

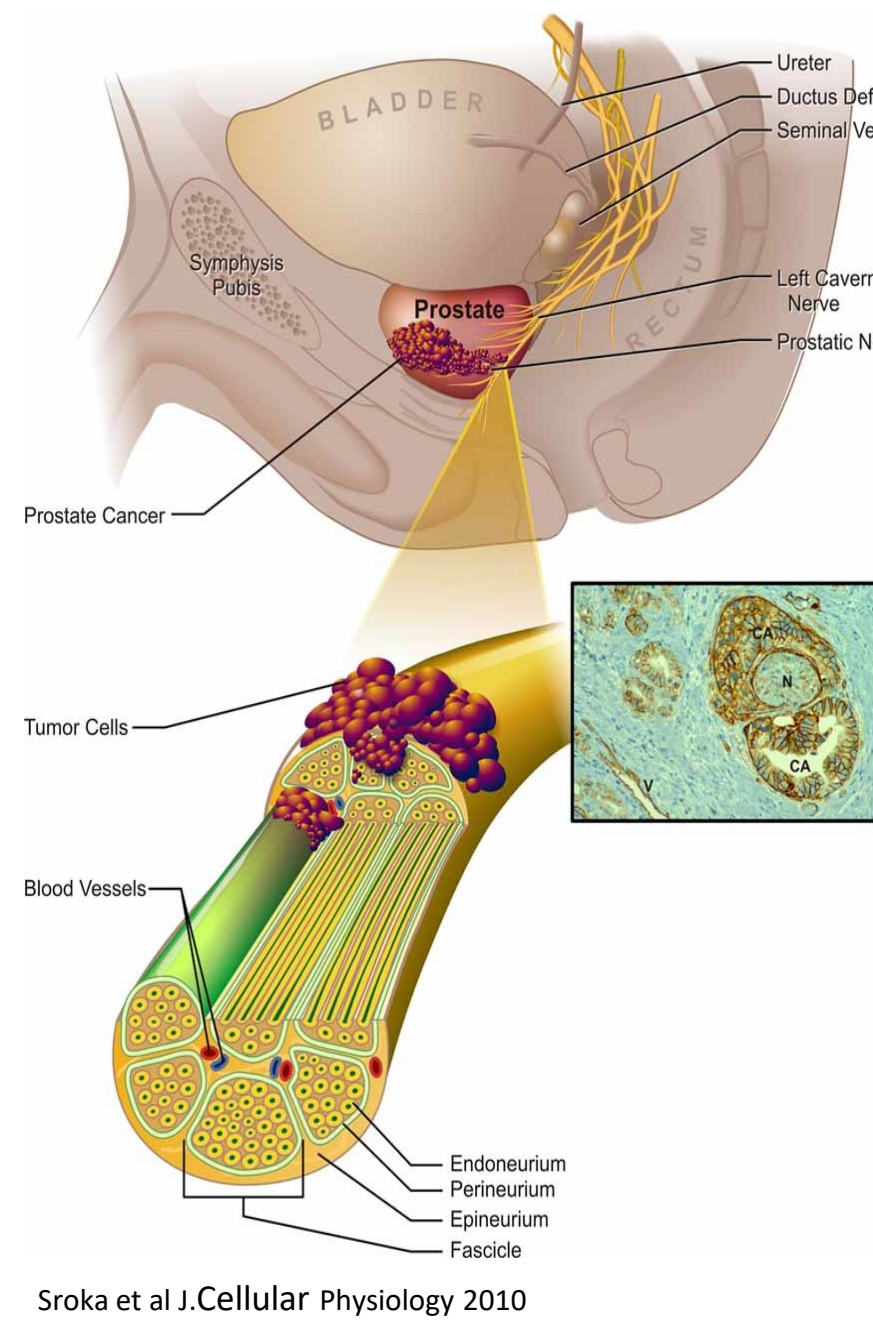
What is the *stress* about cancer nerve crosstalk?

Cell tracking in the tumor-neural niche

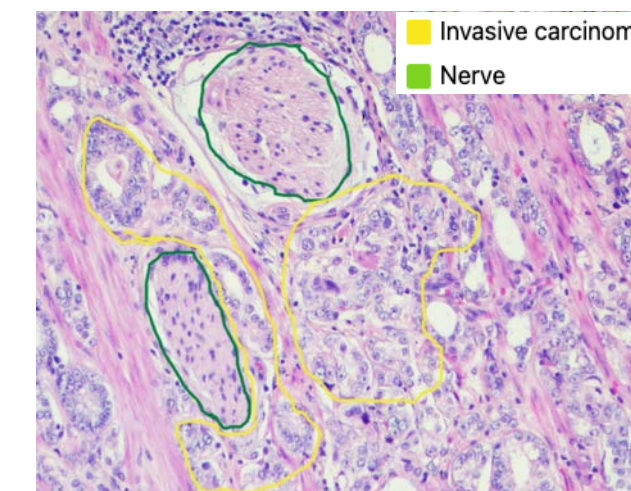
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Perineural invasion

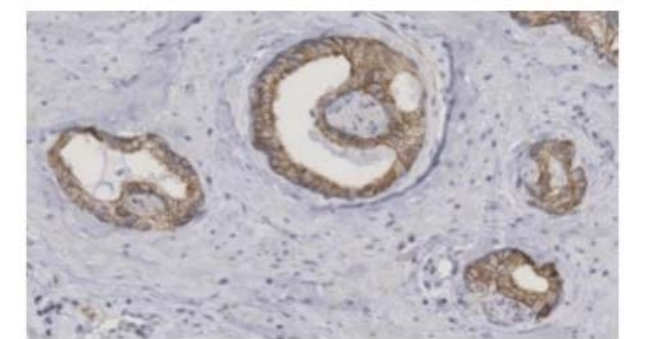
A phenomenon characterized by cancer cells surrounding or infiltrating nerve fibers. Frequently observed in primary prostate cancers. It is closely associated with the development of bone metastases, suggesting the potential for cancer cells to metastasize via nerve fibers.



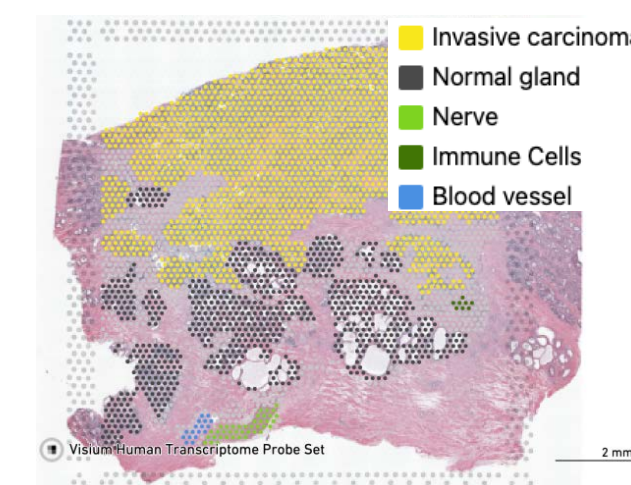
Spatial transcriptomics in progress



Perineural invasion

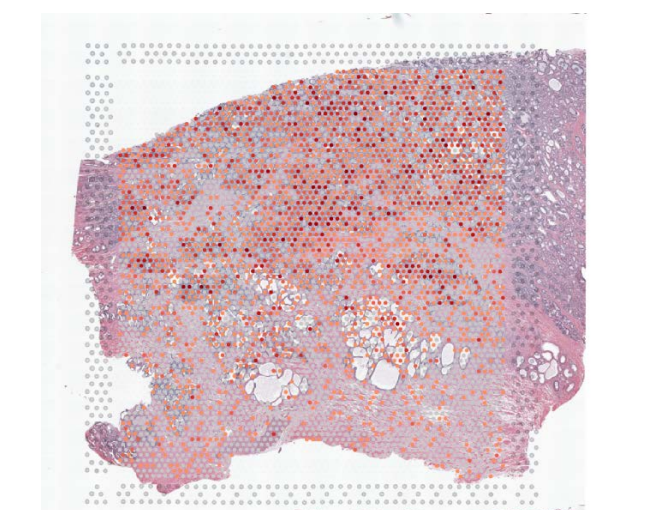


ADRB2 staining



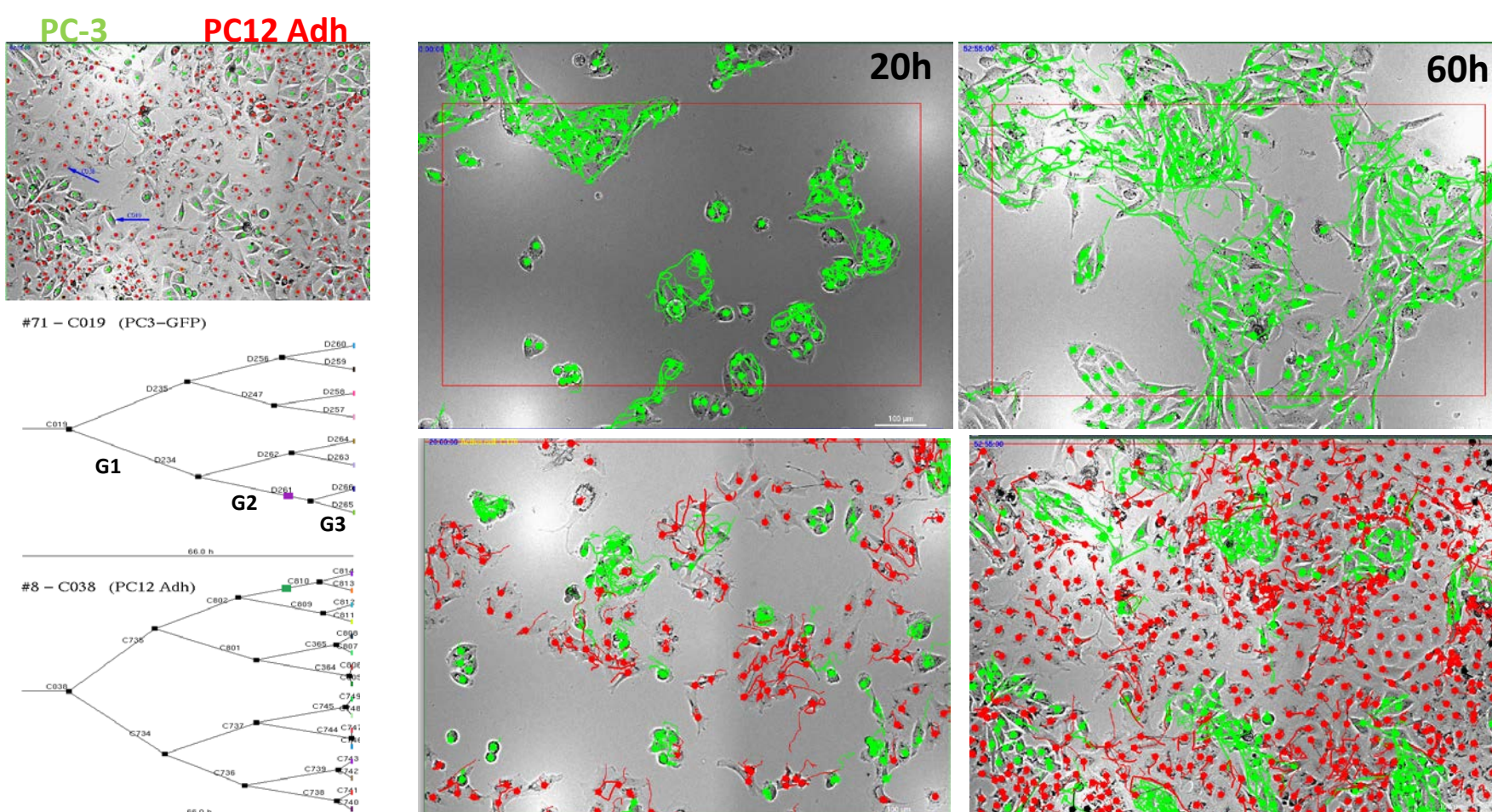
Results from 10 x Genomics Visium

Pathology



ADRB2 expression

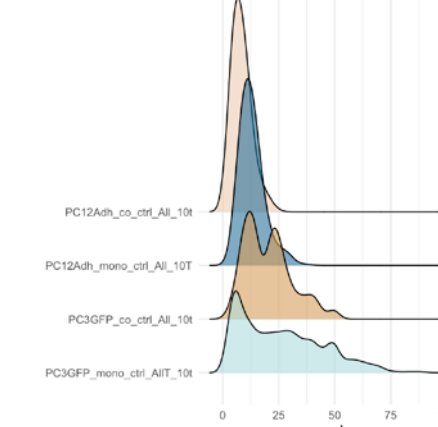
Single-cell tracking of PC-3 and PC12 Adh cells in mono- and co-culture



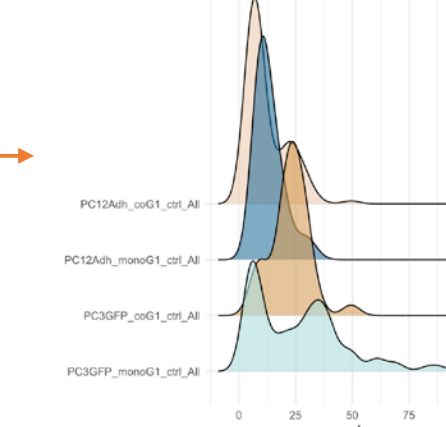
Tracking variables

- Cell division
- Cell death
- Speed
- Directional persistence
- Mean square displacement

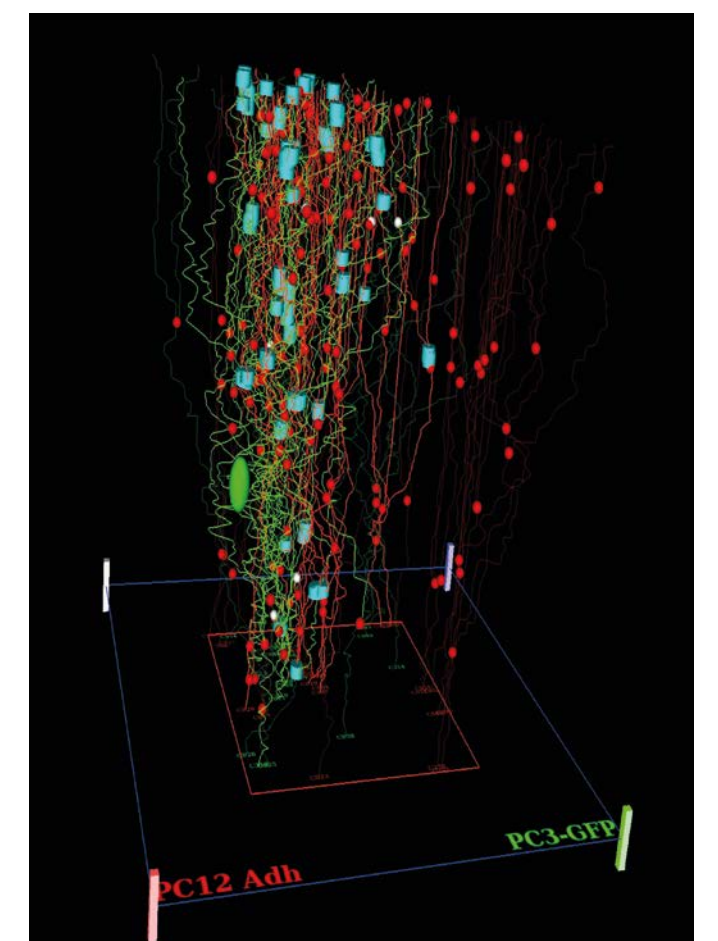
All cells tracked > 10 hours



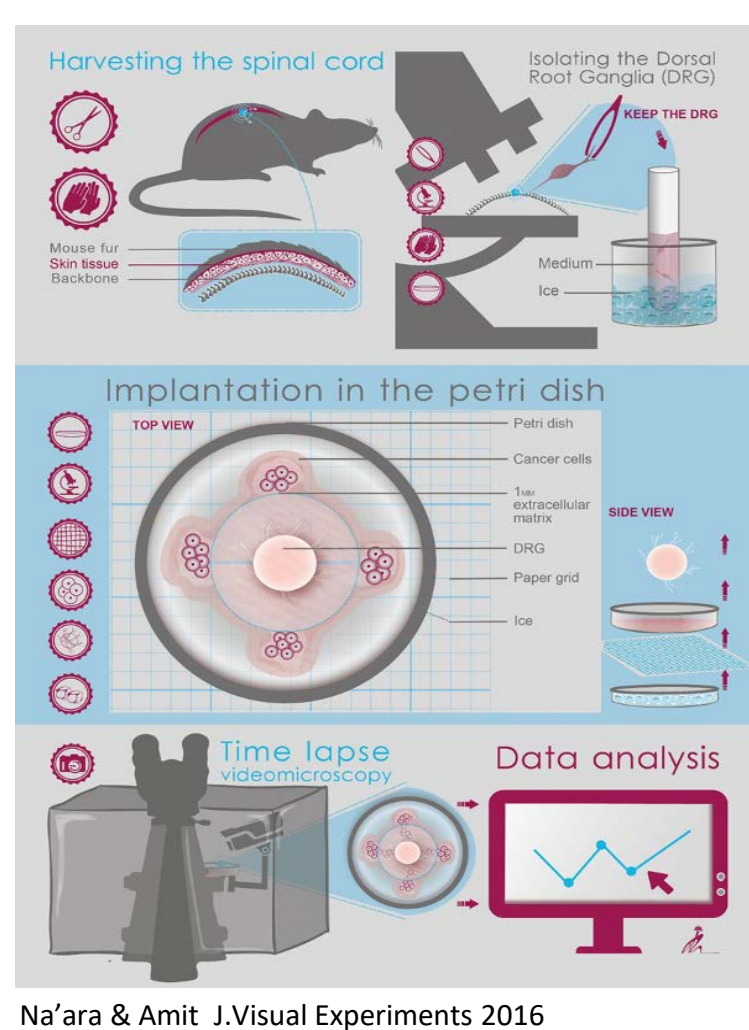
Only G1 cells



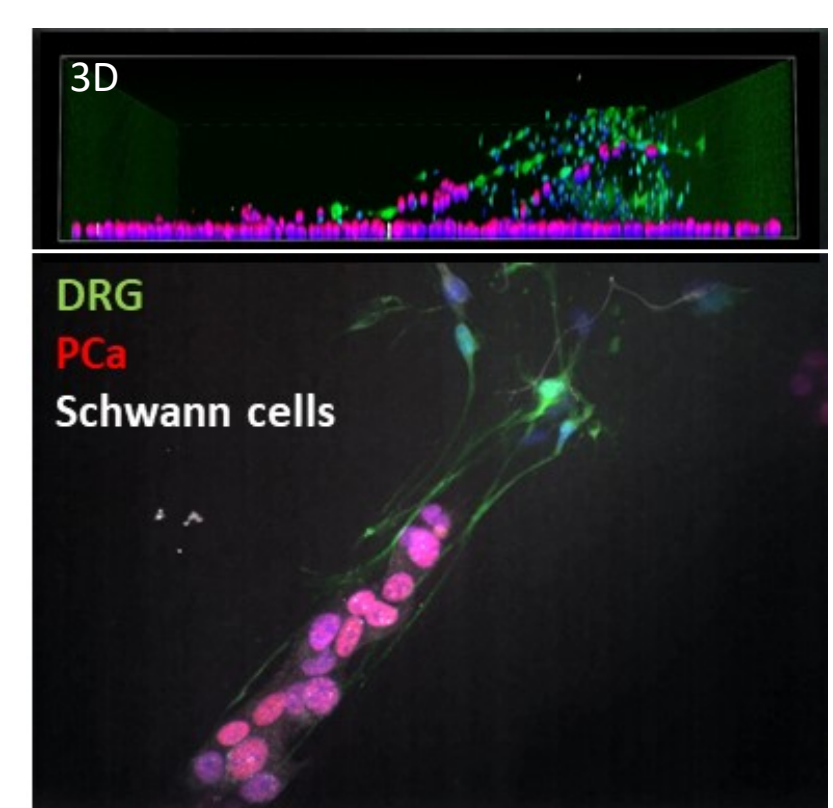
Proximity analysis



Single-cell tracking in dorsal root ganglion ex vivo model



Na'ara & Amit J. Visual Experiments 2016



Project aims

- ❖ Characterize phenotypic changes induced by cell-cell proximity
- ❖ Determine phenotypic differences between prostate cancer mono- cell cultures and co-cultures with nerve cell lines or ganglions/nerves
- ❖ Unravel the role of β -adrenergic receptor signaling in cancer-nerve interactions

Clinical implications

Prevent or delay development of metastatic prostate cancer involving nerves

Acknowledgements

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