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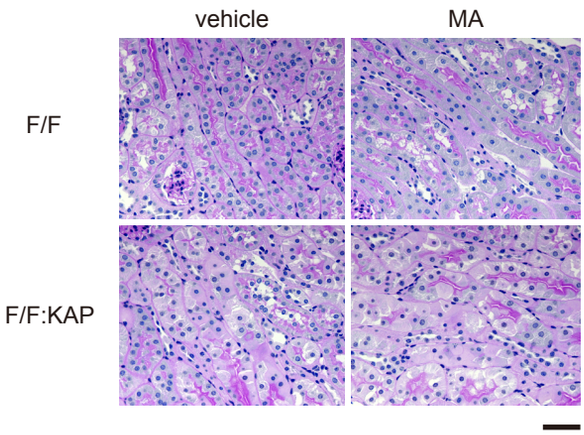

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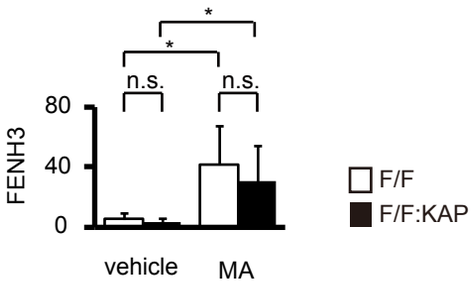
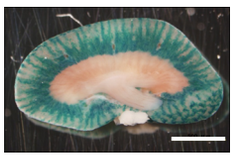


Namba_Supplemental Figure 3



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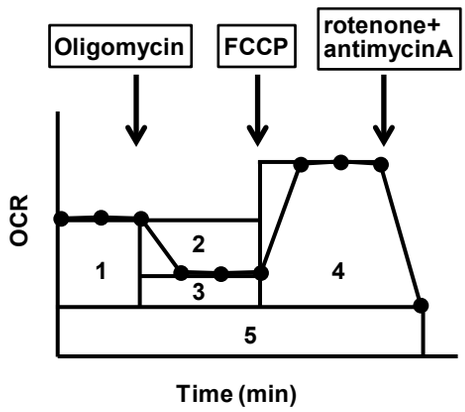
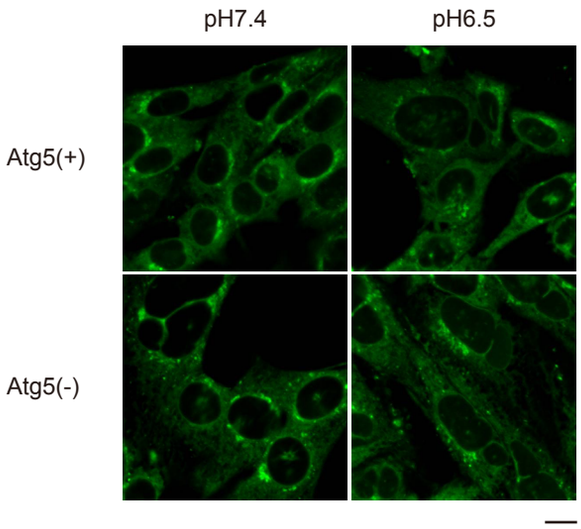
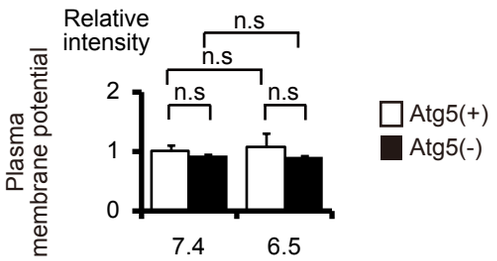


1. Basal OCR
2. ATP-linked OCR
3. Proton leak
4. Maximum respiratory function
5. Non mitochondrial OCR

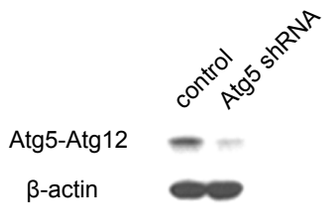
Namba_Supplemental Figure 5





Namba_Supplemental Figure 6

A



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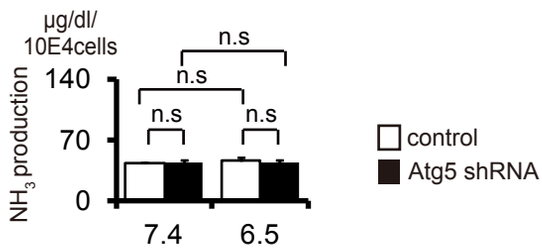

Supplemental Figure 1.

Light microscopic analysis of cortical lesion of kidneys under metabolic acidosis. On PAS staining, no remarkable change was seen in *Atg5F/F*:*KAP* mice between with vehicle treatment and acid-loading. F/F, *Atg5*$^{F/F}$ mice; F/F:*KAP*, *Atg5*$^{F/F}$:*KAP* mice; MA, metabolic acidosis. Bars, 50 μm.

Supplemental Figure 2.

Increased urinary excretion of ammonium under metabolic acidosis. Both control and *Atg5*$^{F/F}$:*KAP* mice exhibited significantly increased urinary excretion of ammonium after acid-loading. F/F, *Atg5*$^{F/F}$ mice; F/F:*KAP*, *Atg5*$^{F/F}$:*KAP* mice; MA, metabolic acidosis; $FENH_3$, Fractional urinary excretion of ammonium. Asterisk indicates significant difference ($P < 0.05$). n.s, not significant.

Supplemental Figure 3.

LacZ expression in the kidney of *KAP-Cre/CAG-CAT-Z* male mice. X-Gal stained kidney from male *KAP-Cre/CAG-CAT-Z* mice demonstrated that LacZ is expressed in tubules in the cortex and outer medulla (see also reference 15).

Supplemental Figure 4.

The fundamental parameters of mitochondrial function: basal respiration, ATP turnover, proton leak, and maximal respiration, or spare respiratory capacity.

Supplemental Figure 5.

Effect of acid loading on plasma membrane potential. The plasma membrane potential of *Atg5*-positive and -negative PTCs cultured under normal and acidic medium was determined by staining cells with DiBAC4(3) (n = 3, respectively). There was no significant difference in $\Delta\psi_p$ between these cells regardless of acid-loading. All values are given as mean ± SE. n.s, not significant. Bars, 10 μm.

Supplemental Figure 6.

Effect of acid-loading and autophagy on ammoniagenesis in M-1 collecting duct cells. (A) Knockdown of *Atg5* by stable transfection of plasmid encoding Atg5 shRNA was confirmed by Western blot analysis. The Atg5 expression was reduced by 77% compared with scramble shRNA-expressing M-1 cells. (B) Ammoniagenensis in control and *Atg5*-knockdown M-1 cells cultured under normal and acidic medium (*n* = 3, respectively). All values are given as mean ± SE. n.s, not significant.