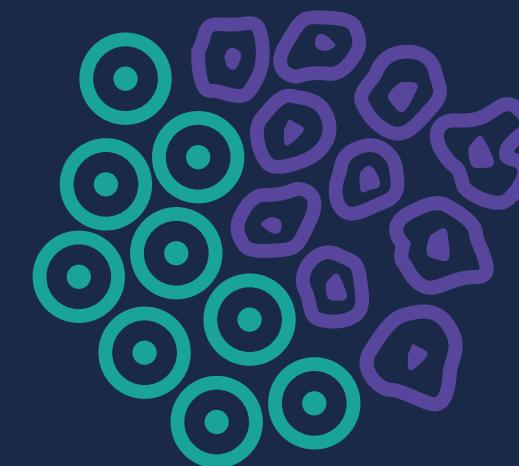


# Unravelling regulatory logic and combinations of transcription factors governing the wound response program

Swann Floc'hlay, Duygu Koldere, Xiaojiang Quan, Carmen Bravo González-Blas, Gert Hulselmans, Maxime De Waegeneer, Mardelle Atkins, Anne Classen & Stein Aerts



**Drosophila larvae**  
Eye-Antenna disc  
Wing disc

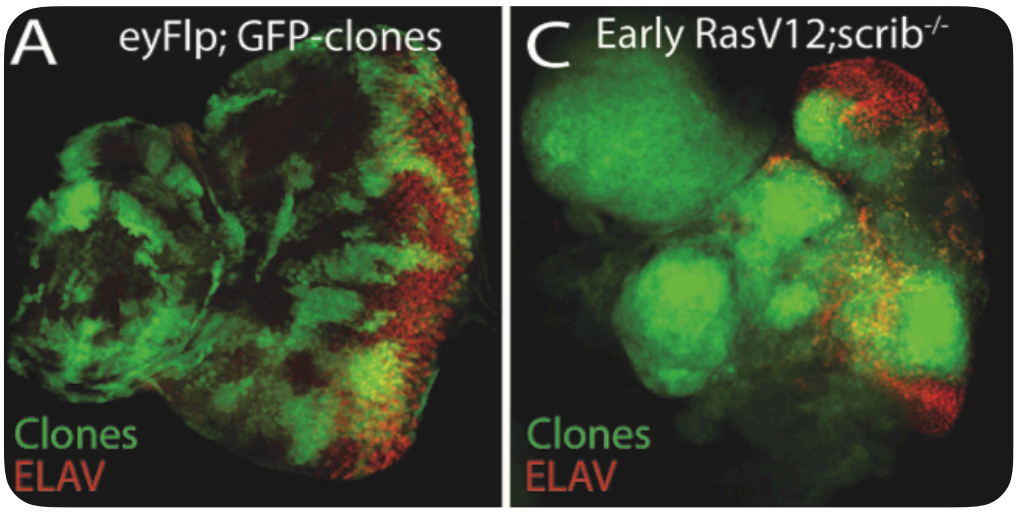


**scRNA**  
Integration of wound  
and tumor response

# Data

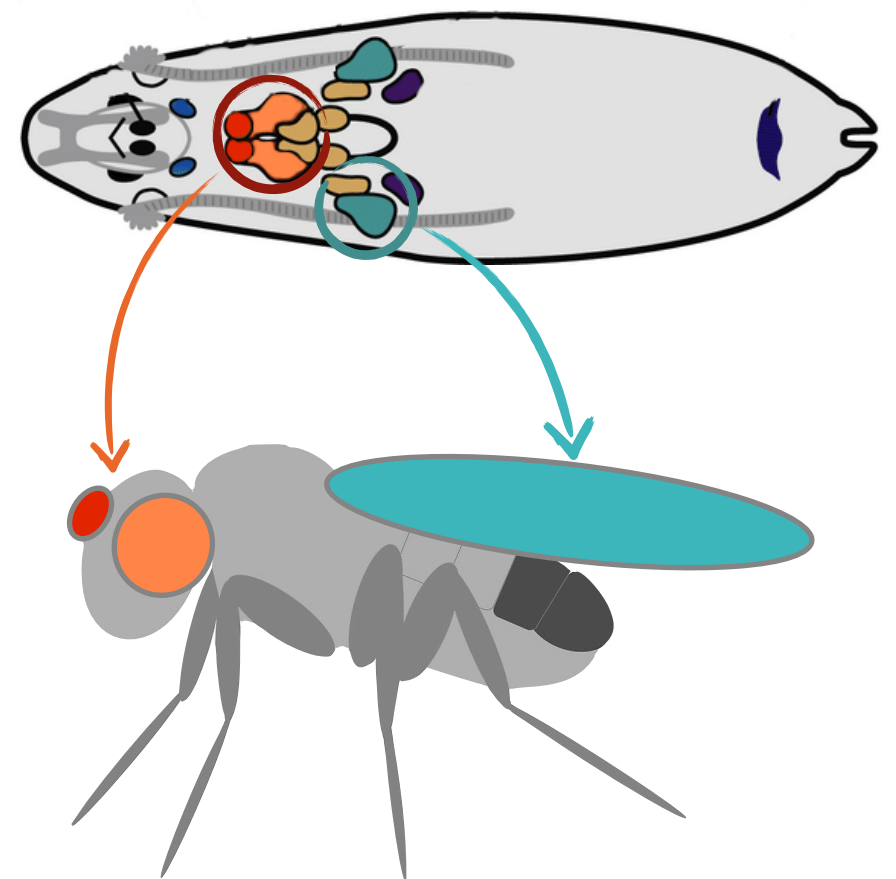
## Tumor model

 eye antennal disc



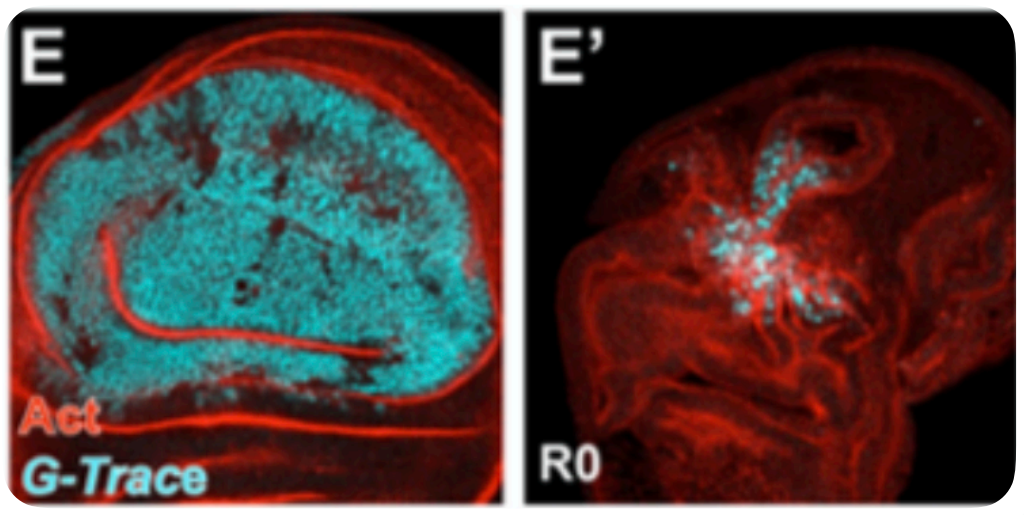
Induction of tumor development by RasV12 + scrib<sup>-/-</sup>

## Drosophila 3rd instar larvae



## Wound model

 wing disc



Induction of pouch apoptosis by rotund + eiger

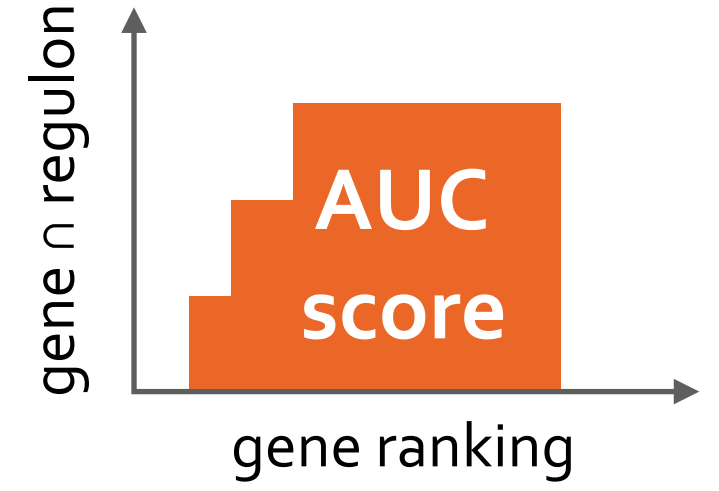
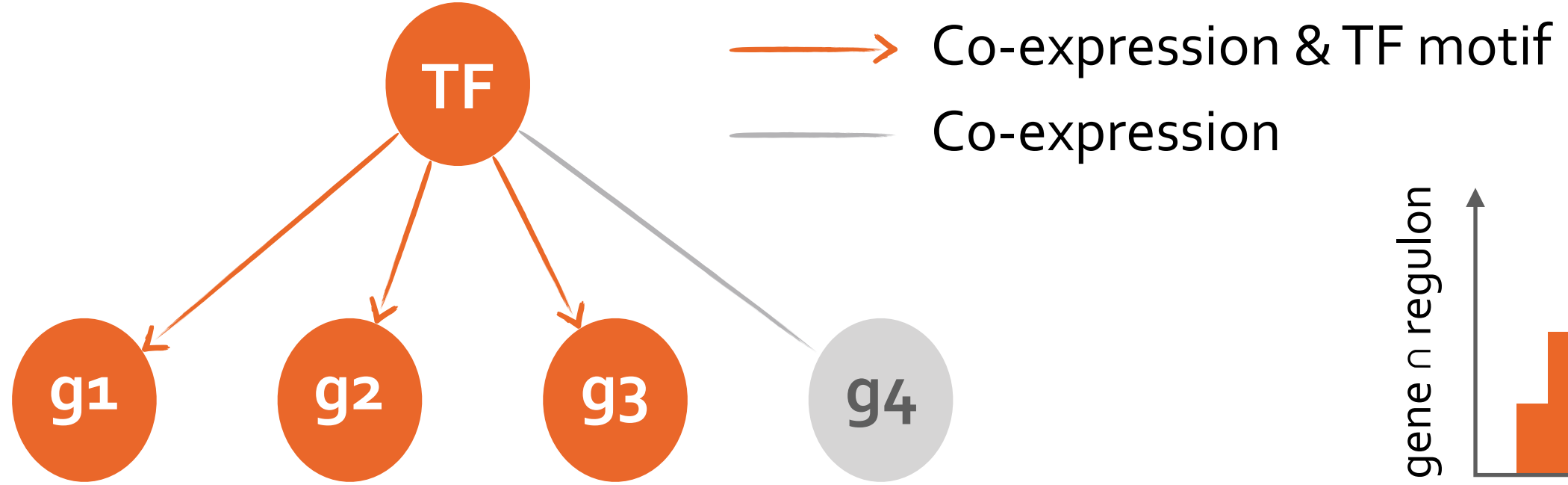
# Analysis

## Integration using VISION

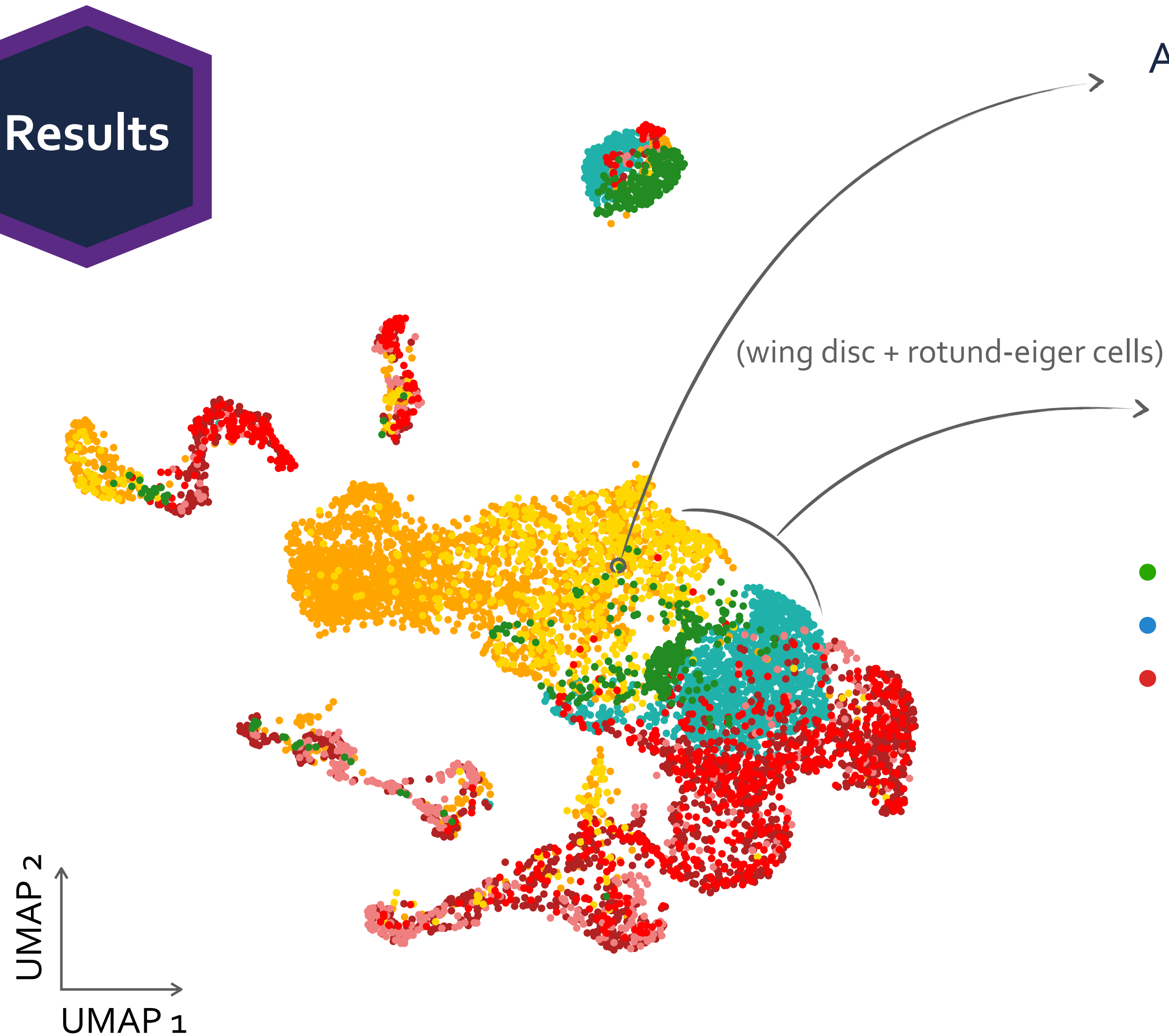


- nextflow pipeline
- reproducibility
  - flexibility
  - scalability

## GRN analysis using SCENIC

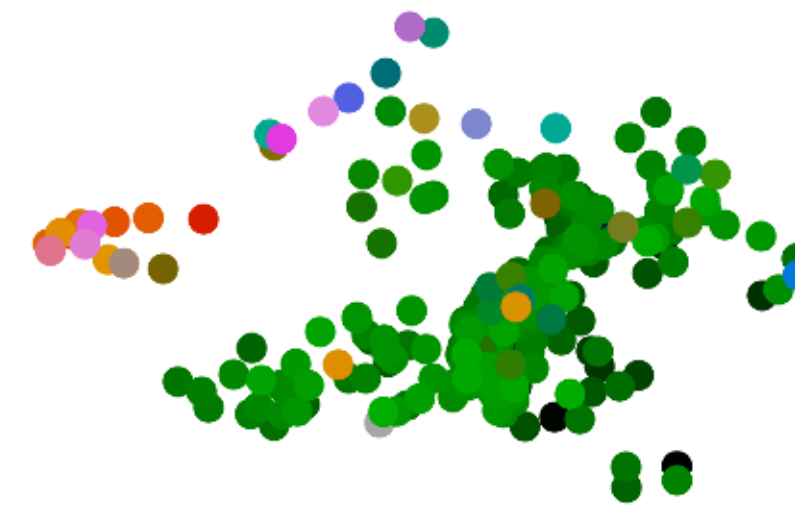


# Results



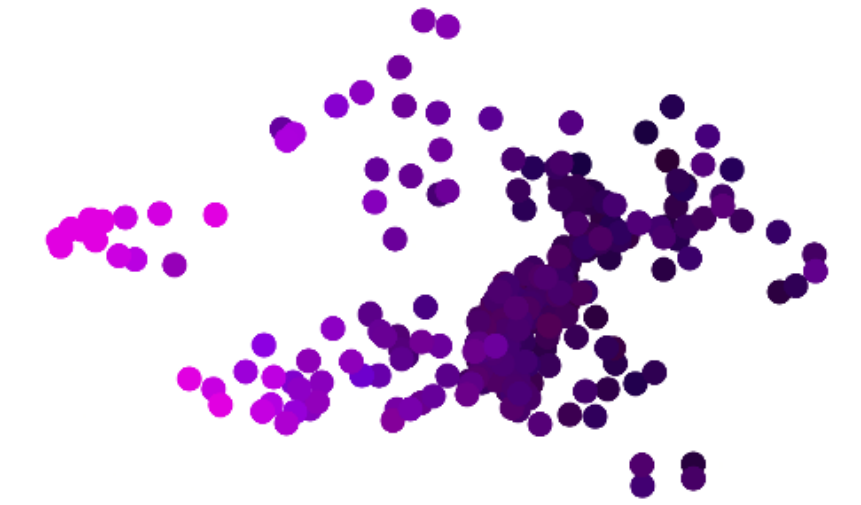
A **small cell population** from wounded wing disc co-clusters with the eye-antennal cells from tumor development

## Expression pattern



- delayed development (**chinmo+**)
- eiger survivors (**rotund+**)
- JAK-STAT repair response (**upd3+**)

## Regulatory network

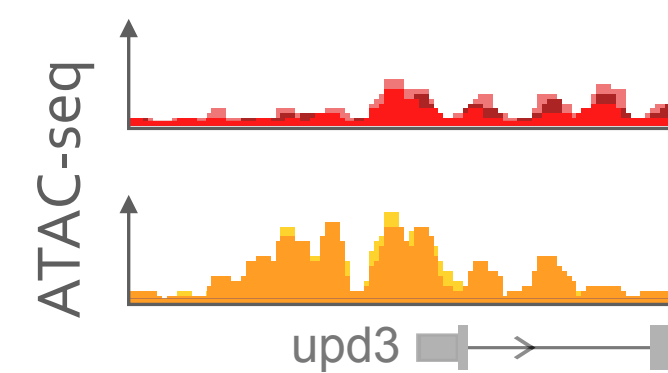


- JNK pathway (**Jra+ GRN**)
- Oxidative stress (**cnc+ GRN**)

- ● ● eye-antennal disc
- ● ● + RasV12 ; scrib<sup>-/-</sup>
- ● ● wing disc
- ● ● + rotund-eiger

## ATAC-seq validation

Motif enriched in differentially accessible peaks between eye-antennal disc **control** ● ● ● and **RasV12 ; scrib<sup>-/-</sup>** ● ● ●



**TGAGTCAT**  
AP-1 (Jra / Kay)

**TGAGTCA**  
Cap'n'collar