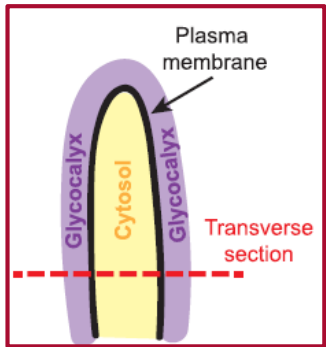
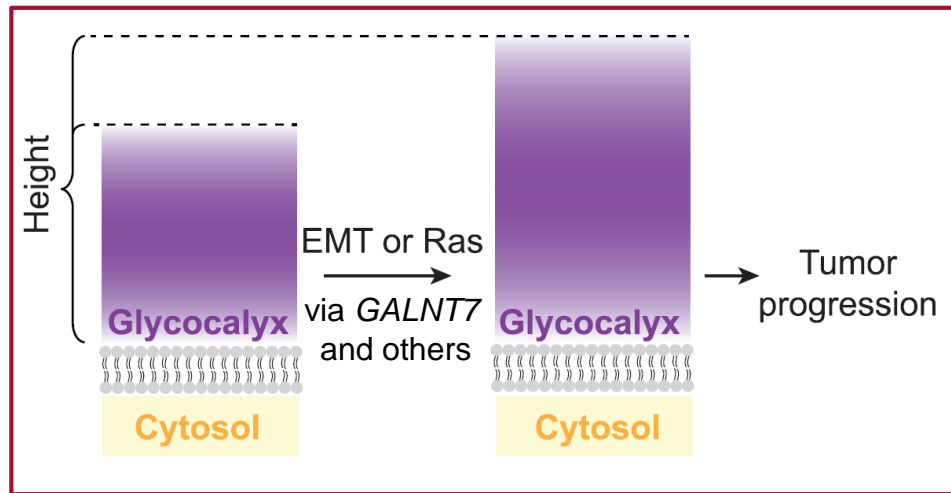
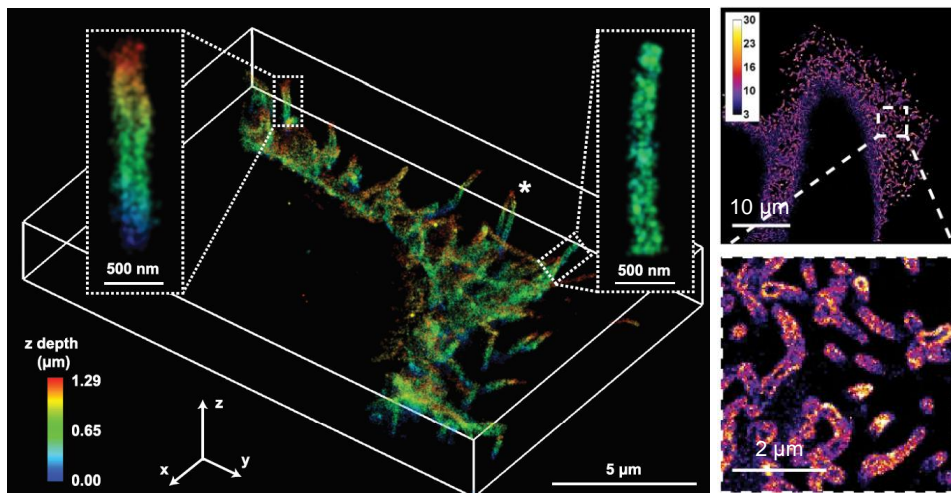


Quantitative super-resolution imaging of the mammalian glycoalyx



Combining quantitative SR imaging with metabolic labeling and transcriptomic analysis, we **directly measured the height of the glycoalyx** on primary tissue samples and cultured cells and **monitored its changes** during the earliest steps of the **oncogenic program**, identifying its **functional role during cancer progression**.



Intensity profiles obtained from **glycoalyx-covered membrane tubules** were used directly to quantify the height of the glycoalyx. The large number of tubules present on each cell enabled **rapid analysis**.

We showed that the a single mutation in the prototypical oncogene **KRAS** is sufficient to increase glycoalyx height and that the glycosyltransferase **GALNT7 acts as single-gene mediator**. Our study provides **functional evidence for the role of the glycoalyx** during the earliest steps of the oncogenic program and metastasis formation.