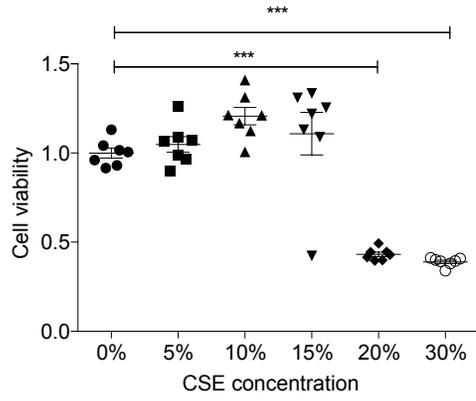
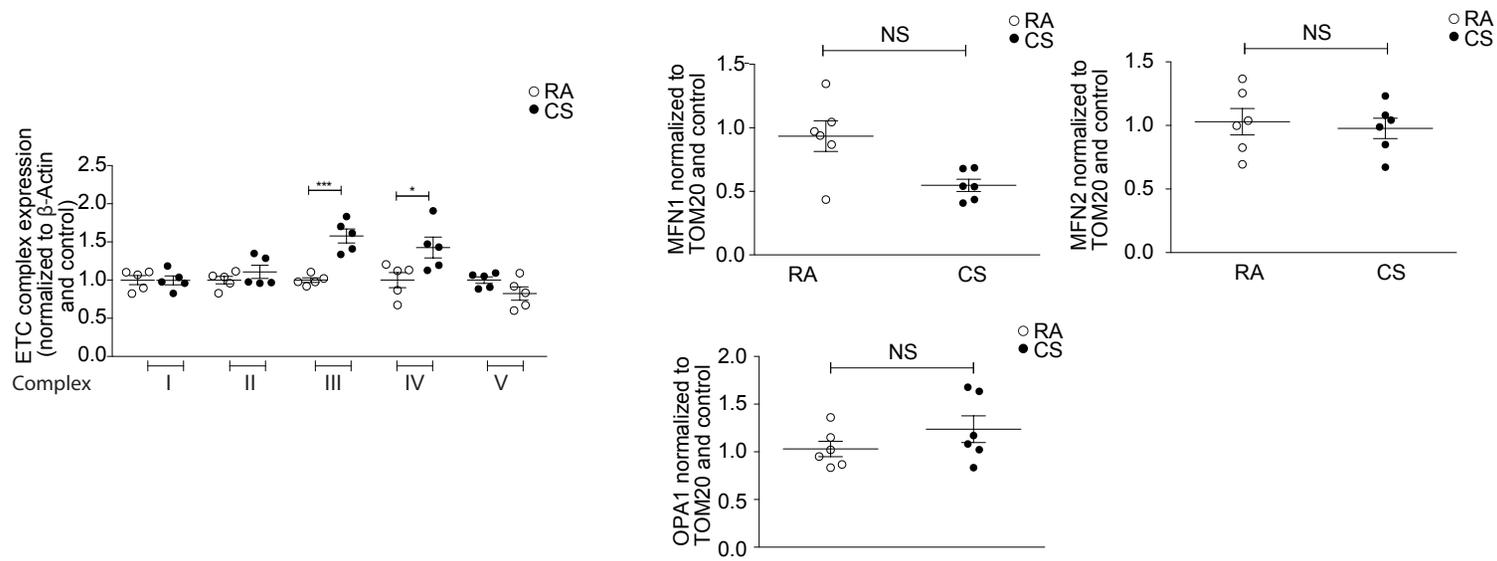
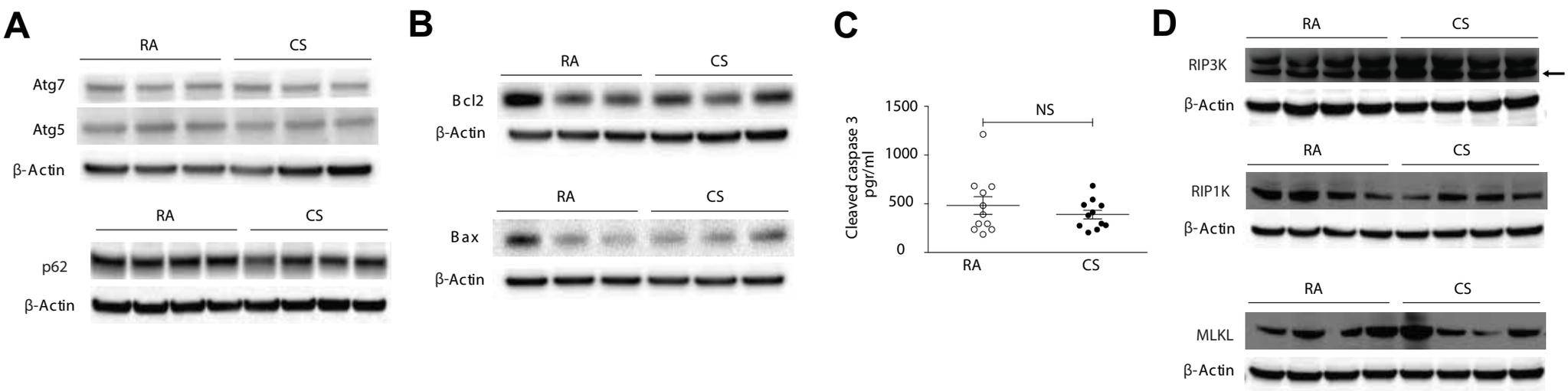


A

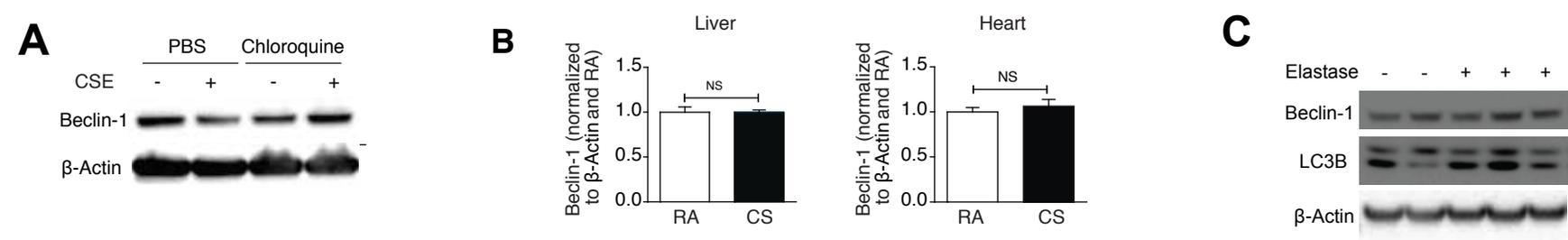
Supplemental Figure 1. CS induces cell injury in an in vitro model of COPD. (A) HK-2 cell viability upon exposure for 24h to increasing concentrations of cigarette smoke extract (CSE), measured by alamar Blue assay. Data are mean \pm SEM. *** P <0.001 by one-way ANOVA with Bonferroni post-hoc test, dot plots represent quantitation of 3 independent experiments.



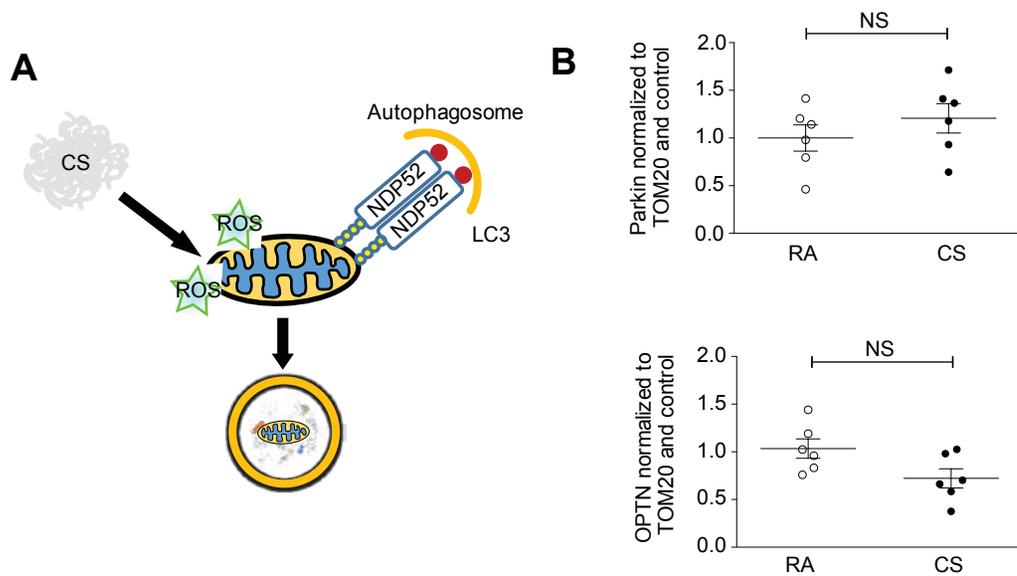
Supplemental Figure 2. Cigarette smoke induces oxidative stress and mitochondrial injury in a murine model of COPD. (A) Electron transport chain (ETC) complexes expression in kidney tissue of mice exposed to 6 months of cigarette smoke (CS) vs. room air (RA) control ($n = 5$ in each group). (B) Expression of proteins that regulate mitochondrial dynamics in the kidney tissue from mice exposed to 6 months CS or RA, Mitofusin1 (MFN1), Mitofusin2 (MFN2) and Dynamin-like 120-kDa protein (OPA1) ($n = 6$ in each group). All data are mean \pm SEM. * $P < 0.05$, *** $P < 0.001$, NS (non-significant) by Student's t test.



Supplemental Figure 3: Autophagy is selectively induced in mouse kidneys after cigarette smoke exposure. (A) Representative blots from additional autophagy cascade proteins such as autophagy-related protein 7 and 5 (ATG7, ATG5) and p62/SQSTM1 expression in kidney tissue from mice exposed to CS or RA for 6 months ($n = 3$ in each group) (B) Anti- and pro-apoptotic proteins Bcl-2 and Bax expression in CS-exposed vs. control RA-exposed mice ($n = 3$ in each group). (C) Cleaved caspase-3 levels measured by ELISA in whole kidney tissue homogenates ($n = 8$ in each group). Data are mean \pm SEM, analyzed by 2-tailed Student's t-test. (D) Representative western blot of necroptosis proteins: receptor-interacting serine/threonine-protein kinase-1 (RIPK1), receptor-interacting serine/threonine-protein kinase-3 (RIPK3) and mixed lineage kinase domain-like (MLKL) expression in kidney tissue after 6 months of CS or RA exposure ($n = 4$ in each group).

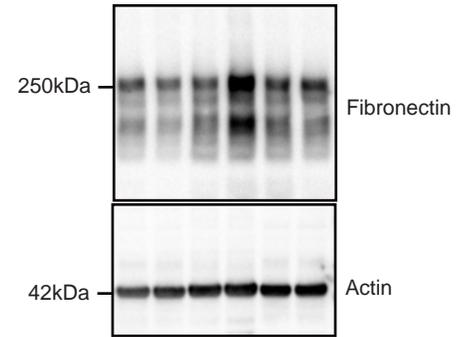


Supplemental Figure 4. The Beclin-1 response in kidney is specific for CS-mediated renal damage. (A) Beclin-1 expression upon blockage of autophagic flux in vitro with chloroquine. **(B)** Quantification of Beclin-1 expression in the liver ($n = 8$ in each group) and heart tissues ($n = 8$ for RA, $n = 7$ for CS) of mice exposed to CS for 6 months, data are mean \pm SEM. NS (non-significant) by 2-tailed Student's t test. **(C)** Beclin-1 expression in kidney tissue after in vivo elastase exposure ($n = 2$ for control, $n = 3$ for elastase).

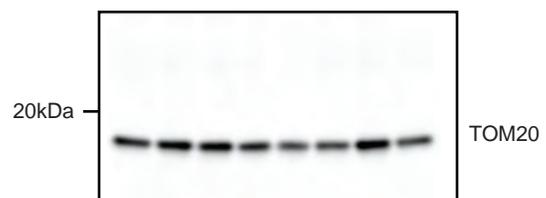
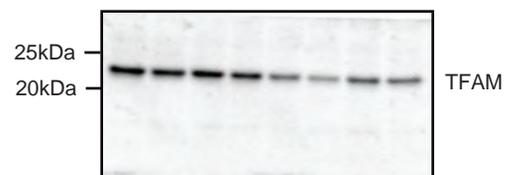


Supplemental Figure 5: *Becn1*^{-/-} mice have decreased mitophagy at baseline which does not increase after CS exposure. (A) Diagram representing calcium-binding and coiled-coil domain-containing protein2 (NDP52) mediated mitophagy. Injured mitochondria are ubiquitinated and recognized by autophagosomes via LC3B binding units present in mitophagy receptors such as NDP52. **(B)** Quantification of Western blots from Parkin and Optineurin (OPTN), proteins involved in the mitophagy cascade ($n = 6$ in each group). All data are mean \pm SEM, NS (non-significant) analyzed by Student's t test.

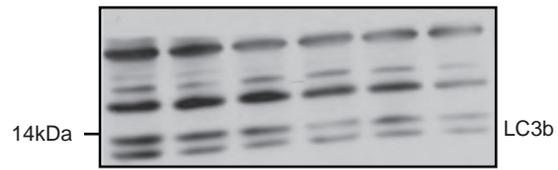
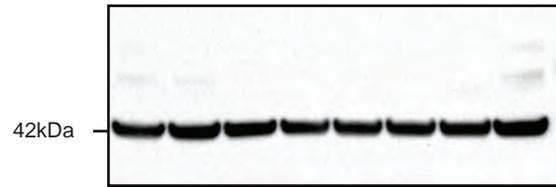
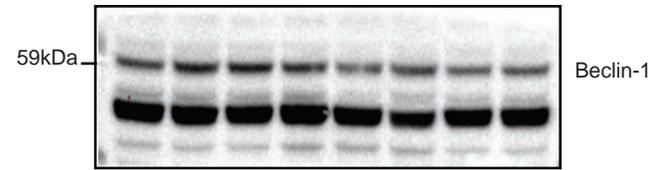
Full unedited gel for Figure 1



Full unedited gels for Figure 2



Full unedited gels for Figure 3



Full unedited gels for Figure 4

fig 4b (left)

LC3B



β -Actin

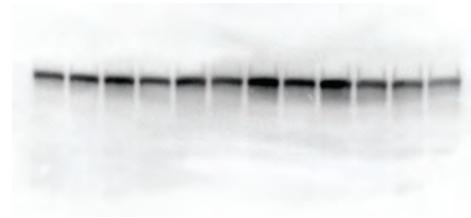
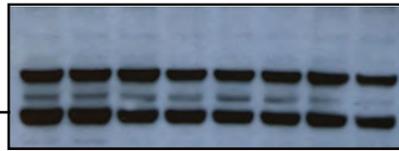


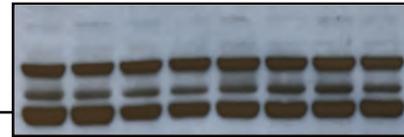
fig 4b (right)

59kDa



Beclin-1

59kDa



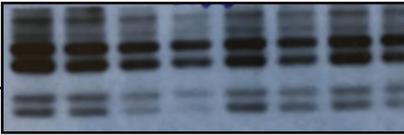
Beclin-1

14kDa



LC3b

14kDa



LC3b

42kDa



β -Actin

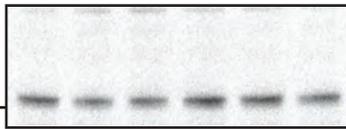
42kDa



β -Actin

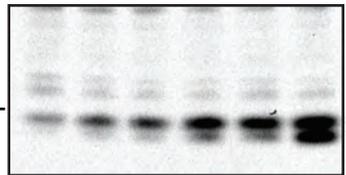
figure 4C

59kDa



Beclin-1

14kDa



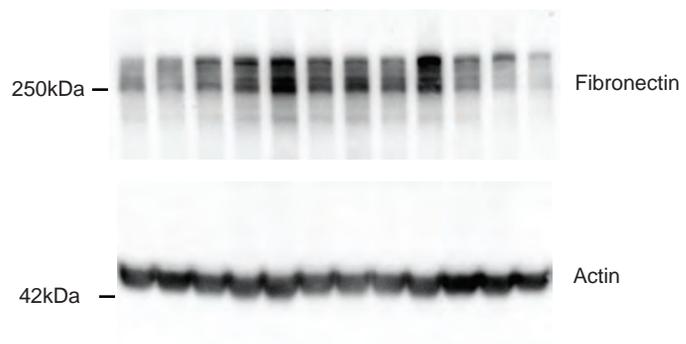
LC3b

42kDa

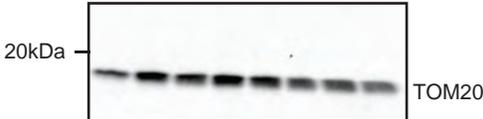
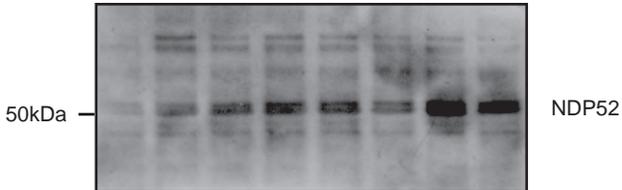


β -Actin

Full unedited gel for Figure 5

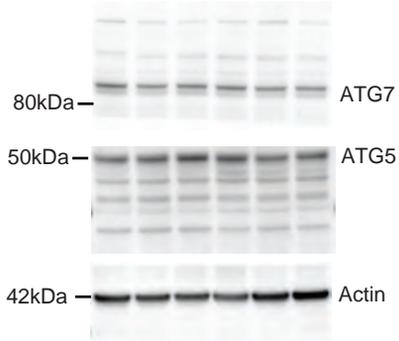


Full unedited gel for Figure 7

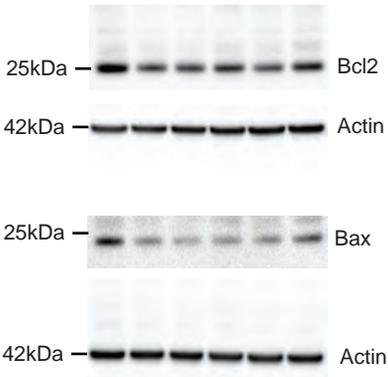


Western blots for supplemental Figure 3

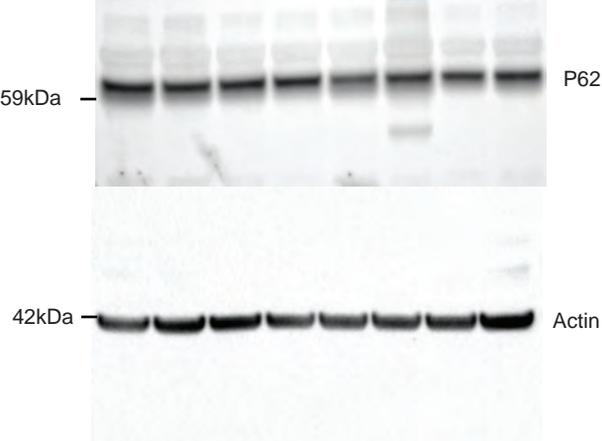
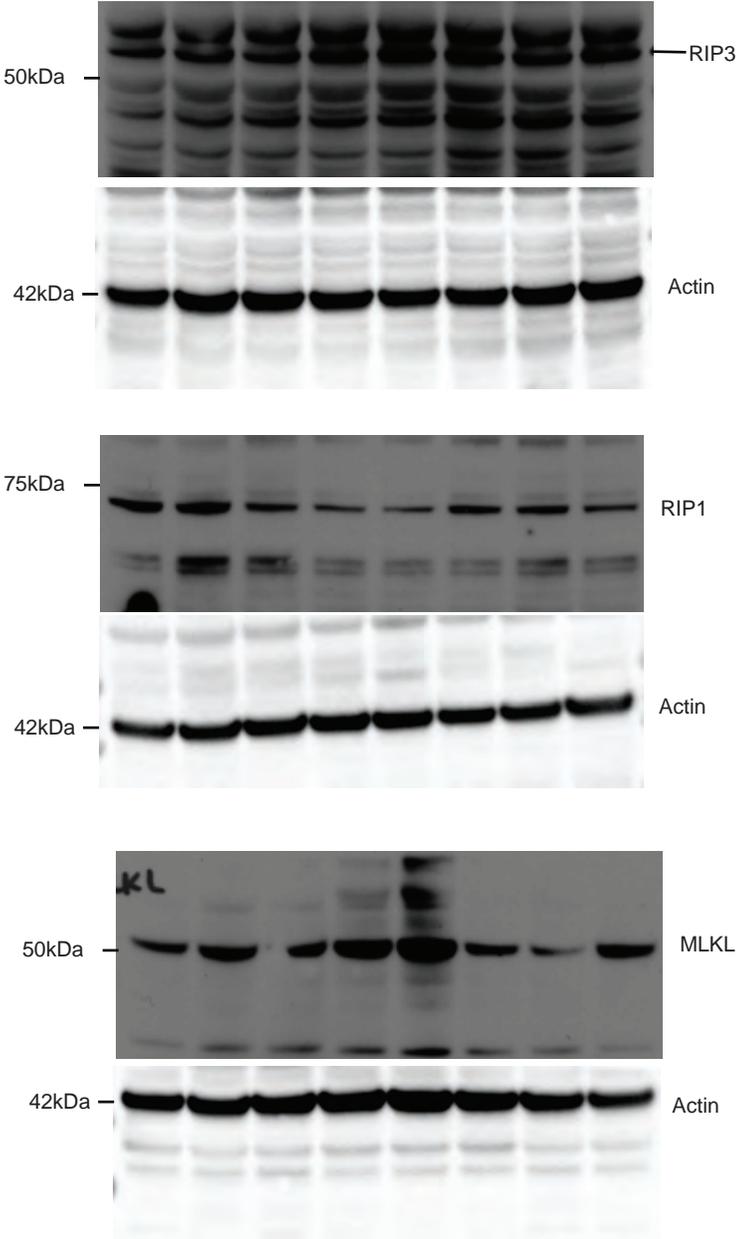
PANEL S3A



PANEL S3B

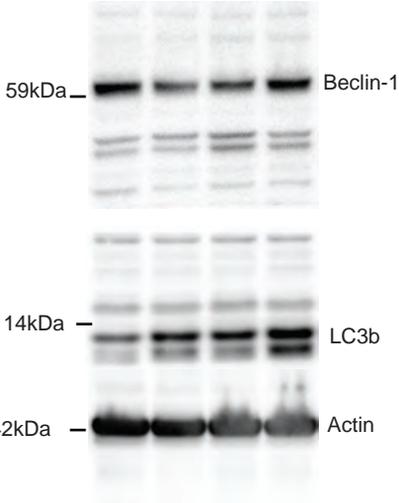


PANEL S3D



Western blots for Supplement Figure 4.

Panel S4A



Panel S4C

