

3D PRINTING CONFERENCE INNOVATION, MODELLING, APPLICATION & IMPLEMENTATION

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James B Hoying

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Biofabrication of tissues for biomedical applications

Regenerative medicine promises to revolutionize medicine through the repair or replacement of dysfunctional tissues and organs with engineered biological or biohybrid systems. Current, 1st generation regenerative and biomedical tissue solutions utilize relatively simple uniform tissue constructs formed with cells cultured in or on biocompatible scaffolds. Future regenerative therapies will require the fabrication of complex three-dimensional constructs containing multiple cell types, extracellular matrices, and other elements via customized strategies. We envision a process by which tissue components are fabricated, including via 3D and 4D bioprinting, and assembled in a manufacturing workflow resulting in a final tissue product. This requires a spectrum of biofabrication capabilities. We've developed a technology

platform enabling these advanced biomanufacturing processes that is being employed to build tissues for assays, tissue models, and replacement tissues.

Speaker Biography

James B Hoying, PhD FAHA is the Chief of the Division of Cardiovascular Therapeutics at the Cardiovascular Innovation Institute (CII) and Professor in the Department Physiology at the University of Louisville. He has over 25 years of experience, having published over 116 papers and book chapters, in basic and applied biological sciences with a focus in vascular biology and repair. He holds a number of patents related to repairing and manipulating capillaries and cell-based therapies. He is President and co-founder of Angiomics Inc., a biotech company advancing vascular health through its patented isolated microvessel technology. He is also Chief Scientist and a Partner of Advanced Solutions Life Sciences, a Louisville company advancing 3D bioprinting and tissue fabrication. He is a Fellow of the American Heart Association.

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