



LEIDS UNIVERSITAIR MEDISCH CENTRUM

Organotypic in vitro skin cancer model

Cancer associated fibroblasts influence invasion and morphogenesis

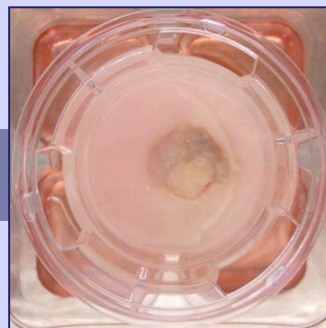
An *in vitro* human skin cancer model for development and testing of therapeutics

Available:

Animal models



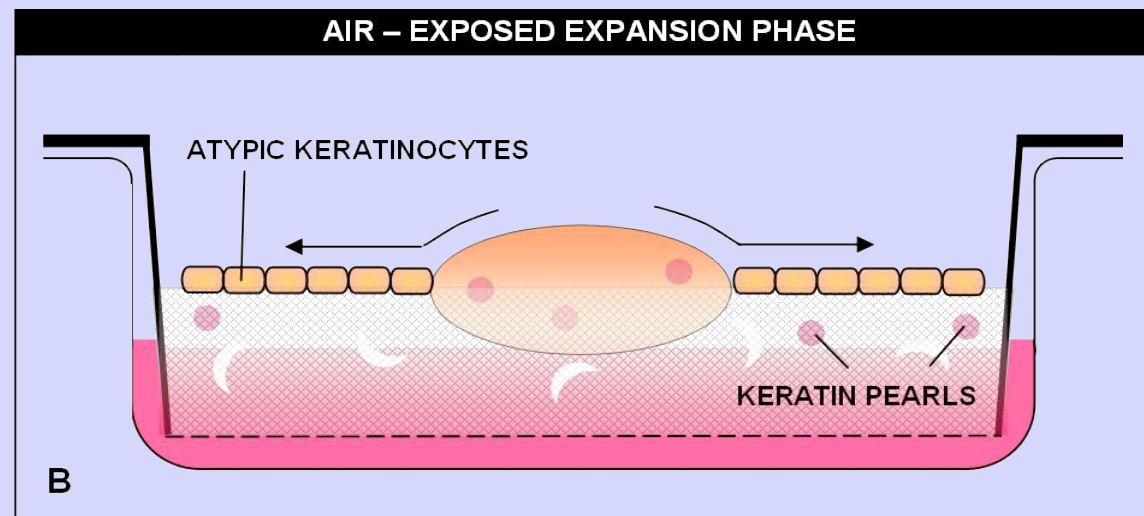
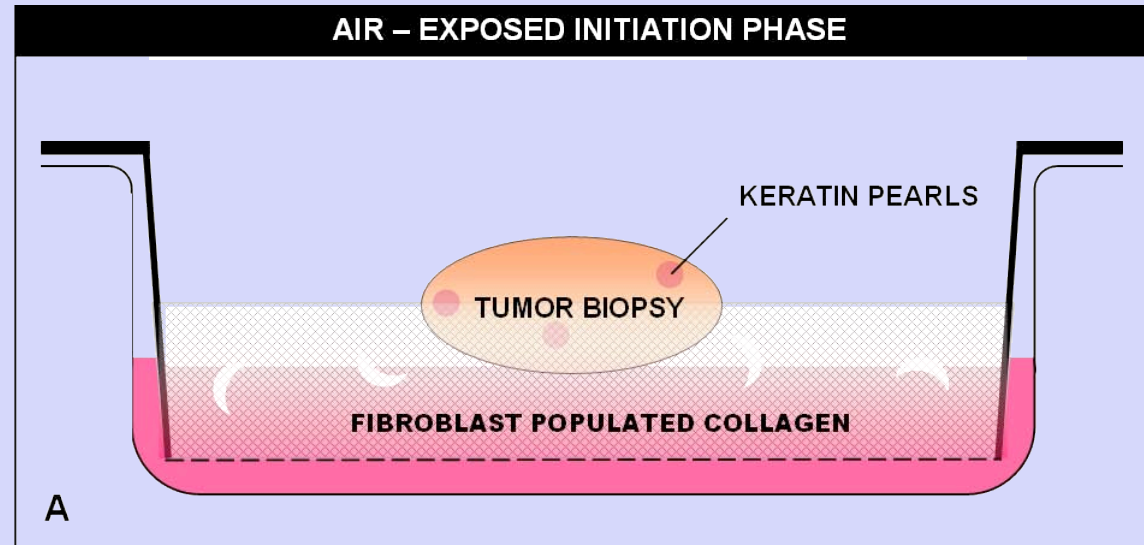
Human in vitro model



*Primary tumours
in patients*

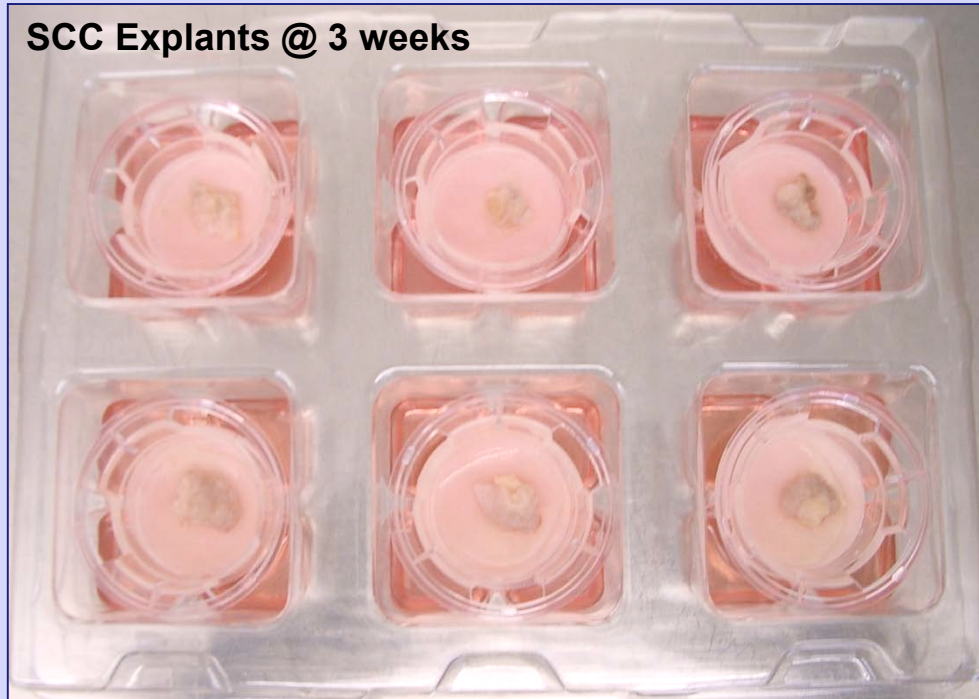


Human skin cancer equivalent

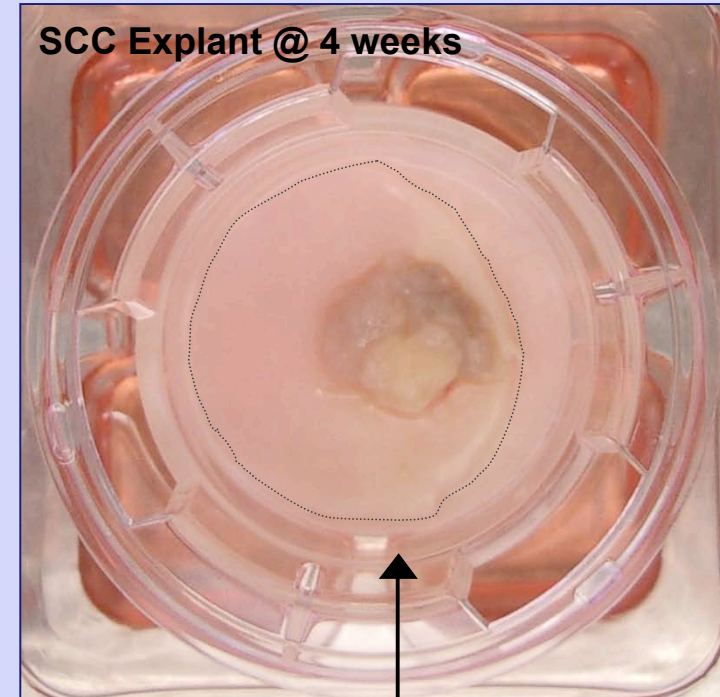


SCC biopsy explant technique

SCC Explants @ 3 weeks



SCC Explant @ 4 weeks



SCC Explants @ 4 weeks



SCC Explant @ 4 weeks



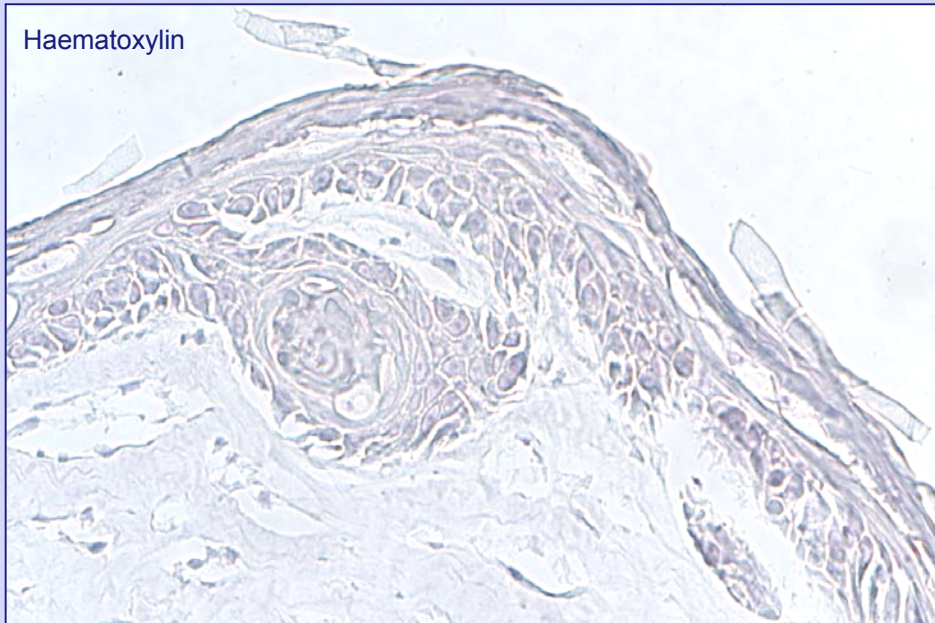
Expansion

SCC invasion *in vitro*

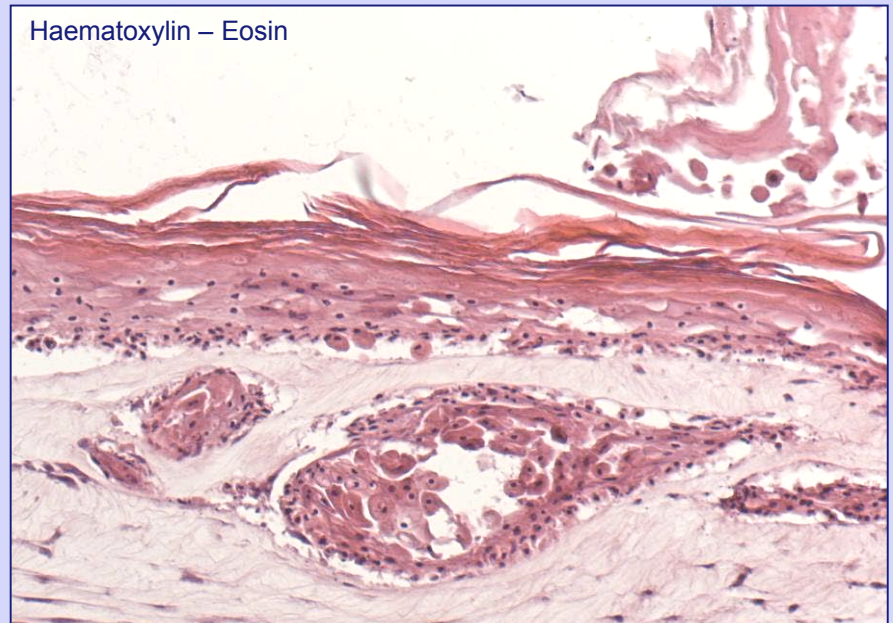
Haematoxylin – Eosin



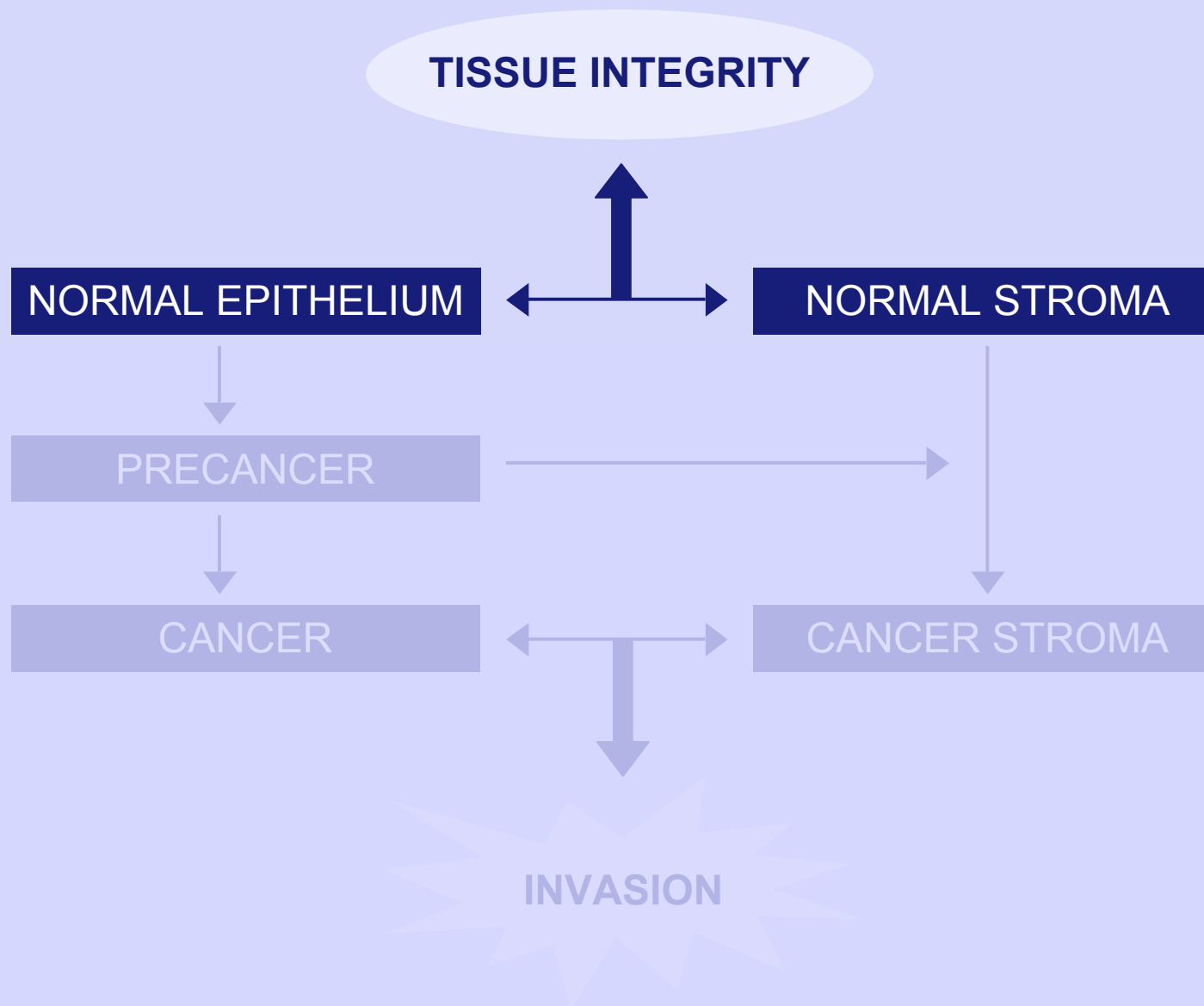
Haematoxylin



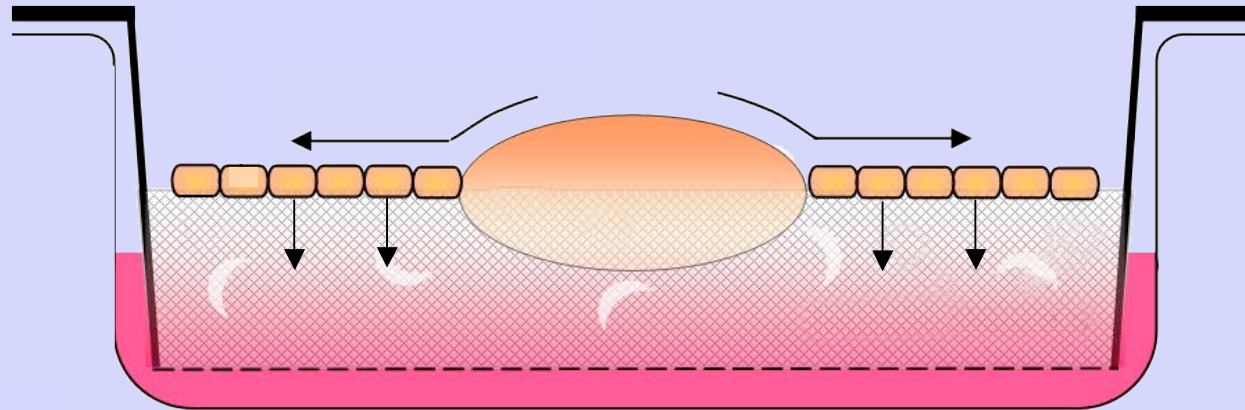
Haematoxylin – Eosin



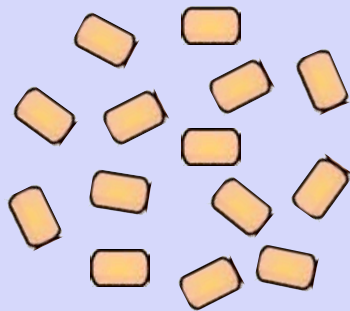
Tumor-stroma interaction



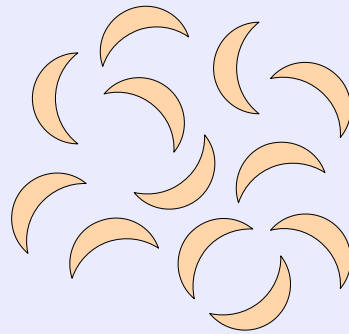
In vitro synergy



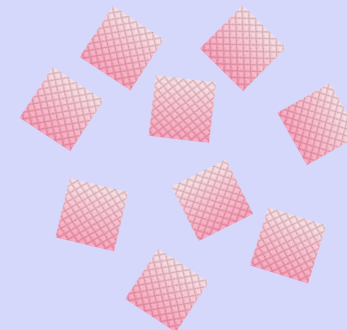
Keratinocytes



Fibroblasts

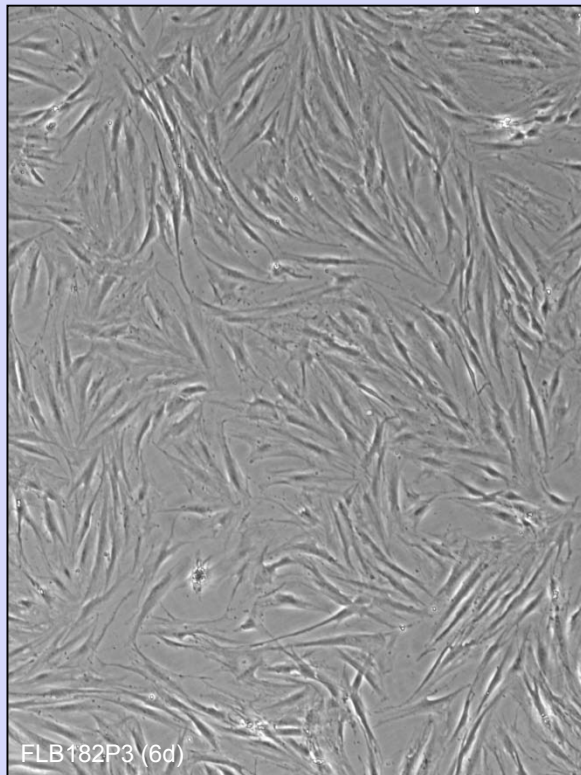


Dermal equivalent

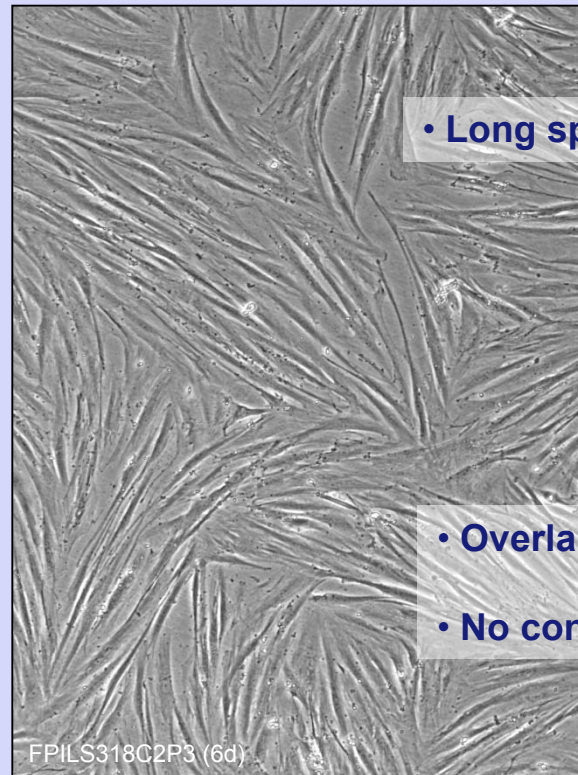


SCC-associated fibroblasts

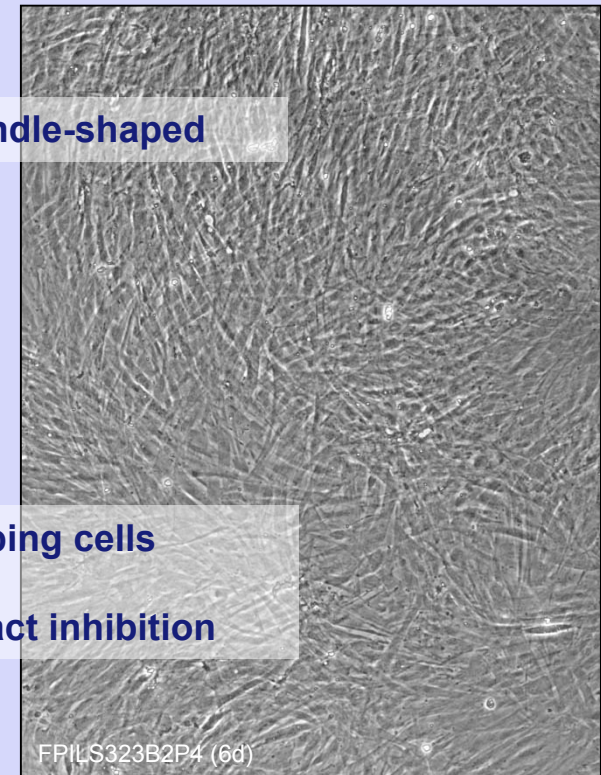
Morphology



Normal fibroblasts



SCC-associated fibroblasts



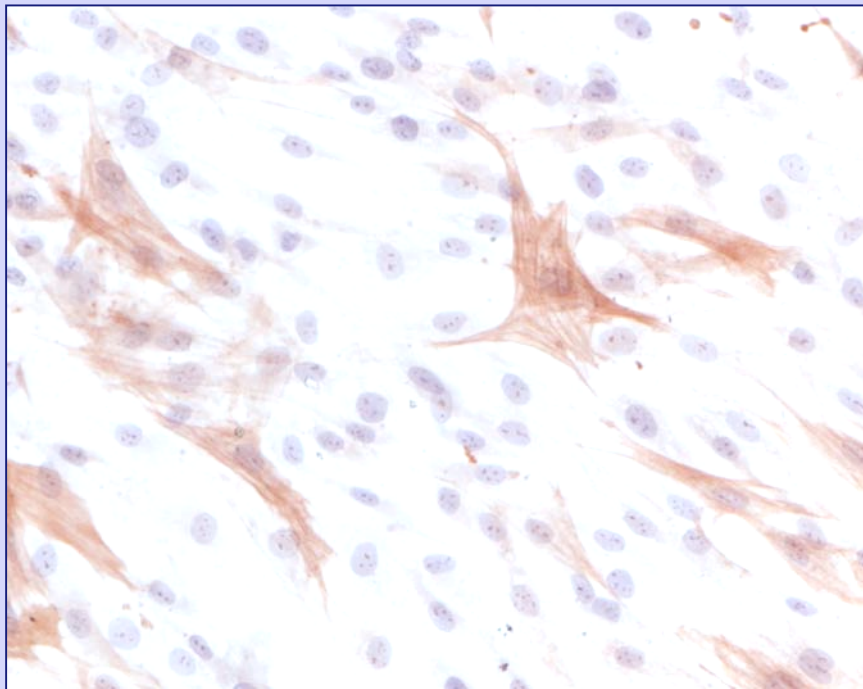
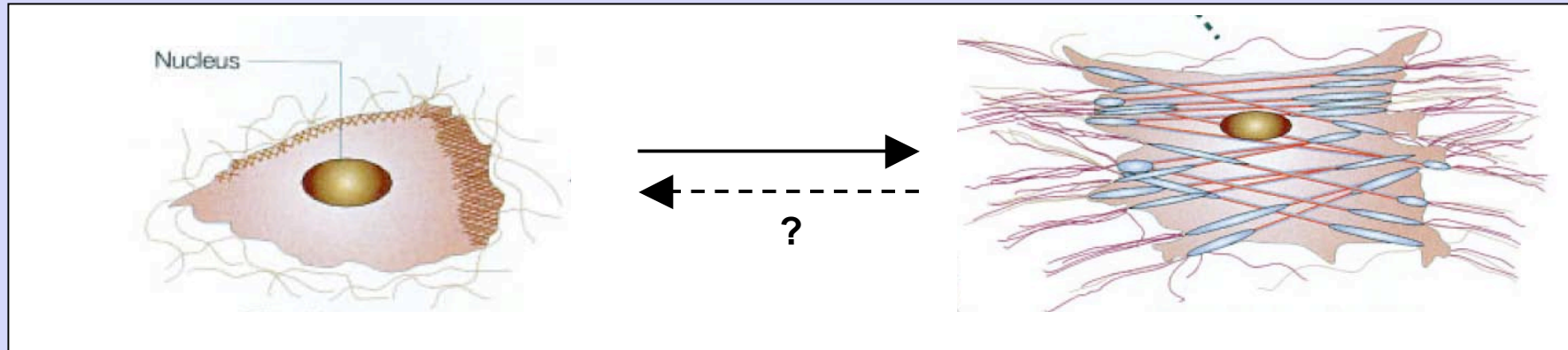
SCC-associated fibroblasts

- Long spindle-shaped

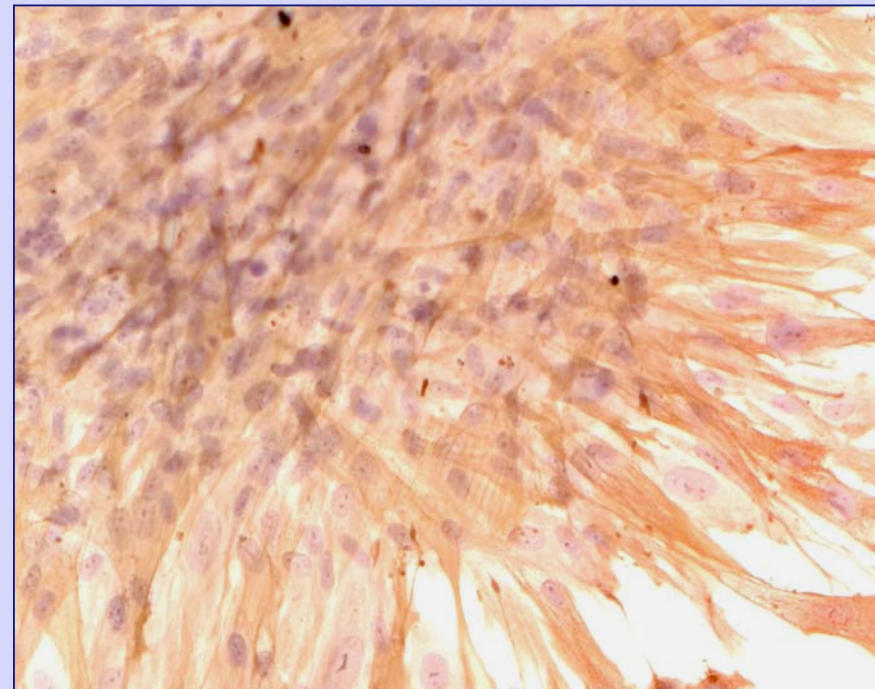
- Overlapping cells

- No contact inhibition

α -SMA on SCC-CAFs

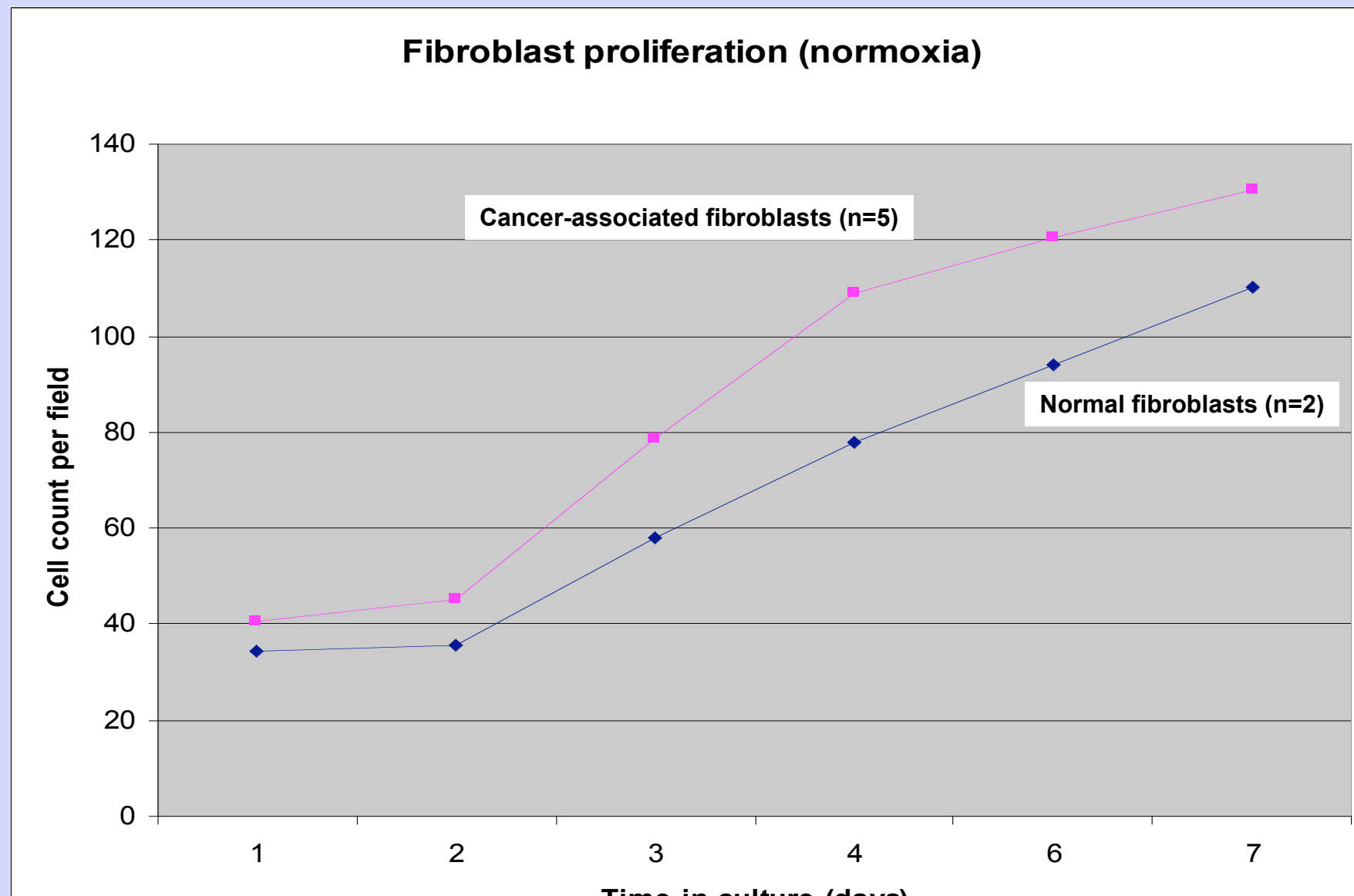


Normal fibroblasts

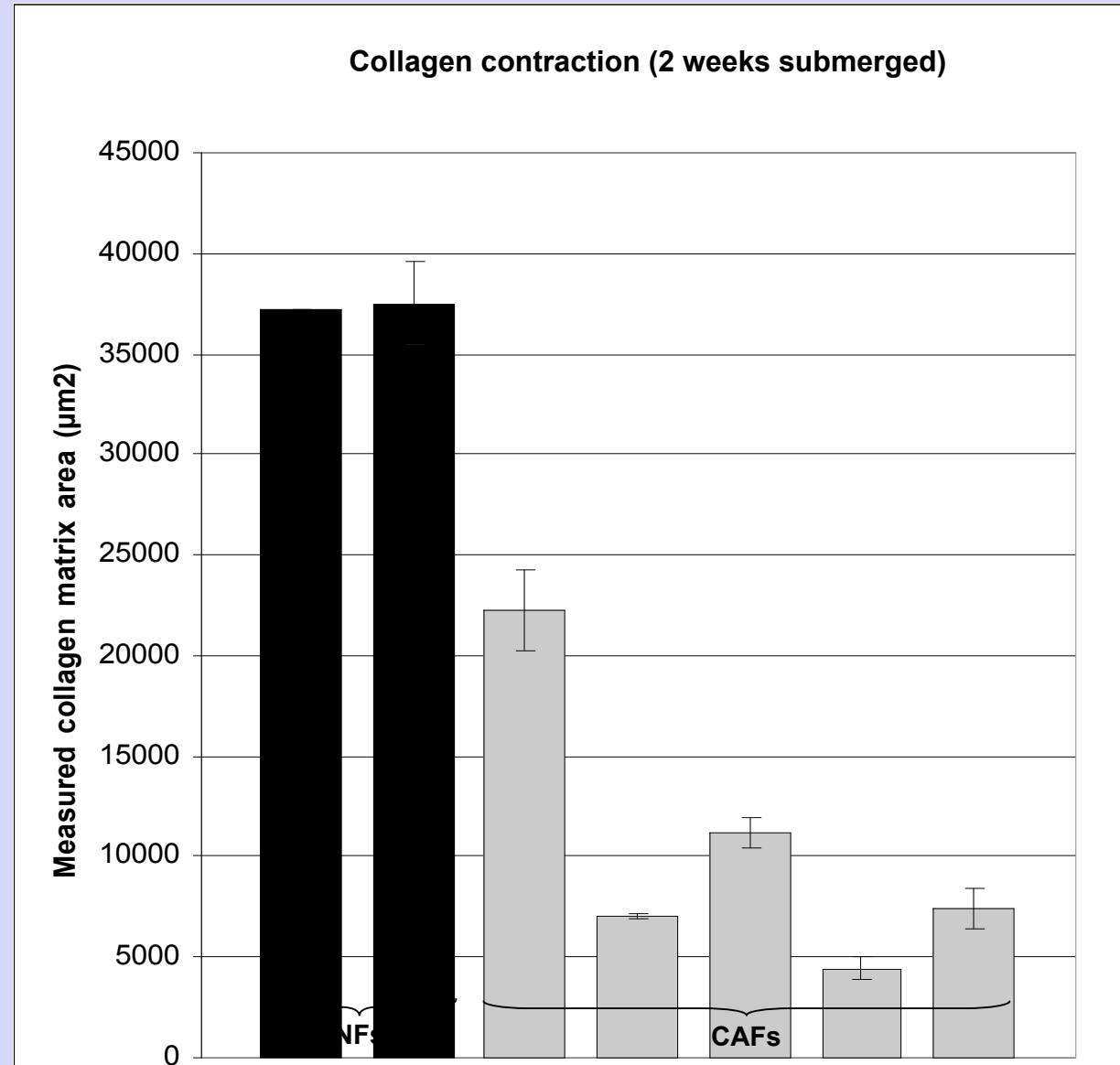
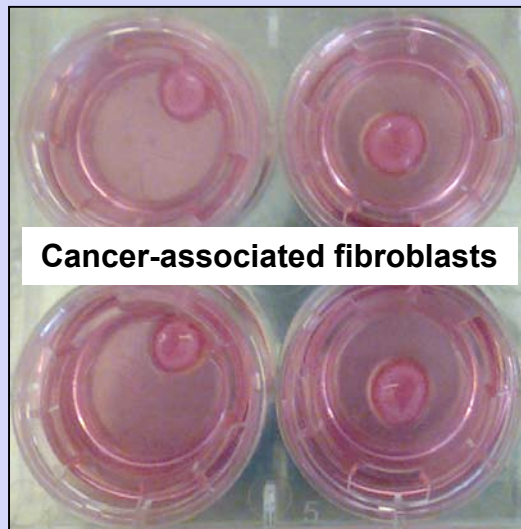
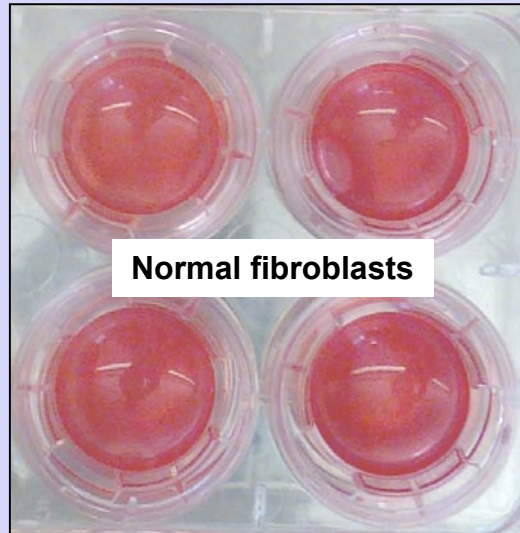


SCC-associated fibroblasts

Proliferation of SCC-CAFs



Collagen contraction by SCC-CAFs



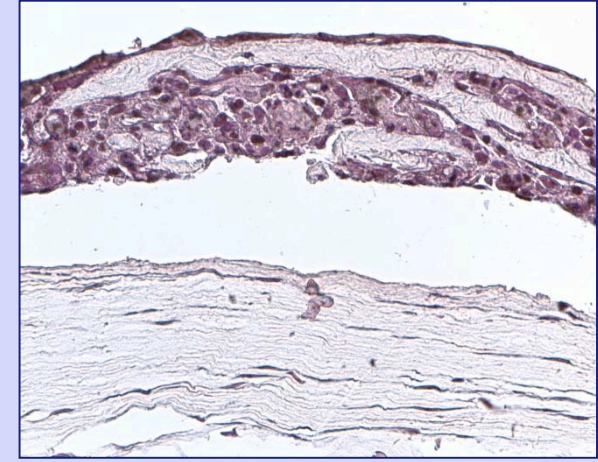
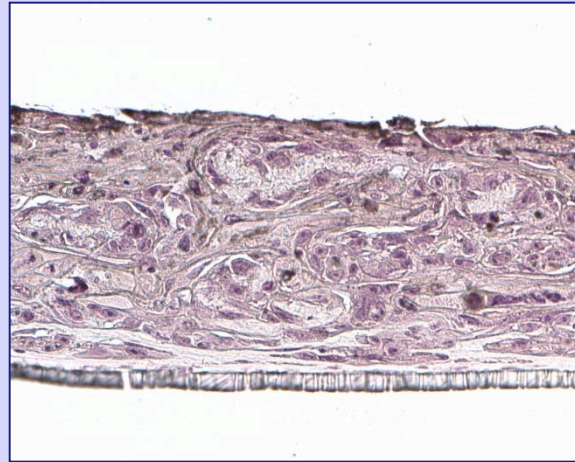
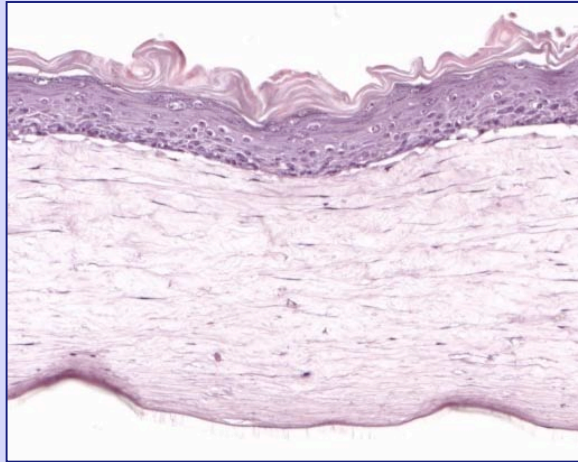
CAFs influence differentiation and invasion

NHEK

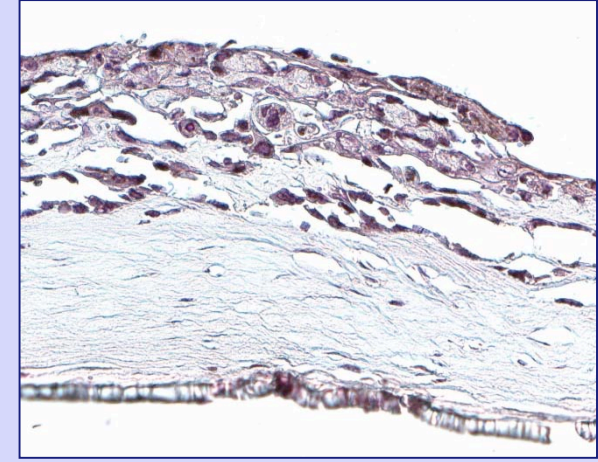
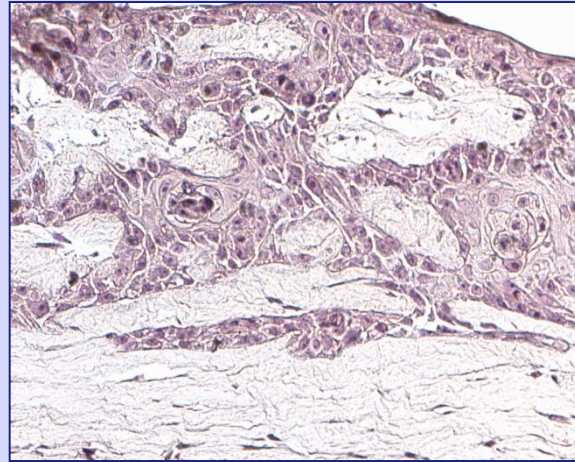
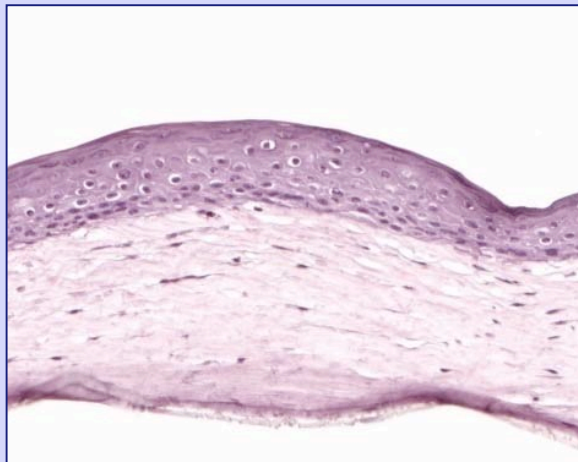
SCC12B2

SCC13

CAF

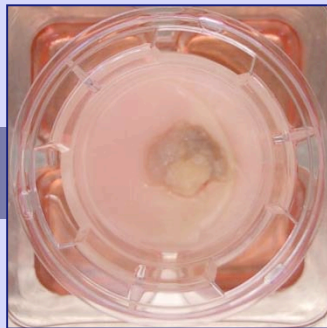


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Summary

- *In vitro* skin cancer model feasible
 - *Invasion in dermal equivalent*
 - *Expression of putative SCC markers*
- Cancer-associated fibroblasts can enhance tumorigenic phenotype



Project team

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