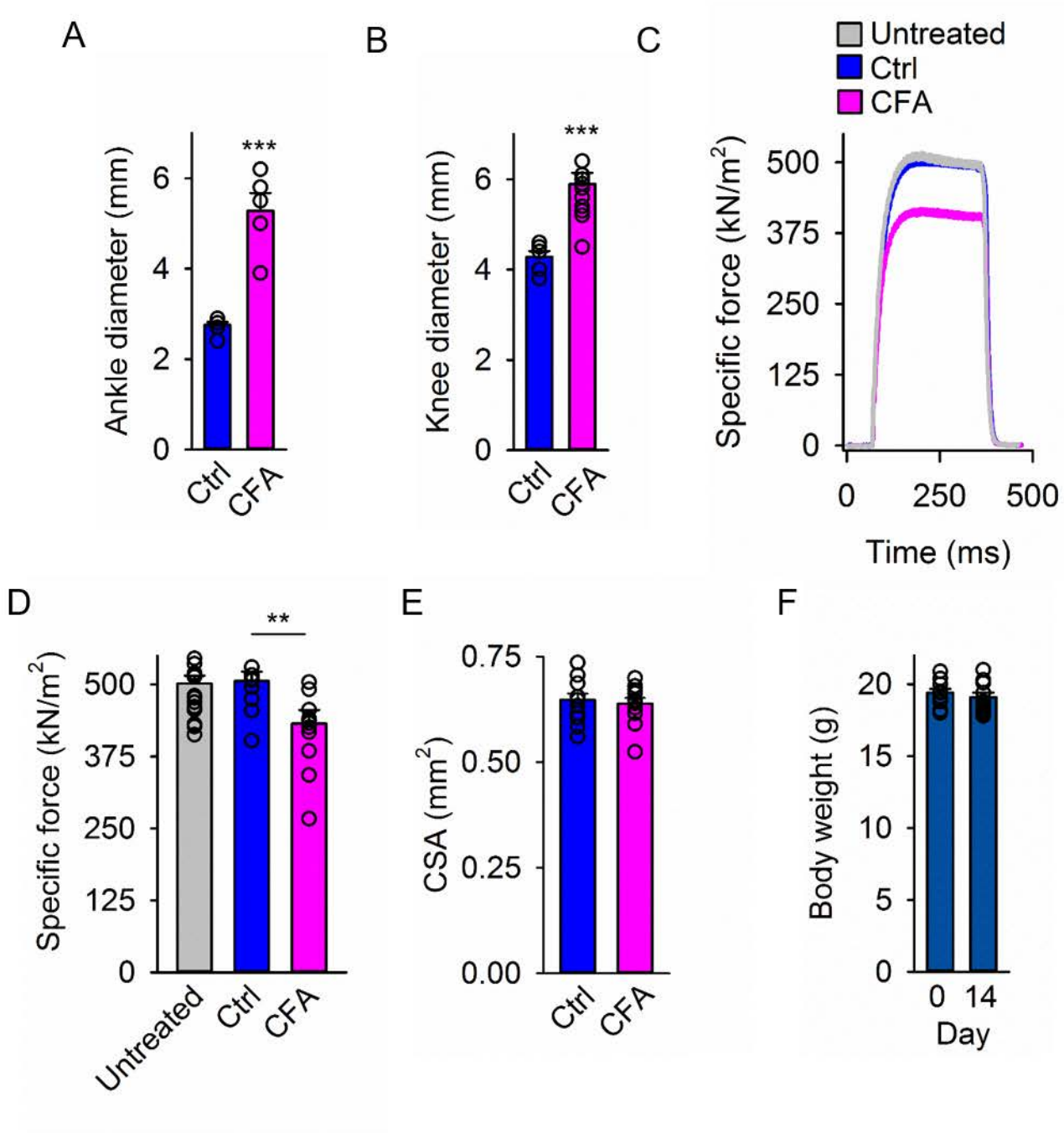
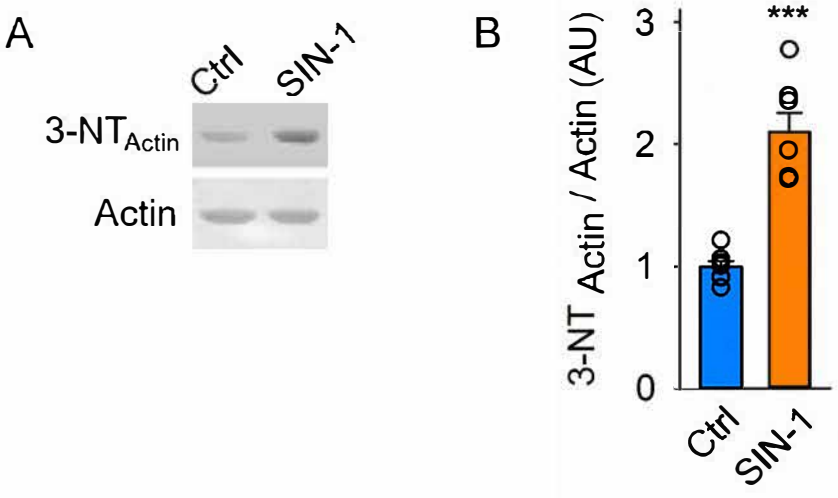
Supplementary Fig. 1



Supplementary Fig 1. Mean±SEM (n=7-14) of ankle (A) and knee (B) diameter at day 14 post injection of saline (control) or complete Freud's adjuvant (CFA). (C) Typical record and (D) mean±SEM (n=12) of e*x vivo* specific force at 150 Hz of intact EDL muscle from the CFA leg (pink), control leg (non-arthritic control, blue) and untreated wild type mice (grey). (E) Calculated cross-sectional area of EDL from CFA and control legs. (F) Body weight of the mice start of experiment (day 0) and at day 14. Data are mean ± SEM. Statistical analysis in A, B, E, F was by two-tailed Student's t-test, and C, D by one-way ANOVA. A *P* value less than 0.05 was considered significant. ***P*<0.01 ****P*<0.001.

Supplementary Fig. 2



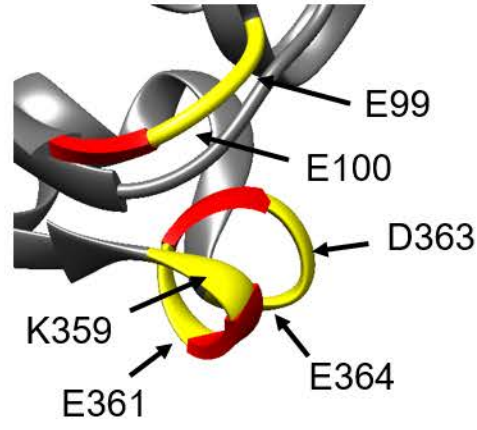
Supplementary Fig 2. Immunoblots of 3-NT levels (a, upper panel) on G-actin after SIN-1 incubation [5mM, 10min]. 3-NT levels were normalized to coomassie stains (a, lower panel). (b) Mean data ± SEM of quantified 3-NT levels, n=7. Statistical analysis was performed by a two-tailed Student's t-test. ***P<0.001.

Supplementary Fig. 3

A. Hotspot 1

98 PEEHPTL 104

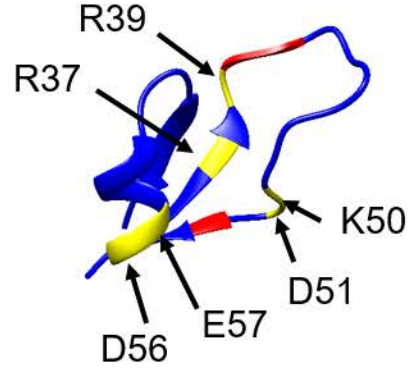
357 ITKQEYDEA 365



B. Hotspot 2

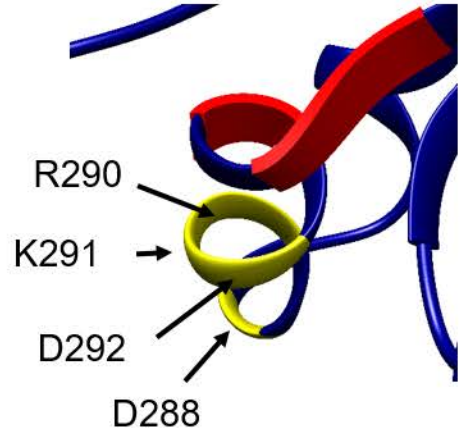
37 RPRHQG 42

50 KDSYVGDE 57



C. Hotspot 3

288 DIRKDLYANNV 298



Supplementary Fig. 3 The oxidative modified amino acids in the three hotspots are surrounded by amino acids with an electrically charged side chain. The 3D crystal structure of actin was adapted from PDBe model 2zwh. (A-C) Oxidative hotspots 1(A), 2 (B) and 3 (C) of skeletal muscle actin (alpha-actin) identified by mass spectrometry. The red marked residues are the amino acids that were identified with either a 3-NT or MDA modification of alpha-actin from mice with CFA induced arthritis, RA patients or alpha-actin incubated in SIN-1 (n=16 for total sample pool). The residues of the hotspots were all closely located to electrically charged amino acids residues, i.e. Arginine (R), Lysine (K), Aspartic acid (D), Glutamic acid (E) and Histidine (H), marked in yellow and denoted with an arrow, one letter code and identifier.