UNC-120/SRF independently controls muscle aging and lifespan in *C. elegans*

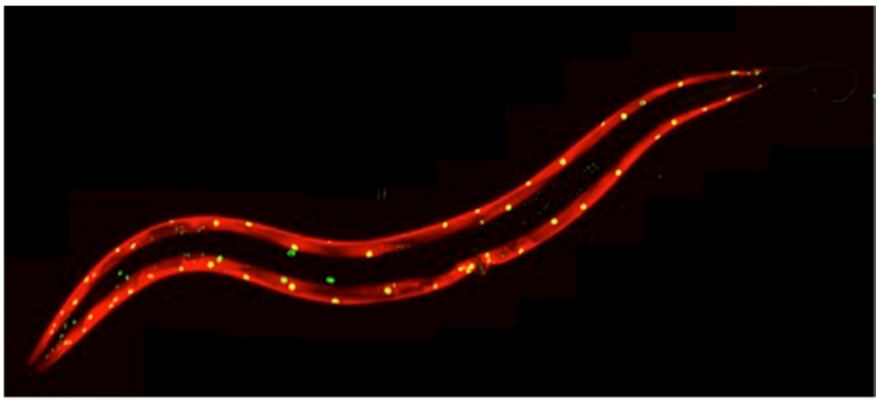
Adeline MERGOUD dit Lamarche, Laurent MOLIN, Laura PIERSON, Marie-Christine MARIOL, Kathrin GIESELER, Jean-Louis BESSEREAU and Florence SOLARI

Institute NeuroMyoGene, CNRS UMR5310, INSERM U1217, Université Claude Bernard Lyon 1, 69622 Villeurbanne, France. florence.solari@univ-lyon1.fr

SUMMARY :

Lifespan is the main read-out used in model organisms for aging studies but the relationship between longevity and health span is still a matter of intense debate. Since muscle deterioration compromises life quality during aging, we analyzed the time course of muscle aging at the subcellular and physiological levels in *C. elegans*. We first observed a dramatic decrease in the expression of genes encoding proteins required for muscle contraction, followed by a change in mitochondria morphology, and an impairment of muscular autophagy. We demonstrated that the conserved transcription factor UNC-120/SRF controls muscle aging biomarkers, independently from its effect on lifespan. In *daf-2/*insulin/IGF1 receptor mutants, which exhibit a delayed appearance of muscle aging biomarkers and are long-lived, disruption of *unc-120* accelerates muscle aging but does not shorten lifespan extension. Overall our study identified UNC-120/SRF as the first transcription factor that controls the pace of muscle aging in a cell autonomous manner.

ILLUSTRATION :



KEYWORDS :

C.elegans Aging Muscle SRF/UNC-120 DAF-2/insulin-IGF-1 Rc

REFERENCES

Unpublished results