Histological and transcriptomic cartography identify S100B-FolliculoStem cells as a candidate signalling hub that may drive pituitary tumour behaviour.

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Pituitary tumours (PitNETs) are frequent neoplasms derived from endocrine cells of the anterior pituitary gland. While mainly benign their aggressive course are frequently associated with important comorbidities. PitNETs heterogeneity and behaviour are poorly understood, which result in a limited number of available therapeutic options beside surgery and radiotherapies.

Similar to other cancers, understanding the intricate exchanges that exist between tumour cells and their microenvironment represents a goal to improve our understanding of the pituitary tumour biology beyond genetics. It constitutes therefore an important tool for developing future therapies.

Taking advantage of recent technical advances in high throughput imaging, single cell RNAseq and spatial transcriptomics, we addressed the spatial distribution and role of S100B+ Follicullostellate cells, a non-endocrine resident cells, found in normal pituitary and gonadotroph tumours.

Taken together, our work support the presence of those cells in gonadotroph tumours and their role as a signalling hub. Further studies are now required to: 1) determine whether their spatial location drive a functional remodelling of tumours, 2) infer their signalling network and 3) fully comprehend their implication in pituitary tumours as a signalling hub or a tumour fuelling population.