

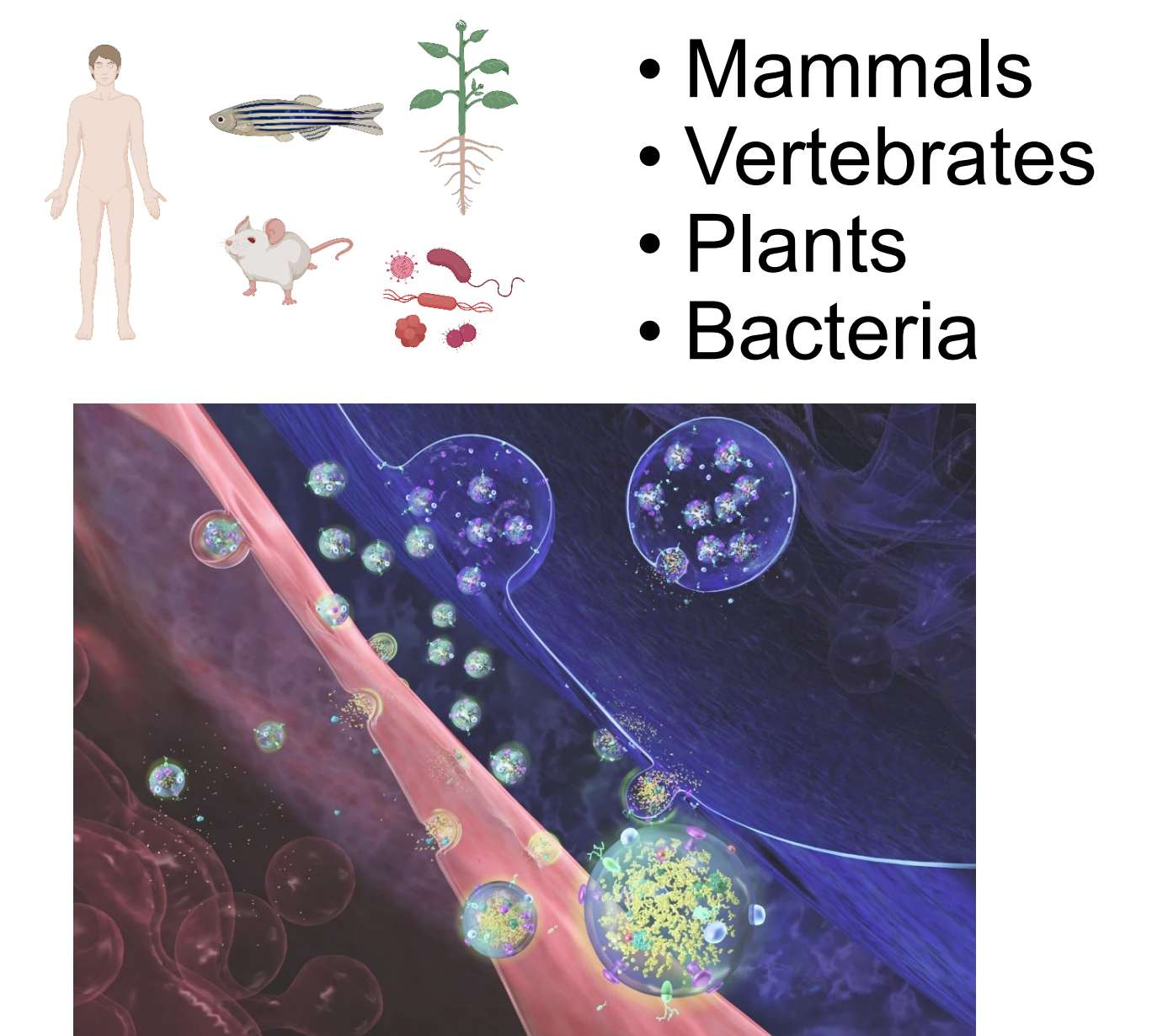
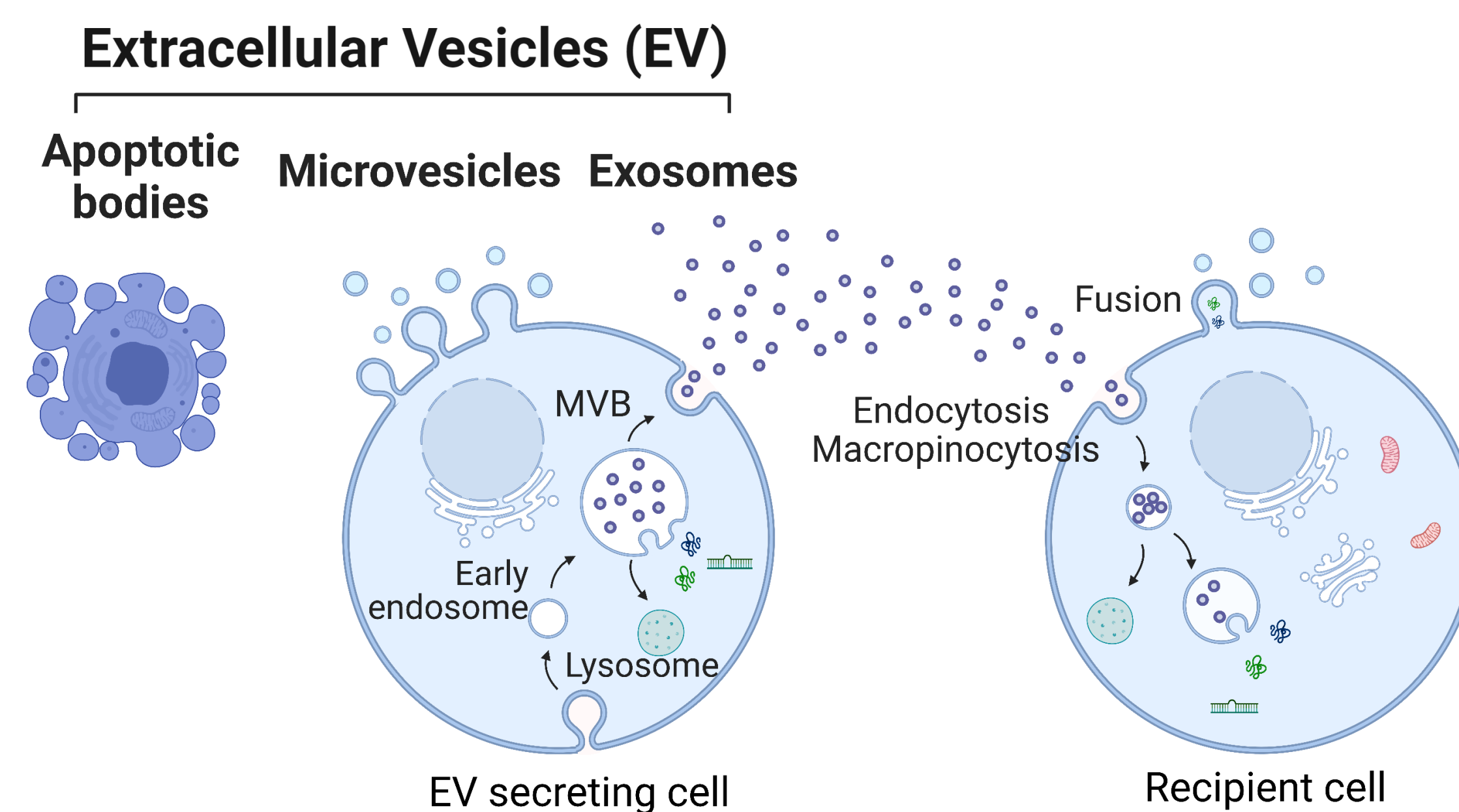
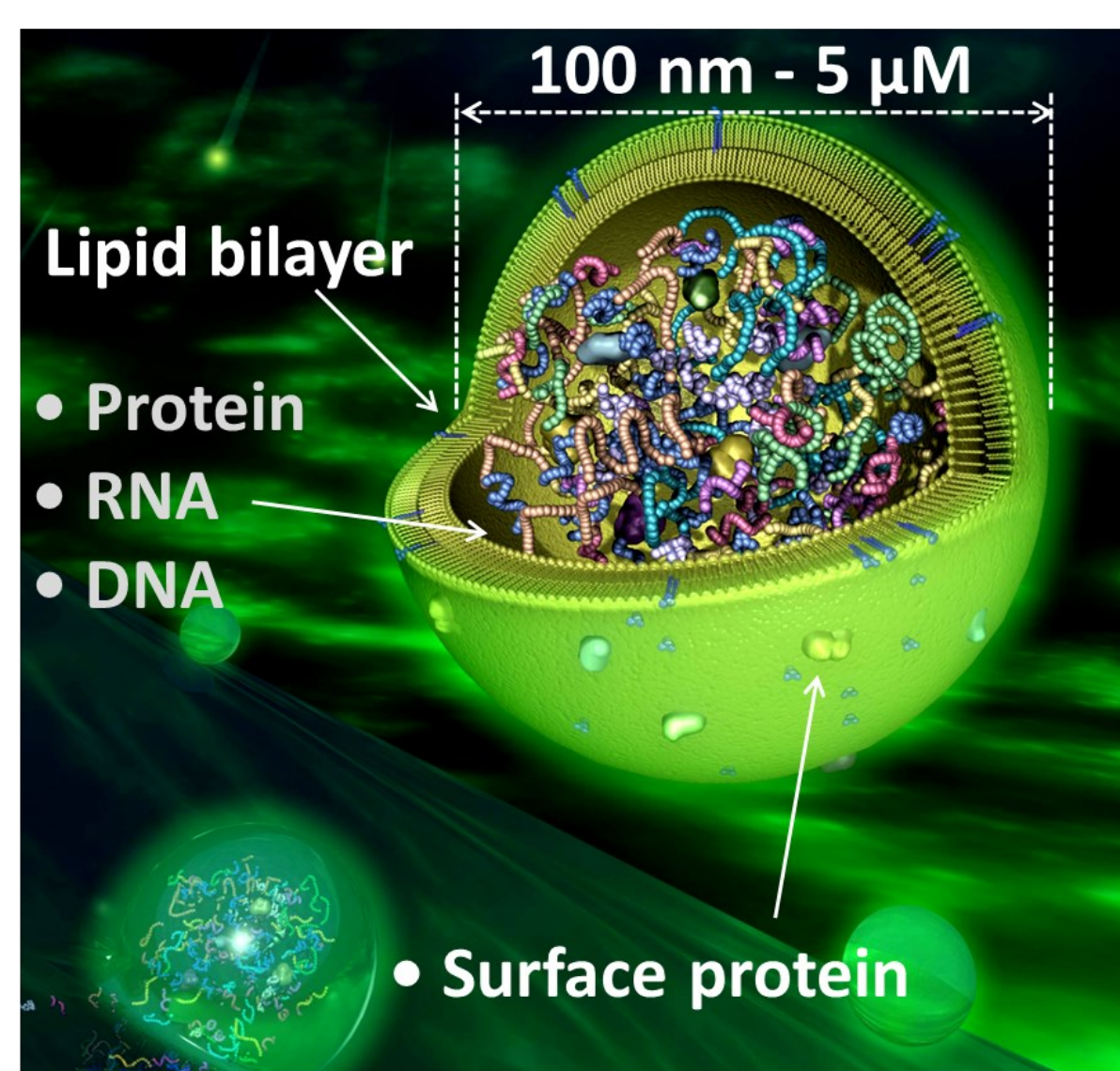
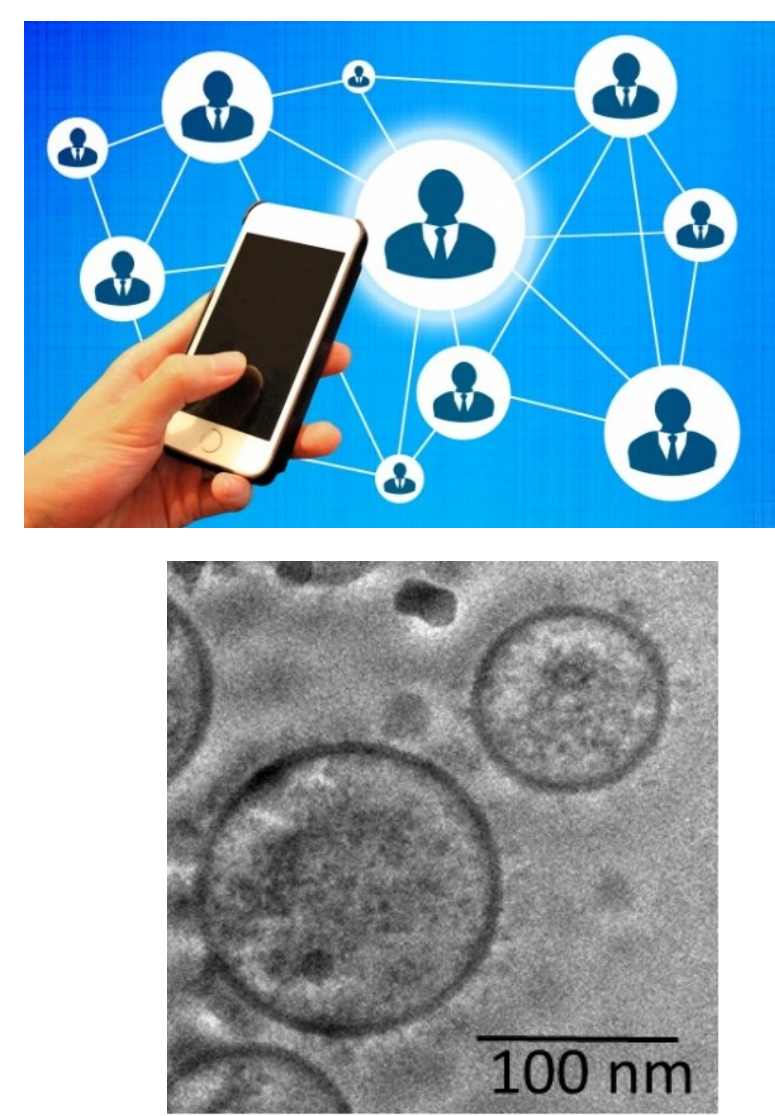
Understanding extracellular vesicle transfer within tumor tissue context

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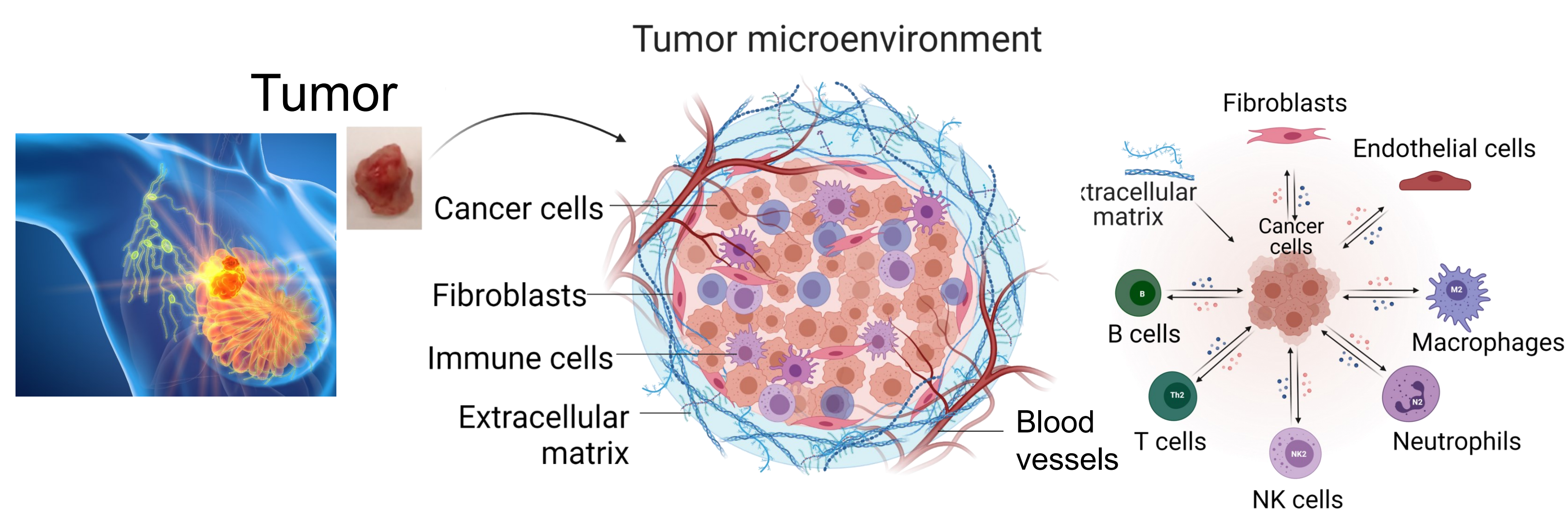
Extracellular vesicles as a cellular communication tool



EVs are lipid bilayer vesicles with cellular components.

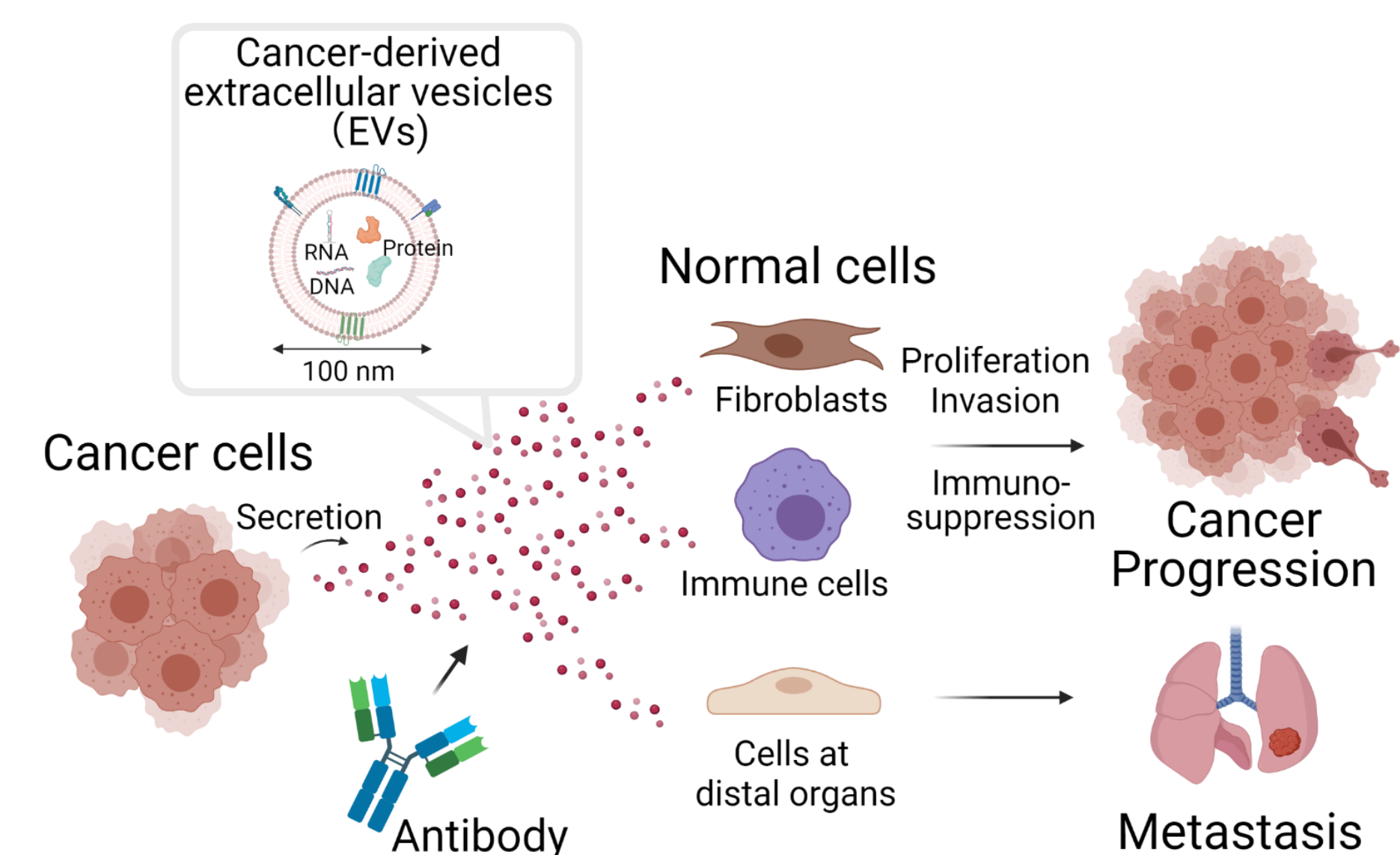
EVs are exchanged among cells to transmit intercellular signals.

Tumors as a complex system



Tumor comprise of cancer cells, noncancerous cells, and structural scaffold (extracellular matrix).

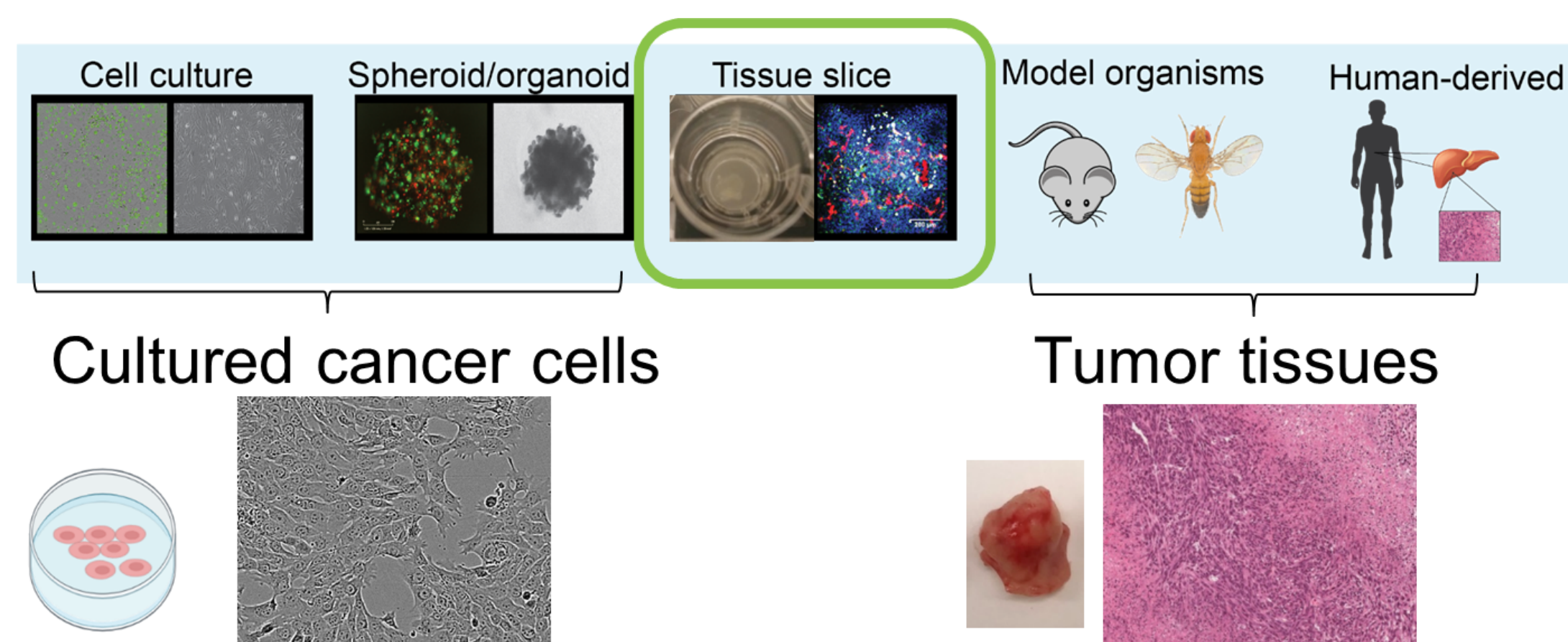
Cancer EVs educate surrounding cells



Nishida-Aoki, N. et al., *Mol. Ther.*, (2017)

Cancer EVs alter the surrounding cells to accelerate tumor progression and metastasis.

How to study cancer EVs in a physiological context?



Pros

- Readily available
- Experimental tools

Pros

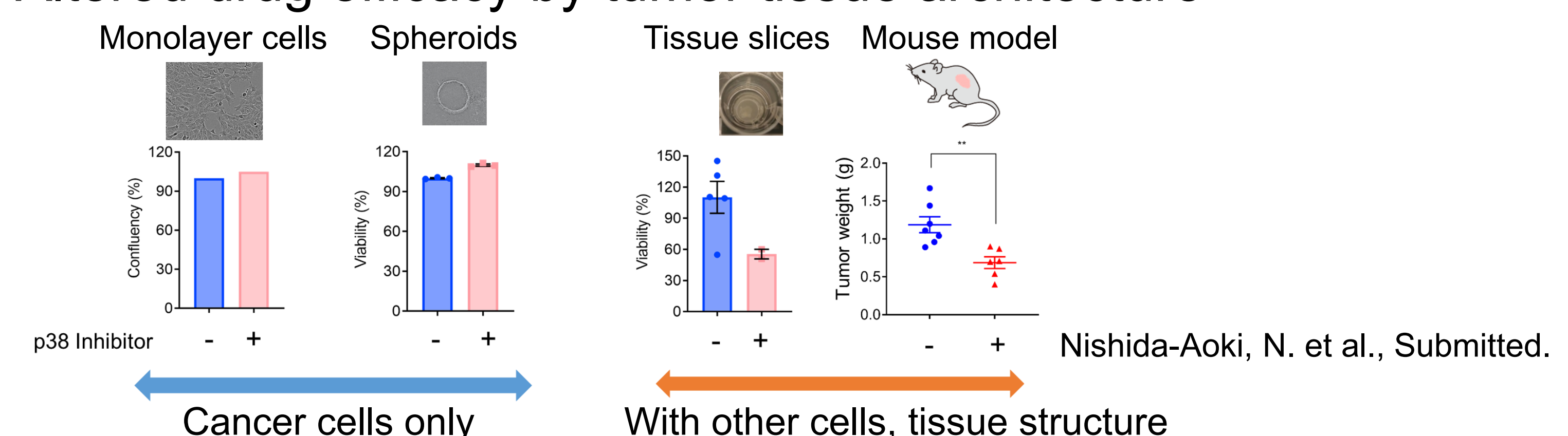
- Physiological relevance
- Tissue architecture
- Complex cell types

Tumor tissue slices maintain tissue architecture while adding experimental advantages.

Tissue slices as a versatile tumor model



Altered drug efficacy by tumor tissue architecture

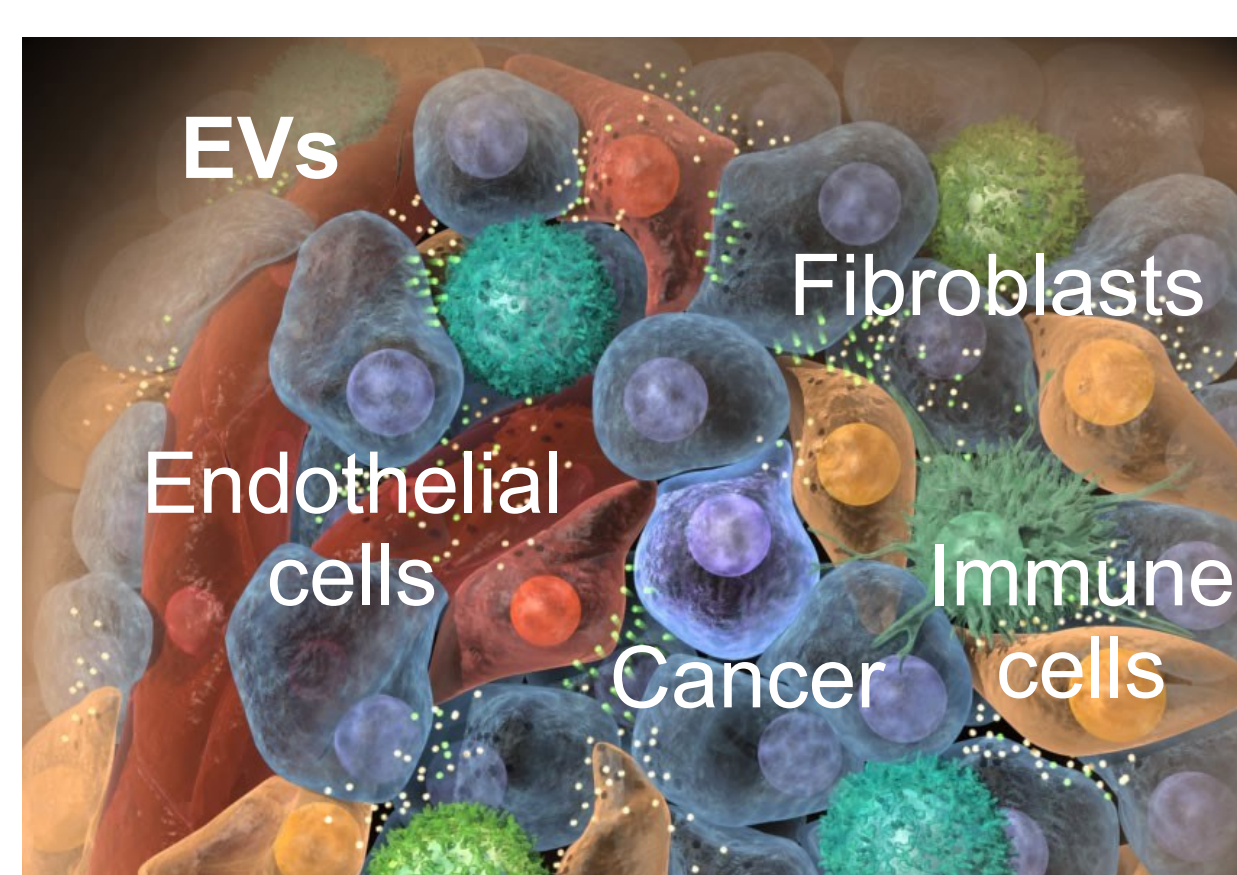


Nishida-Aoki, N. et al., Submitted.

Research Aim:

Elucidate spatiotemporal EV transfer within tumor tissues

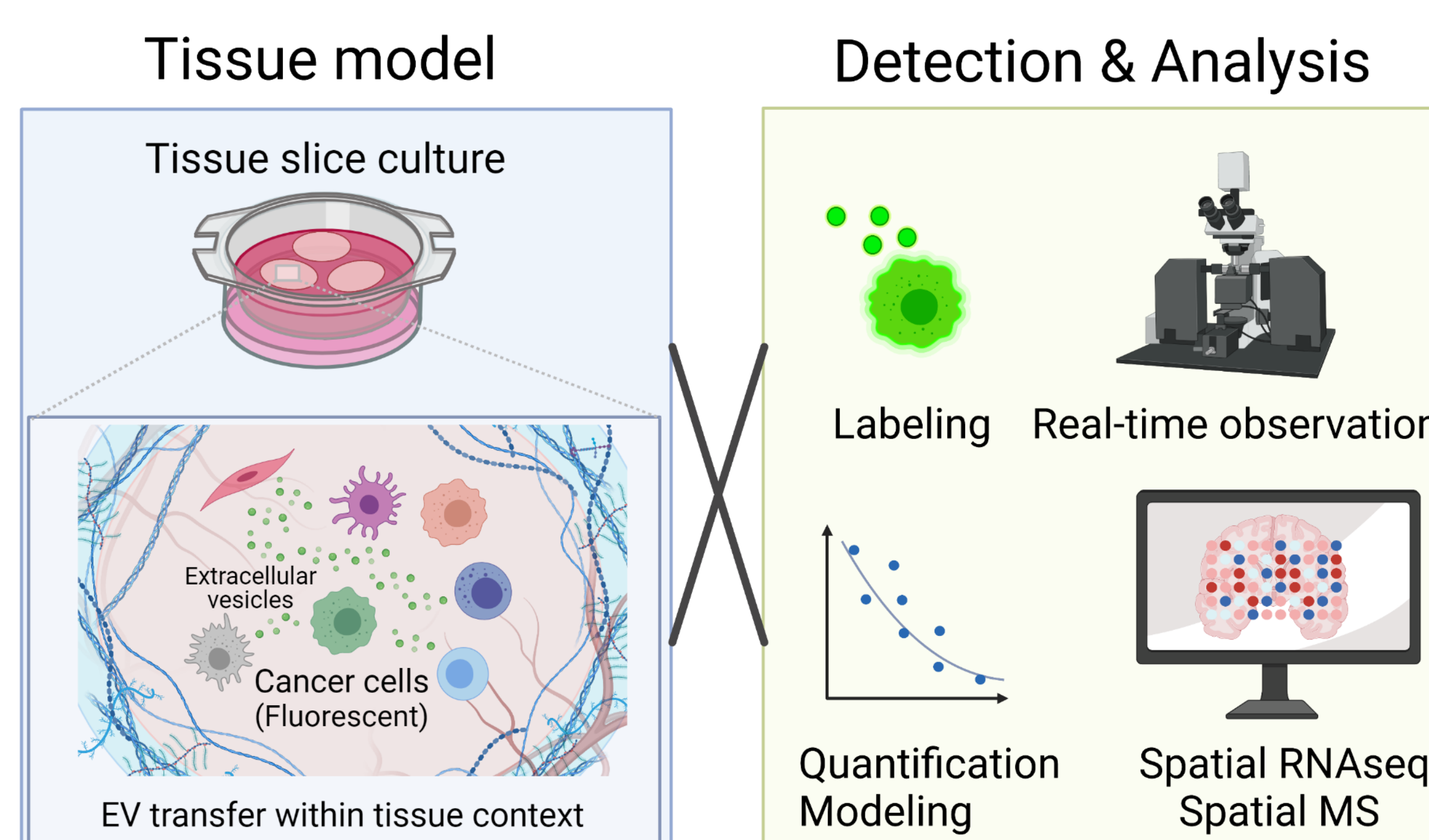
Cancer EV transfer within tissue



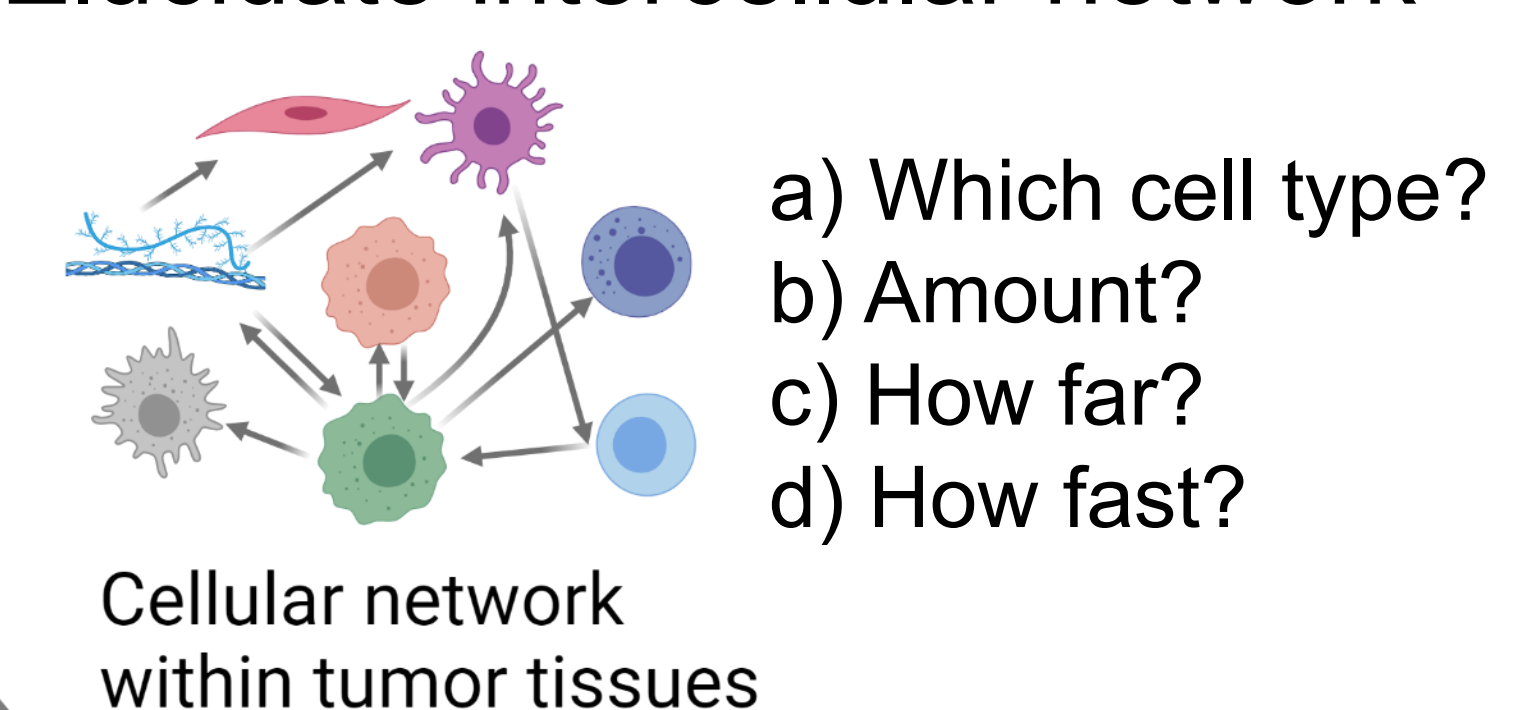
Possible effect of tissue architecture on EV transfer

- Altered properties (amount, size, cargo)
- Cell type-specific uptake
- Distribution, reaching distance

Quantitative measure of EV transfer within tumor tissues



Elucidate intercellular network



- Which cell type?
- Amount?
- How far?
- How fast?

Current plans

- Imaging analysis
- Particle tracking
- Modeling and simulation
- Network analysis