

- **MISSION:** To educate Thinkers, Leaders and Entrepreneurs by integrating education, research and innovation in medical technology aligned with Clemson's land-grant mission.
- **VISION:** To become a global competitor and national leader in biomedical technology research and innovation by developing a highly skilled workforce, and diversifying our research portfolio for a societal impact to address health disparity.
- **GOALS (2010):**
 1. Provide a collaborative environment for clinically driven medical technology research and innovation.
 2. Develop novel education programs targeting innovation skills.
 3. Create specialized space for cutting-edge biomedical technology research.
 4. Develop clinical and industrial partnerships.
 5. Start up companies and provide jobs for the state's population.





Technology Transfer

Validation

Research & Innovation



- A. Frank H. Stelling & C. Dayton Riddle Orthopaedic Res Lab; Translational Musculoskeletal Health Research
- B. Bioimaging Facility (Philips Medical Systems)
- C. Regenerative Medicine Laboratory
- D. Translational Research Laboratory
- E. Materials Analysis and Characterization Facility
- F. NIH COBRE SCBioCRAFT
- G. GreenMED- Recycling and Reprocessing of Medical Devices; Translational Musculoskeletal Health Research
- H. Incubation Space – Corporate lease
- I. Bioskills Lab and Surgery Center

~6,000 sq.ft. Human Cadaver Skills Lab & Conference Center
 ~4,000 sq.ft. Start-ups/Lease
 ~14,000 shared research labs and networking





Bench skills
Engineering skills
Communication skills
Leadership skills
Creativity skills
People skills



2012 NCIIA BMEstart
Design Competition 1st place



2016 K. Patricia Cross
Future Leaders Award (AACU)



2013 Collegiate Inventors Competition
3rd place NSF I-Corps grant



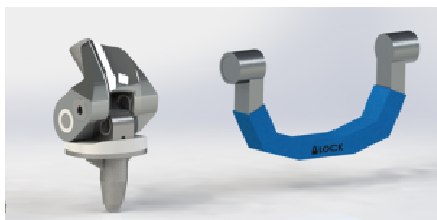
New Dimensions in Cancer Diagnosis



Clemson students file patent for biomedical device
Staff Report
Published Sept. 6, 2012
A Clemson University team of bioengineering students recently filed a patent to have their biomedical device licensed for manufacture by a biomedical device company.



2014 Lemelson-MIT Award "Cure it!"



The Engage Knee System | Image by:
Eric Lucas | Clemson University



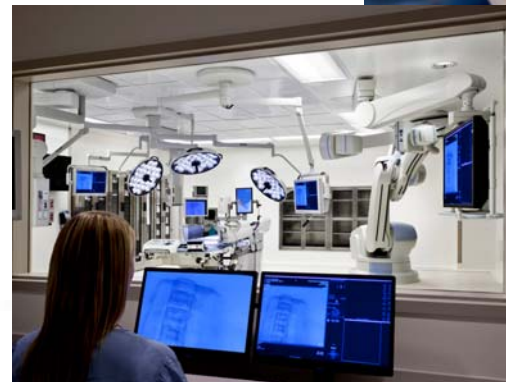
2015 international James Dyson
Award – US Nominee

The DeFINE Program

Design Fundamentals in Needs-Finding Experience

Outcomes:

- NIH Funded (Clemson and GHS)
- Program Length: 6 weeks/yr
- Students Participating: 18
- Clinicians Participating: 40+ /yr
- Surgical Procedures Observed: 106/yr
- Person Hours of Observation in the Clinic: 227/yr
- Person Hours of Observation in the OR: 723/yr
- Person Hours Devoted to Needs Documentation: 470+ /yr
- Number of Clinical Needs Identified: 1000+



CUBEInC Research Port-Folio

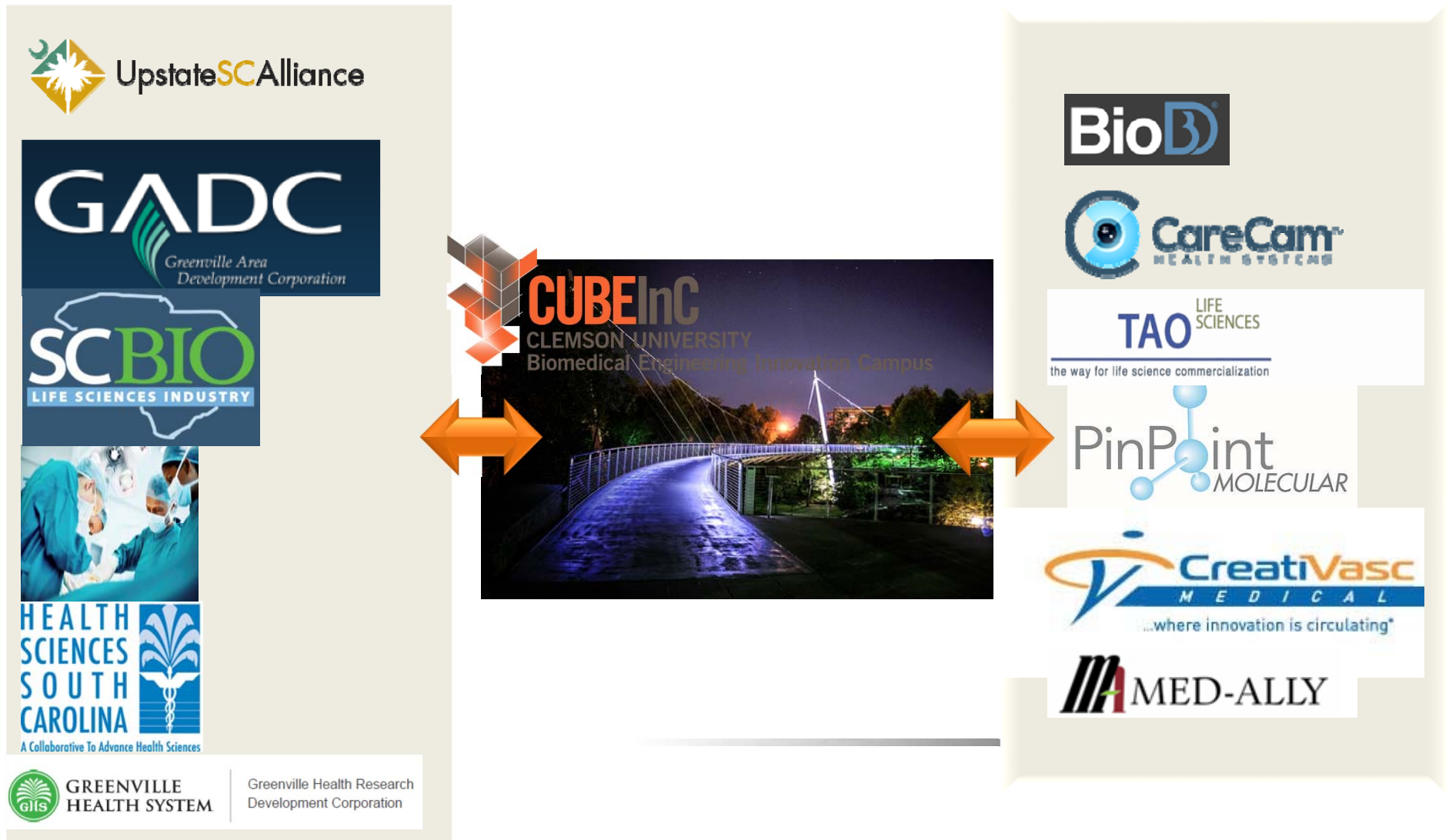
**Human Tissues
Human Cells
IRB**

- Stem cell engineering and regenerative medicine
- Advanced biomaterial design, fabrication, and testing
- Nanotechnology
- Biomedical imaging and bioinstrumentation
- Biomechanics and computational modeling
- Cancer and drug delivery
- Cardiovascular biomaterials
- Orthopaedic reconstruction
- Sports rehabilitation
- Medical Device Recycling and Reprocessing

**Discovery
Innovation
Intellectual Property**



CUBEInC Leveraged Economic Development



CUBEInC: A Value Proposition

- **Student Perspective:**

- Innovation **opportunities**; access to businesses and clinicians
- Unique environment; unique education; **increased degree market value**

- **Research Perspective**

- Provides unique faculty/clinical **expertise** and research **resources/facilities** unavailable at Clemson University to conduct superior fundable health focused and diseased oriented research.
- Enhances **national visibility and credibility** of Clemson as a biomedical research university (clinical, IP)
- Strengthens research funding opportunities (AHA, NIH, COBRE)
- Gives access to funding sources that would not be available if not associated with a **medical university/clinicians**.
- Clemson as flagship for innovation in bioengineering/biomedical engineering research in South Carolina.

- **Faculty Perspective:**

- Top **talent recruitment** , Access to clinicians/ patients/ Greenville area/environment
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