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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
**National Institutes of Health**



National Institutes of Health Commercialization Assistance Program  
 (NIH-CAP)

## InvivoSciences, Inc.

### Company Profile:

**Overview:** InvivoSciences is developing and commercializing technologies to mass-manufacture human tissue models for drug screening and personalized/regenerative medicine, providing customers rapid, cost-effective solutions/services to discover new therapies. The tissue models recapitulate physiological properties of those in human to predict drug-induced responses in clinical trials. In collaboration with pharmaceutical companies and the Health and Environmental Sciences Institute (HESI), we focus on establishing a highly-predictive preclinical cardiac safety testing platform using cardiac tissues that are developed from human induced pluripotent stem cells (iPSCs). The iPSC technology will enable us to cultivate cardiac tissues that represent diverse human populations with different susceptibilities to external stimuli, including drugs and toxicants.

#### Industry Sectors:

**Drug Discovery Solutions and services for** Safety and Efficacy Testing, Regenerative Medicine, and Sample development for Personalized Drug Testing  
**Research Solutions,** Assay Devices, Automation, Kits, and tissues  
**Defense Sector /Consumer Goods Solutions,** Cosmetic Efficacy and Food Safety Testing, provides cost effective tools for bio detection, development of assays and Development of counter measures

### Key Value Drivers:

#### Technology\*:

- Fabrication of 3D tissue equivalents for connective tissues, cardiac, skeletal and smooth muscles in high-throughput screening format
- Automated assay platform for compound profiling using 3D human tissues
- Application of cell and tissue mechanics for drug discovery as well as regenerative and personalized medicine

#### Competitive Advantage:

- Globally issued patents for 3D cell culture and multi-parameter assay platform
- Established premium phenotypic cardiac safety testing
- Cost-effective automation strategy for cell and tissue productions and assays, including functional assays for discovering regenerative medicine (e.g., cell and tissue implants)

#### Plan & Strategy:

While maintaining financial and operational flexibility to sustain significant research & development effort for gaining and sustaining competitive advantage, several strategic commercial partnerships have been established 1) to market products and 2) to discover drug candidates for future value creations.

We are seeking strategic partners for global distribution of reagents/kits, also institutional investors, venture capital for global expansion

Awarded Phase 2 B the NIGMS SBIR grant and prior funds

### Management:

**Ayla Annac,** MBA , Co-Founder, President, CEO, MBA • St. Louis University, Executive Continued Education Wharton University, leadership role in Global Fortune 500 and Technology Start-ups.

**Tetsuro Wakatsuki,** Co-Founder, Chief Scientific Officer, PhD, Biophysics and MS, Mechanical Engineering • Washington University, BS, Physics • Aoyamagakuin University.

**Elliot L. Elson** Co-founder, Chief Scientific Board, PhD, Biochemistry • Stanford University; BS, Biochemistry • Harvard University, Alumni Endowed Professor , Molecular Biophysics and Biochemistry • Washington Univ.

**Joseph Schlessinger,** Strategic advisor, William H. Prusoff Professor and Chair of Pharmacology • Yale University, Co-founder • Sugen, Inc., Co-founder • Plexxikon, Inc.

**Jeffery Alexander,** Board Member. President and Owner of Advance Concrete Form, Inc. and SMTM LLC

### Product Pipeline:



Commercialization Stages  
 Development    Field Testing    Launched

#### 3D cell culture consumables

- MC-8™
- IVS Inserts™
- MC-96™

#### Assay Devices

- Palpator™: Tissue mechanics analyzer
- IVS Shiatsu™: Mechanical conditioner

#### Assay and protocol automation system

- Stem cell culture
- 3D tissue fabricator
- Assay kits

#### Contract research services

- Cardiac safety (excitation-contraction assays)
- Fibrosis disease model
- Muscle regeneration
- Personalized tissue models