

# Putting some muscle into the dissection of single cell regulatory landscapes

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VIB Emerging Technologies in Single Cell Research 2020

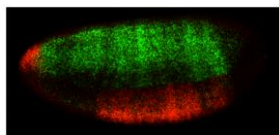
EMBL



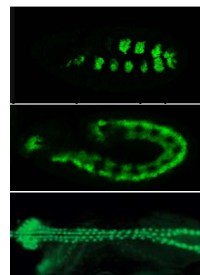
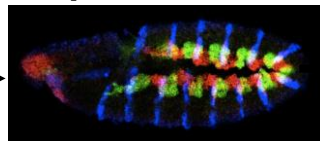
# The single cell accessibility view of embryonic muscle development

*Genetic / morphological view of muscle development*

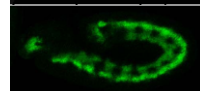
Pre-gastrulation  
(pluripotent)



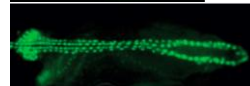
**Specification**



Somatic muscle (striated)

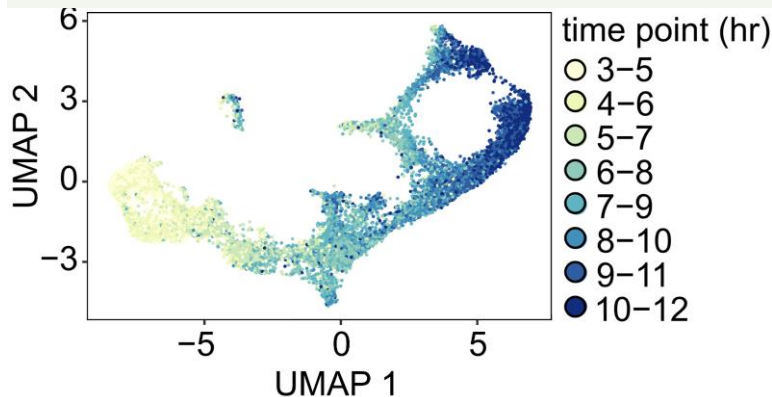


Visceral muscle (smooth)

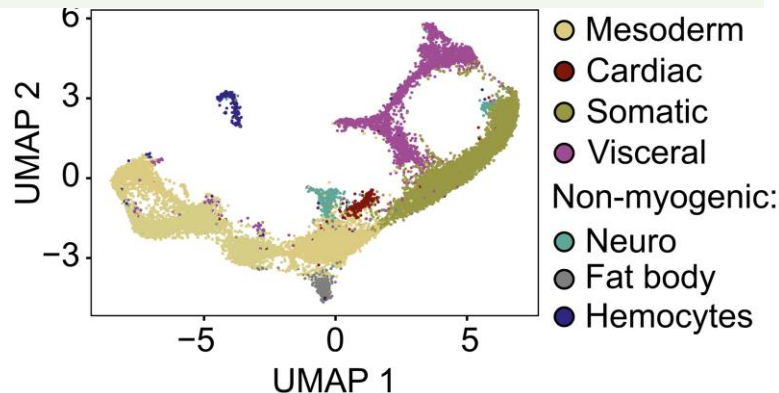


Cardiomyocytes (heart)

*The regulatory landscape diversifies at specification*

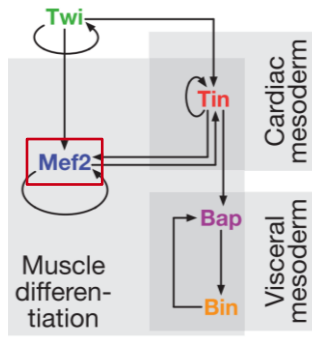


*Muscle types have distinct accessibility profiles*

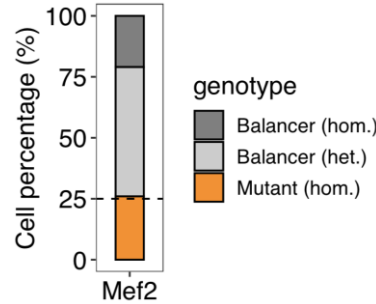


# Removal of Mef2 leads to the formation of an abnormal chromatin state

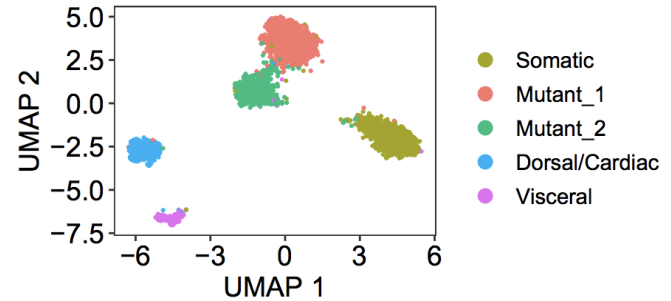
*Mef2 is required for differentiation*



*Genotype each nucleus*

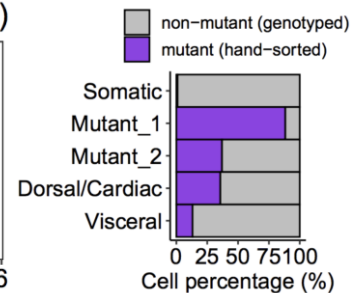
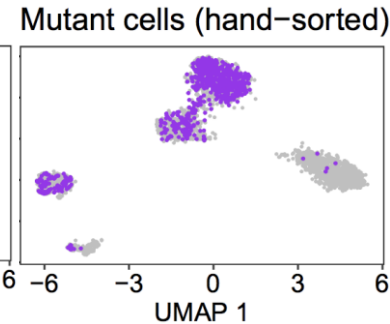
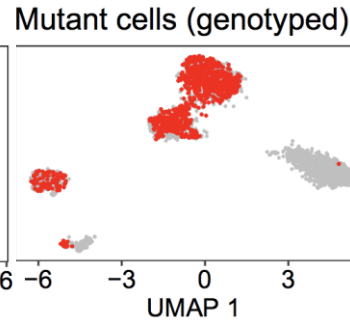
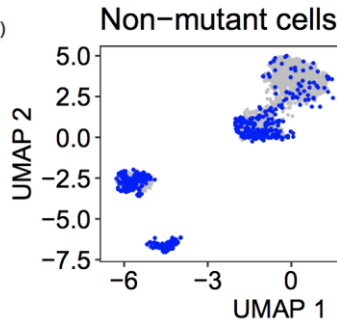
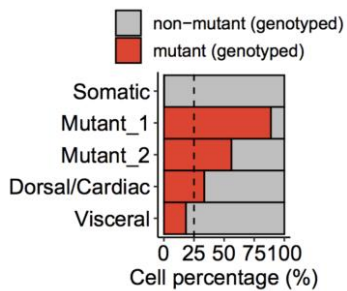


*Identify muscle populations*



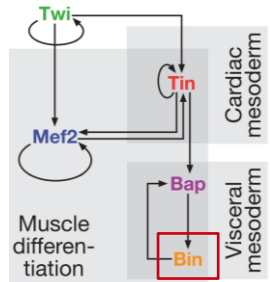
*Mutant cells form a new abnormal cluster and are depleted from somatic muscle*

*Hand-sorted mutants cluster with genotyped mutants*

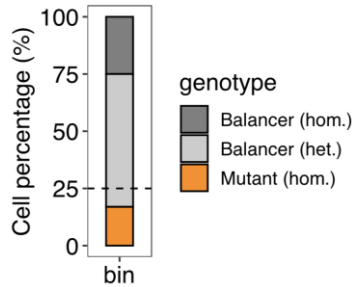


# Visceral muscle cells appear blocked in their lineage in *biniou* mutants

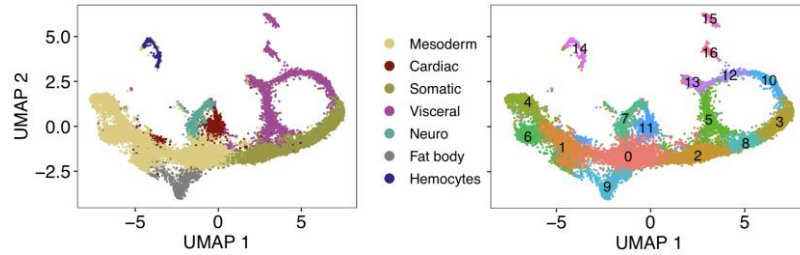
*biniou* is required for visceral specification



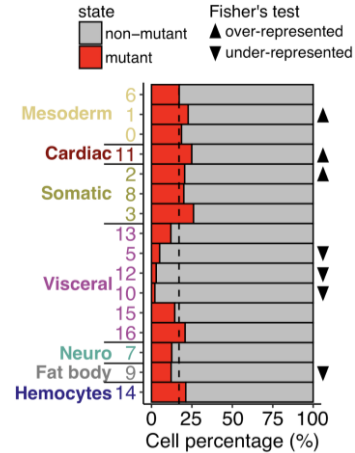
Genotype each nucleus



Map genotyped cells onto the wt timecourse



Assess mutants % by cluster



Mutant cells are depleted from the visceral muscle

