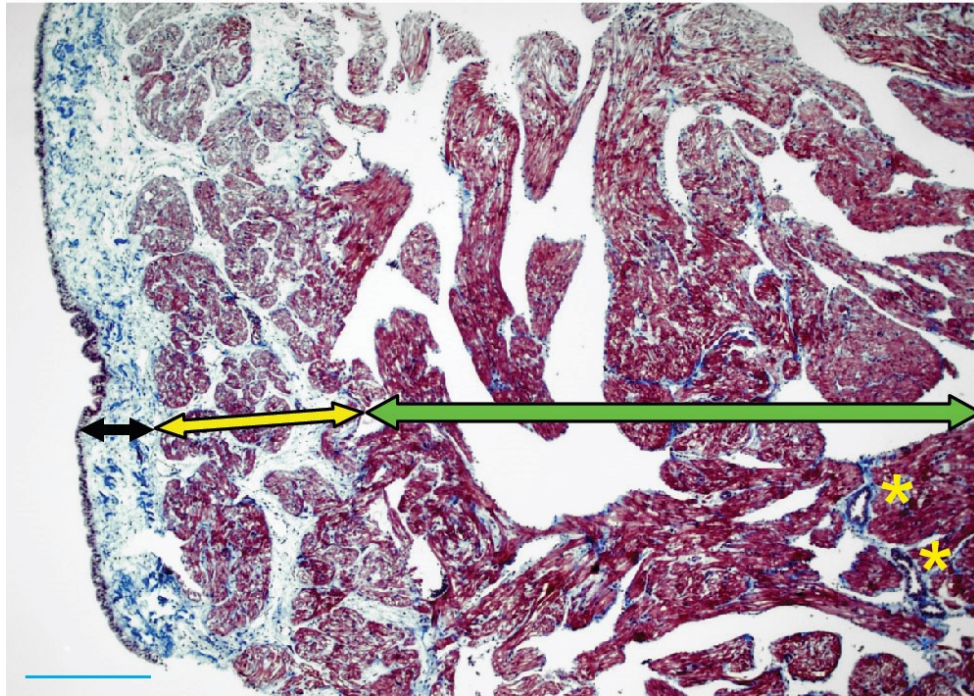


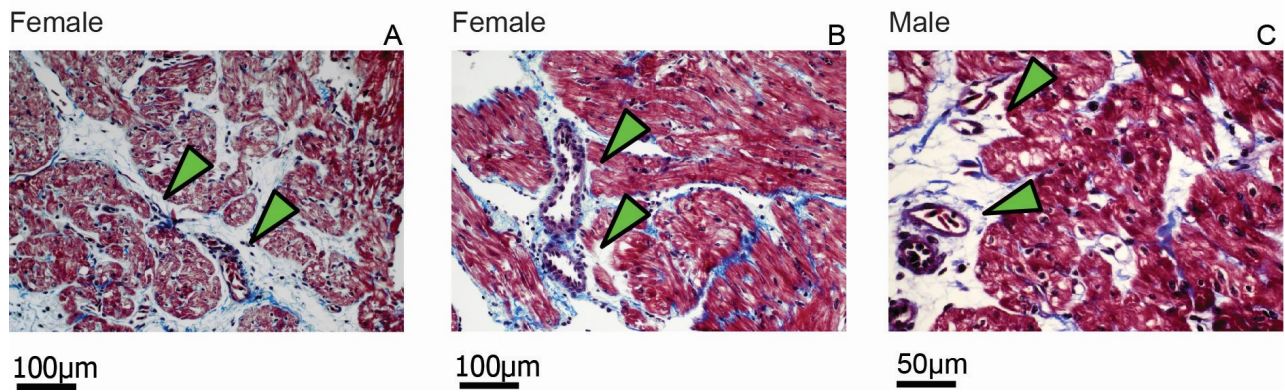
Supplementary figures

Fig. S1



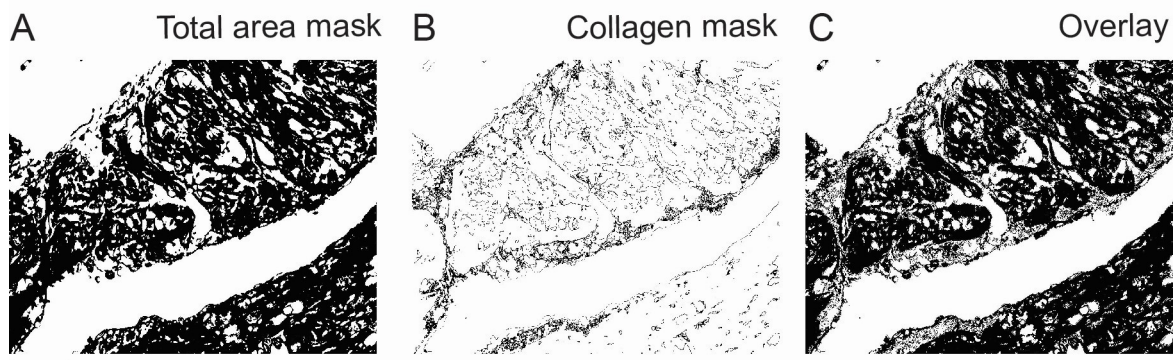
**Figure S1:** Representative of *S. microcephalus* ventricular wall. Black arrow: pericardial fibrotic capsule. Yellow arrow: compact myocardial layer. Green arrow: spongy myocardial layer. Yellow asterisks: coronary vessels. Blue scalebar: 500 $\mu$ m.

Fig. S2



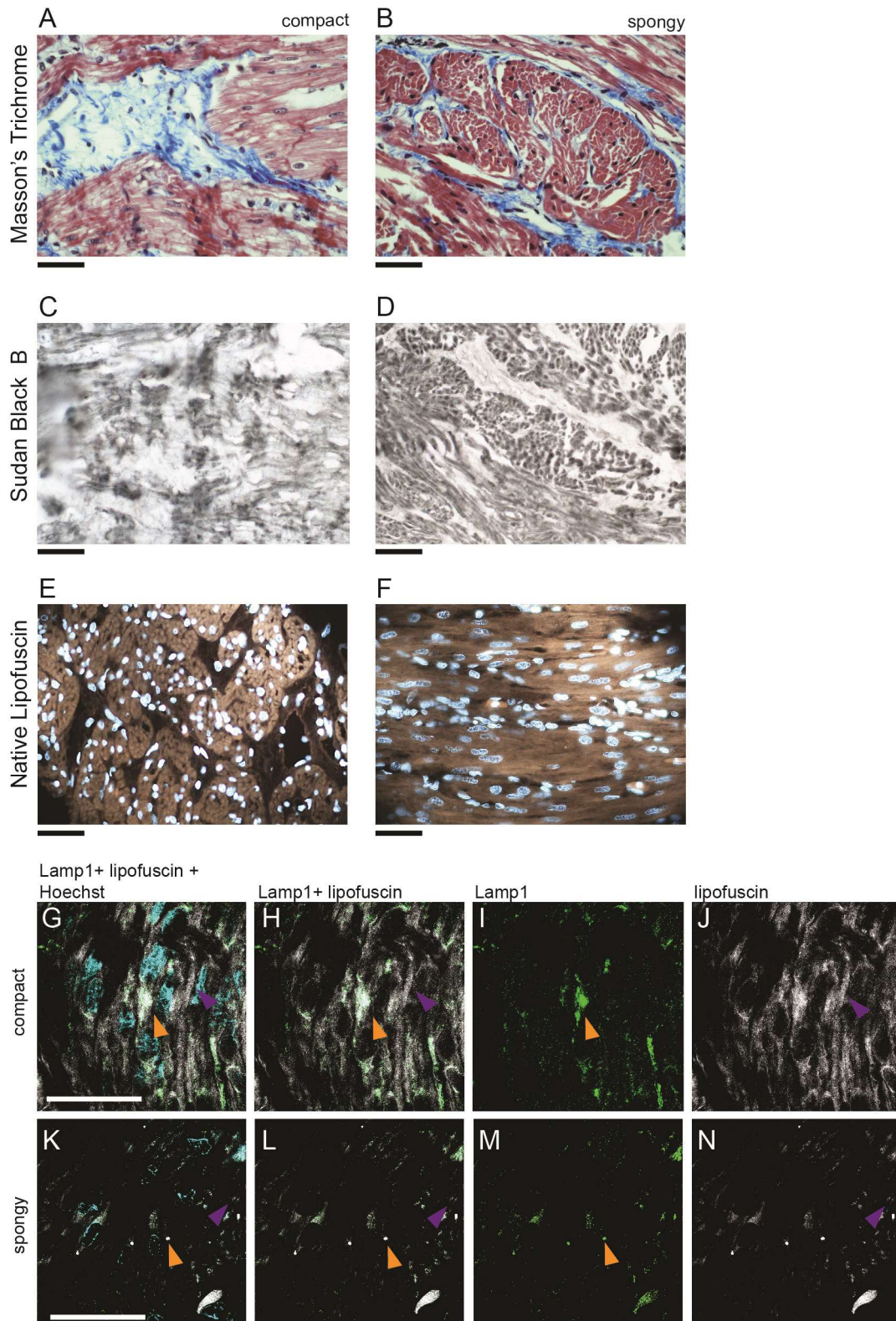
**Figure S2:** Representatives of *S. microcephalus* coronary cardiac fibrosis, green arrows: A) female 341cm; B) female 341cm; C) male 310cm.

Fig. S3



**Figure S3:** Representative examples of the A) total tissue mask , B) collagen mask, C) overlay mask of *Somniosus microcephalus* (sample 7). Fibrosis percentage ratio is expressed as % (collagen/total area) as described in Materials and Methods section. Scalebar: 100 $\mu$ m

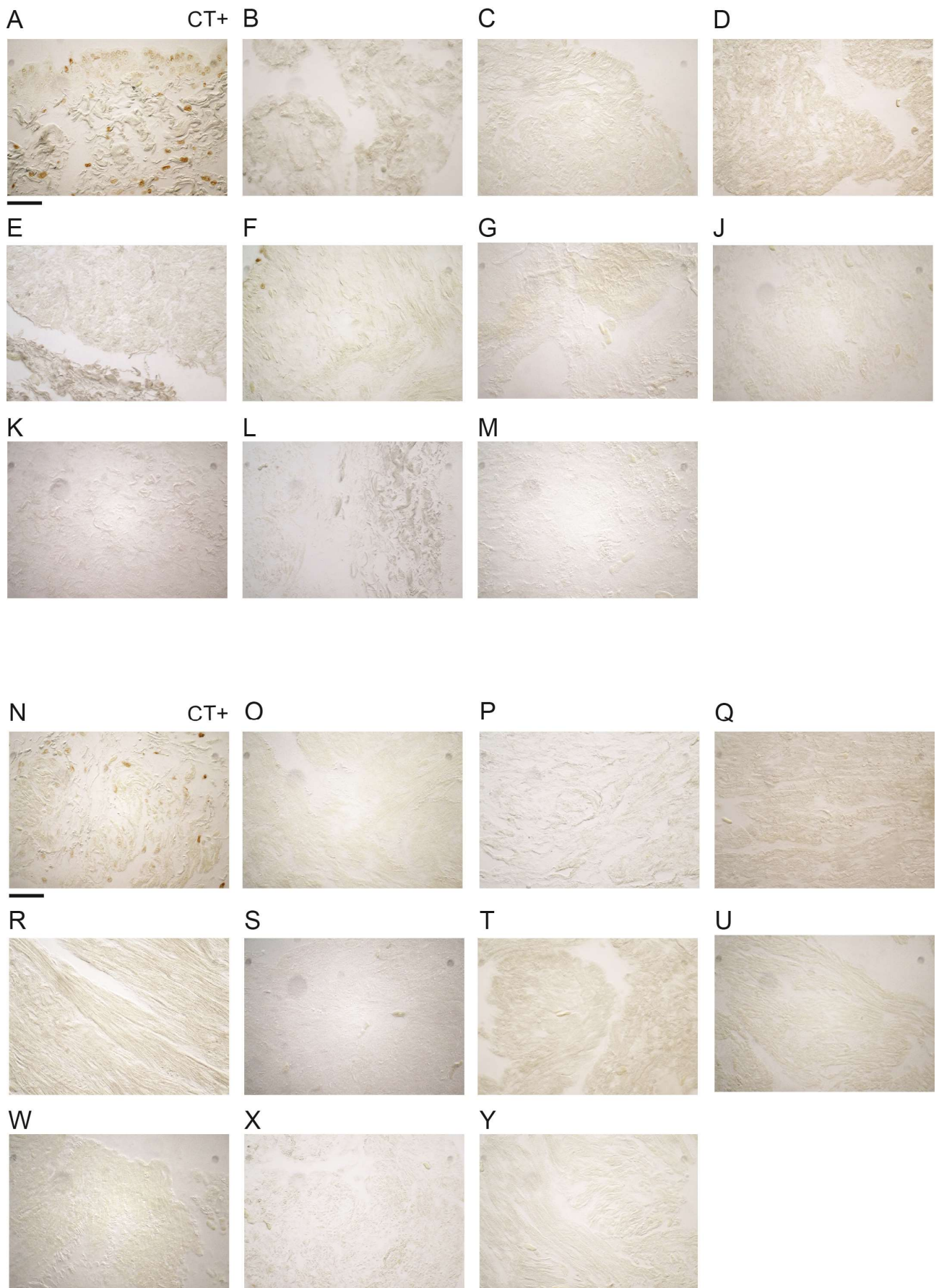
Fig. S4



**Figure S4:** analysis of the 390 TL *S. microcephalus* specimen. Masson's trichrome staining of A) compact and B) spongy myocardial layer. Sudan black B of C) compact and D) spongy layer. Native lipofuscin of E) compact and F) spongy layer. IHC showing lysosomes and lipofuscin accumulation acquired with Airyscan: G–J) compact and K–N) spongy myocardial layer. Orange

arrows: single examples of lysosomal Lamp1 and lipofuscin colocalization. Purple arrows: single examples of lipofuscin granules. Cyan: Hoechst. Green: Lamp1. White: lipofuscin. Black scalebar: 100µm. White scalebar: 50µm.

Fig. S5



**Figure S5:** TUNEL assay of the *S. microcephalus* animals. A) positive control DNase I treated compact myocardium of 341cm TL female. B–M) Compact myocardial layer of *S. microcephalus* animals, 1 to 10. N) Positive control DNase I treated spongy myocardium of 341cm TL female. O–Y) Spongy myocardial layer of *S. microcephalus* animals, 1 to 10. Scalebar: 100µm.