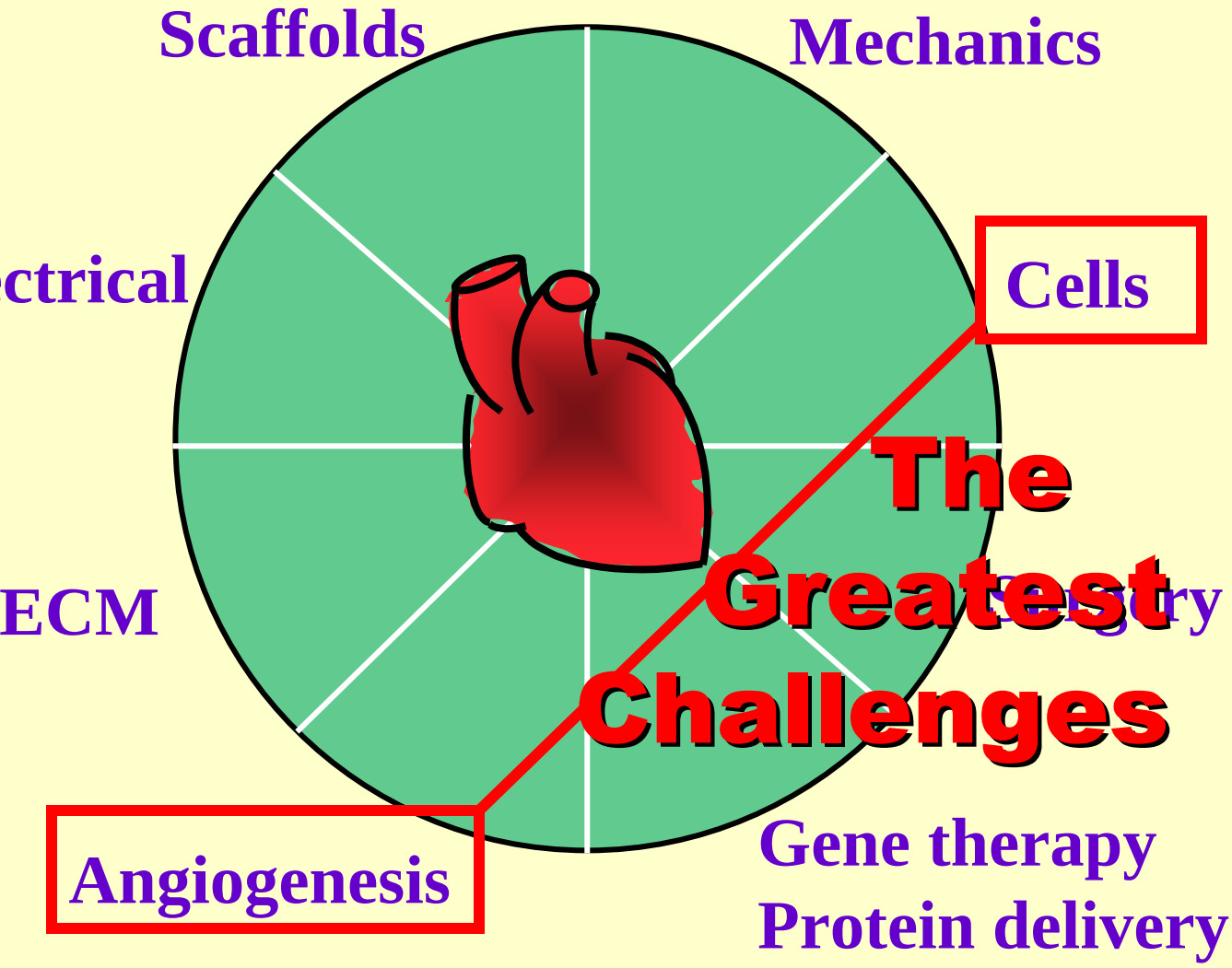
E A T (BioEngineered Autologous Tissu

to tissue engineer heart muscle…



Ratner / Sanders
polymers, scaffolds
fibers/ biomechanics

Woodhouse (U. Toronto)
biodegradable elastom

Heller (Advanced Polymer Techno
biodegradable polyme

Hauschka/Angello
muscle cells

Murry
heart healing, stem cel

Stayton / Hoffman
cell orientation/
gene, cytokine deliver

Bornstein
ECM, stem cells

Allen
Surgical aspects, gene

Vernon/Sage
Angiogenesis

Mansbridge/Ratcliff (Adv. Tissue
Bioreactors & packagi

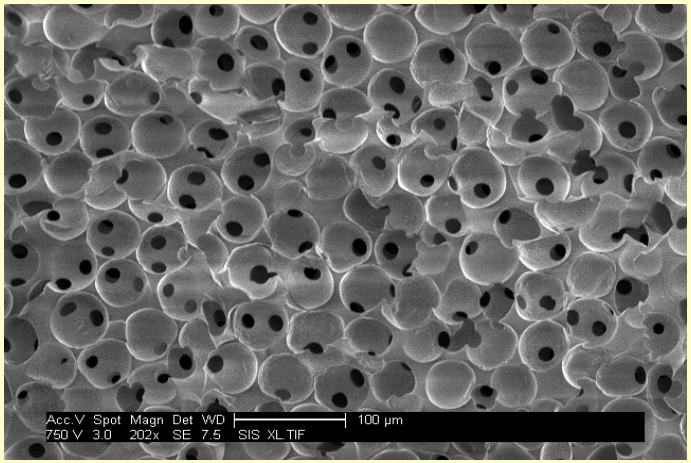
Hauch
Microscopy, coordinat

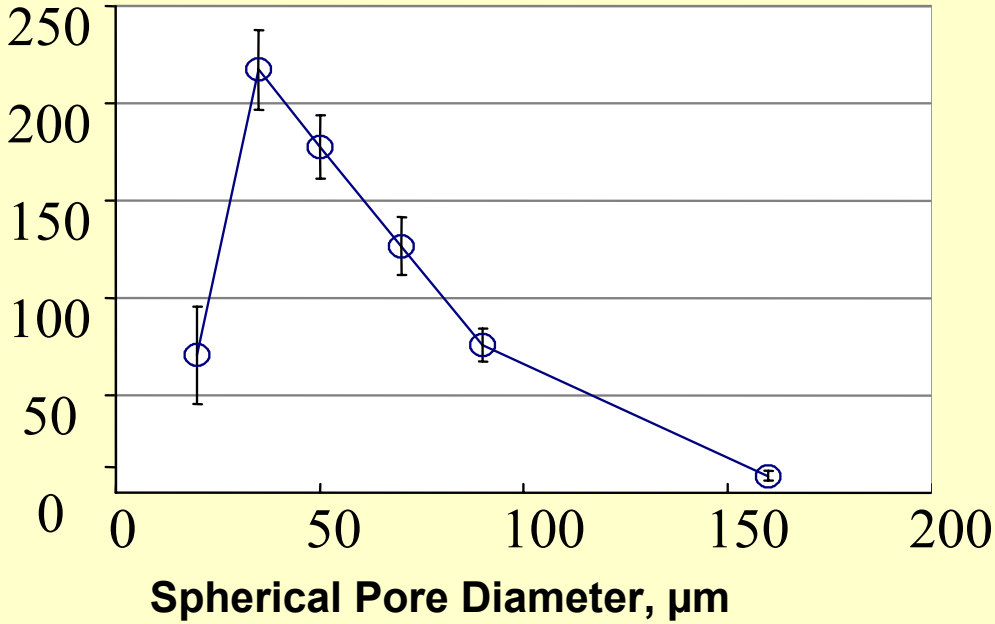
ersity of Washington, Buddy Ratner, PI

Angiogenesis

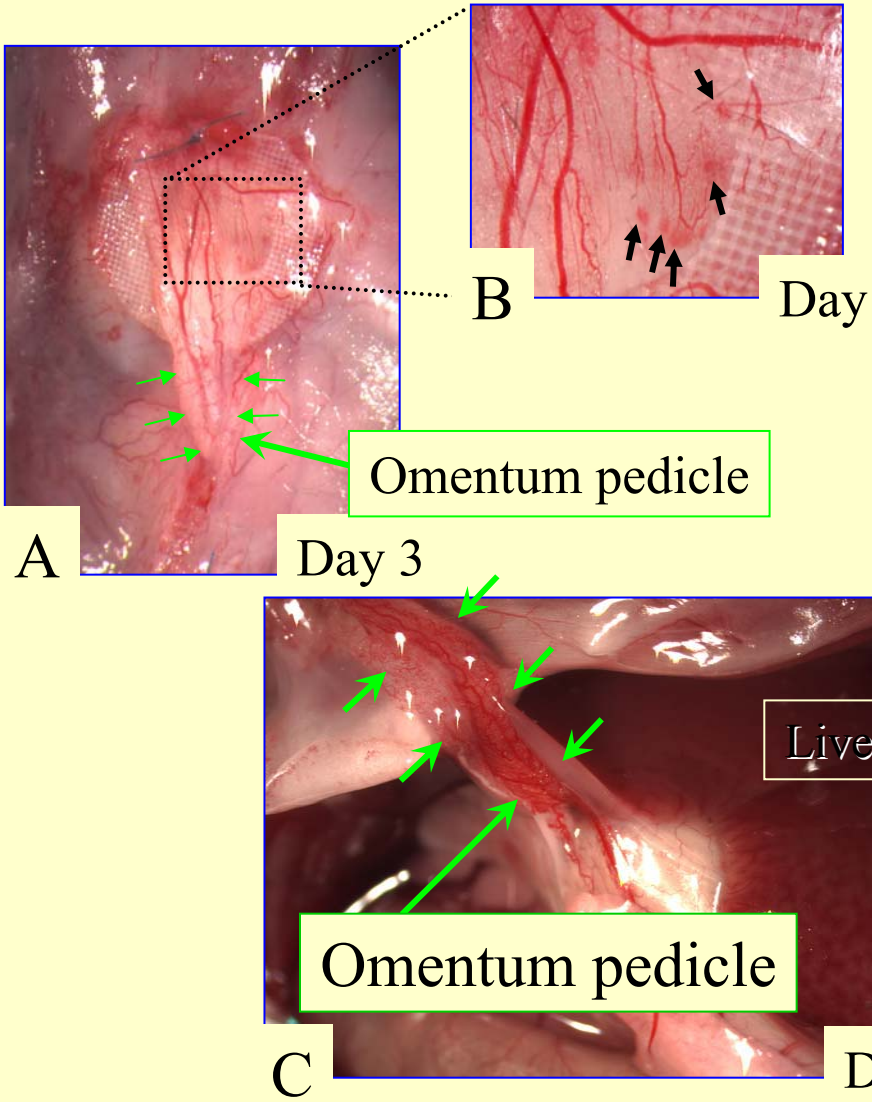
- Cytokine delivery
- Gene delivery

PolyHEMA Hydrogel with Monodispersed Pores



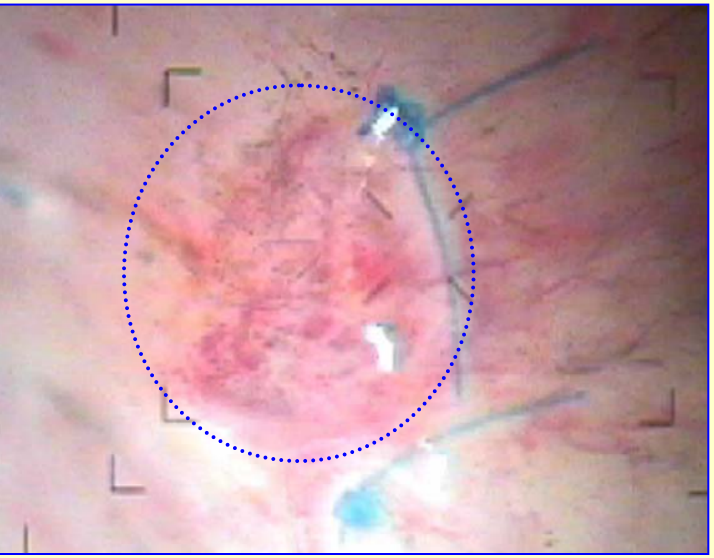


Omental flap accelerates angiogenesis



Cardiomyocyte Cell Source

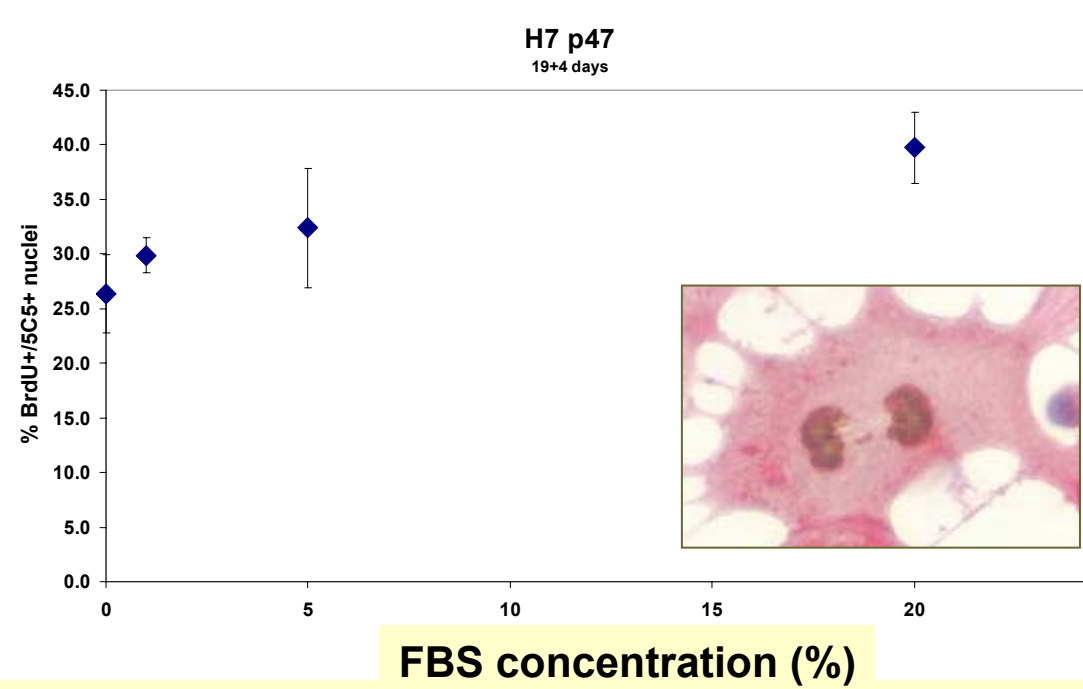
induction in cultured atrial tissue at 3days

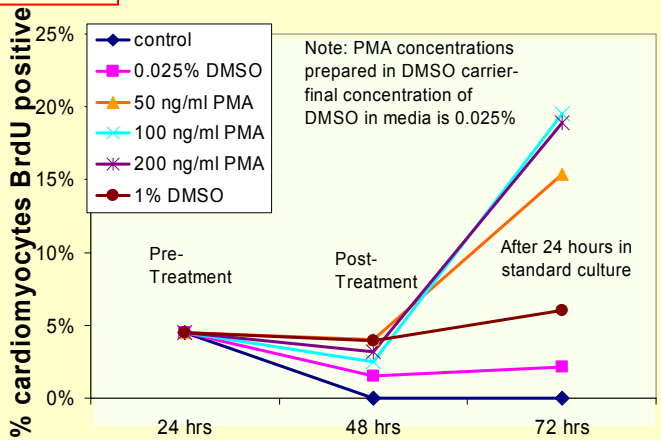


2 weeks after *in vivo* implantation

pontaneous beating at 100-120 bpm

%BrdU+ Cardiomyocytes





Phorbol 12-myristate 13-acetate (PMA) treatment