, Alvarez MM, Jia W, mfl. Bioprinted Osteogenic and Vasculogenic Patterns for Engineering 3D Bone Tissue. *Adv Healthc Mater* 2017;6(16):1700015.
41. Campbell J, McGuinness I, Wirz H, Sharon A, Sauer-Budge AF. Multimaterial and Multiscale Three-Dimensional Bioprinter. *J Nanotechnol Eng Med* 2015;6(2).
42. Campbell PG, Miller ED, Fisher GW, Walker LM, Weiss LE. Engineered spatial patterns of FGF-2 immobilized on fibrin direct cell organization. *Biomaterials* 2005;26(33):6762–70.
43. Campos DFD, Philip MA, Gürzing S, Melcher C, Lin YY, Schöneberg J, mfl. Synchronized Dual Bioprinting of Bioinks and Biomaterial Inks as a Translational Strategy for Cartilage Tissue Engineering. *3D Print Addit Manuf* 2019;6(2):63–71.
44. Cao X, Ashfaq R, Cheng F, Maharjan S, Li J, Ying G, mfl. A Tumor-on-a-Chip System with Bioprinted Blood and Lymphatic Vessel Pair. *Adv Funct Mater* 2019;29(31):1807173.
45. Capecchi E, Piccinino D, Bizzarri BM, Avitabile D, Pelosi C, Colantonio C, mfl. Enzyme-Lignin Nanocapsules Are Sustainable Catalysts and Vehicles for the Preparation of Unique Polyvalent Bioinks. *Biomacromolecules* 2019;20(5):1975–88.
46. Carrasquilla C, Little JRL, Li Y, Brennan JD. Patterned Paper Sensors Printed with Long-Chain DNA Aptamers. *Chem – A Eur J* 2015;21(20):7369–73.
47. Catros S, Fricain J-C, Guillotin B, Pippenger B, Bareille R, Remy M, mfl. Laser-assisted bioprinting for creating on-demand patterns of human osteoprogenitor cells and nano-hydroxyapatite. *Biofabrication* 2011;3(2):25001.

48. Catros S, Guillemot F, Nandakumar A, Ziane S, Moroni L, Habibovic P, mfl. Layer-by-Layer Tissue Microfabrication Supports Cell Proliferation In Vitro and In Vivo. *Tissue Eng Part C Methods* 2011;18(1):62–70.
49. Celikkin N, Simó Padial J, Costantini M, Hendrikse H, Cohn R, Wilson CJ, mfl. 3D Printing of Thermoresponsive Polyisocyanide (PIC) Hydrogels as Bioink and Fugitive Material for Tissue Engineering. *Polymers (Basel)* 2018;10(5):555.
50. Chameettachal S, Midha S, Ghosh S. Regulation of Chondrogenesis and Hypertrophy in Silk Fibroin-Gelatin-Based 3D Bioprinted Constructs. *ACS Biomater Sci Eng* 2016;2(9):1450–63.
51. Chansoria P, Narayanan LK, Schuchard K, Shirwaiker R. Ultrasound-assisted biofabrication and bioprinting of preferentially aligned three-dimensional cellular constructs. *Biofabrication* 2019;11(3):35015.
52. Chawla S, Kumar A, Admane P, Bandyopadhyay A, Ghosh S. Elucidating role of silk-gelatin bioink to recapitulate articular cartilage differentiation in 3D bioprinted constructs. *Bioprinting* 2017;7:1–13.
53. Chawla S, Sharma A, Bandyopadhyay A, Ghosh S. Developmental Biology-Inspired Strategies To Engineer 3D Bioprinted Bone Construct. *ACS Biomater Sci Eng* 2018;4(10):3545–60.
54. Chen Y-W, Shen Y-F, Ho C-C, Yu J, Wu Y-HA, Wang K, mfl. Osteogenic and angiogenic potentials of the cell-laden hydrogel/mussel-inspired calcium silicate complex hierarchical porous scaffold fabricated by 3D bioprinting. *Mater Sci Eng C* 2018;91:679–87.
55. Chen Y, Wang Y, Yang Q, Liao Y, Zhu B, Zhao G, mfl. A novel thixotropic magnesium phosphate-based bioink with excellent printability for application in 3D printing. *J Mater Chem B* 2018;6(27):4502–13.
56. Chimene D, Peak CW, Gentry JL, Carrow JK, Cross LM, Mondragon E, mfl. Nanoengineered Ionic–Covalent Entanglement (NICE) Bioinks for 3D Bioprinting. *ACS Appl Mater Interfaces* 2018;10(12):9957–68.
57. Choi YJ, Jun YJ, Kim DY, Yi HG, Chae SH, Kang J, mfl. A 3D cell printed muscle construct with tissue-derived bioink for the treatment of volumetric muscle loss. *Biomaterials* 2019;206(March):160–9.
58. Choi Y-J, Kim TG, Jeong J, Yi H-G, Park JW, Hwang W, mfl. 3D Cell Printing of Functional Skeletal Muscle Constructs Using Skeletal Muscle-Derived Bioink. *Adv Healthc Mater* 2016;5(20):2636–45.

59. Christensen K, Compaan A, Chai W, Xia G, Huang Y. In Situ Printing-then-Mixing for Biological Structure Fabrication Using Intersecting Jets. *ACS Biomater Sci Eng* 2017;3(12):3687–94.
60. Christensen K, Xu C, Chai W, Zhang Z, Fu J, Huang Y. Freeform inkjet printing of cellular structures with bifurcations. *Biotechnol Bioeng* 2015;112(5):1047–55.
61. Christensen K, Zhang Z, Xu C, Huang Y. Deformation Compensation During Buoyancy-Enabled Inkjet Printing of Three-Dimensional Soft Tubular Structures. *J Manuf Sci Eng* 2017;140(1).
62. Chung JHY, Naficy S, Yue Z, Kapsa R, Quigley A, Moulton SE, mfl. Bio-ink properties and printability for extrusion printing living cells. *Biomater Sci* 2013;1(7):763–73.
63. Colosi C, Shin SR, Manoharan V, Massa S, Costantini M, Barbetta A, mfl. Microfluidic Bioprinting of Heterogeneous 3D Tissue Constructs Using Low-Viscosity Bioink. *Adv Mater* 2016;28(4):677–84.
64. Cooper GM, Miller ED, DeCesare GE, Usas A, Lensie EL, Bykowski MR, mfl. Inkjet-Based Biopatterning of Bone Morphogenetic Protein-2 to Spatially Control Calvarial Bone Formation. *Tissue Eng Part A* 2009;16(5):1749–59.
65. Costantini M, Idaszek J, Szöke K, Jaroszewicz J, Dentini M, Barbetta A, mfl. 3D bioprinting of BM-MSCs-loaded ECM biomimetic hydrogels for in vitro neocartilage formation. *Biofabrication* 2016;8(3):35002.
66. Costantini M, Testa S, Mozetic P, Barbetta A, Fuoco C, Fornetti E, mfl. Microfluidic-enhanced 3D bioprinting of aligned myoblast-laden hydrogels leads to functionally organized myofibers in vitro and in vivo. *Biomaterials* 2017;131:98–110.
67. Credou J, Faddoul R, Berthelot T. Photo-assisted inkjet printing of antibodies onto cellulose for the eco2-friendly preparation of immunoassay membranes. *RSC Adv* 2015;5(38):29786–98.
68. Cubo N, Garcia M, del Cañizo JF, Velasco D, Jorcano JL. 3D bioprinting of functional human skin: production and in vivo analysis. *Biofabrication* 2016;9(1):15006.
69. Cui X, Boland T. Human microvasculature fabrication using thermal inkjet printing technology. *Biomaterials* 2009;30(31):6221–7.
70. Cui X, Dean D, Ruggeri ZM, Boland T. Cell damage evaluation of thermal inkjet printed Chinese hamster ovary cells. *Biotechnol Bioeng* 2010;106(6):963–9.

71. Cunniffe GM, Gonzalez-Fernandez T, Daly A, Sathy BN, Jeon O, Alsberg E, mfl. Three-Dimensional Bioprinting of Polycaprolactone Reinforced Gene Activated Bioinks for Bone Tissue Engineering. *Tissue Eng Part A* 2017;23(17–18):891–900.
72. Daly AC, Critchley SE, Rencsok EM, Kelly DJ. A comparison of different bioinks for 3D bioprinting of fibrocartilage and hyaline cartilage. *Biofabrication* 2016;8(4):45002.
73. Daly AC, Cunniffe GM, Sathy BN, Jeon O, Alsberg E, Kelly DJ. 3D Bioprinting of Developmentally Inspired Templates for Whole Bone Organ Engineering. *Adv Healthc Mater* 2016;5(18):2353–62.
74. Das S, Kim S-W, Choi Y-J, Lee S, Lee S-H, Kong J-S, mfl. Decellularized extracellular matrix bioinks and the external stimuli to enhance cardiac tissue development in vitro. *Acta Biomater* 2019;95:188–200.
75. Das S, Pati F, Choi Y-J, Rijal G, Shim J-H, Kim SW, mfl. Bioprintable, cell-laden silk fibroin–gelatin hydrogel supporting multilineage differentiation of stem cells for fabrication of three-dimensional tissue constructs. *Acta Biomater* 2015;11:233–46.
76. De la Vega L, A Rosas Gómez D, Abelseth E, Abelseth L, Allisson da Silva V, Willerth SM. 3D bioprinting human induced pluripotent stem cell-derived neural tissues using a novel Lab-on-a-Printer technology. *Appl Sci* 2018;8(12):2414.
77. de Ruijter M, Ribeiro A, Dokter I, Castilho M, Malda J. Simultaneous Micropatterning of Fibrous Meshes and Bioinks for the Fabrication of Living Tissue Constructs. *Adv Healthc Mater* 2019;8(7):e1800418.
78. Demirtaş TT, Irmak G, Gümüşderelioğlu M. A bioprintable form of chitosan hydrogel for bone tissue engineering. *Biofabrication* 2017;9(3):35003.
79. DeSimone E, Schacht K, Pellert A, Scheibel T. Recombinant spider silk-based bioinks. *Biofabrication* 2017;9(4):44104.
80. DeSimone E, Schacht K, Scheibel T. Cations influence the cross-linking of hydrogels made of recombinant, polyanionic spider silk proteins. *Mater Lett* 2016;183:101–4.
81. Desrus H, Chassagne B, Moizan F, Devillard R, Petit S, Kling R, mfl. Effective parameters for film-free femtosecond laser assisted bioprinting. *Appl Opt* 2016;55(14):3879–86.
82. Di Risio S, Yan N. Piezoelectric Ink-Jet Printing of Horseradish Peroxidase: Effect of Ink Viscosity Modifiers on Activity. *Macromol Rapid Commun* 2007;28(18–19):1934–40.

83. Diamantides N, Wang L, Pruiksma T, Siemiatkoski J, Dugopolski C, Shortkroff S, mfl. Correlating rheological properties and printability of collagen bioinks: the effects of riboflavin photocrosslinking and pH. *Biofabrication* 2017;9(3):34102.
84. Ding H, Chang RC. Printability study of bioprinted tubular structures using liquid hydrogel precursors in a support bath. *Appl Sci* 2018;8(3).
85. Ding H, Turlomousis F, Chang RC. A Methodology for Quantifying Cell Density and Distribution in Multidimensional Bioprinted Gelatin–Alginate Constructs. *J Manuf Sci Eng* 2018;140(5).
86. Duarte Campos DF, Blaeser A, Korsten A, Neuss S, Jäkel J, Vogt M, mfl. The Stiffness and Structure of Three-Dimensional Printed Hydrogels Direct the Differentiation of Mesenchymal Stromal Cells Toward Adipogenic and Osteogenic Lineages. *Tissue Eng Part A* 2014;21(3–4):740–56.
87. Duarte Campos DF, Bonnin Marquez A, O’Seanain C, Fischer H, Blaeser A, Vogt M, mfl. Exploring Cancer Cell Behavior In Vitro in Three-Dimensional Multicellular Bioprintable Collagen-Based Hydrogels. *Cancers (Basel)* 2019;11(2).
88. Duarte Campos DF, Rohde M, Ross M, Anvari P, Blaeser A, Vogt M, mfl. Corneal bioprinting utilizing collagen-based bioinks and primary human keratocytes. *J Biomed Mater Res Part A* 2019;107(9):1945–53.
89. Dubbin K, Hori Y, Lewis KK, Heilshorn SC. Dual-Stage Crosslinking of a Gel-Phase Bioink Improves Cell Viability and Homogeneity for 3D Bioprinting. *Adv Healthc Mater* 2016;5(19):2488–92.
90. Dubbin K, Tabet A, Heilshorn SC. Quantitative criteria to benchmark new and existing bio-inks for cell compatibility. *Biofabrication* 2017;9(4):44102.
91. Duchi S, Onofrillo C, O’Connell CD, Blanchard R, Augustine C, Quigley AF, mfl. Handheld Co-Axial Bioprinting: Application to in situ surgical cartilage repair. *Sci Rep* 2017;7(1):5837.
92. Echalié C, Levato R, Mateos-Timoneda MA, Castaño O, Déjean S, Garric X, mfl. Modular bioink for 3D printing of biocompatible hydrogels: sol–gel polymerization of hybrid peptides and polymers. *RSC Adv* 2017;7(20):12231–5.
93. Fan R, Piou M, Darling E, Cormier D, Sun J, Wan J. Bio-printing cell-laden Matrigel–agarose constructs. *J Biomater Appl* 2016;31(5):684–92.
94. Faramarzi N, Yazdi IK, Nabavinia M, Gemma A, Fanelli A, Caizzone A, mfl. Patient-Specific Bioinks for 3D Bioprinting of Tissue Engineering Scaffolds. *Adv Healthc Mater* 2018;7(11):1701347.

95. Faulkner-Jones A, Greenhough S, A King J, Gardner J, Courtney A, Shu W. Development of a valve-based cell printer for the formation of human embryonic stem cell spheroid aggregates. *Biofabrication* 2013;5(1):15013.
96. Fedorovich NE, Swennen I, Girones J, Moroni L, van Blitterswijk CA, Schacht E, mfl. Evaluation of Photocrosslinked Lutrol Hydrogel for Tissue Printing Applications. *Biomacromolecules* 2009;10(7):1689–96.
97. Ferris CJ, Gilmore KJ, Beirne S, McCallum D, Wallace GG, in het Panhuis M. Bioink for on-demand printing of living cells. *Biomater Sci* 2013;1(2):224–30.
98. Filardo G, Petretta M, Cavallo C, Roseti L, Durante S, Albinetti U, mfl. Patient-specific meniscus prototype based on 3D bioprinting of human cell-laden scaffold. *Bone Joint Res* 2019;8(2):101–6.
99. Forget A, Blaeser A, Miessmer F, Köpf M, Campos DFD, Voelcker NH, mfl. Mechanically Tunable Bioink for 3D Bioprinting of Human Cells. *Adv Healthc Mater* 2017;6(20):1700255.
100. Freeman FE, Kelly DJ. Tuning Alginate Bioink Stiffness and Composition for Controlled Growth Factor Delivery and to Spatially Direct MSC Fate within Bioprinted Tissues. *Sci Rep* 2017;7(1):17042.
101. Gao G, Lee JH, Jang J, Lee DH, Kong J-S, Kim BS, mfl. Tissue Engineered Bio-Blood-Vessels Constructed Using a Tissue-Specific Bioink and 3D Coaxial Cell Printing Technique: A Novel Therapy for Ischemic Disease. *Adv Funct Mater* 2017;27(33):1700798.
102. Gao G, Park JY, Kim BS, Jang J, Cho D-W. Coaxial Cell Printing of Freestanding, Perfusable, and Functional In Vitro Vascular Models for Recapitulation of Native Vascular Endothelium Pathophysiology. *Adv Healthc Mater* 2018;7(23):1801102.
103. Gao G, Zhang X-F, Hubbell K, Cui X. NR2F2 regulates chondrogenesis of human mesenchymal stem cells in bioprinted cartilage. *Biotechnol Bioeng* 2017;114(1):208–16.
104. Gao T, Gillispie GJ, Copus JS, PR AK, Seol Y-J, Atala A, mfl. Optimization of gelatin–alginate composite bioink printability using rheological parameters: a systematic approach. *Biofabrication* 2018;10(3):34106.
105. García-Lizarribar A, Fernández-Garibay X, Velasco-Mallorquí F, Castaño AG, Samitier J, Ramon-Azcon J. Composite Biomaterials as Long-Lasting Scaffolds for 3D Bioprinting of Highly Aligned Muscle Tissue. *Macromol Biosci* 2018;18(10):1800167.

106. Gholami P, Ahmadi-pajouh MA, Abolfathi N, Hamarneh G, Kayvanrad M. Segmentation and Measurement of Chronic Wounds for Bioprinting. *IEEE J Biomed Heal Informatics* 2018;22(4):1269–77.
107. Giuseppe M Di, Law N, Webb B, A. Macrae R, Liew LJ, Sercombe TB, mfl. Mechanical behaviour of alginate-gelatin hydrogels for 3D bioprinting. *J Mech Behav Biomed Mater* 2018;79:150–7.
108. Goldstein TA, Epstein CJ, Schwartz J, Krush A, Lagalante DJ, Mercadante KP, mfl. Feasibility of Bioprinting with a Modified Desktop 3D Printer. *Tissue Eng Part C Methods* 2016;22(12):1071–6.
109. Gonzalez-Fernandez T, Rathan S, Hobbs C, Pitacco P, Freeman FE, Cunniffe GM, mfl. Pore-forming bioinks to enable spatio-temporally defined gene delivery in bioprinted tissues. *J Control Release* 2019;301(March):13–27.
110. Gretzinger S, Beckert N, Gleadall A, Lee-Thedieck C, Hubbuch J. 3D bioprinting – Flow cytometry as analytical strategy for 3D cell structures. *Bioprinting* 2018;11:e00023.
111. Grix T, Ruppelt A, Thomas A, Amler A-K, Noichl BP, Lauster R, mfl. Bioprinting Perfusion-Enabled Liver Equivalents for Advanced Organ-on-a-Chip Applications. *Genes (Basel)* 2018;9(4).
112. Gu Q, Tomaskovic-Crook E, Lozano R, Chen Y, Kapsa RM, Zhou Q, mfl. Functional 3D Neural Mini-Tissues from Printed Gel-Based Bioink and Human Neural Stem Cells. *Adv Healthc Mater* 2016;5(12):1429–38.
113. Gu Q, Tomaskovic-Crook E, Wallace GG, Crook JM. 3D Bioprinting Human Induced Pluripotent Stem Cell Constructs for In Situ Cell Proliferation and Successive Multilineage Differentiation. *Adv Healthc Mater* 2017;6(17):1700175.
114. Gu Y, Zhang L, Du X, Fan Z, Wang L, Sun W, mfl. Reversible physical crosslinking strategy with optimal temperature for 3D bioprinting of human chondrocyte-laden gelatin methacryloyl bioink. *J Biomater Appl* 2018;33(5):609–18.
115. Guillotin B, Souquet A, Catros S, Duocastella M, Pippenger B, Bellance S, mfl. Laser assisted bioprinting of engineered tissue with high cell density and microscale organization. *Biomaterials* 2010;31(28):7250–6.
116. Habib MA, Khoda B. Development of clay based novel bio-ink for 3D bio-printing process. *Procedia Manuf* 2018;26:846–56.
117. Hakam MS, Imani R, Abolfathi N, Fakhrzadeh H, Sharifi AM. Evaluation of fibrin-gelatin hydrogel as biopaper for application in skin bioprinting: An in-vitro study. *Biomed Mater Eng* 2016;27(6):669–82.

118. Hakimi N, Cheng R, Leng L, Sotoudehfar M, Ba PQ, Bakhtyar N, mfl. Handheld skin printer: in situ formation of planar biomaterials and tissues. *Lab Chip* 2018;18(10):1440–51.
119. Haring AP, Thompson EG, Tong Y, Laheri S, Cesewski E, Sontheimer H, mfl. Process- and bio-inspired hydrogels for 3D bioprinting of soft free-standing neural and glial tissues. *Biofabrication* 2019;11(2):25009.
120. Hedegaard CL, Collin EC, Redondo-Gómez C, Nguyen LTH, Ng KW, Castrejón-Pita AA, mfl. Hydrodynamically Guided Hierarchical Self-Assembly of Peptide–Protein Bioinks. *Adv Funct Mater* 2018;28(16):1703716.
121. Heikkinen JJ, Kivimäki L, Määttä JAE, Mäkelä I, Hakalahti L, Takkinen K, mfl. Versatile bio-ink for covalent immobilization of chimeric avidin on sol–gel substrates. *Colloids Surfaces B Biointerfaces* 2011;87(2):409–14.
122. Henriksson I, Gatenholm P, Hägg DA. Increased lipid accumulation and adipogenic gene expression of adipocytes in 3D bioprinted nanocellulose scaffolds. *Biofabrication* 2017;9(1):15022.
123. Hewes S, Wong AD, Searson PC. Bioprinting microvessels using an inkjet printer. *Bioprinting* 2017;7:14–8.
124. Hiller T, Berg J, Elomaa L, Röhrs V, Ullah I, Schaar K, mfl. Generation of a 3D liver model comprising human extracellular matrix in an alginate/gelatin-based bioink by extrusion bioprinting for infection and transduction studies. *Int J Mol Sci* 2018;19(10):1–17.
125. Ho L, Hsu S. Cell reprogramming by 3D bioprinting of human fibroblasts in polyurethane hydrogel for fabrication of neural-like constructs. *Acta Biomater* 2018;70:57–70.
126. Hoch E, Hirth T, Tovar GEM, Borchers K. Chemical tailoring of gelatin to adjust its chemical and physical properties for functional bioprinting. *J Mater Chem B* 2013;1(41):5675–85.
127. Hodder E, Duin S, Kilian D, Ahlfeld T, Seidel J, Nachtigall C, mfl. Investigating the effect of sterilisation methods on the physical properties and cytocompatibility of methyl cellulose used in combination with alginate for 3D-bioplotting of chondrocytes. *J Mater Sci Mater Med* 2019;30(1):10.
128. Hong J, Shin Y, Kim S, Lee J, Cha C. Complex Tuning of Physical Properties of Hyperbranched Polyglycerol-Based Bioink for Microfabrication of Cell-Laden Hydrogels. *Adv Funct Mater* 2019;29(13):1808750.

129. Hossain SMZ, Luckham RE, Smith AM, Lebert JM, Davies LM, Pelton RH, mfl. Development of a Bioactive Paper Sensor for Detection of Neurotoxins Using Piezoelectric Inkjet Printing of Sol–Gel-Derived Bioinks. *Anal Chem* 2009;81(13):5474–83.
130. Huang C-T, Kumar Shrestha L, Ariga K, Hsu S. A graphene–polyurethane composite hydrogel as a potential bioink for 3D bioprinting and differentiation of neural stem cells. *J Mater Chem B* 2017;5(44):8854–64.
131. Huang S, Yao B, Xie J, Fu X. 3D bioprinted extracellular matrix mimics facilitate directed differentiation of epithelial progenitors for sweat gland regeneration. *Acta Biomater* 2016;32:170–7.
132. Huber B, Borchers K, Tovar GEM, Kluger PJ. Methacrylated gelatin and mature adipocytes are promising components for adipose tissue engineering. *J Biomater Appl* 2015;30(6):699–710.
133. Imani R, Emami SH, Fakhrzadeh H, Baheiraei N, Sharifi AM. Optimization and comparison of two different 3D culture methods to prepare cell aggregates as a bioink for organ printing. *Biocell* 2012;36(1):37.
134. Irmak G, Demirtaş TT, Gümüşderelioğlu M. Highly Methacrylated Gelatin Bioink for Bone Tissue Engineering. *ACS Biomater Sci Eng* 2019;5(2):831–45.
135. Irvine SA, Agrawal A, Lee BH, Chua HY, Low KY, Lau BC, mfl. Printing cell-laden gelatin constructs by free-form fabrication and enzymatic protein crosslinking. *Biomed Microdevices* 2015;17(1):16.
136. Isaacson A, Swioklo S, Cannon CJ. 3D bioprinting of a corneal stroma equivalent. *Exp Eye Res* 2018;173:188–93.
137. Jakab K, Neagu A, Mironov V, Markwald RR, Forgacs G. Engineering biological structures of prescribed shape using self-assembling multicellular systems. *Proc Natl Acad Sci U S A* 2004;101(9):2864 LP – 2869.
138. Jakab K, Norotte C, Damon B, Marga F, Neagu A, Besch-Williford CL, mfl. Tissue Engineering by Self-Assembly of Cells Printed into Topologically Defined Structures. *Tissue Eng Part A* 2008;14(3):413–21.
139. Jang J, Kim TG, Kim BS, Kim S-W, Kwon S-M, Cho D-W. Tailoring mechanical properties of decellularized extracellular matrix bioink by vitamin B2-induced photo-crosslinking. *Acta Biomater* 2016;33:88–95.
140. Jang J, Park H-J, Kim S-W, Kim H, Park JY, Na SJ, mfl. 3D printed complex tissue construct using stem cell-laden decellularized extracellular matrix bioinks for cardiac repair. *Biomaterials* 2017;112:264–74.

141. Jeon O, Lee YB, Hinton TJ, Feinberg AW, Alsberg E. Cryopreserved cell-laden alginate microgel bioink for 3D bioprinting of living tissues. *Mater Today Chem* 2019;12:61–70.
142. Ji S, Almeida E, Guvendiren M. 3D bioprinting of complex channels within cell-laden hydrogels. *Acta Biomater* 2019;95:214–24.
143. Jia J, Richards DJ, Pollard S, Tan Y, Rodriguez J, Visconti RP, mfl. Engineering alginate as bioink for bioprinting. *Acta Biomater* 2014;10(10):4323–31.
144. Jia W, Gungor-Ozkerim PS, Zhang YS, Yue K, Zhu K, Liu W, mfl. Direct 3D bioprinting of perfusable vascular constructs using a blend bioink. *Biomaterials* 2016;106:58–68.
145. Jiang Y, Zhou J, Yang Z, Liu D, Xv X, Zhao G, mfl. Dialdehyde cellulose nanocrystal/gelatin hydrogel optimized for 3D printing applications. *J Mater Sci* 2018;53(16):11883–900.
146. Jin Y, Compaan A, Bhattacharjee T, Huang Y. Granular gel support-enabled extrusion of three-dimensional alginate and cellular structures. *Biofabrication* 2016;8(2):25016.
147. Jose RR, Brown JE, Polido KE, Omenetto FG, Kaplan DL. Polyol-Silk Bioink Formulations as Two-Part Room-Temperature Curable Materials for 3D Printing. *ACS Biomater Sci Eng* 2015;1(9):780–8.
148. Jose RR, Raja WK, Ibrahim AMS, Koolen PGL, Kim K, Abdurrob A, mfl. Rapid prototyped sutureless anastomosis device from self-curing silk bio-ink. *J Biomed Mater Res Part B Appl Biomater* 2015;103(7):1333–43.
149. Jung CS, Kim BK, Lee J, Min B-H, Park S-H. Development of Printable Natural Cartilage Matrix Bioink for 3D Printing of Irregular Tissue Shape. *Tissue Eng Regen Med* 2018;15(2):155–62.
150. Jung H, Min K, Jeon H, Kim S. Physically Transient Distributed Feedback Laser Using Optically Activated Silk Bio-Ink. *Adv Opt Mater* 2016;4(11):1738–43.
151. Kamperman T, Henke S, van den Berg A, Shin SR, Tamayol A, Khademhosseini A, mfl. Single Cell Microgel Based Modular Bioinks for Uncoupled Cellular Micro- and Macroenvironments. *Adv Healthc Mater* 2017;6(3):1600913.
152. Kang LH, Armstrong PA, Lee LJ, Duan B, Kang KH, Butcher JT. Optimizing Photo-Encapsulation Viability of Heart Valve Cell Types in 3D Printable Composite Hydrogels. *Ann Biomed Eng* 2017;45(2):360–77.

153. K  rour  dan O, Bourget J-M, R  my M, Crauste-Manciet S, Kalisky J, Catros S, mfl. Micropatterning of endothelial cells to create a capillary-like network with defined architecture by laser-assisted bioprinting. *J Mater Sci Mater Med* 2019;30(2):28.
154. Kesti M, Eberhardt C, Pagliccia G, Kenkel D, Grande D, Boss A, mfl. Bioprinting Complex Cartilaginous Structures with Clinically Compliant. *Adv Funct Mater* 2015;25(48):7397.
155. Kesti M, Fisch P, Pensalfini M, Mazza E, Zenobi-Wong M. Guidelines for standardization of bioprinting: a systematic study of process parameters and their effect on bioprinted structures. *BioNanoMaterials* 17(3-4):193-204.
156. Kesti M, M  ller M, Becher J, Schnabelrauch M, D'Este M, Eglin D, mfl. A versatile bioink for three-dimensional printing of cellular scaffolds based on thermally and photo-triggered tandem gelation. *Acta Biomater* 2015;11:162-72.
157. Khan MS, Fon D, Li X, Tian J, Forsythe J, Garnier G, mfl. Biosurface engineering through ink jet printing. *Colloids Surfaces B Biointerfaces* 2010;75(2):441-7.
158. Khan Z, Kahin K, Rauf S, Ramirez-Calderon G, Papagiannis N, Abdulmajid M, mfl. Optimization of a 3D bioprinting process using ultrashort peptide bioinks. *Int J Bioprinting*; Vol 5, No 1 2019;
159. Kim BS, Kwon YW, Kong J-S, Park GT, Gao G, Han W, mfl. 3D cell printing of in vitro stabilized skin model and in vivo pre-vascularized skin patch using tissue-specific extracellular matrix bioink: A step towards advanced skin tissue engineering. *Biomaterials* 2018;168:38-53.
160. Kim H, Jang J, Park J, Lee K-P, Lee S, Lee D-M, mfl. Shear-induced alignment of collagen fibrils using 3D cell printing for corneal stroma tissue engineering. *Biofabrication* 2019;11(3):35017.
161. Kim H, Park M-N, Kim J, Jang J, Kim H-K, Cho D-W. Characterization of cornea-specific bioink: high transparency, improved in vivo safety. *J Tissue Eng* 2019;10:2041731418823382.
162. Kim J, Shim IK, Hwang DG, Lee YN, Kim M, Kim H, mfl. 3D cell printing of islet-laden pancreatic tissue-derived extracellular matrix bioink constructs for enhancing pancreatic functions. *J Mater Chem B* 2019;7(10):1773-81.
163. Kim SW, Kim DY, Roh HH, Kim HS, Lee JW, Lee KY. Three-Dimensional Bioprinting of Cell-Laden Constructs Using Polysaccharide-Based Self-Healing Hydrogels. *Biomacromolecules* 2019;20(5):1860-6.

164. Kim SH, Yeon YK, Lee JM, Chao JR, Lee YJ, Seo YB, mfl. Precisely printable and biocompatible silk fibroin bioink for digital light processing 3D printing. *Nat Commun* 2018;9(1):1620.
165. Kim W, Kim GH. An innovative cell-printed microscale collagen model for mimicking intestinal villus epithelium. *Chem Eng J* 2018;334:2308–18.
166. Kim W, Kim G. A functional bioink and its application in myoblast alignment and differentiation. *Chem Eng J* 2019;366:150–62.
167. Kim W, Kim G. Intestinal Villi Model with Blood Capillaries Fabricated Using Collagen-Based Bioink and Dual-Cell-Printing Process. *ACS Appl Mater Interfaces* 2018;10(48):41185–96.
168. Kim YB, Lee H, Kim GH. Strategy to Achieve Highly Porous/Biocompatible Macroscale Cell Blocks, Using a Collagen/Genipin-bioink and an Optimal 3D Printing Process. *ACS Appl Mater Interfaces* 2016;8(47):32230–40.
169. Kim YB, Lee H, Yang G-H, Choi CH, Lee D, Hwang H, mfl. Mechanically reinforced cell-laden scaffolds formed using alginate-based bioink printed onto the surface of a PCL/alginate mesh structure for regeneration of hard tissue. *J Colloid Interface Sci* 2016;461:359–68.
170. Kolesky DB, Truby RL, Gladman AS, Busbee TA, Homan KA, Lewis JA. 3D Bioprinting of Vascularized, Heterogeneous Cell-Laden Tissue Constructs. *Adv Mater* 2014;26(19):3124–30.
171. Koo Y, Choi E-J, Lee J, Kim H-J, Kim G, Do SH. 3D printed cell-laden collagen and hybrid scaffolds for in vivo articular cartilage tissue regeneration. *J Ind Eng Chem* 2018;66:343–55.
172. Koo Y, Kim G. New strategy for enhancing in situ cell viability of cell-printing process via piezoelectric transducer-assisted three-dimensional printing. *Biofabrication* 2016;8(2):25010.
173. Köpf M, Campos DFD, Blaeser A, Sen KS, Fischer H. A tailored three-dimensionally printable agarose–collagen blend allows encapsulation, spreading, and attachment of human umbilical artery smooth muscle cells. *Biofabrication* 2016;8(2):25011.
174. Kosik-Kozioł A, Costantini M, Bolek T, Szöke K, Barbetta A, Brinchmann J, mfl. PLA short sub-micron fiber reinforcement of 3D bioprinted alginate constructs for cartilage regeneration. *Biofabrication* 2017;9(4):44105.
175. Kosik-Kozioł A, Costantini M, Mróz A, Idaszek J, Heljak M, Jaroszewicz J, mfl. 3D bioprinted hydrogel model incorporating β -tricalcium phosphate for calcified cartilage tissue engineering. *Biofabrication* 2019;11(3):35016.

176. Kreimendahl F, Köpf M, Thiebes AL, Duarte Campos DF, Blaeser A, Schmitz-Rode T, mfl. Three-Dimensional Printing and Angiogenesis: Tailored Agarose-Type I Collagen Blends Comprise Three-Dimensional Printability and Angiogenesis Potential for Tissue-Engineered Substitutes. *Tissue Eng Part C Methods* 2017;23(10):604–15.
177. Kuss MA, Harms R, Wu S, Wang Y, Untrauer JB, Carlson MA, mfl. Short-term hypoxic preconditioning promotes prevascularization in 3D bioprinted bone constructs with stromal vascular fraction derived cells. *RSC Adv* 2017;7(47):29312–20.
178. Kuss M, Kim J, Qi D, Wu S, Lei Y, Chung S, mfl. Effects of tunable, 3D-bioprinted hydrogels on human brown adipocyte behavior and metabolic function. *Acta Biomater* 2018;71:486–95.
179. Kwak H, Shin S, Lee H, Hyun J. Formation of a keratin layer with silk fibroin-polyethylene glycol composite hydrogel fabricated by digital light processing 3D printing. *J Ind Eng Chem* 2019;72:232–40.
180. Lam T, Dehne T, Krüger JP, Hondke S, Endres M, Thomas A, mfl. Photopolymerizable gelatin and hyaluronic acid for stereolithographic 3D bioprinting of tissue-engineered cartilage. *J Biomed Mater Res Part B Appl Biomater* 2019;107(8):2649–57.
181. Laternser S, Keller H, Leupin O, Rausch M, Graf-Hausner U, Rimann M. A Novel Microplate 3D Bioprinting Platform for the Engineering of Muscle and Tendon Tissues. *SLAS Technol Transl Life Sci Innov* 2018;23(6):599–613.
182. Lee BH, Lum N, Seow LY, Lim PQ, Tan LP. Synthesis and characterization of types A and B gelatin methacryloyl for bioink applications. *Materials (Basel)* 2016;9(10):797.
183. Lee C, Abelseth E, de la Vega L, Willerth SM. Bioprinting a novel glioblastoma tumor model using a fibrin-based bioink for drug screening. *Mater Today Chem* 2019;12:78–84.
184. Lee D, Park JP, Koh M-Y, Kim P, Lee J, Shin M, mfl. Chitosan-catechol: a writable bioink under serum culture media. *Biomater Sci* 2018;6(5):1040–7.
185. Lee D-Y, Lee H, Kim Y, Yoo SY, Chung W-J, Kim G. Phage as versatile nanoink for printing 3-D cell-laden scaffolds. *Acta Biomater* 2016;29:112–24.
186. Lee D, Lee D, Won Y, Hong H, Kim Y, Song H, mfl. Insertion of Vertically Aligned Nanowires into Living Cells by Inkjet Printing of Cells. *Small* 2016;12(11):1446–57.

187. Lee HJ, Kim YB, Ahn SH, Lee J-S, Jang CH, Yoon H, mfl. A New Approach for Fabricating Collagen/ECM-Based Bioinks Using Preosteoblasts and Human Adipose Stem Cells. *Adv Healthc Mater* 2015;4(9):1359–68.
188. Lee H, Chae S, Kim JY, Han W, Kim J, Choi Y, mfl. Cell-printed 3D liver-on-a-chip possessing a liver microenvironment and biliary system. *Biofabrication* 2019;11(2):25001.
189. Lee H, Han W, Kim H, Ha D-H, Jang J, Kim BS, mfl. Development of Liver Decellularized Extracellular Matrix Bioink for Three-Dimensional Cell Printing-Based Liver Tissue Engineering. *Biomacromolecules* 2017;18(4):1229–37.
190. Lee JY, Koo Y, Kim G. Innovative Cryopreservation Process Using a Modified Core/Shell Cell-Printing with a Microfluidic System for Cell-Laden Scaffolds. *ACS Appl Mater Interfaces* 2018;10(11):9257–68.
191. Lee J, Lee S-H, Kim BS, Cho Y-S, Park Y. Development and Evaluation of Hyaluronic Acid-Based Hybrid Bio-Ink for Tissue Regeneration. *Tissue Eng Regen Med* 2018;15(6):761–9.
192. Lee JW, Choi Y-J, Yong W-J, Pati F, Shim J-H, Kang KS, mfl. Development of a 3D cell printed construct considering angiogenesis for liver tissue engineering. *Biofabrication* 2016;8(1):15007.
193. Lee J, Park CH, Kim CS. Microcylinder-laden gelatin-based bioink engineered for 3D bioprinting. *Mater Lett* 2018;233:24–7.
194. Lee M, Bae K, Guillon P, Chang J, Arlov Ø, Zenobi-Wong M. Exploitation of Cationic Silica Nanoparticles for Bioprinting of Large-Scale Constructs with High Printing Fidelity. *ACS Appl Mater Interfaces* 2018;10(44):37820–8.
195. Lehner BAE, Schmieden DT, Meyer AS. A Straightforward Approach for 3D Bacterial Printing. *ACS Synth Biol* 2017;6(7):1124–30.
196. Levato R, Visser J, Planell JA, Engel E, Malda J, Mateos-Timoneda MA. Biofabrication of tissue constructs by 3D bioprinting of cell-laden microcarriers. *Biofabrication* 2014;6(3):35020.
197. Levato R, Webb WR, Otto IA, Mensinga A, Zhang Y, van Rijen M, mfl. The bio in the ink: cartilage regeneration with bioprintable hydrogels and articular cartilage-derived progenitor cells. *Acta Biomater* 2017;61:41–53.
198. Li C, Faulkner-Jones A, Dun AR, Jin J, Chen P, Xing Y, mfl. Rapid Formation of a Supramolecular Polypeptide–DNA Hydrogel for In Situ Three-Dimensional Multilayer Bioprinting. *Angew Chemie Int Ed* 2015;54(13):3957–61.

199. Li H, Wang H, Zhang D, Xu Z, Liu W. A highly tough and stiff supramolecular polymer double network hydrogel. *Polymer (Guildf)* 2018;153:193–200.
200. Li L, Yu F, Shi J, Shen S, Teng H, Yang J, mfl. In situ repair of bone and cartilage defects using 3D scanning and 3D printing. *Sci Rep* 2017;7(1):1–12.
201. Li Y, Jiang X, Li L, Chen Z-N, Gao G, Yao R, mfl. 3D printing human induced pluripotent stem cells with novel hydroxypropyl chitin bioink: scalable expansion and uniform aggregation. *Biofabrication* 2018;10(4):44101.
202. Li Z, Huang S, Liu Y, Yao B, Hu T, Shi H, mfl. Tuning Alginate-Gelatin Bioink Properties by Varying Solvent and Their Impact on Stem Cell Behavior. *Sci Rep* 2018;8(1):1–8.
203. Lim KS, Levato R, Costa PF, Castilho MD, Alcalá-Orozco CR, van Dorenmalen KMA, mfl. Bio-resin for high resolution lithography-based biofabrication of complex cell-laden constructs. *Biofabrication* 2018;10(3):34101.
204. Lim KS, Schon BS, Mekhileri N V, Brown GCJ, Chia CM, Prabakar S, mfl. New Visible-Light Photoinitiating System for Improved Print Fidelity in Gelatin-Based Bioinks. *ACS Biomater Sci Eng* 2016;2(10):1752–62.
205. Lin H-H, Hsieh F-Y, Tseng C-S, Hsu S. Preparation and characterization of a biodegradable polyurethane hydrogel and the hybrid gel with soy protein for 3D cell-laden bioprinting. *J Mater Chem B* 2016;4(41):6694–705.
206. Lin Z, Wu M, He H, Liang Q, Hu C, Zeng Z, mfl. 3D Printing of Mechanically Stable Calcium-Free Alginate-Based Scaffolds with Tunable Surface Charge to Enable Cell Adhesion and Facile Biofunctionalization. *Adv Funct Mater* 2019;29(9):1808439.
207. Liu J, Li L, Suo H, Yan M, Yin J, Fu J. 3D printing of biomimetic multi-layered GelMA/nHA scaffold for osteochondral defect repair. *Mater Des* 2019;171:107708.
208. Liu K, Zang S, Xue R, Yang J, Wang L, Huang J, mfl. Coordination-Triggered Hierarchical Folate/Zinc Supramolecular Hydrogels Leading to Printable Biomaterials. *ACS Appl Mater Interfaces* 2018;10(5):4530–9.
209. Liu W, Heinrich MA, Zhou Y, Akpek A, Hu N, Liu X, mfl. Extrusion Bioprinting of Shear-Thinning Gelatin Methacryloyl Bioinks. *Adv Healthc Mater* 2017;6(12):1601451.
210. Liu W, Zhang YS, Heinrich MA, De Ferrari F, Jang HL, Bakht SM, mfl. Rapid Continuous Multimaterial Extrusion Bioprinting. *Adv Mater* 2017;29(3):1604630.

211. Liu W, Zhong Z, Hu N, Zhou Y, Maggio L, Miri AK, mfl. Coaxial extrusion bioprinting of 3D microfibrinous constructs with cell-favorable gelatin methacryloyl microenvironments. *Biofabrication* 2018;10(2):24102.
212. Liu X, Carter S-SD, Renes MJ, Kim J, Rojas-Canales DM, Penko D, mfl. Development of a Coaxial 3D Printing Platform for Biofabrication of Implantable Islet-Containing Constructs. *Adv Healthc Mater* 2019;8(7):1801181.
213. Liu X, Zuo Y, Sun J, Guo Z, Fan H, Zhang X. Degradation regulated bioactive hydrogel as the bioink with desirable moldability for microfluidic biofabrication. *Carbohydr Polym* 2017;178:8–17.
214. Loebel C, Rodell CB, Chen MH, Burdick JA. Shear-thinning and self-healing hydrogels as injectable therapeutics and for 3D-printing. *Nat Protoc* 2017;12(8):1521–41.
215. Loo Y, Lakshmanan A, Ni M, Toh LL, Wang S, Hauser CAE. Peptide Bioink: Self-Assembling Nanofibrous Scaffolds for Three-Dimensional Organotypic Cultures. *Nano Lett* 2015;15(10):6919–25.
216. Loozen LD, Wegman F, Öner FC, Dhert WJA, Alblas J. Porous bioprinted constructs in BMP-2 non-viral gene therapy for bone tissue engineering. *J Mater Chem B* 2013;1(48):6619–26.
217. López-Marcial GR, Zeng AY, Osuna C, Dennis J, García JM, O’Connell GD. Agarose-Based Hydrogels as Suitable Bioprinting Materials for Tissue Engineering. *ACS Biomater Sci Eng* 2018;4(10):3610–6.
218. Lorson T, Jaksch S, Lübtow MM, Jüngst T, Groll J, Lühmann T, mfl. A Thermogelling Supramolecular Hydrogel with Sponge-Like Morphology as a Cytocompatible Bioink. *Biomacromolecules* 2017;18(7):2161–71.
219. Lozano R, Stevens L, Thompson BC, Gilmore KJ, Gorkin R, Stewart EM, mfl. 3D printing of layered brain-like structures using peptide modified gellan gum substrates. *Biomaterials* 2015;67:264–73.
220. Manojlovic V, Djonlagic J, Obradovic B, Nedovic V, Bugarski B. Immobilization of cells by electrostatic droplet generation: A model system for potential application in medicine. *Int J Nanomedicine* 2006;1(2):163–71.
221. Markstedt K, Mantas A, Tournier I, Martínez Ávila H, Hägg D, Gatenholm P. 3D Bioprinting Human Chondrocytes with Nanocellulose–Alginate Bioink for Cartilage Tissue Engineering Applications. *Biomacromolecules* 2015;16(5):1489–96.

222. Martínez Ávila H, Schwarz S, Rotter N, Gatenholm P. 3D bioprinting of human chondrocyte-laden nanocellulose hydrogels for patient-specific auricular cartilage regeneration. *Bioprinting* 2016;1–2:22–35.
223. Mazzocchi A, Devarasetty M, Huntwork R, Soker S, Skardal A. Optimization of collagen type I-hyaluronan hybrid bioink for 3D bioprinted liver microenvironments. *Biofabrication* 2018;11(1):15003.
224. Mecozzi L, Gennari O, Rega R, Battista L, Ferraro P, Grilli S. Simple and rapid bioink jet printing for multiscale cell adhesion islands. *Macromol Biosci* 2017;17(3):1600307.
225. Melchels FPW, Blokzijl MM, Levato R, Peiffer QC, Ruijter M de, Hennink WE, mfl. Hydrogel-based reinforcement of 3D bioprinted constructs. *Biofabrication* 2016;8(3):35004.
226. Melchels FPW, Dhert WJA, Hutmacher DW, Malda J. Development and characterisation of a new bioink for additive tissue manufacturing. *J Mater Chem B* 2014;2(16):2282–9.
227. Merceron TK, Burt M, Seol Y-J, Kang H-W, Lee SJ, Yoo JJ, mfl. A 3D bioprinted complex structure for engineering the muscle–tendon unit. *Biofabrication* 2015;7(3):35003.
228. Miller ED, Phillippi JA, Fisher GW, Campbell PG, Walker LM, Weiss LE. Inkjet printing of growth factor concentration gradients and combinatorial arrays immobilized on biologically-relevant substrates. *Comb Chem High Throughput Screen* 2009;12(6):604–18.
229. Miri AK, Nieto D, Iglesias L, Goodarzi Hosseinabadi H, Maharjan S, Ruiz-Esparza GU, mfl. Microfluidics-Enabled Multimaterial Maskless Stereolithographic Bioprinting. *Adv Mater* 2018;30(27):1800242.
230. Mistry P, Aied A, Alexander M, Shakesheff K, Bennett A, Yang J. Bioprinting Using Mechanically Robust Core–Shell Cell-Laden Hydrogel Strands. *Macromol Biosci* 2017;17(6):1600472.
231. Mohammadi Z, Rabbani M. Bacterial Bioprinting on a Flexible Substrate for Fabrication of a Colorimetric Temperature Indicator by Using a Commercial Inkjet Printer. *J Med Signals Sens* 2018;8(3):170–4.
232. Mokhtari H, Kharaziha M, Karimzadeh F, Tavakoli S. An injectable mechanically robust hydrogel of Kappa-carrageenan-dopamine functionalized graphene oxide for promoting cell growth. *Carbohydr Polym* 2019;214:234–49.

233. Moncal KK, Ozbolat V, Datta P, Heo DN, Ozbolat IT. Thermally-controlled extrusion-based bioprinting of collagen. *J Mater Sci Mater Med* 2019;30(5):55.
234. Mouser VHM, Abbadessa A, Levato R, Hennink WE, Vermonden T, Gawlitta D, mfl. Development of a thermosensitive HAMA-containing bio-ink for the fabrication of composite cartilage repair constructs. *Biofabrication* 2017;9(1):15026.
235. Mouser VHM, Melchels FPW, Visser J, Dhert WJA, Gawlitta D, Malda J. Yield stress determines bioprintability of hydrogels based on gelatin-methacryloyl and gellan gum for cartilage bioprinting. *Biofabrication* 2016;8(3):35003.
236. Müller M, Becher J, Schnabelrauch M, Zenobi-Wong M. Nanostructured Pluronic hydrogels as bioinks for 3D bioprinting. *Biofabrication* 2015;7(3):35006.
237. Müller M, Öztürk E, Arlov Ø, Gatenholm P, Zenobi-Wong M. Alginate Sulfate–Nanocellulose Bioinks for Cartilage Bioprinting Applications. *Ann Biomed Eng* 2017;45(1):210–23.
238. Na K, Shin S, Lee H, Shin D, Baek J, Kwak H, mfl. Effect of solution viscosity on retardation of cell sedimentation in DLP 3D printing of gelatin methacrylate/silk fibroin bioink. *J Ind Eng Chem* 2018;61:340–7.
239. Narayanan LK, Kumar A, Tan Z (George), Bernacki S, Starly B, Shirwaiker RA. Alginate Microspheroid Encapsulation and Delivery of MG-63 Cells Into Polycaprolactone Scaffolds: A New Biofabrication Approach for Tissue Engineering Constructs. *J Nanotechnol Eng Med* 2015;6(2).
240. Narayanan LK, Huebner P, Fisher MB, Spang JT, Starly B, Shirwaiker RA. 3D-Bioprinting of Polylactic Acid (PLA) Nanofiber–Alginate Hydrogel Bioink Containing Human Adipose-Derived Stem Cells. *ACS Biomater Sci Eng* 2016;2(10):1732–42.
241. Narayanan LK, Thompson TL, Shirwaiker RA, Starly B. Label free process monitoring of 3D bioprinted engineered constructs via dielectric impedance spectroscopy. *Biofabrication* 2018;10(3):35012.
242. Negro A, Cherbuin T, Lutolf MP. 3D Inkjet Printing of Complex, Cell-Laden Hydrogel Structures. *Sci Rep* 2018;8(1):17099.
243. Ng WL, Goh MH, Yeong WY, Naing MW. Applying macromolecular crowding to 3D bioprinting: fabrication of 3D hierarchical porous collagen-based hydrogel constructs. *Biomater Sci* 2018;6(3):562–74.
244. Ng WL, Yeong WY, Naing MW. Polyvinylpyrrolidone-based bio-ink improves cell viability and homogeneity during drop-on-demand printing. *Materials (Basel)* 2017;10(2):190.

245. Nguyen D, Hägg DA, Forsman A, Ekholm J, Nimkingratana P, Brantsing C, mfl. Cartilage Tissue Engineering by the 3D Bioprinting of iPS Cells in a Nanocellulose/Alginate Bioink. *Sci Rep* 2017;7(1):658.
246. Noh I, Kim N, Tran HN, Lee J, Lee C. 3D printable hyaluronic acid-based hydrogel for its potential application as a bioink in tissue engineering. *Biomater Res* 2019;23(1):3.
247. Noor N, Shapira A, Edri R, Gal I, Wertheim L, Dvir T. 3D Printing of Personalized Thick and Perfusible Cardiac Patches and Hearts. *Adv Sci* 2019;6(11):1900344.
248. Novosel EC, Meyer W, Klechowicz N, Krüger H, Wegener M, Walles H, mfl. Evaluation of Cell-Material Interactions on Newly Designed, Printable Polymers for Tissue Engineering Applications. *Adv Eng Mater* 2011;13(12):B467–75.
249. O’Connell CD, Onofrillo C, Duchi S, Li X, Zhang Y, Tian P, mfl. Evaluation of sterilisation methods for bio-ink components: gelatin, gelatin methacryloyl, hyaluronic acid and hyaluronic acid methacryloyl. *Biofabrication* 2019;11(3):35003.
250. Ojansivu M, Rashad A, Ahlinder A, Massera J, Mishra A, Syverud K, mfl. Wood-based nanocellulose and bioactive glass modified gelatin–alginate bioinks for 3D bioprinting of bone cells. *Biofabrication* 2019;11(3):35010.
251. Olsen TR, Casco M, Herbst A, Evans G, Rothermel T, Pruet L, mfl. Longitudinal stretching for maturation of vascular tissues using magnetic forces. *Bioengineering* 2016;3(4):29.
252. Ooi HW, Mota C, ten Cate AT, Calore A, Moroni L, Baker MB. Thiol–Ene Alginate Hydrogels as Versatile Bioinks for Bioprinting. *Biomacromolecules* 2018;19(8):3390–400.
253. Osidak EO, Karalkin PA, Osidak MS, Parfenov VA, Sivogrivov DE, Pereira FDAS, mfl. Viscoll collagen solution as a novel bioink for direct 3D bioprinting. *J Mater Sci Mater Med* 2019;30(3):31.
254. Ouyang L, Highley CB, Rodell CB, Sun W, Burdick JA. 3D Printing of Shear-Thinning Hyaluronic Acid Hydrogels with Secondary Cross-Linking. *ACS Biomater Sci Eng* 2016;2(10):1743–51.
255. Ouyang L, Yao R, Zhao Y, Sun W. Effect of bioink properties on printability and cell viability for 3D bioplotting of embryonic stem cells. *Biofabrication* 2016;8(3):35020.
256. Ozler SB, Bakirci E, Kucukgul C, Koc B. Three-dimensional direct cell bioprinting for tissue engineering. *J Biomed Mater Res Part B Appl Biomater* 2017;105(8):2530–44.

257. Pagès E, Rémy M, Kériquel V, Correa MM, Guillotin B, Guillemot F. Creation of Highly Defined Mesenchymal Stem Cell Patterns in Three Dimensions by Laser-Assisted Bioprinting. *J Nanotechnol Eng Med* 2015;6(2).
258. Park J, Lee SJ, Chung S, Lee JH, Kim WD, Lee JY, mfl. Cell-laden 3D bioprinting hydrogel matrix depending on different compositions for soft tissue engineering: Characterization and evaluation. *Mater Sci Eng C* 2017;71:678–84.
259. Park J, Lee SJ, Lee H, Park SA, Lee JY. Three dimensional cell printing with sulfated alginate for improved bone morphogenetic protein-2 delivery and osteogenesis in bone tissue engineering. *Carbohydr Polym* 2018;196:217–24.
260. Park JY, Choi Y-J, Shim J-H, Park JH, Cho D-W. Development of a 3D cell printed structure as an alternative to autologs cartilage for auricular reconstruction. *J Biomed Mater Res Part B Appl Biomater* 2017;105(5):1016–28.
261. Park JY, Ryu H, Lee B, Ha D-H, Ahn M, Kim S, mfl. Development of a functional airway-on-a-chip by 3D cell printing. *Biofabrication* 2018;11(1):15002.
262. Parzel CA, Pepper ME, Burg T, Groff RE, Burg KJL. EDTA enhances high-throughput two-dimensional bioprinting by inhibiting salt scaling and cell aggregation at the nozzle surface. *J Tissue Eng Regen Med* 2009;3(4):260–8.
263. Pataky K, Braschler T, Negro A, Renaud P, Lutolf MP, Brugger J. Microdrop Printing of Hydrogel Bioinks into 3D Tissue-Like Geometries. *Adv Mater* 2012;24(3):391–6.
264. Pati F, Ha D-H, Jang J, Han HH, Rhie J-W, Cho D-W. Biomimetic 3D tissue printing for soft tissue regeneration. *Biomaterials* 2015;62:164–75.
265. Pati F, Jang J, Ha D-H, Won Kim S, Rhie J-W, Shim J-H, mfl. Printing three-dimensional tissue analogues with decellularized extracellular matrix bioink. *Nat Commun* 2014;5(1):3935.
266. Paxton N, Smolan W, Böck T, Melchels F, Groll J, Jungst T. Proposal to assess printability of bioinks for extrusion-based bioprinting and evaluation of rheological properties governing bioprintability. *Biofabrication* 2017;9(4):44107.
267. Peak CW, Singh KA, Adlouni M, Chen J, Gaharwar AK. Printing Therapeutic Proteins in 3D using Nanoengineered Bioink to Control and Direct Cell Migration. *Adv Healthc Mater* 2019;8(11):1801553.
268. Peak CW, Stein J, Gold KA, Gaharwar AK. Nanoengineered Colloidal Inks for 3D Bioprinting. *Langmuir* 2018;34(3):917–25.

269. Pereira RF, Sousa A, Barrias CC, Bártolo PJ, Granja PL. A single-component hydrogel bioink for bioprinting of bioengineered 3D constructs for dermal tissue engineering. *Mater Horizons* 2018;5(6):1100–11.
270. Pescosolido L, Schuurman W, Malda J, Matricardi P, Alhaique F, Coviello T, mfl. Hyaluronic Acid and Dextran-Based Semi-IPN Hydrogels as Biomaterials for Bioprinting. *Biomacromolecules* 2011;12(5):1831–8.
271. Petta D, Armiento AR, Grijpma D, Alini M, Eglin D, D’Este M. 3D bioprinting of a hyaluronan bioink through enzymatic-and visible light-crosslinking. *Biofabrication* 2018;10(4):44104.
272. Petta D, Eglin D, Grijpma DW, D’Este M. Enhancing hyaluronan pseudoplasticity via 4-(4,6-dimethoxy-1,3,5-triazin-2-yl)-4-methylmorpholinium chloride-mediated conjugation with short alkyl moieties. *Carbohydr Polym* 2016;151:576–83.
273. Pi Q, Maharjan S, Yan X, Liu X, Singh B, van Genderen AM, mfl. Digitally Tunable Microfluidic Bioprinting of Multilayered Cannular Tissues. *Adv Mater* 2018;30(43):1706913.
274. Piard C, Baker H, Kamalitinov T, Fisher J. Bioprinted osteon-like scaffolds enhance in vivo neovascularization. *Biofabrication* 2019;11(2):25013.
275. Poldervaart MT, Wang H, van der Stok J, Weinans H, Leeuwenburgh SCG, Öner FC, mfl. Sustained Release of BMP-2 in Bioprinted Alginate for Osteogenicity in Mice and Rats. *PLoS One* 2013;8(8):e72610.
276. Poon YF, Cao Y, Liu Y, Chan V, Chan-Park MB. Hydrogels Based on Dual Curable Chitosan-graft-Polyethylene Glycol-graft-Methacrylate: Application to Layer-by-Layer Cell Encapsulation. *ACS Appl Mater Interfaces* 2010;2(7):2012–25.
277. Qi D, Wu S, Kuss MA, Shi W, Chung S, Deegan PT, mfl. Mechanically robust cryogels with injectability and bioprinting supportability for adipose tissue engineering. *Acta Biomater* 2018;74:131–42.
278. Qian F, Zhu C, Knipe JM, Ruelas S, Stolaroff JK, DeOtte JR, mfl. Direct Writing of Tunable Living Inks for Bioprocess Intensification. *Nano Lett* 2019;19(9):5829–35.
279. Raddatz L, Lavrentieva A, Pepelanova I, Bahnemann J, Geier D, Becker T, mfl. Development and application of an additively manufactured calcium chloride nebulizer for alginate 3D-bioprinting purposes. *J Funct Biomater* 2018;9(4):63.
280. Radtke CP, Hillebrandt N, Hubbuch J. The Biomaker: an entry-level bioprinting device for biotechnological applications. *J Chem Technol Biotechnol* 2018;93(3):792–9.

281. Rathan S, Dejob L, Schipani R, Haffner B, Möbius ME, Kelly DJ. Fiber Reinforced Cartilage ECM Functionalized Bioinks for Functional Cartilage Tissue Engineering. *Adv Healthc Mater* 2019;8(7):1801501.
282. Reakasame S, Trapani D, Detsch R, Boccaccini AR. Cell laden alginate-keratin based composite microcapsules containing bioactive glass for tissue engineering applications. *J Mater Sci Mater Med* 2018;29(12):185.
283. Rees A, Powell LC, Chinga-Carrasco G, Gethin DT, Syverud K, Hill KE, mfl. 3D bioprinting of carboxymethylated-periodate oxidized nanocellulose constructs for wound dressing applications. *Biomed Res Int* 2015;2015.
284. Ribeiro A, Blokzijl MM, Levato R, Visser CW, Castilho M, Hennink WE, mfl. Assessing bioink shape fidelity to aid material development in 3D bioprinting. *Biofabrication* 2017;10(1):14102.
285. Rimann M, Bono E, Annaheim H, Bleisch M, Graf-Hausner U. Standardized 3D Bioprinting of Soft Tissue Models with Human Primary Cells. *J Lab Autom* 2015;21(4):496–509.
286. Rinoldi C, Costantini M, Kijeńska-Gawrońska E, Testa S, Fornetti E, Heljak M, mfl. Tendon Tissue Engineering: Effects of Mechanical and Biochemical Stimulation on Stem Cell Alignment on Cell-Laden Hydrogel Yarns. *Adv Healthc Mater* 2019;8(7):1801218.
287. Rocca M, Fragasso A, Liu W, Heinrich MA, Zhang YS. Embedded Multimaterial Extrusion Bioprinting. *SLAS Technol Transl Life Sci Innov* 2017;23(2):154–63.
288. Rodriguez MJ, Brown J, Giordano J, Lin SJ, Omenetto FG, Kaplan DL. Silk based bioinks for soft tissue reconstruction using 3-dimensional (3D) printing with in vitro and in vivo assessments. *Biomaterials* 2017;117:105–15.
289. Rodriguez MJ, Dixon TA, Cohen E, Huang W, Omenetto FG, Kaplan DL. 3D freeform printing of silk fibroin. *Acta Biomater* 2018;71:379–87.
290. Romanazzo S, Vedicherla S, Moran C, Kelly DJ. Meniscus ECM-functionalised hydrogels containing infrapatellar fat pad-derived stem cells for bioprinting of regionally defined meniscal tissue. *J Tissue Eng Regen Med* 2018;12(3):e1826–35.
291. Roosens A, Handoyo YP, Dubruel P, Declercq H. Impact of modified gelatin on valvular microtissues. *J Tissue Eng Regen Med* 2019;13(5):771–84.
292. Roshangar Zineh B, Shabgard MR, Roshangar L. An Experimental Study on the Mechanical and Biological Properties of Bio-Printed Alginate/Halloysite Nanotube/Methylcellulose/Russian Olive-Based Scaffolds. *Adv Pharm Bull* 2018;8(4):643–55.

293. Ruther F, Distler T, Boccaccini AR, Detsch R. Biofabrication of vessel-like structures with alginate di-aldehyde—gelatin (ADA-GEL) bioink. *J Mater Sci Mater Med* 2018;30(1):8.
294. Rutz AL, Hyland KE, Jakus AE, Burghardt WR, Shah RN. A Multimaterial Bioink Method for 3D Printing Tunable, Cell-Compatible Hydrogels. *Adv Mater* 2015;27(9):1607–14.
295. Saadati A, Hassanpour S, Hasanzadeh M, Shadjou N, Hassanzadeh A. Immunosensing of breast cancer tumor protein CA 15-3 (carbohydrate antigen 15.3) using a novel nano-bioink: A new platform for screening of proteins in human biofluids by pen-on-paper technology. *Int J Biol Macromol* 2019;132:748–58.
296. Sakai S, Kamei H, Mori T, Hotta T, Ohi H, Nakahata M, mfl. Visible Light-Induced Hydrogelation of an Alginate Derivative and Application to Stereolithographic Bioprinting Using a Visible Light Projector and Acid Red. *Biomacromolecules* 2018;19(2):672–9.
297. Sakai S, Mochizuki K, Qu Y, Mail M, Nakahata M, Taya M. Peroxidase-catalyzed microextrusion bioprinting of cell-laden hydrogel constructs in vaporized ppm-level hydrogen peroxide. *Biofabrication* 2018;10(4):45007.
298. Sakai S, Ohi H, Hotta T, Kamei H, Taya M. Differentiation potential of human adipose stem cells bioprinted with hyaluronic acid/gelatin-based bioink through microextrusion and visible light-initiated crosslinking. *Biopolymers* 2018;109(2):e23080.
299. Sakai S, Ueda K, Gantumur E, Taya M, Nakamura M. Drop-On-Drop Multimaterial 3D Bioprinting Realized by Peroxidase-Mediated Cross-Linking. *Macromol Rapid Commun* 2018;39(3):1700534.
300. Salehi MM, Ataefard M. Micro powder poly lactic acid/carbon black composite as a bio printing ink. *J Compos Mater* 2019;53(17):2407–14.
301. Schacht K, Jüngst T, Schweinlin M, Ewald A, Groll J, Scheibel T. Biofabrication of Cell-Loaded 3D Spider Silk Constructs. *Angew Chemie Int Ed* 2015;54(9):2816–20.
302. Schmieden DT, Basalo Vázquez SJ, Sangüesa H, van der Does M, Idema T, Meyer AS. Printing of Patterned, Engineered E. coli Biofilms with a Low-Cost 3D Printer. *ACS Synth Biol* 2018;7(5):1328–37.
303. Seidel J, Ahlfeld T, Adolph M, Kümritz S, Steingroewer J, Krujatz F, mfl. Green bioprinting: extrusion-based fabrication of plant cell-laden biopolymer hydrogel scaffolds. *Biofabrication* 2017;9(4):45011.

304. Seo Y, Jung Y, Kim SH. Decellularized heart ECM hydrogel using supercritical carbon dioxide for improved angiogenesis. *Acta Biomater* 2018;67:270–81.
305. Serna JA, Florez SL, Talero VA, Briceño JC, Muñoz-Camargo C, Cruz JC. Formulation and characterization of a SIS-based photocrosslinkable bioink. *Polymers (Basel)* 2019;11(3):569.
306. Shafiee A, Norotte C, Ghadiri E. Cellular bioink surface tension: A tunable biophysical parameter for faster maturation of bioprinted tissue. *Bioprinting* 2017;8:13–21.
307. Shahin-Shamsabadi A, Selvaganapathy PR. ExCeL: combining extrusion printing on cellulose scaffolds with lamination to create in vitro biological models. *Biofabrication* 2019;11(3):35002.
308. Sharma A, Desando G, Petretta M, Chawla S, Bartolotti I, Manferdini C, mfl. Investigating the Role of Sustained Calcium Release in Silk-Gelatin-Based Three-Dimensional Bioprinted Constructs for Enhancing the Osteogenic Differentiation of Human Bone Marrow Derived Mesenchymal Stromal Cells. *ACS Biomater Sci Eng* 2019;5(3):1518–33.
309. Shi L, Carstensen H, Hölzl K, Lunzer M, Li H, Hilborn J, mfl. Dynamic Coordination Chemistry Enables Free Directional Printing of Biopolymer Hydrogel. *Chem Mater* 2017;29(14):5816–23.
310. Shi P, Laude A, Yeong WY. Investigation of cell viability and morphology in 3D bioprinted alginate constructs with tunable stiffness. *J Biomed Mater Res Part A* 2017;105(4):1009–18.
311. Shi P, Tan EYS, Yeong WY, Laude A. Hybrid three-dimensional (3D) bioprinting of retina equivalent for ocular research. *Int J Bioprinting*; Vol 3, No 2 2017;
312. Shim J-H, Lee J-S, Kim JY, Cho D-W. Bioprinting of a mechanically enhanced three-dimensional dual cell-laden construct for osteochondral tissue engineering using a multi-head tissue/organ building system. *J Micromechanics Microengineering* 2012;22(8):85014.
313. Shin JH, Kang H-W. The Development of Gelatin-Based Bio-Ink for Use in 3D Hybrid Bioprinting. *Int J Precis Eng Manuf* 2018;19(5):767–71.
314. Shin S, Kwak H, Hyun J. Melanin Nanoparticle-Incorporated Silk Fibroin Hydrogels for the Enhancement of Printing Resolution in 3D-Projection Stereolithography of Poly(ethylene glycol)-Tetraacrylate Bio-ink. *ACS Appl Mater Interfaces* 2018;10(28):23573–82.

315. Shin S, Park S, Park M, Jeong E, Na K, Youn HJ, mfl. Cellulose Nanofibers for the Enhancement of Printability of Low Viscosity Gelatin Derivatives. *Bioresour Vol* 12, No 2 2017;
316. Skardal A, Devarasetty M, Kang H-W, Mead I, Bishop C, Shupe T, mfl. A hydrogel bioink toolkit for mimicking native tissue biochemical and mechanical properties in bioprinted tissue constructs. *Acta Biomater* 2015;25:24–34.
317. Skardal A, Zhang J, McCoard L, Xu X, Oottamasathien S, Prestwich GD. Photocrosslinkable Hyaluronan-Gelatin Hydrogels for Two-Step Bioprinting. *Tissue Eng Part A* 2010;16(8):2675–85.
318. Sodupe-Ortega E, Sanz-Garcia A, Pernia-Espinoza A, Escobedo-Lucea C. Accurate calibration in multi-material 3D bioprinting for tissue engineering. *Materials (Basel)* 2018;11(8):1–19.
319. Sorkio A, Koch L, Koivusalo L, Deiwick A, Miettinen S, Chichkov B, mfl. Human stem cell based corneal tissue mimicking structures using laser-assisted 3D bioprinting and functional bioinks. *Biomaterials* 2018;171:57–71.
320. Stichler S, Bertlein S, Tessmar J, Jüngst T, Groll J. Thiol-ene Cross-Linkable Hydrogels as Bioinks for Biofabrication. *Macromol Symp* 2017;372(1):102–7.
321. Stichler S, Böck T, Paxton N, Bertlein S, Levato R, Schill V, mfl. Double printing of hyaluronic acid/poly(glycidol) hybrid hydrogels with poly(ϵ -caprolactone) for MSC chondrogenesis. *Biofabrication* 2017;9(4):44108.
322. Stichler S, Jungst T, Schamel M, Zilkowski I, Kuhlmann M, Böck T, mfl. Thiol-ene Clickable Poly(glycidol) Hydrogels for Biofabrication. *Ann Biomed Eng* 2017;45(1):273–85.
323. Stratesteffen H, Köpf M, Kreimendahl F, Blaeser A, Jockenhoevel S, Fischer H. GelMA-collagen blends enable drop-on-demand 3D printability and promote angiogenesis. *Biofabrication* 2017;9(4):45002.
324. Swaminathan S, Hamid Q, Sun W, Clyne AM. Bioprinting of 3D breast epithelial spheroids for human cancer models. *Biofabrication* 2019;11(2):25003.
325. Tan YJ, Tan X, Yeong WY, Tor SB. Hybrid micro scaffold-based 3D bioprinting of multi-cellular constructs with high compressive strength: A new biofabrication strategy. *Sci Rep* 2016;6(1):39140.
326. Tayebi L, Rasoulianboroujeni M, Moharamzadeh K, Almela TKD, Cui Z, Ye H. 3D-printed membrane for guided tissue regeneration. *Mater Sci Eng C* 2018;84:148–58.

327. Thayer PS, Orrhult LS, Martínez H. Bioprinting of Cartilage and Skin Tissue Analogs Utilizing a Novel Passive Mixing Unit Technique for Bioink Precellularization. *J Vis Exp* 2018;(131):56372.
328. Tijore A, Behr J-M, Irvine SA, Baisane V, Venkatraman S. Bioprinted gelatin hydrogel platform promotes smooth muscle cell contractile phenotype maintenance. *Biomed Microdevices* 2018;20(2):32.
329. Toprakhisar B, Nadernezhad A, Bakirci E, Khani N, Skvortsov GA, Koc B. Development of Bioink from Decellularized Tendon Extracellular Matrix for 3D Bioprinting. *Macromol Biosci* 2018;18(10):1800024.
330. Trampe E, Koren K, Akkineni AR, Senwitz C, Krujatz F, Lode A, mfl. Functionalized Bioink with Optical Sensor Nanoparticles for O₂ Imaging in 3D-Bioprinted Constructs. *Adv Funct Mater* 2018;28(45):1804411.
331. Triyono J, Nurzengky A, Sukanto H, Nugroho Y. The effect of extruder pressure of 3D bioprinter on hardness and compressive of scaffold bovine hydroxyapatite. *Cogent Eng* 2019;6(1).
332. Wang J, Bowie D, Zhang X, Filipe C, Pelton R, Brennan JD. Morphology and Entrapped Enzyme Performance in Inkjet-Printed Sol–Gel Coatings on Paper. *Chem Mater* 2014;26(5):1941–7.
333. Wang X-F, Lu P-J, Song Y, Sun Y-C, Wang Y-G, Wang Y. Nano hydroxyapatite particles promote osteogenesis in a three-dimensional bio-printing construct consisting of alginate/gelatin/hASCs. *RSC Adv* 2016;6(8):6832–42.
334. Wang X-F, Song Y, Liu Y-S, Sun Y, Wang Y, Wang Y, mfl. Osteogenic Differentiation of Three-Dimensional Bioprinted Constructs Consisting of Human Adipose-Derived Stem Cells In Vitro and In Vivo. *PLoS One* 2016;11(6):e0157214.
335. Wang X, Zhang X, Dai X, Wang X, Li X, Diao J, mfl. Tumor-like lung cancer model based on 3D bioprinting. *3 Biotech* 2018;8(12):501.
336. Wang Y, Shi W, Kuss M, Mirza S, Qi D, Krasnoslobodtsev A, mfl. 3D Bioprinting of Breast Cancer Models for Drug Resistance Study. *ACS Biomater Sci Eng* 2018;4(12):4401–11.
337. Wang Y, Wu S, Kuss MA, Streubel PN, Duan B. Effects of Hydroxyapatite and Hypoxia on Chondrogenesis and Hypertrophy in 3D Bioprinted ADMSC Laden Constructs. *ACS Biomater Sci Eng* 2017;3(5):826–35.
338. Wang Y, Huang X, Shen Y, Hang R, Zhang X, Wang Y, mfl. Direct writing alginate bioink inside pre-polymers of hydrogels to create patterned vascular networks. *J Mater Sci* 2019;54(10):7883–92.

339. Wang Z, Lee SJ, Cheng H-J, Yoo JJ, Atala A. 3D bioprinted functional and contractile cardiac tissue constructs. *Acta Biomater* 2018;70:48–56.
340. Wang Z, Abdulla R, Parker B, Samanipour R, Ghosh S, Kim K. A simple and high-resolution stereolithography-based 3D bioprinting system using visible light crosslinkable bioinks. *Biofabrication* 2015;7(4):45009.
341. Wang Z, Kumar H, Tian Z, Jin X, Holzman JF, Menard F, mfl. Visible Light Photoinitiation of Cell-Adhesive Gelatin Methacryloyl Hydrogels for Stereolithography 3D Bioprinting. *ACS Appl Mater Interfaces* 2018;10(32):26859–69.
342. Wang Z, Tian Z, Menard F, Kim K. Comparative study of gelatin methacrylate hydrogels from different sources for biofabrication applications. *Biofabrication* 2017;9(4):44101.
343. Webb B, Doyle BJ. Parameter optimization for 3D bioprinting of hydrogels. *Bioprinting* 2017;8:8–12.
344. Wei X, Luo Y, Huang P. 3D bioprinting of alginate scaffolds with controlled micropores by leaching of recrystallized salts. *Polym Bull* 2019;76(12):6077–88.
345. Weng B, Morrin A, Shepherd R, Crowley K, Killard AJ, Innis PC, mfl. Wholly printed polypyrrole nanoparticle-based biosensors on flexible substrate. *J Mater Chem B* 2014;2(7):793–9.
346. Wenz A, Borchers K, Tovar GEM, Kluger PJ. Bone matrix production in hydroxyapatite-modified hydrogels suitable for bone bioprinting. *Biofabrication* 2017;9(4):44103.
347. Wenz A, Janke K, Hoch E, Tovar GEM, Borchers K, Kluger PJ. Hydroxyapatite-modified gelatin bioinks for bone bioprinting. *BioNanoMaterials* 17(3–4):179–84.
348. Wilson SA, Cross LM, Peak CW, Gaharwar AK. Shear-Thinning and Thermo-Reversible Nanoengineered Inks for 3D Bioprinting. *ACS Appl Mater Interfaces* 2017;9(50):43449–58.
349. Won J-Y, Lee M-H, Kim M-J, Min K-H, Ahn G, Han J-S, mfl. A potential dermal substitute using decellularized dermis extracellular matrix derived bio-ink. *Artif Cells, Nanomedicine, Biotechnol* 2019;47(1):644–9.
350. Wu D, Yu Y, Tan J, Huang L, Luo B, Lu L, mfl. 3D bioprinting of gellan gum and poly (ethylene glycol) diacrylate based hydrogels to produce human-scale constructs with high-fidelity. *Mater Des* 2018;160:486–95.

351. Wu X, Chen K, Zhang D, Xu L, Yang X. Study on the technology and properties of 3D bioprinting SF/GT/n-HA composite scaffolds. *Mater Lett* 2019;238:89–92.
352. Wu Y, Lin ZY (William), Wenger AC, Tam KC, Tang X (Shirley). 3D bioprinting of liver-mimetic construct with alginate/cellulose nanocrystal hybrid bioink. *Bioprinting* 2018;9:1–6.
353. Wu Z, Su X, Xu Y, Kong B, Sun W, Mi S. Bioprinting three-dimensional cell-laden tissue constructs with controllable degradation. *Sci Rep* 2016;6(1):24474.
354. Wüst S, Godla ME, Müller R, Hofmann S. Tunable hydrogel composite with two-step processing in combination with innovative hardware upgrade for cell-based three-dimensional bioprinting. *Acta Biomater* 2014;10(2):630–40.
355. Xin S, Chimene D, Garza JE, Gaharwar AK, Alge DL. Clickable PEG hydrogel microspheres as building blocks for 3D bioprinting. *Biomater Sci* 2019;7(3):1179–87.
356. Xin Y, Chai G, Zhang T, Wang X, Qu M, Tan A, mfl. Analysis of multiple types of human cells subsequent to bioprinting with electrospraying technology. *Biomed Reports* 2016;5(6):723–30.
357. Xiong R, Zhang Z, Chai W, Chrisey DB, Huang Y. Study of gelatin as an effective energy absorbing layer for laser bioprinting. *Biofabrication* 2017;9(2):24103.
358. Xiong R, Zhang Z, Chai W, Huang Y, Chrisey DB. Freeform drop-on-demand laser printing of 3D alginate and cellular constructs. *Biofabrication* 2015;7(4):45011.
359. Xu C, Zhang M, Huang Y, Ogale A, Fu J, Markwald RR. Study of Droplet Formation Process during Drop-on-Demand Inkjetting of Living Cell-Laden Bioink. *Langmuir* 2014;30(30):9130–8.
360. Xu C, Zhang Z, Christensen K, Huang Y, Fu J, Markwald RR. Freeform Vertical and Horizontal Fabrication of Alginate-Based Vascular-Like Tubular Constructs Using Inkjetting. *J Manuf Sci Eng* 2014;136(6).
361. Xu H, Zhang Z, Xu C. Sedimentation study of bioink containing living cells. *J Appl Phys* 2019;125(11):114901.
362. Xu T, Zhao W, Zhu J-M, Albanna MZ, Yoo JJ, Atala A. Complex heterogeneous tissue constructs containing multiple cell types prepared by inkjet printing technology. *Biomaterials* 2013;34(1):130–9.
363. Xu W, Molino BZ, Cheng F, Molino PJ, Yue Z, Su D, mfl. On Low-Concentration Inks Formulated by Nanocellulose Assisted with Gelatin Methacrylate (GelMA) for 3D Printing toward Wound Healing Application. *ACS Appl Mater Interfaces* 2019;11(9):8838–48.

364. Xu W, Zhang X, Yang P, Långvik O, Wang X, Zhang Y, mfl. Surface Engineered Biomimetic Inks Based on UV Cross-Linkable Wood Biopolymers for 3D Printing. *ACS Appl Mater Interfaces* 2019;11(13):12389–400.
365. Xue SH, Lv PJ, Wang Y, Zhao Y, Zhang T. Three dimensional bioprinting technology of human dental pulp cells mixtures. *Beijing da xue xue bao Yi xue ban= J Peking Univ Heal Sci* 2013;45(1):105–8.
366. Yan M, Lewis PL, Shah RN. Tailoring nanostructure and bioactivity of 3D-printable hydrogels with self-assemble peptides amphiphile (PA) for promoting bile duct formation. *Biofabrication* 2018;10(3):35010.
367. Yang X, Lu Z, Wu H, Li W, Zheng L, Zhao J. Collagen-alginate as bioink for three-dimensional (3D) cell printing based cartilage tissue engineering. *Mater Sci Eng C* 2018;83:195–201.
368. Yeo M, Kim G. Three-Dimensional Microfibrous Bundle Structure Fabricated Using an Electric Field-Assisted/Cell Printing Process for Muscle Tissue Regeneration. *ACS Biomater Sci Eng* 2018;4(2):728–38.
369. Yeo MG, Kim GH. A cell-printing approach for obtaining hASC-laden scaffolds by using a collagen/polyphenol bioink. *Biofabrication* 2017;9(2):25004.
370. Yeo M, Ha J, Lee H, Kim G. Fabrication of hASCs-laden structures using extrusion-based cell printing supplemented with an electric field. *Acta Biomater* 2016;38:33–43.
371. Yeo M, Kim G. Fabrication of cell-laden electrospun hybrid scaffolds of alginate-based bioink and PCL microstructures for tissue regeneration. *Chem Eng J* 2015;275:27–35.
372. Yeo M, Lee J-S, Chun W, Kim GH. An Innovative Collagen-Based Cell-Printing Method for Obtaining Human Adipose Stem Cell-Laden Structures Consisting of Core–Sheath Structures for Tissue Engineering. *Biomacromolecules* 2016;17(4):1365–75.
373. Yin J, Yan M, Wang Y, Fu J, Suo H. 3D Bioprinting of Low-Concentration Cell-Laden Gelatin Methacrylate (GelMA) Bioinks with a Two-Step Cross-linking Strategy. *ACS Appl Mater Interfaces* 2018;10(8):6849–57.
374. Ying G-L, Jiang N, Maharjan S, Yin Y-X, Chai R-R, Cao X, mfl. Aqueous Two-Phase Emulsion Bioink-Enabled 3D Bioprinting of Porous Hydrogels. *Adv Mater* 2018;30(50):1805460.

375. Yipeng J, Yongde X, Yuanyi W, Jilei S, Jiayang G, Jiangping G, mfl. Microtissues enhance smooth muscle differentiation and cell viability of hADSCs for three dimensional bioprinting. *Front Physiol* 2017;8(JUL):1–10.
376. Yoon S, Park JA, Lee H-R, Yoon WH, Hwang DS, Jung S. Inkjet–Spray Hybrid Printing for 3D Freeform Fabrication of Multilayered Hydrogel Structures. *Adv Healthc Mater* 2018;7(14):1800050.
377. Yoon Y, Kim CH, Lee JE, Yoon J, Lee NK, Kim TH, mfl. 3D bioprinted complex constructs reinforced by hybrid multilayers of electrospun nanofiber sheets. *Biofabrication* 2019;11(2):25015.
378. Yu C, Ma X, Zhu W, Wang P, Miller KL, Stupin J, mfl. Scanningless and continuous 3D bioprinting of human tissues with decellularized extracellular matrix. *Biomaterials* 2019;194:1–13.
379. Yu Y, Moncal KK, Li J, Peng W, Rivero I, Martin JA, mfl. Three-dimensional bioprinting using self-assembling scalable scaffold-free “tissue strands” as a new bioink. *Sci Rep* 2016;6(1):28714.
380. Zhai X, Ruan C, Ma Y, Cheng D, Wu M, Liu W, mfl. 3D-Bioprinted Osteoblast-Laden Nanocomposite Hydrogel Constructs with Induced Microenvironments Promote Cell Viability, Differentiation, and Osteogenesis both In Vitro and In Vivo. *Adv Sci* 2018;5(3):1700550.
381. Zhang K, Fu Q, Yoo J, Chen X, Chandra P, Mo X, mfl. 3D bioprinting of urethra with PCL/PLCL blend and dual autologous cells in fibrin hydrogel: An in vitro evaluation of biomimetic mechanical property and cell growth environment. *Acta Biomater* 2017;50:154–64.
382. Zhang M, Krishnamoorthy S, Song H, Zhang Z, Xu C. Ligament flow during drop-on-demand inkjet printing of bioink containing living cells. *J Appl Phys* 2017;121(12):124904.
383. Zhang X, Kim GJ, Kang MG, Lee JK, Seo JW, Do JT, mfl. Marine biomaterial-based bioinks for generating 3D printed tissue constructs. *Mar Drugs* 2018;16(12):484.
384. Zhang YS, Arneri A, Bersini S, Shin S-R, Zhu K, Goli-Malekabadi Z, mfl. Bioprinting 3D microfibrinous scaffolds for engineering endothelialized myocardium and heart-on-a-chip. *Biomaterials* 2016;110:45–59.
385. Zhang Z, Xiong R, Mei R, Huang Y, Chrisey DB. Time-Resolved Imaging Study of Jetting Dynamics during Laser Printing of Viscoelastic Alginate Solutions. *Langmuir* 2015;31(23):6447–56.

386. Zhang Z, Xu C, Xiong R, Chrisey DB, Huang Y. Effects of living cells on the bioink printability during laser printing. *Biomicrofluidics* 2017;11(3):34120.
387. Zhao Y, Li Y, Mao S, Sun W, Yao R. The influence of printing parameters on cell survival rate and printability in microextrusion-based 3D cell printing technology. *Biofabrication* 2015;7(4):45002.
388. Zheng Z, Wu J, Liu M, Wang H, Li C, Rodriguez MJ, mfl. 3D Bioprinting of Self-Standing Silk-Based Bioink. *Adv Healthc Mater* 2018;7(6):1701026.
389. Zhou M, Lee BH, Tan YJ, Tan LP. Microbial transglutaminase induced controlled crosslinking of gelatin methacryloyl to tailor rheological properties for 3D printing. *Biofabrication* 2019;11(2):25011.
390. Zhou X, Cui H, Nowicki M, Miao S, Lee S-J, Masood F, mfl. Three-Dimensional-Bioprinted Dopamine-Based Matrix for Promoting Neural Regeneration. *ACS Appl Mater Interfaces* 2018;10(10):8993–9001.
391. Zhu K, Chen N, Liu X, Mu X, Zhang W, Wang C, mfl. A General Strategy for Extrusion Bioprinting of Bio-Macromolecular Bioinks through Alginate-Templated Dual-Stage Crosslinking. *Macromol Biosci* 2018;18(9):1800127.
392. Zhu K, Shin SR, van Kempen T, Li Y-C, Ponraj V, Nasajpour A, mfl. Gold Nanocomposite Bioink for Printing 3D Cardiac Constructs. *Adv Funct Mater* 2017;27(12):1605352.
393. Zhu W, Cui H, Boualam B, Masood F, Flynn E, Rao RD, mfl. 3D bioprinting mesenchymal stem cell-laden construct with core–shell nanospheres for cartilage tissue engineering. *Nanotechnology* 2018;29(18):185101.