



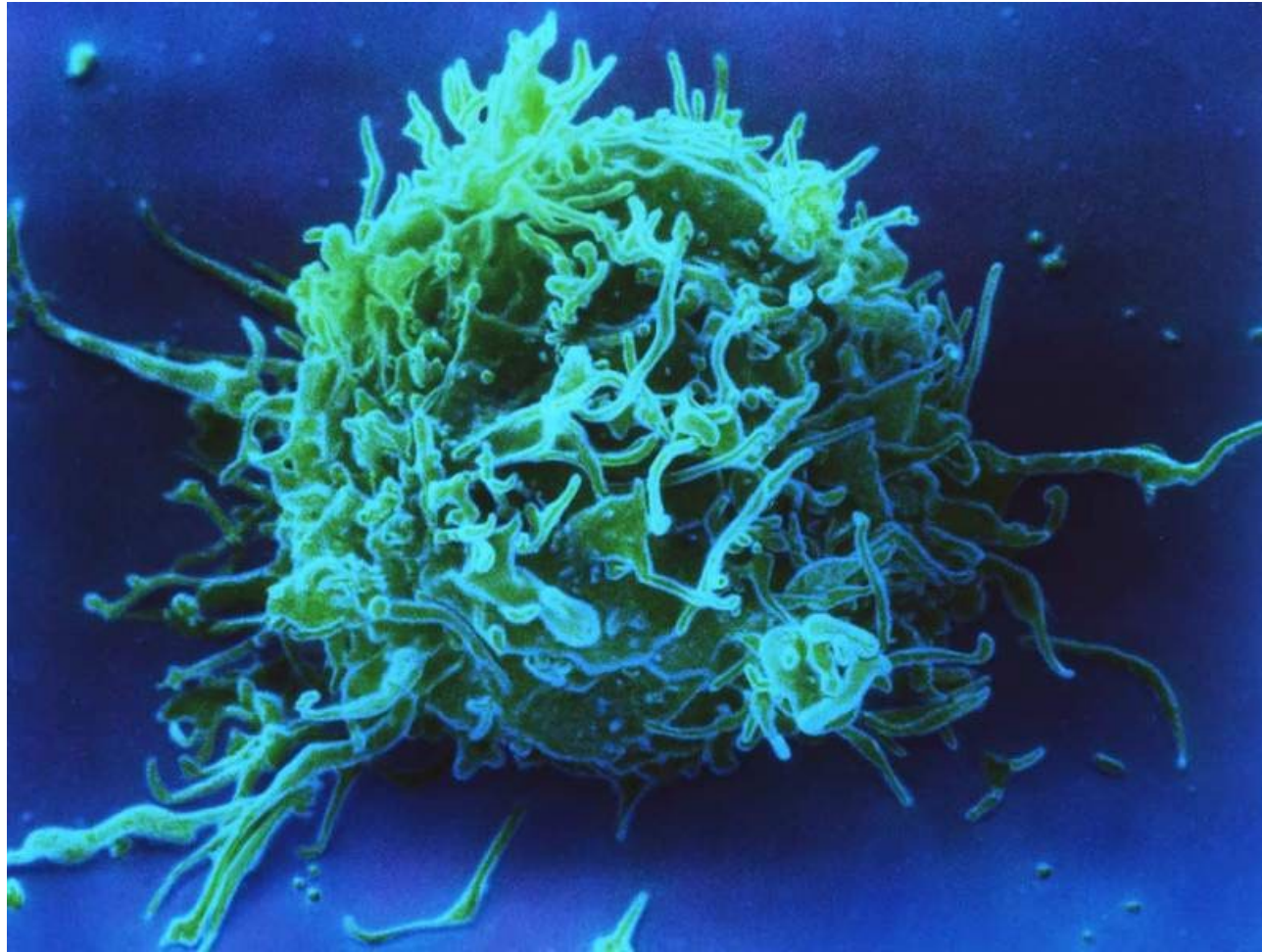
JOHNS HOPKINS

WHITING SCHOOL
of ENGINEERING

Cell and Tissue Engineering

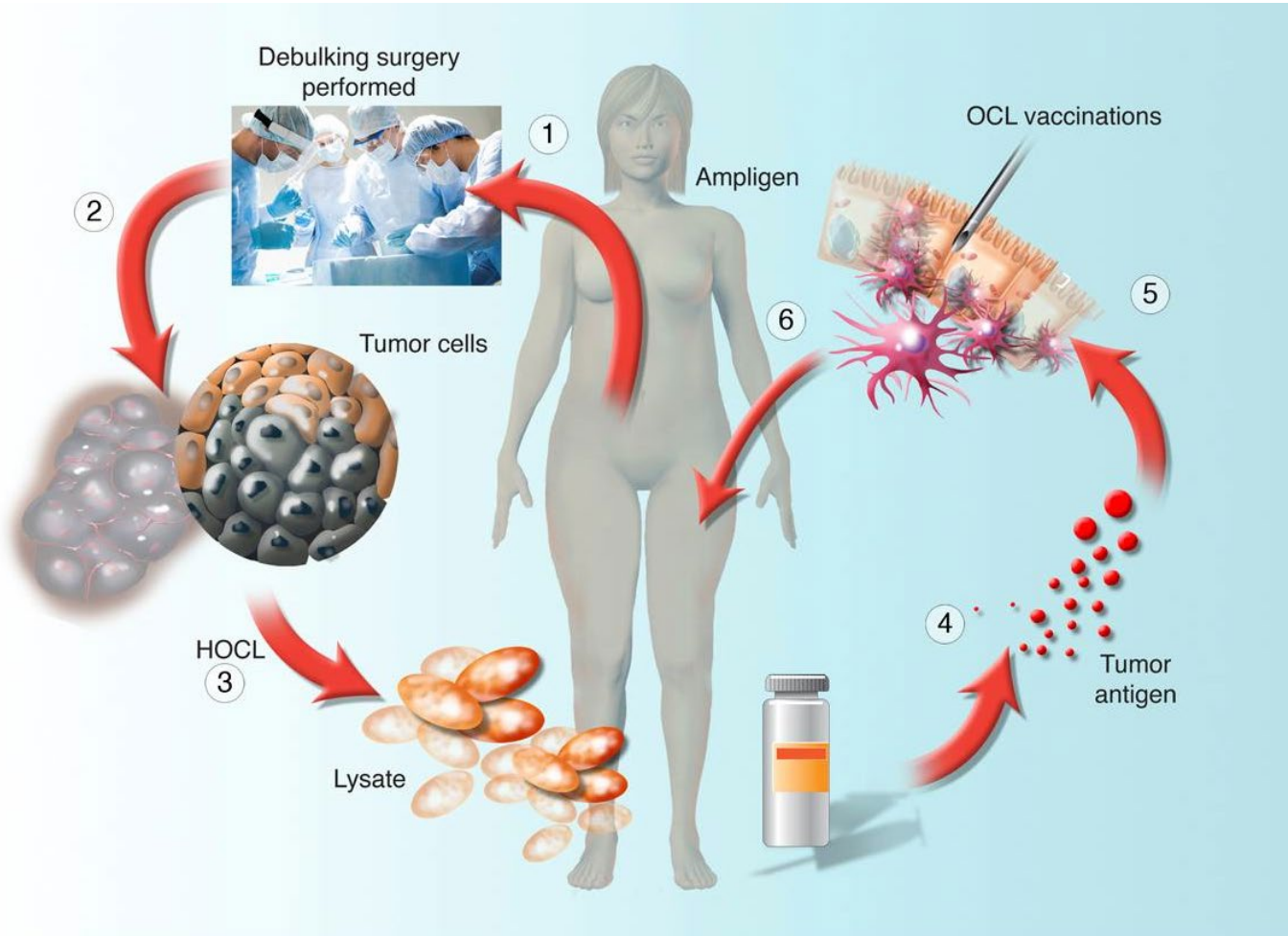
T-Cell Therapy and Chimerism

Using the Circulation for Cell Delivery: T-Cell Therapy (1)



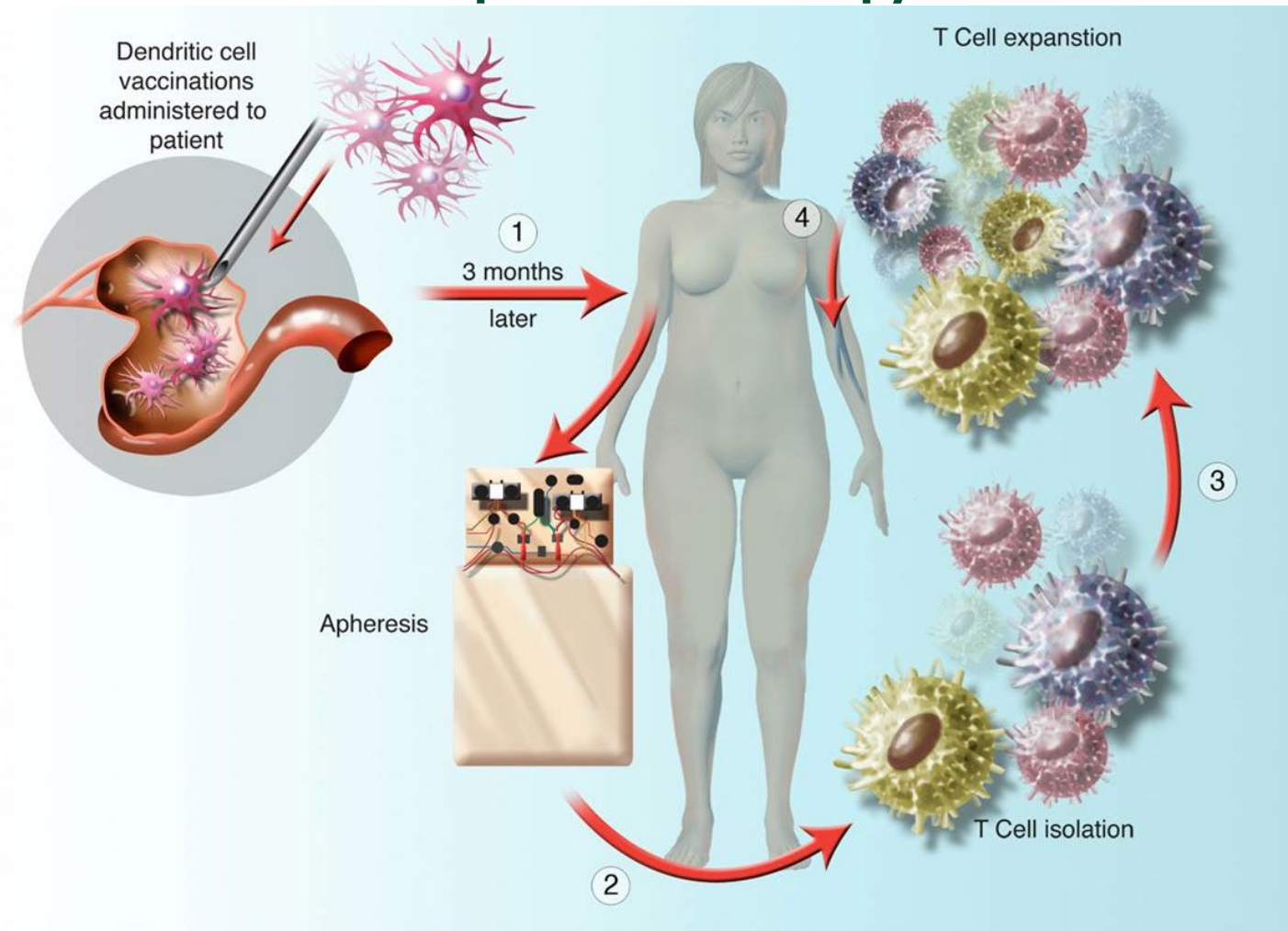
Using the Circulation for Cell Delivery: T-Cell Therapy (2)

Whole Tumor Antigen Vaccine Study



Using the Circulation for Cell Delivery: T-Cell Therapy (3)

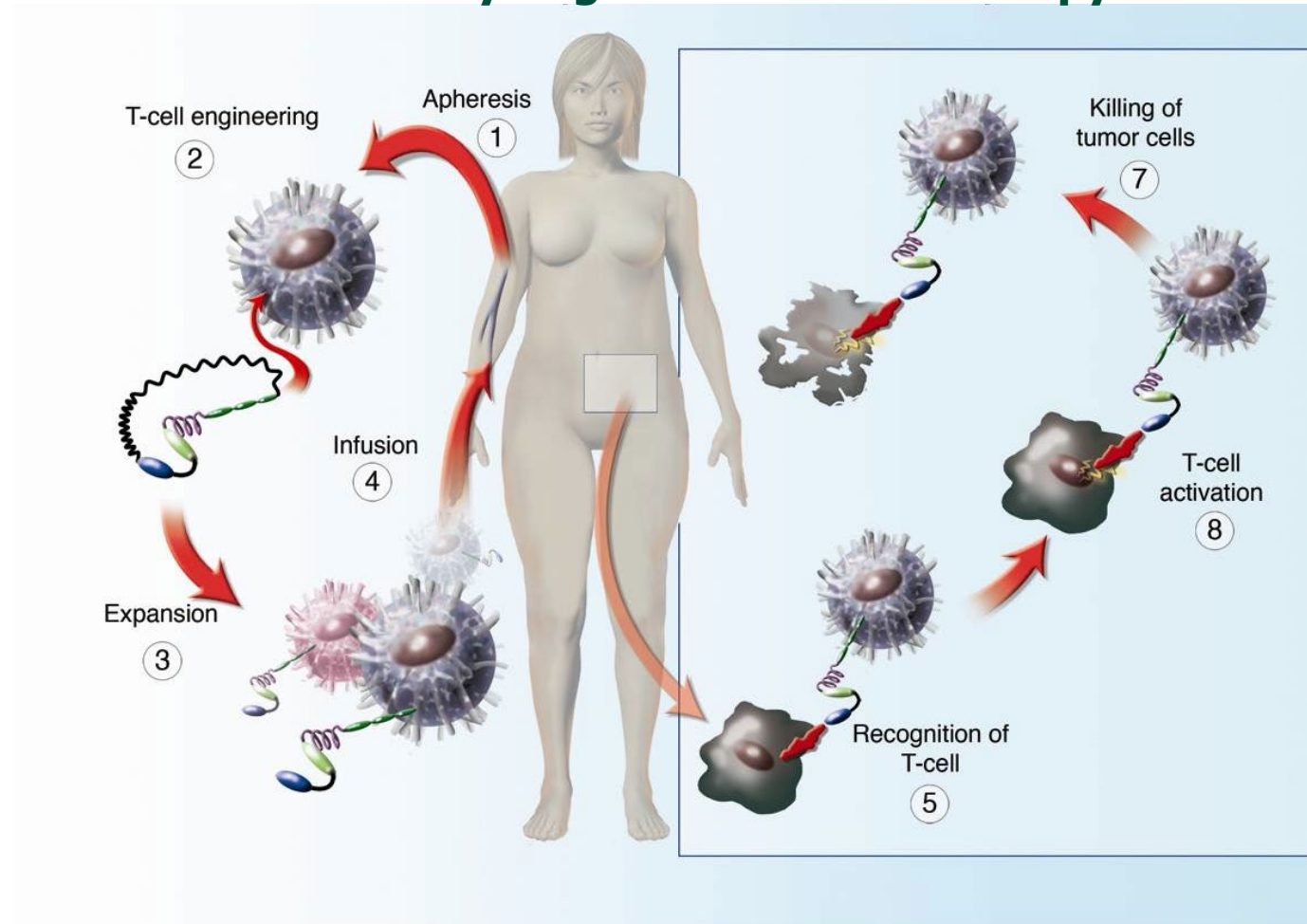
Adoptive T-cell Therapy



Using the Circulation for Cell Delivery: T-Cell Therapy (4)

Genetically Engineered T-cell Therapy

Antigen-specific artificial
T-cell receptor →
chimeric antigen receptor



Chimerism: Tissue Transplant History

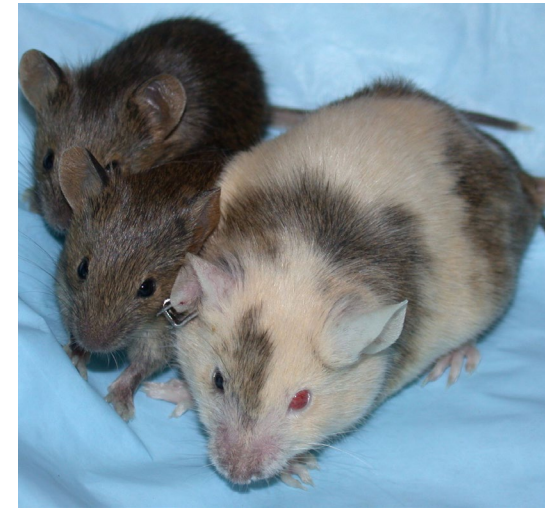
Ancient Egypt



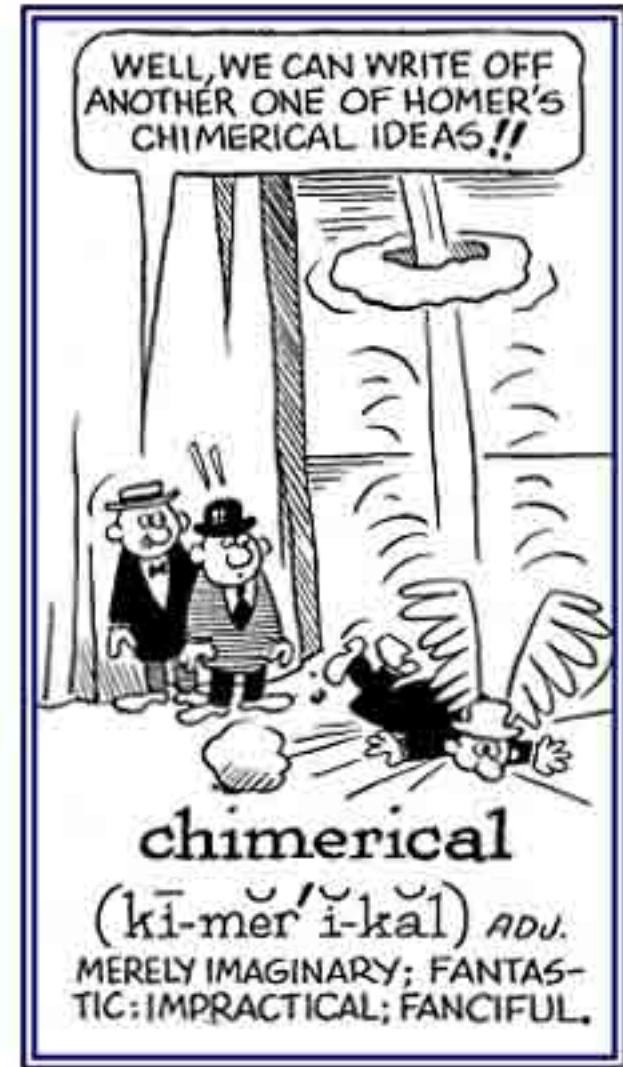
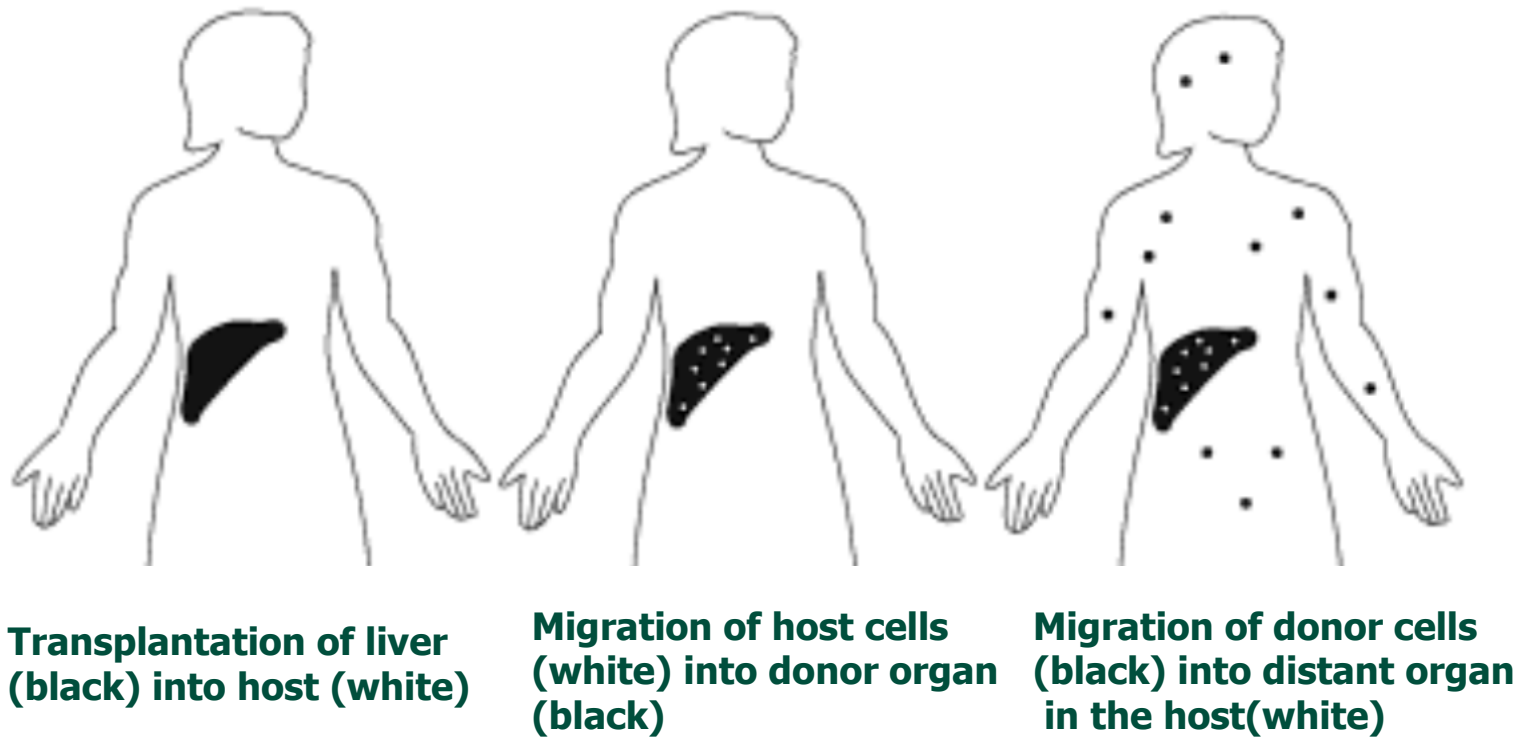
Greek Mythology



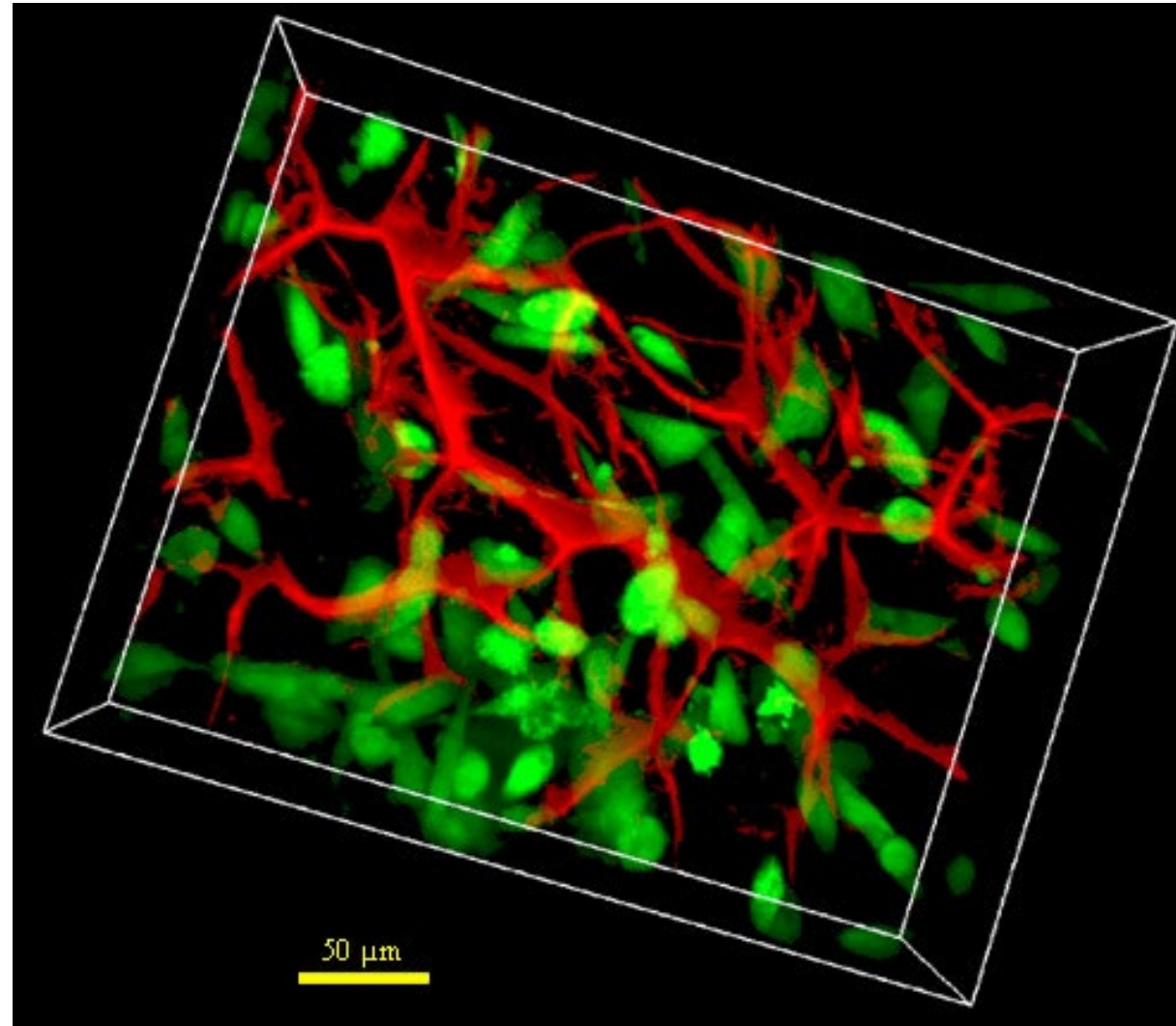
Modern Day



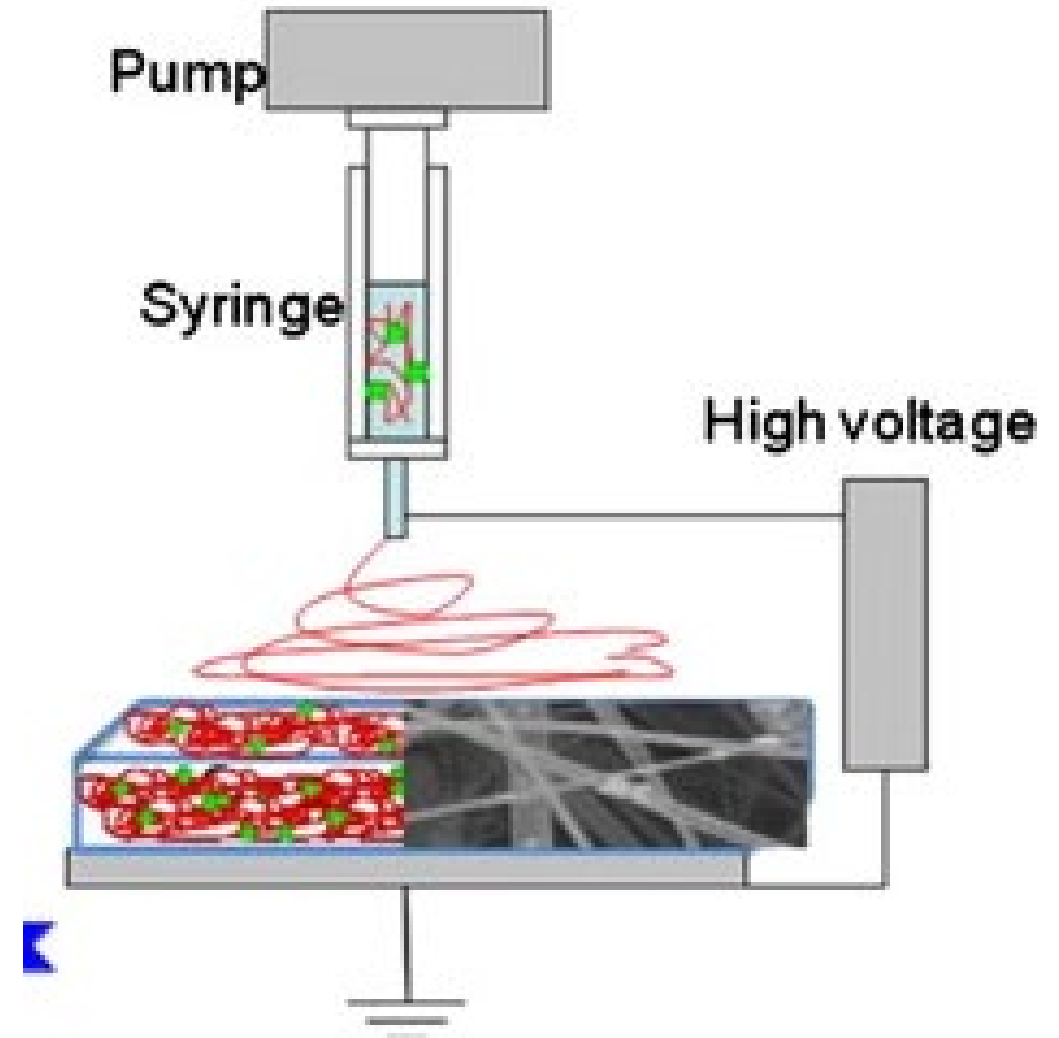
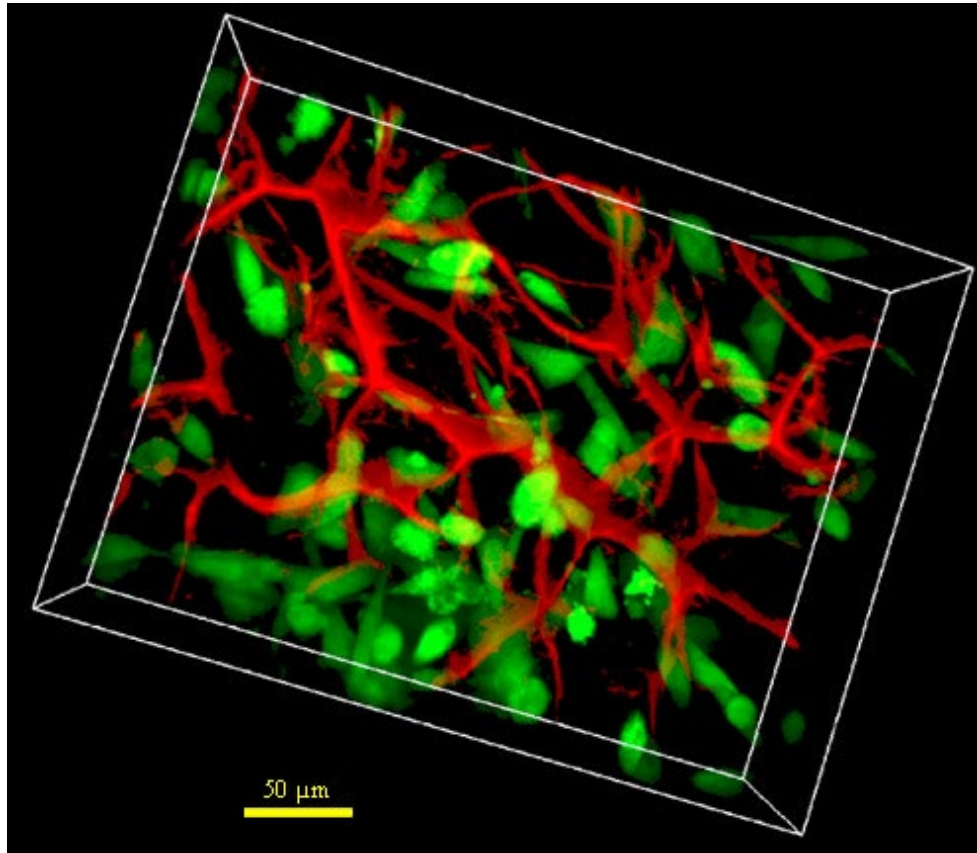
Microchimerism and Cell Trafficking



Cell Penetration in 3D Tissues

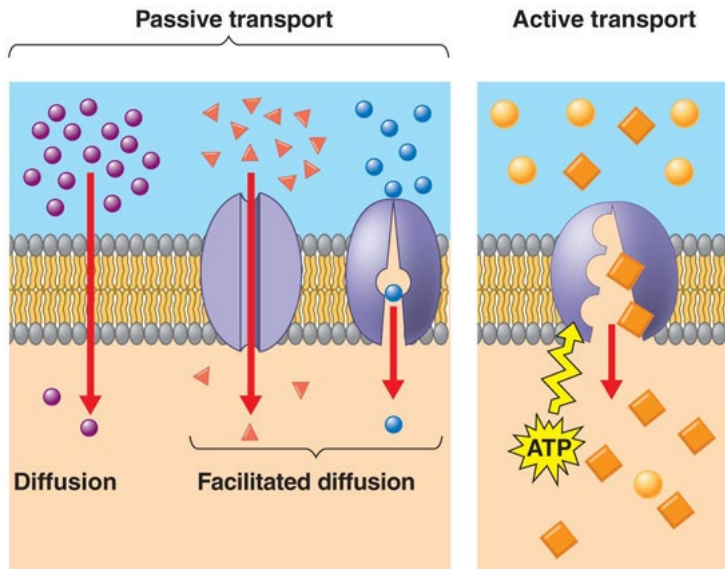


Cell Penetration in 3D Tissues Cont.



What have we learned?

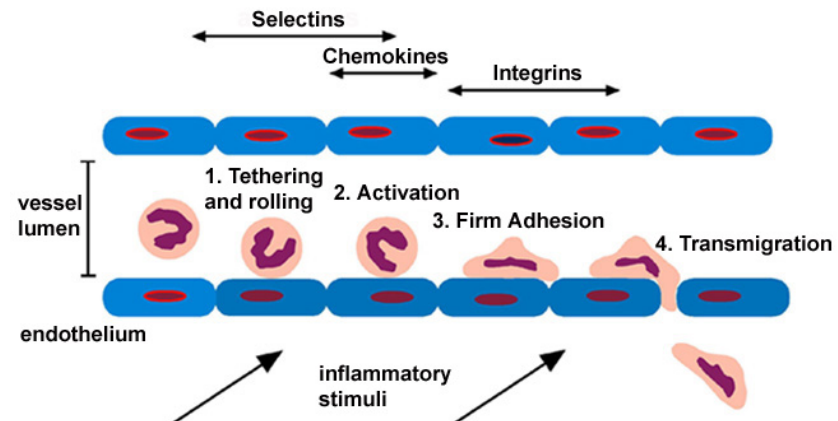
Molecular transport across the cell membrane



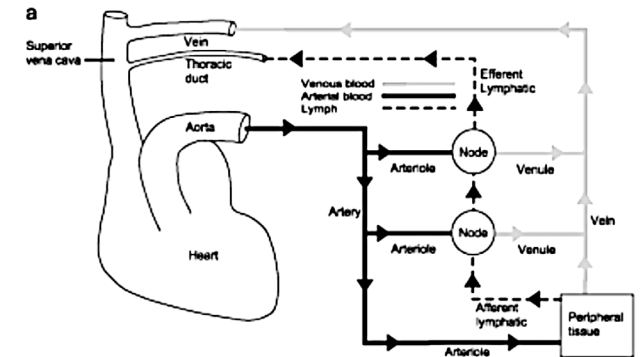
T-cell therapies



Cell delivery across the vascular wall



Cell trafficking through the circulation



Microchimerism





JOHNS HOPKINS

WHITING SCHOOL
of ENGINEERING

Warren Grayson, Ph.D.

Bioreactors





JOHNS HOPKINS

WHITING SCHOOL
of ENGINEERING