



**Figure S1.** Sarcomeric organization of the indirect flight muscles from adult *fliH* flies raised at 25°. Confocal micrograph showing sarcomere organization stained for actin (*Phalloidin-TRITC*) and Mhc-protein-GFP fusion construct localizing to thick filament (*weeP26-GFP*) (A-A''), thin filament (*Tm2-GFP*) (C-C'') and Z-discs (*sls-GFP*) (E-E'') in wild type background. (B-B'') Disarrayed fibres with irregular distribution of thick filaments. (D-D'') Extreme phenotype shows fibre breakdown. Arrows point to small globules or clumps of muscle. (F) Distortion in Z discs seen in freshly enclosed fly (arrowhead). (G) Complete dissolution of sarcomeric structures with random distribution of Z-disc proteins in older flies. (Scale bar, 5µm).