Harnessing Synthetic Cells to Support Regenerative Medicine

Gal Chen

Schroeder lab

TECHNION
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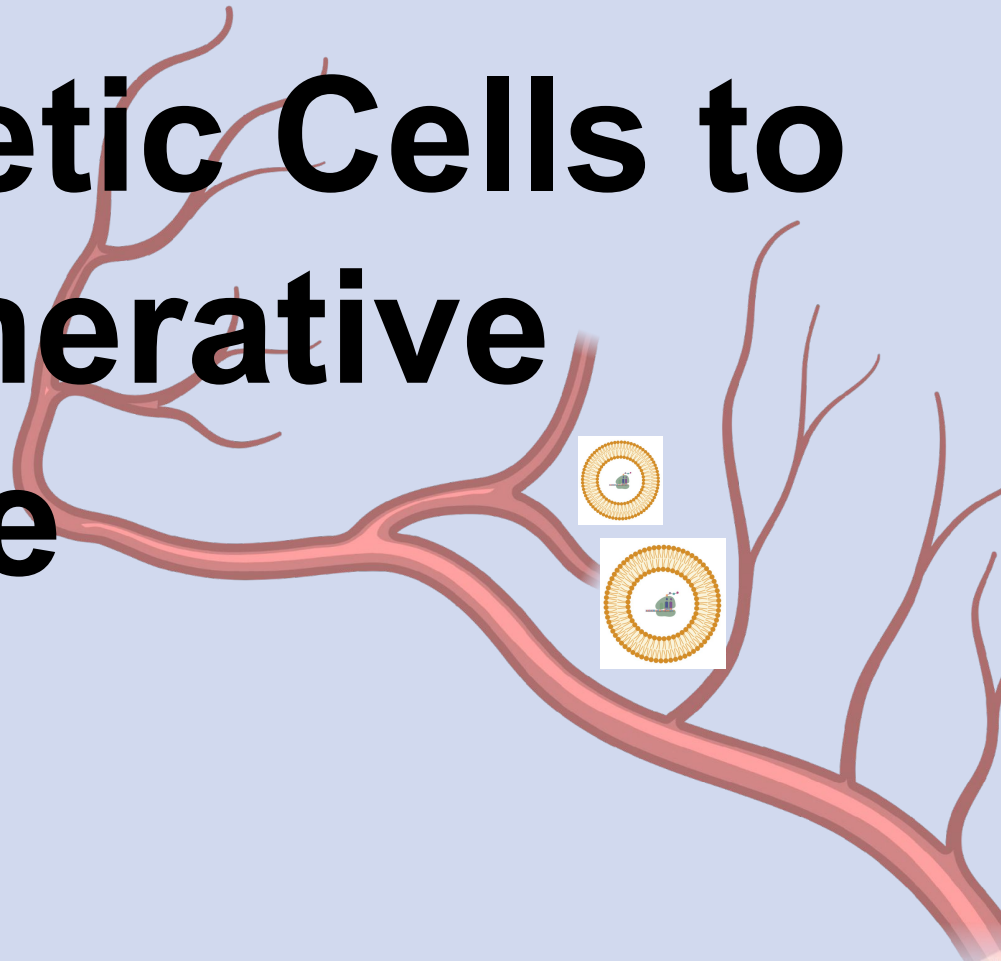


CRS 2022 Annual Meeting & Expo

July 11 – 15, 2022 | Montreal Congress Center, Montreal Canada

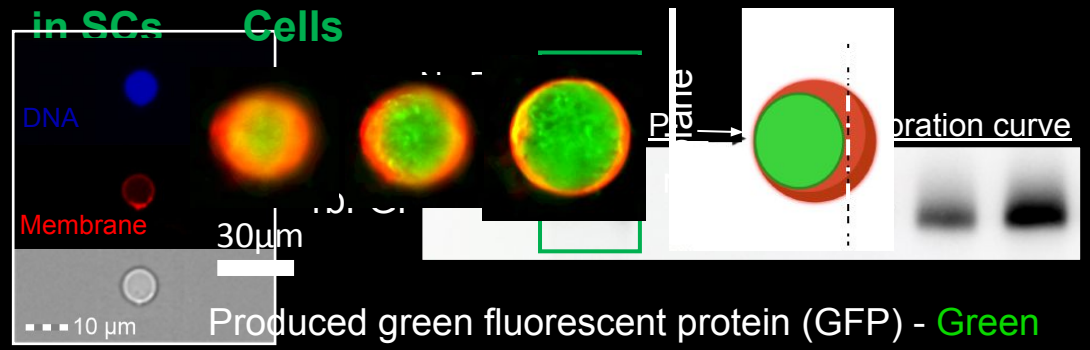
Advanced Delivery Science

Applying Synthetic Biology to Drug Delivery

- Synthetic cells – Engineered microparticles mimicking one or few functions of living cells
- Simplified living cells – Advanced inspiration for creating advanced drug delivery systems
- Bottom-up engineering – Beyond natural capabilities of living cells

Synthetic cells Promote Tissue Angiogenesis by In-Situ Production of Growth Factors

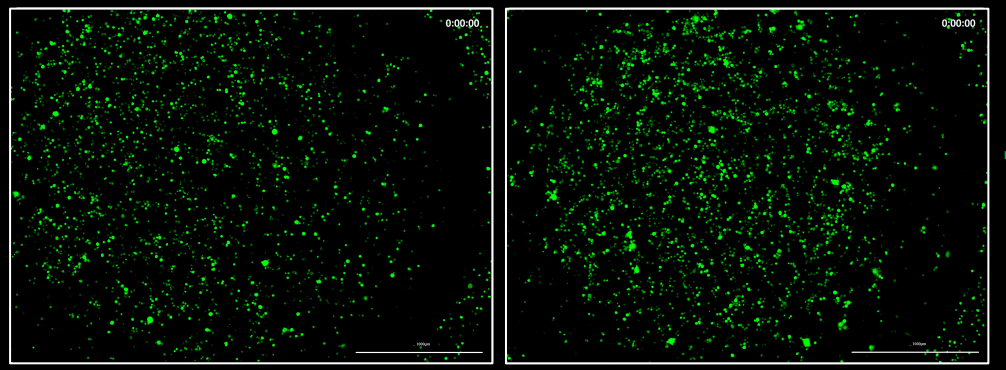
Recombinant Fibroblast Growth Factor Production in SCs



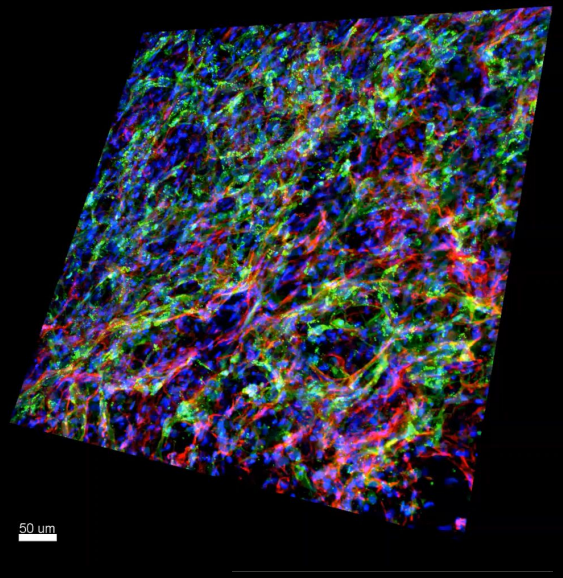
Produced green fluorescent protein (GFP) - Green

Cy-5 labeled membrane - Red

Proangiogenic SCs Induce HUVECs Tube Formation



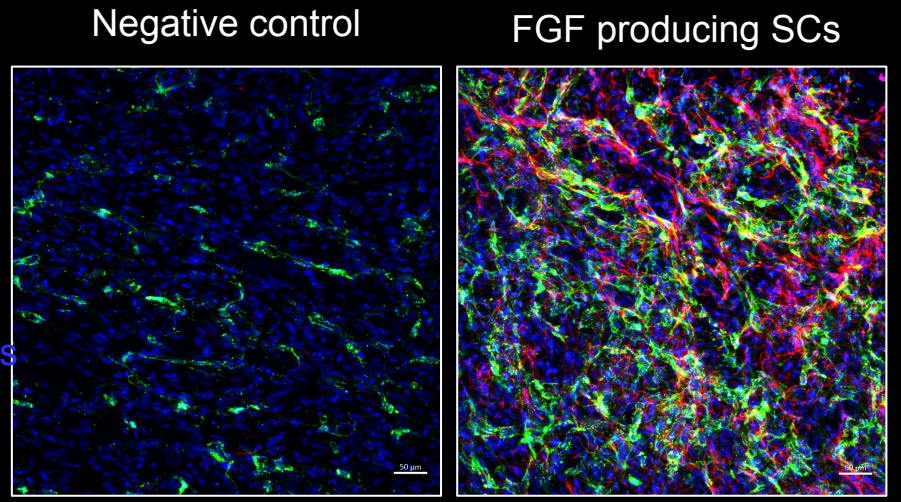
In-situ FGF Production in SCs Promotes Stabilized vascular network formation in engineered scaffolds



Forming vessels markers
(HUVEC-GFP, VE-Cadherin)

Vessel stabilization marker
(Collagen-IV)

Co-culture – HUVECs and DPSCs
(Cell nuclei)



Chen, G. et al. (2022) Submitted, unpublished data.

Thank You to Our Session Sponsor

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Thank You!

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