Single-cell analysis reveals that cancer-associated fibroblasts promote oral squamous cell carcinoma invasion through TGF-β1/Smad pathway

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Background

- The prognosis of oral squamous cell carcinoma (OSCC) is not satisfactory mainly because of local tumor invasion.
- The tumor microenvironment (TME) is a potential target, in which cancer-associated fibroblasts (CAFs) are of great significance.
- However, the interaction between CAFs and cancer cells that promotes OSCC invasion is still unclear.
- Here, we investigated the two subtypes of CAF (iCAF and mCAF) and their protumor role in OSCC at single-cell resolution.

Results

- CAFs promoted OSCC invasion through TGF-β1/Smad2/3 pathway
- iCAF and mCAF potentially originated from epithelial through EMT

Conclusions

- CAF activated TGF-β1 pathway to promote OSCC invasion.
- iCAF and mCAF, which originated from epithelial, were correlated with survival and played distinct roles in OSCC progression.