

Orthopedic Tissue Engineering

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What does my group do?

- Tissue Engineering
- Biomaterials
- Stem Cells

Tissues of Interest

- Temporomandibular Joint
- Intervertebral Disc
- Knee (osteochoondral)*
- Cranium*
- Trachea*
- Liver*
- Cochlea*

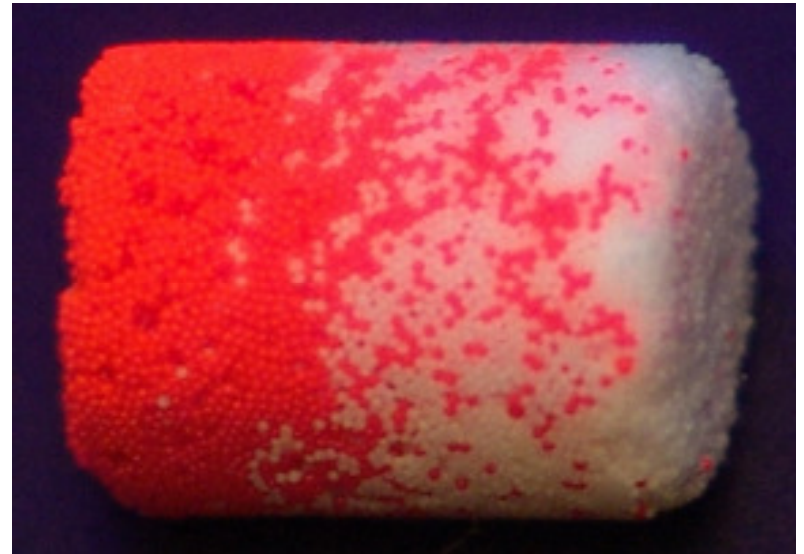
*KUMC collaborator

Biomaterials Strategies

- Microsphere-based gradient scaffolds
- Colloidal gels
- Electrospinning
- IPN hydrogels

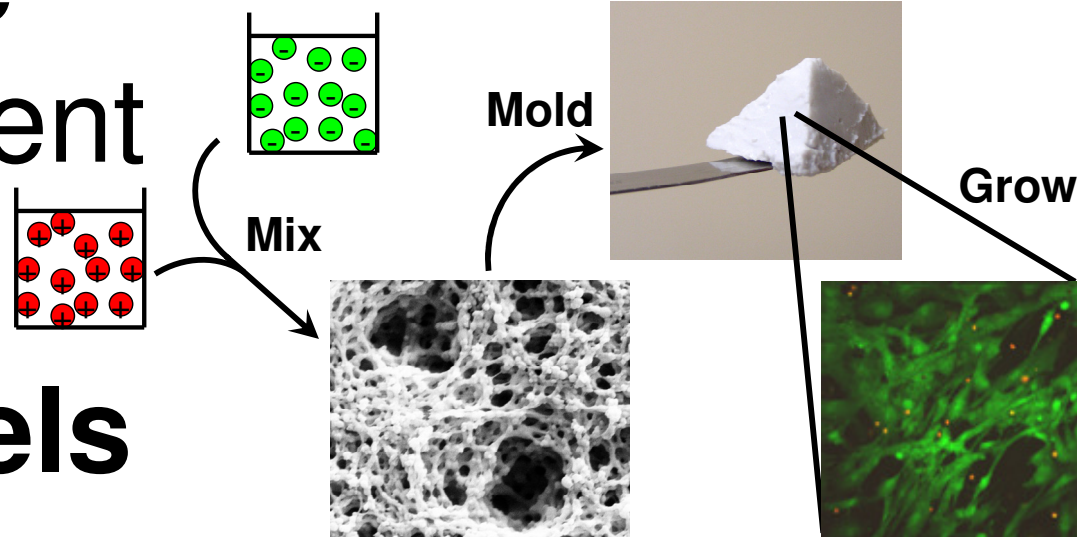
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Biomaterials Strategies

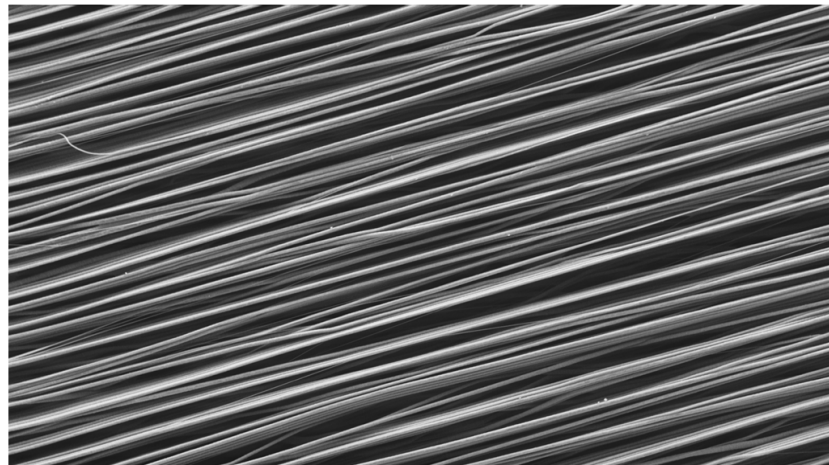
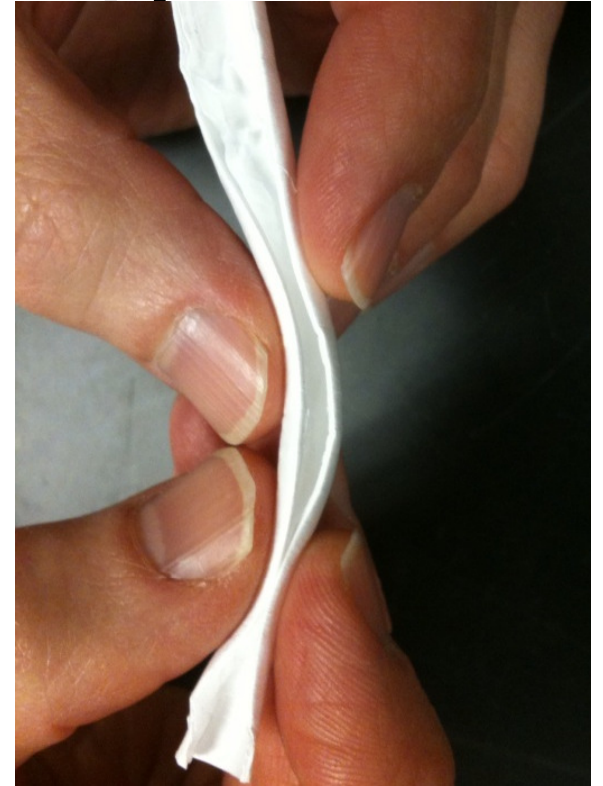
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Umbilical cord stromal cells

- Not cord blood, not HUVECs
- Combine with biomaterials
- Signaling strategies
- Comparisons to BMSCs

Collaborations & Commercialization

- Currently working with scientists, engineers, and surgeons
- Patents pending on gradient and IPN designs
- Interested in talking to entrepreneurs

Collaborations Across State Lines

- UMKC Dental School (bone biology)
- Children's Mercy (ENT, orthopedics)
- Sinclair Research Center (*in vivo*)
- UM-Columbia (*in vivo*)



Biomaterials & Tissue Engineering

The University of Kansas, Lawrence

Questions?



NIGMS



National Institute of Dental and Craniofacial Research