

# BP10 - Uncovering biological signals involved in bladder cancers with Independent Component Analysis

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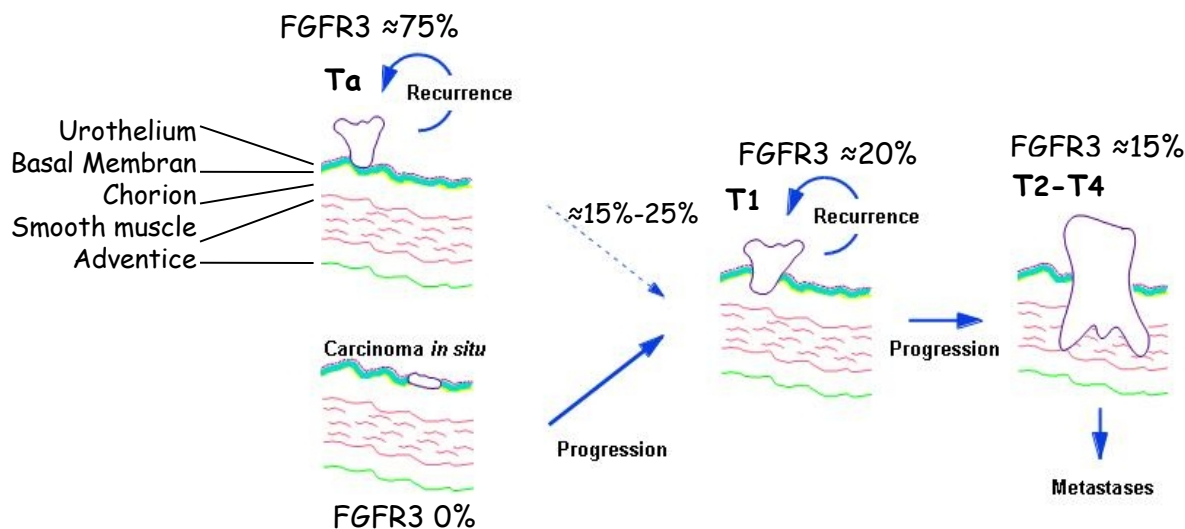


## Stages and Evolution of Bladder Cancer

4th most common cancer in men

9th most common cancer in women

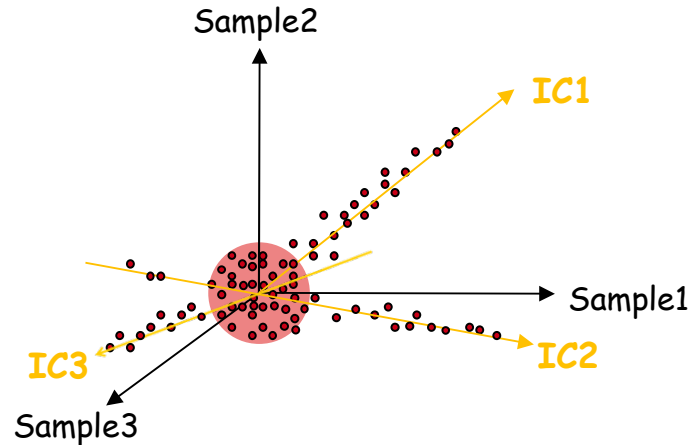
- Two pathways of progression :



- Except the FGFR3 mutation the underlying molecular process have not been identified yet.
- Goal : Confirm and extend the list of biological processes known to be involved in the specific context of bladder cancer.

- Application of Independent Component Analysis (ICA) on a large cohort of urothelial tumors.

- Decomposition of the expression matrix into a fixed number of statistically independent signals :  $X = AS$



- Map components to known pathways and genomic regions using gene projections (S)

- Check reproducibility of the components on 3 other datasets

- Link components to clinical/survival data using components activity on the samples (A)

