

Cardiovascular Challenges and  
Opportunities for Biomedical Engineering

Selected References 2015-2019

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1. Yan, B., et al., *microRNAs in Cardiovascular Disease: Small Molecules but Big Roles*. *Curr Top Med Chem*, 2019. **19**(21): p. 1918-1947.
2. Wust, R.C.I., et al., *Emerging Magnetic Resonance Imaging Techniques for Atherosclerosis Imaging*. *Arterioscler Thromb Vasc Biol*, 2019. **39**(5): p. 841-849.
3. Qasim, M., et al., *Current research trends and challenges in tissue engineering for mending broken hearts*. *Life Sci*, 2019. **229**: p. 233-250.
4. Mittal, R., et al., *Recent Advances in Understanding the Pathogenesis of Cardiovascular Diseases and Development of Treatment Modalities*. *Cardiovasc Hematol Disord Drug Targets*, 2019. **19**(1): p. 19-32.
5. McClellan, M., et al., *Call to Action: Urgent Challenges in Cardiovascular Disease: A Presidential Advisory From the American Heart Association*. *Circulation*, 2019. **139**(9): p. e44-e54.
6. Kuriakose, A.E., et al., *Characterization of Photoluminescent Polylactone-Based Nanoparticles for Their Applications in Cardiovascular Diseases*. *Front Bioeng Biotechnol*, 2019. **7**: p. 353.
7. Kumar, S., et al., *Role of Noncoding RNAs in the Pathogenesis of Abdominal Aortic Aneurysm*. *Circ Res*, 2019. **124**(4): p. 619-630.
8. Hutcheson, J.D., et al., *After 50 Years of Heart Transplants: What Does the Next 50 Years Hold for Cardiovascular Medicine? A Perspective From the International Society for Applied Cardiovascular Biology*. *Front Cardiovasc Med*, 2019. **6**: p. 8.
9. Hu, C.S., et al., *Treatment of chronic heart failure in the 21st century: A new era of biomedical engineering has come*. *Chronic Dis Transl Med*, 2019. **5**(2): p. 75-88.
10. Hose, D.R., et al., *Cardiovascular models for personalised medicine: Where now and where next?* *Med Eng Phys*, 2019. **72**: p. 38-48.
11. Guan, Y., et al., *Effect of Hypoxia-Induced MicroRNA-210 Expression on Cardiovascular Disease and the Underlying Mechanism*. *Oxid Med Cell Longev*, 2019. **2019**: p. 4727283.

12. Gaye, B. and D.M. Lloyd-Jones, *Primordial prevention of cardiovascular disease: Several challenges remain*. Int J Cardiol, 2019. **274**: p. 379-380.
13. Forte, M.N.V., et al., *Living the heart in three dimensions: applications of 3D printing in CHD*. Cardiol Young, 2019. **29**(6): p. 733-743.
14. Duivenvoorden, R., et al., *Nanoimmunotherapy to treat ischaemic heart disease*. Nat Rev Cardiol, 2019. **16**(1): p. 21-32.
15. Charbe, N.B., et al., *Emergence of Three Dimensional Printed Cardiac Tissue: Opportunities and Challenges in Cardiovascular Diseases*. Curr Cardiol Rev, 2019. **15**(3): p. 188-204.
16. Buddeke, J., et al., *Comorbidity in patients with cardiovascular disease in primary care: a cohort study with routine healthcare data*. Br J Gen Pract, 2019. **69**(683): p. e398-e406.
17. Ben-Shaul, S., et al., *Mature vessel networks in engineered tissue promote graft-host anastomosis and prevent graft thrombosis*. Proc Natl Acad Sci U S A, 2019. **116**(8): p. 2955-2960.
18. Avgerinos, N.A. and P. Neofytou, *Mathematical Modelling and Simulation of Atherosclerosis Formation and Progress: A Review*. Ann Biomed Eng, 2019. **47**(8): p. 1764-1785.
19. Arps, K., et al., *Clinician's Guide to the Updated ABCs of Cardiovascular Disease Prevention: A Review Part 1*. Am J Med, 2019. **132**(6): p. e569-e580.
20. Zhou, S.S., et al., *miRNAs in cardiovascular diseases: potential biomarkers, therapeutic targets and challenges*. Acta Pharmacol Sin, 2018. **39**(7): p. 1073-1084.
21. Zhang, J., et al., *Can We Engineer a Human Cardiac Patch for Therapy?* Circ Res, 2018. **123**(2): p. 244-265.
22. Vigne, J., et al., *Current and Emerging Preclinical Approaches for Imaging-Based Characterization of Atherosclerosis*. Mol Imaging Biol, 2018. **20**(6): p. 869-887.
23. Venter, M., F.H. van der Westhuizen, and J.L. Elson, *The aetiology of cardiovascular disease: a role for mitochondrial DNA?* Cardiovasc J Afr, 2018. **29**(2): p. 122-132.
24. Sundbom, P., et al., *Sound analysis of a left ventricular assist device: A technical evaluation of iOS devices*. Int J Artif Organs, 2018. **41**(5): p. 254-260.
25. Sun, Y., et al., *Review: Microfluidics technologies for blood-based cancer liquid biopsies*. Anal Chim Acta, 2018. **1012**: p. 10-29.
26. Singh, S.S., et al., *Subclinical atherosclerosis, cardiovascular health, and disease risk: is there a case for the Cardiovascular Health Index in the primary prevention population?* BMC Public Health, 2018. **18**(1): p. 429.

27. Schlotter, F., et al., *Spatiotemporal Multi-Omics Mapping Generates a Molecular Atlas of the Aortic Valve and Reveals Networks Driving Disease*. *Circulation*, 2018. **138**(4): p. 377-393.
28. Sallam, T., J. Sandhu, and P. Tontonoz, *Long Noncoding RNA Discovery in Cardiovascular Disease: Decoding Form to Function*. *Circ Res*, 2018. **122**(1): p. 155-166.
29. Rotman, O.M., et al., *Realistic Vascular Replicator for TAVR Procedures*. *Cardiovasc Eng Technol*, 2018. **9**(3): p. 339-350.
30. Rotman, O.M., et al., *Principles of TAVR valve design, modelling, and testing*. *Expert Rev Med Devices*, 2018. **15**(11): p. 771-791.
31. Pipe, A., *Cardiovascular disease prevention: challenges remain; opportunities grow*. *Curr Opin Cardiol*, 2018. **33**(5): p. 498-499.
32. Pai, A.M., M. Kameda-Smith, and B. van Adel, *A Review of Recent Advances in Endovascular Therapy for Intracranial Aneurysms*. *Crit Rev Biomed Eng*, 2018. **46**(4): p. 369-397.
33. Ong, C.S., et al., *3D and 4D Bioprinting of the Myocardium: Current Approaches, Challenges, and Future Prospects*. *Biomed Research International*, 2018.
34. Miri, A.K., et al., *Multiscale bioprinting of vascularized models*. *Biomaterials*, 2018. **03**: p. 03.
35. Mazandarani, F.N. and M. Mohebbi, *Wide complex tachycardia discrimination using dynamic time warping of ECG beats*. *Comput Methods Programs Biomed*, 2018. **164**: p. 238-249.
36. Maleckis, K., et al., *Nitinol Stents in the Femoropopliteal Artery: A Mechanical Perspective on Material, Design, and Performance*. *Ann Biomed Eng*, 2018. **46**(5): p. 684-704.
37. Leonard, E.A. and R.J. Marshall, *Cardiovascular Disease in Women*. *Prim Care*, 2018. **45**(1): p. 131-141.
38. Lee, A.W.C., et al., *Computational Modeling for Cardiac Resynchronization Therapy*. *J Cardiovasc Transl Res*, 2018. **11**(2): p. 92-108.
39. Layeghian Javan, S., M.M. Sepehri, and H. Aghajani, *Toward analyzing and synthesizing previous research in early prediction of cardiac arrest using machine learning based on a multi-layered integrative framework*. *J Biomed Inform*, 2018. **88**: p. 70-89.
40. Kunz, S.N., et al., *Cardiac and skeletal muscle effects of electrical weapons : A review of human and animal studies*. *Forensic Sci Med Pathol*, 2018. **14**(3): p. 358-366.
41. Kalea, A.Z., K. Drosatos, and J.L. Buxton, *Nutriepigenetics and cardiovascular disease*.

- Curr Opin Clin Nutr Metab Care, 2018. **21**(4): p. 252-259.
42. Jiang, W., *Depression and Cardiovascular Disorders in the Elderly*. Psychiatr Clin North Am, 2018. **41**(1): p. 29-37.
  43. Hutcheson, J.D. and E. Aikawa, *Extracellular vesicles in cardiovascular homeostasis and disease*. Curr Opin Cardiol, 2018. **33**(3): p. 290-297.
  44. Holmes, J.W. and J. Lumens, *Clinical Applications of Patient-Specific Models: The Case for a Simple Approach*. J Cardiovasc Transl Res, 2018. **11**(2): p. 71-79.
  45. Hafiane, A. and S.S. Daskalopoulou, *Extracellular vesicles characteristics and emerging roles in atherosclerotic cardiovascular disease*. Metabolism, 2018. **85**: p. 213-222.
  46. Gray, R.A. and P. Pathmanathan, *Patient-Specific Cardiovascular Computational Modeling: Diversity of Personalization and Challenges*. J Cardiovasc Transl Res, 2018. **11**(2): p. 80-88.
  47. Garikipati, V.N.S., et al., *Extracellular Vesicles and the Application of System Biology and Computational Modeling in Cardiac Repair*. Circ Res, 2018. **123**(2): p. 188-204.
  48. Furtado, D., et al., *Overcoming the Blood-Brain Barrier: The Role of Nanomaterials in Treating Neurological Diseases*. Adv Mater, 2018. **30**(46): p. e1801362.
  49. Fox, C., et al., *Hybrid Continuous-Flow Total Artificial Heart*. Artif Organs, 2018. **42**(5): p. 500-509.
  50. Curley, D., et al., *Molecular imaging of cardiac remodelling after myocardial infarction*. Basic Res Cardiol, 2018. **113**(2): p. 10.
  51. Cui, H., et al., *3D bioprinting for cardiovascular regeneration and pharmacology*. Adv Drug Deliv Rev, 2018. **132**: p. 252-269.
  52. Cooper, R.S., *Control of Cardiovascular Disease in the 20th Century: Meeting the Challenge of Chronic Degenerative Disease*. Perspect Biol Med, 2018. **61**(4): p. 550-559.
  53. Cocciolone, A.J., et al., *Elastin, arterial mechanics, and cardiovascular disease*. Am J Physiol Heart Circ Physiol, 2018. **315**(2): p. H189-h205.
  54. Cicha, I., et al., *From design to the clinic: practical guidelines for translating cardiovascular nanomedicine*. Cardiovasc Res, 2018. **114**(13): p. 1714-1727.
  55. Chistiakov, D.A., et al., *Engineered Nanoparticles: Their Properties and Putative Applications for Therapeutic Approaches Utilizing Stem Cells for the Repair of Atherosclerotic Disease*. Curr Drug Targets, 2018. **19**(14): p. 1639-1648.
  56. Chatterjee, D., et al., *An autoantibody identifies arrhythmogenic right ventricular cardiomyopathy and participates in its pathogenesis*. Eur Heart J, 2018. **39**(44): p.

- 3932-3944.
57. Chan, C.K.W., et al., *Recent Advances in Managing Atherosclerosis via Nanomedicine*. Small, 2018. **14**(4).
  58. Cardoso, L. and S. Weinbaum, *Microcalcifications, Their Genesis, Growth, and Biomechanical Stability in Fibrous Cap Rupture*. Adv Exp Med Biol, 2018. **1097**: p. 129-155.
  59. Capotosto, L., et al., *Early Diagnosis of Cardiovascular Diseases in Workers: Role of Standard and Advanced Echocardiography*. Biomed Res Int, 2018. **2018**: p. 7354691.
  60. Cao, Y., et al., *Fast assessment of lipid content in arteries in vivo by intravascular photoacoustic tomography*. Sci Rep, 2018. **8**(1): p. 2400.
  61. Bai, W., et al., *Automated cardiovascular magnetic resonance image analysis with fully convolutional networks*. J Cardiovasc Magn Reson, 2018. **20**(1): p. 65.
  62. Anwar, S., et al., *3D Printing is a Transformative Technology in Congenital Heart Disease*. JACC Basic Transl Sci, 2018. **3**(2): p. 294-312.
  63. Adams, L., et al., *Magnetic resonance imaging in heart failure, including coronary imaging: numbers, facts, and challenges*. ESC Heart Fail, 2018. **5**(1): p. 3-8.
  64. Zhu, K., et al., *Gold Nanocomposite Bioink for Printing 3D Cardiac Constructs*. Advanced Functional Materials, 2017. **27**(12).
  65. Yanamandala, M., et al., *Overcoming the Roadblocks to Cardiac Cell Therapy Using Tissue Engineering*. J Am Coll Cardiol, 2017. **70**(6): p. 766-775.
  66. Xue, Y.F., et al., *Biodegradable and biomimetic elastomeric scaffolds for tissue engineered heart valves*. Acta Biomaterialia, 2017. **48**: p. 2-19.
  67. Weinberger, F., I. Mannhardt, and T. Eschenhagen, *Engineering Cardiac Muscle Tissue A Maturing Field of Research*. Circulation Research, 2017. **120**(9): p. 1487-1500.
  68. Wanjare, M. and N.F. Huang, *Regulation of the microenvironment for cardiac tissue engineering*. Regenerative Medicine, 2017. **12**(2): p. 187-201.
  69. Tormos, C.J. and S.V. Madihally, *Chitosan for cardiac tissue engineering and regeneration*, in *Chitosan Based Biomaterials, Vol 2: Tissue Engineering and Therapeutics*, J.A. Jennings and J.D. Bumgardner, Editors. 2017. p. 115-143.
  70. Tiburcy, M., et al., *Defined Engineered Human Myocardium With Advanced Maturation for Applications in Heart Failure Modeling and Repair*. Circulation, 2017. **135**(19): p. 1832-1847.
  71. Syedain, Z.H., et al., *A completely biological "off-the-shelf" arteriovenous graft that*

- recellularizes in baboons*. Science Translational Medicine, 2017. **9**(414): p. 10.
72. Stassen, O., et al., *Current Challenges in Translating Tissue-Engineered Heart Valves*. Curr Treat Options Cardiovasc Med, 2017. **19**(9): p. 71.
  73. Simon-Yarza, T., I. Bataille, and D. Letourneur, *Cardiovascular Bio-Engineering: Current State of the Art*. Journal of Cardiovascular Translational Research, 2017. **10**(2): p. 180-193.
  74. Saludas, L., et al., *Hydrogel based approaches for cardiac tissue engineering*. International Journal of Pharmaceutics, 2017. **523**(2): p. 454-475.
  75. Sadeghi, A.H., et al., *Engineered 3D Cardiac Fibrotic Tissue to Study Fibrotic Remodeling*. Advanced Healthcare Materials, 2017. **6**(11).
  76. Ruiz-Canela, M., et al., *Comprehensive Metabolomic Profiling and Incident Cardiovascular Disease: A Systematic Review*. J Am Heart Assoc, 2017. **6**(10).
  77. Quinn, G.R., et al., *Missed Diagnosis of Cardiovascular Disease in Outpatient General Medicine: Insights from Malpractice Claims Data*. Jt Comm J Qual Patient Saf, 2017. **43**(10): p. 508-516.
  78. Perez-Medina, C., et al., *Integrating nanomedicine and imaging*. Philos Trans A Math Phys Eng Sci, 2017. **375**(2107).
  79. Paneni, F., et al., *The Aging Cardiovascular System: Understanding It at the Cellular and Clinical Levels*. J Am Coll Cardiol, 2017. **69**(15): p. 1952-1967.
  80. Otto, C.M., *Heartbeat: Challenges in primary prevention of cardiovascular disease*. Heart, 2017. **103**(7): p. 475-476.
  81. Ong, C.S., et al., *Biomaterial-Free Three-Dimensional Bioprinting of Cardiac Tissue using Human Induced Pluripotent Stem Cell Derived Cardiomyocytes*. Scientific Reports, 2017. **7**.
  82. O'Brien, B., et al., *Transseptal puncture - Review of anatomy, techniques, complications and challenges*. Int J Cardiol, 2017. **233**: p. 12-22.
  83. Muntner, P. and P.K. Whelton, *Using Predicted Cardiovascular Disease Risk in Conjunction With Blood Pressure to Guide Antihypertensive Medication Treatment*. J Am Coll Cardiol, 2017. **69**(19): p. 2446-2456.
  84. Leemans, E.L., et al., *Biomechanical Indices for Rupture Risk Estimation in Abdominal Aortic Aneurysms*. J Endovasc Ther, 2017. **24**(2): p. 254-261.
  85. Komae, H., et al., *Three-dimensional functional human myocardial tissues fabricated from induced pluripotent stem cells*. Journal of Tissue Engineering and Regenerative Medicine, 2017. **11**(3): p. 926-935.

86. Kitsara, M., et al., *Fibers for hearts: A critical review on electrospinning for cardiac tissue engineering*. Acta Biomaterialia, 2017. **48**: p. 20-40.
87. Ji, S.T., et al., *Promising Therapeutic Strategies for Mesenchymal Stem Cell-Based Cardiovascular Regeneration: From Cell Priming to Tissue Engineering*. Stem Cells International, 2017.
88. Jang, J., et al., *3D printed complex tissue construct using stem cell-laden decellularized extracellular matrix bioinks for cardiac repair*. Biomaterials, 2017. **112**: p. 264-274.
89. Hwang, T.J. and A.S. Kesselheim, *Challenges in the Development of Novel Cardiovascular Therapies*. Clin Pharmacol Ther, 2017. **102**(2): p. 194-196.
90. Huang, Y., et al., *3D bioprinting and the current applications in tissue engineering*. Biotechnology Journal, 2017. **12**(8).
91. Ho, C.M.B., et al., *3D Printed Polycaprolactone Carbon Nanotube Composite Scaffolds for Cardiac Tissue Engineering*. Macromolecular Bioscience, 2017. **17**(4).
92. Henderson, K., et al., *Biomechanical Regulation of Mesenchymal Stem Cells for Cardiovascular Tissue Engineering*. Adv Healthc Mater, 2017. **6**(22).
93. Hamada, S., et al., *Multi-centre study of whole-heart dynamic 3D cardiac magnetic resonance perfusion imaging for the detection of coronary artery disease defined by fractional flow reserve: gender based analysis of diagnostic performance*. Eur Heart J Cardiovasc Imaging, 2017. **18**(10): p. 1099-1106.
94. Ghiaseddin, A., et al., *Cell laden hydrogel construct on-a-chip for mimicry of cardiac tissue in-vitro study*. Biochemical and Biophysical Research Communications, 2017. **484**(2): p. 225-230.
95. Gazzola, K., L. Reeskamp, and B.J. van den Born, *Ethnicity, lipids and cardiovascular disease*. Curr Opin Lipidol, 2017. **28**(3): p. 225-230.
96. Gao, Q., et al., *3D Bioprinting of Vessel-like Structures with Multilevel Fluidic Channels*. Acs Biomaterials Science & Engineering, 2017. **3**(3): p. 399-408.
97. Gao, L., et al., *Myocardial Tissue Engineering With Cells Derived From Human-Induced Pluripotent Stem Cells and a Native-Like, High-Resolution, 3-Dimensionally Printed Scaffold*. Circulation Research, 2017. **120**(8): p. 1318-+.
98. Gao, E.L., et al., *Myocardial Tissue Engineering With Cells Derived From Human-Induced Pluripotent Stem Cells and a Native-Like, High-Resolution, 3-Dimensionally Printed Scaffold*. Circulation Research, 2017. **120**(8): p. 1318-1325.
99. Fleischer, S., R. Feiner, and T. Dvir, *Cardiac tissue engineering: from matrix design to the engineering of bionic hearts*. Regenerative Medicine, 2017. **12**(3): p. 275-284.

100. Fares, M.A., *Introduction: Challenges and advances in cardiovascular disease*. Cleve Clin J Med, 2017. **84**(12 Suppl 3): p. 11.
101. Duellen, R. and M. Sampaolesi, *Stem Cell Technology in Cardiac Regeneration: A Pluripotent Stem Cell Promise*. Ebiomedicine, 2017. **16**: p. 30-40.
102. Duan, B., *State-of-the-Art Review of 3D Bioprinting for Cardiovascular Tissue Engineering*. Annals of Biomedical Engineering, 2017. **45**(1): p. 195-209.
103. Domian, I.J., H. Yu, and N. Mittal, *On Materials for Cardiac Tissue Engineering*. Advanced Healthcare Materials, 2017. **6**(2).
104. Davidson, S.M., K. Takov, and D.M. Yellon, *Exosomes and Cardiovascular Protection*. Cardiovasc Drugs Ther, 2017. **31**(1): p. 77-86.
105. Datta, P., B. Ayan, and I.T. Ozbolat, *Bioprinting for vascular and vascularized tissue biofabrication*. Acta Biomaterialia, 2017. **51**: p. 1-20.
106. Cheng, S., et al., *Potential Impact and Study Considerations of Metabolomics in Cardiovascular Health and Disease: A Scientific Statement From the American Heart Association*. Circ Cardiovasc Genet, 2017. **10**(2).
107. Burroughs Pena, M.S. and A. Rollins, *Environmental Exposures and Cardiovascular Disease: A Challenge for Health and Development in Low- and Middle-Income Countries*. Cardiol Clin, 2017. **35**(1): p. 71-86.
108. Breckwoldt, K., et al., *Differentiation of cardiomyocytes and generation of human engineered heart tissue*. Nature Protocols, 2017. **12**(6): p. 1177-1197.
109. Borovjagin, V.A., et al., *From Microscale Devices to 3D Printing: Advances in Fabrication of 3D Cardiovascular Tissues*. Circulation Research, 2017. **120**(1): p. 150-165.
110. Borovjagin, A.V., et al., *From Microscale Devices to 3D Printing: Advances in Fabrication of 3D Cardiovascular Tissues*. Circ Res, 2017. **120**(1): p. 150-165.
111. Ban, K., S. Bae, and Y.S. Yoon, *Current Strategies and Challenges for Purification of Cardiomyocytes Derived from Human Pluripotent Stem Cells*. Theranostics, 2017. **7**(7): p. 2067-2077.
112. Ballocca, F., et al., *Cardiovascular disease in patients with HIV*. Trends Cardiovasc Med, 2017. **27**(8): p. 558-563.
113. Anderson, C.W., et al., *Stem Cells in Cardiovascular Medicine: the Road to Regenerative Therapies*. Current Cardiology Reports, 2017. **19**(4).
114. Ameri, K., R. Samurkashian, and Y. Yeghiazarians, *Three-Dimensional Bioprinting Emerging Technology in Cardiovascular Medicine*. Circulation, 2017. **135**(14): p. 1281-1283.

115. Akintewe, O.O., et al., *Design Approaches to Myocardial and Vascular Tissue Engineering*. Annu Rev Biomed Eng, 2017. **19**: p. 389-414.
116. Abolbashari, M., et al., *Polypharmacy in Cardiovascular Medicine: Problems and Promises!* Cardiovasc Hematol Agents Med Chem, 2017. **15**(1): p. 31-39.
117. Zhang, Y.S., et al., *Bioprinting 3D microfibrinous scaffolds for engineering endothelialized myocardium and heart-on-a-chip*. Biomaterials, 2016. **110**: p. 45-59.
118. Zhang, Y.S., et al., *Bioprinting 3D microfibrinous scaffolds for engineering endothelialized myocardium and heart-on-a-chip*. Biomaterials, 2016. **110**: p. 45-59.
119. Watanabe, M., et al., *Probing the Electrophysiology of the Developing Heart*. J Cardiovasc Dev Dis, 2016. **3**(1).
120. Usprech, J., W.L. Chen, and C.A. Simmons, *Heart valve regeneration: the need for systems approaches*. Wiley Interdiscip Rev Syst Biol Med, 2016. **8**(2): p. 169-82.
121. Thulin, A., et al., *Circulating cell-derived microparticles as biomarkers in cardiovascular disease*. Biomark Med, 2016. **10**(9): p. 1009-22.
122. Singh, P., et al., *Biomedical Perspective of Electrochemical Nanobiosensor*. Nanomicro Lett, 2016. **8**(3): p. 193-203.
123. Selvaganapathy, P.R. and R. Attalla, *Microfluidic Vascular Channels in Gels using Commercial 3D Printers*, in *Microfluidics, Biomems, and Medical Microsystems Xiv*, B.L. Gray and H. Becker, Editors. 2016.
124. Saner, H. and E. van der Velde, *eHealth in cardiovascular medicine: A clinical update*. Eur J Prev Cardiol, 2016. **23**(2 suppl): p. 5-12.
125. Sakes, A., et al., *Crossing Total Occlusions: Navigating Towards Recanalization*. Cardiovasc Eng Technol, 2016. **7**(2): p. 103-17.
126. Sakes, A., et al., *Treating Total Occlusions: Applying Force for Recanalization*. IEEE Rev Biomed Eng, 2016. **9**: p. 192-207.
127. Reis, L.A., et al., *Biomaterials in myocardial tissue engineering*. J Tissue Eng Regen Med, 2016. **10**(1): p. 11-28.
128. Okwuosa, I.S., et al., *Worldwide disparities in cardiovascular disease: Challenges and solutions*. Int J Cardiol, 2016. **202**: p. 433-40.
129. Ogle, B.M., et al., *Distilling complexity to advance cardiac tissue engineering*. Science translational medicine, 2016. **8**(342): p. 342ps13.
130. Ogle, B.M., et al., *Distilling complexity to advance cardiac tissue engineering*. Sci Transl Med, 2016. **8**(342): p. 342ps13.

131. Niederer, S.A. and N.P. Smith, *Using physiologically based models for clinical translation: predictive modelling, data interpretation or something in-between?* J Physiol, 2016. **594**(23): p. 6849-6863.
132. Michell, D.L. and K.C. Vickers, *HDL and microRNA therapeutics in cardiovascular disease.* Pharmacol Ther, 2016. **168**: p. 43-52.
133. Marsano, A., et al., *Beating heart on a chip: a novel microfluidic platform to generate functional 3D cardiac microtissues.* Lab on a Chip, 2016. **16**(3): p. 599-610.
134. Malheiro, A., et al., *Patterning Vasculature: The Role of Biofabrication to Achieve an Integrated Multicellular Ecosystem.* Acs Biomaterials Science & Engineering, 2016. **2**(10): p. 1694-1709.
135. Lee, J.M. and W.Y. Yeong, *BIOPRINTING FOR CARDIOVASCULAR TISSUE ENGINEERING*, in *Proceedings of the 2nd International Conference on Progress in Additive Manufacturing*, C.K. Chua, et al., Editors. 2016. p. 61-66.
136. Kokkalis, E., N. Aristokleous, and J.G. Houston, *Haemodynamics and Flow Modification Stents for Peripheral Arterial Disease: A Review.* Ann Biomed Eng, 2016. **44**(2): p. 466-76.
137. Kim, J.J., L.Q. Hou, and N.F. Huang, *Vascularization of three-dimensional engineered tissues for regenerative medicine applications.* Acta Biomaterialia, 2016. **41**: p. 17-26.
138. Jia, W.T., et al., *Direct 3D bioprinting of perfusable vascular constructs using a blend bioink.* Biomaterials, 2016. **106**: p. 58-68.
139. Jia, W., et al., *Direct 3D bioprinting of perfusable vascular constructs using a blend bioink.* Biomaterials, 2016. **106**: p. 58-68.
140. Jastrzebska, E., E. Tomecka, and I. Jesion, *Heart-on-a-chip based on stem cell biology.* Biosensors & Bioelectronics, 2016. **75**: p. 67-81.
141. Hernandez-Cordova, R., et al., *Indirect three-dimensional printing: A method for fabricating polyurethane-urea based cardiac scaffolds.* Journal of Biomedical Materials Research Part A, 2016. **104**(8): p. 1912-1921.
142. Giannopoulos, A.A., et al., *Applications of 3D printing in cardiovascular diseases.* Nature Reviews Cardiology, 2016. **13**(12): p. 701-718.
143. George, C.E., et al., *Barriers to cardiovascular disease risk reduction: Does physicians' perspective matter?* Indian Heart J, 2016. **68**(3): p. 278-85.
144. Feric, N.T. and M. Radisic, *Strategies and Challenges to Myocardial Replacement Therapy.* Stem Cells Transl Med, 2016. **5**(4): p. 410-6.
145. Davenport, M., *The telltale heart-on-a-chip device.* Chemical & Engineering News, 2016. **94**(43): p. 5-5.

146. Brian, T.F. and M.O. Brenda, *Viral-mediated fusion of mesenchymal stem cells with cells of the infarcted heart hinders healing via decreased vascularization and immune modulation*. Scientific Reports, 2016. **6**.
147. Ayoub, S., et al., *Heart Valve Biomechanics and Underlying Mechanobiology*. Compr Physiol, 2016. **6**(4): p. 1743-1780.
148. Zhang, Y.S., et al., *From cardiac tissue engineering to heart-on-a-chip: beating challenges*. Biomedical Materials, 2015. **10**(3).
149. Tang, Y.H., et al., *Opportunities and challenges: stem cell-based therapy for the treatment of ischemic stroke*. CNS Neurosci Ther, 2015. **21**(4): p. 337-47.
150. Sun, X.T. and S.S. Nunes, *Overview of hydrogel-based strategies for application in cardiac tissue regeneration*. Biomedical Materials, 2015. **10**(3).
151. Romaine, S.P., et al., *MicroRNAs in cardiovascular disease: an introduction for clinicians*. Heart, 2015. **101**(12): p. 921-8.
152. Paulsen, S.J. and J.S. Miller, *Tissue Vascularization Through 3D Printing: Will Technology Bring Us Flow?* Developmental Dynamics, 2015. **244**(5): p. 629-640.
153. Moya, M.L., M. Cardona, and E. Wheeler, *Bioprinting Vascular Networks for Engineered Tissue Constructs*. Tissue Engineering Part A, 2015. **21**: p. S42-S42.
154. Mosadegh, B., et al., *Current progress in 3D printing for cardiovascular tissue engineering*. Biomedical Materials, 2015. **10**(3).
155. Liu, C., Z. Yavar, and Q. Sun, *Cardiovascular response to thermoregulatory challenges*. Am J Physiol Heart Circ Physiol, 2015. **309**(11): p. H1793-812.
156. Kucukgul, C., et al., *3D Bioprinting of Biomimetic Aortic Vascular Constructs With Self-Supporting Cells*. Biotechnology and Bioengineering, 2015. **112**(4): p. 811-821.
157. Kaiser, N.J. and K.L.K. Coulombe, *Physiologically inspired cardiac scaffolds for tailored in vivo function and heart regeneration*. Biomedical Materials, 2015. **10**(3).
158. Jung, J.P., et al., *An integrated statistical model for enhanced murine cardiomyocyte differentiation via optimized engagement of 3D extracellular matrices*. Scientific reports, 2015. **5**: p. 18705.
159. Jana, S. and A. Lerman, *Bioprinting a cardiac valve*. Biotechnology Advances, 2015. **33**(8): p. 1503-1521.
160. Freeman, B.T., N.A. Kouris, and B.M. Ogle, *Tracking Fusion of Human Mesenchymal Stem Cells After Transplantation to the Heart*. STEM CELLS Translational Medicine, 2015. **4**(6): p. 685-694.

161. Fisher, E., et al., *A Microphysiological Heart-on-a-Chip using Electroconductive Myocardial Matrices*. Tissue Engineering Part A, 2015. **21**: p. S41-S41.
162. Cheung, D.Y., B. Duan, and J.T. Butcher, *Current progress in tissue engineering of heart valves: multiscale problems, multiscale solutions*. Expert Opinion on Biological Therapy, 2015. **15**(8): p. 1155-1172.
163. Blatchley, M.R. and S. Gerecht, *Acellular implantable and injectable hydrogels for vascular regeneration*. Biomedical Materials, 2015. **10**(3).
164. Behera, S.S., K. Pramanik, and M.K. Nayak, *Recent Advancement in the Treatment of Cardiovascular Diseases: Conventional Therapy to Nanotechnology*. Curr Pharm Des, 2015. **21**(30): p. 4479-97.