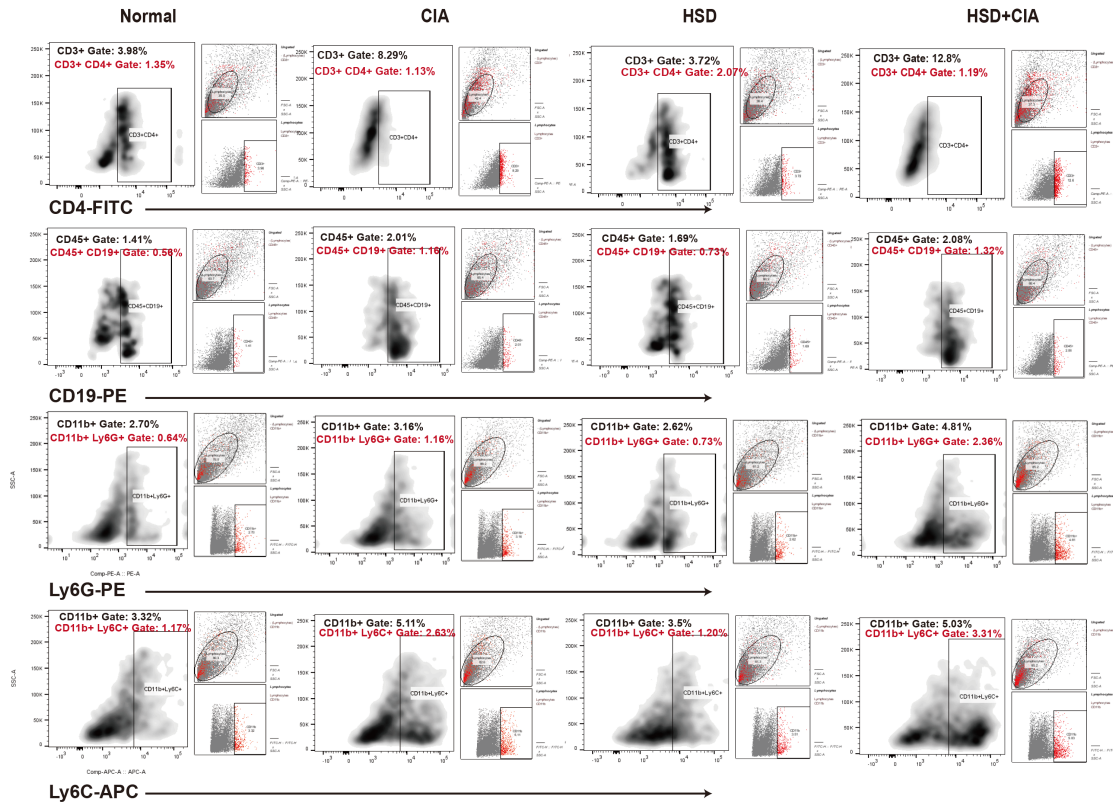
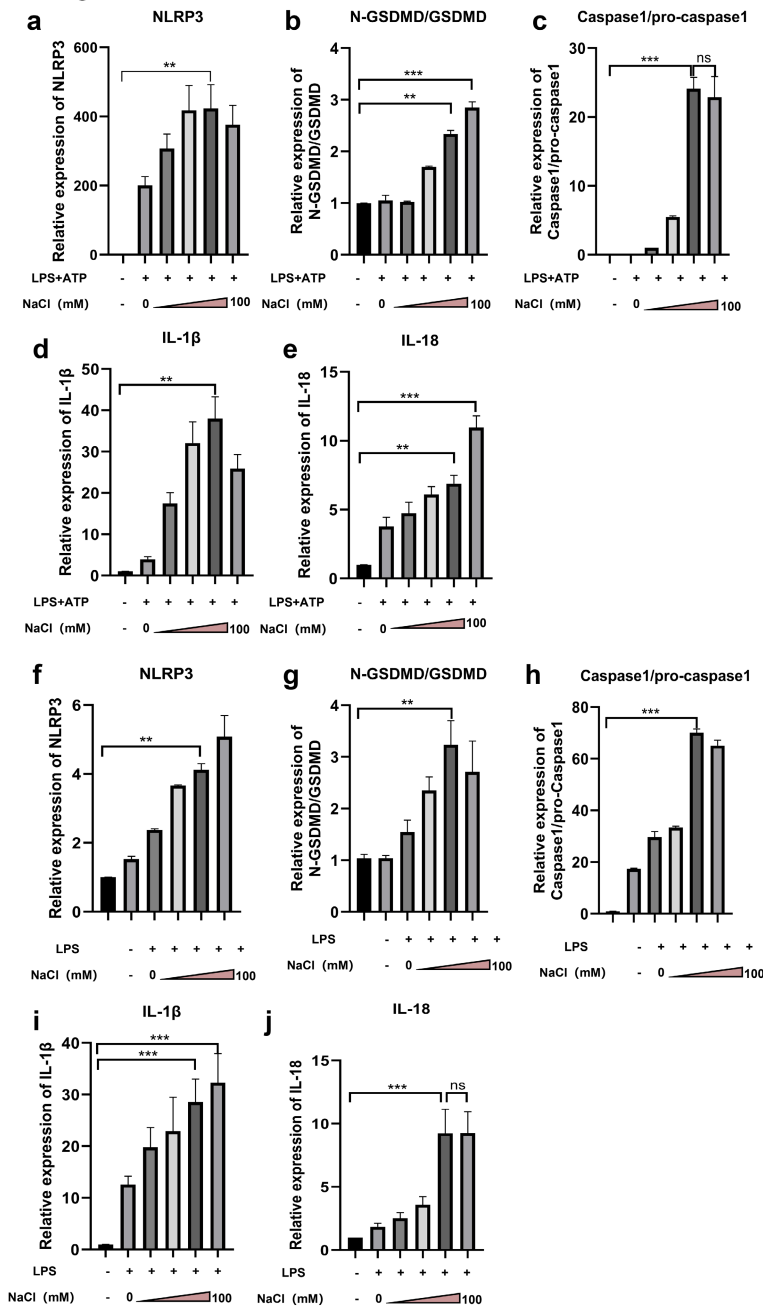


Supplementary Figures & legends



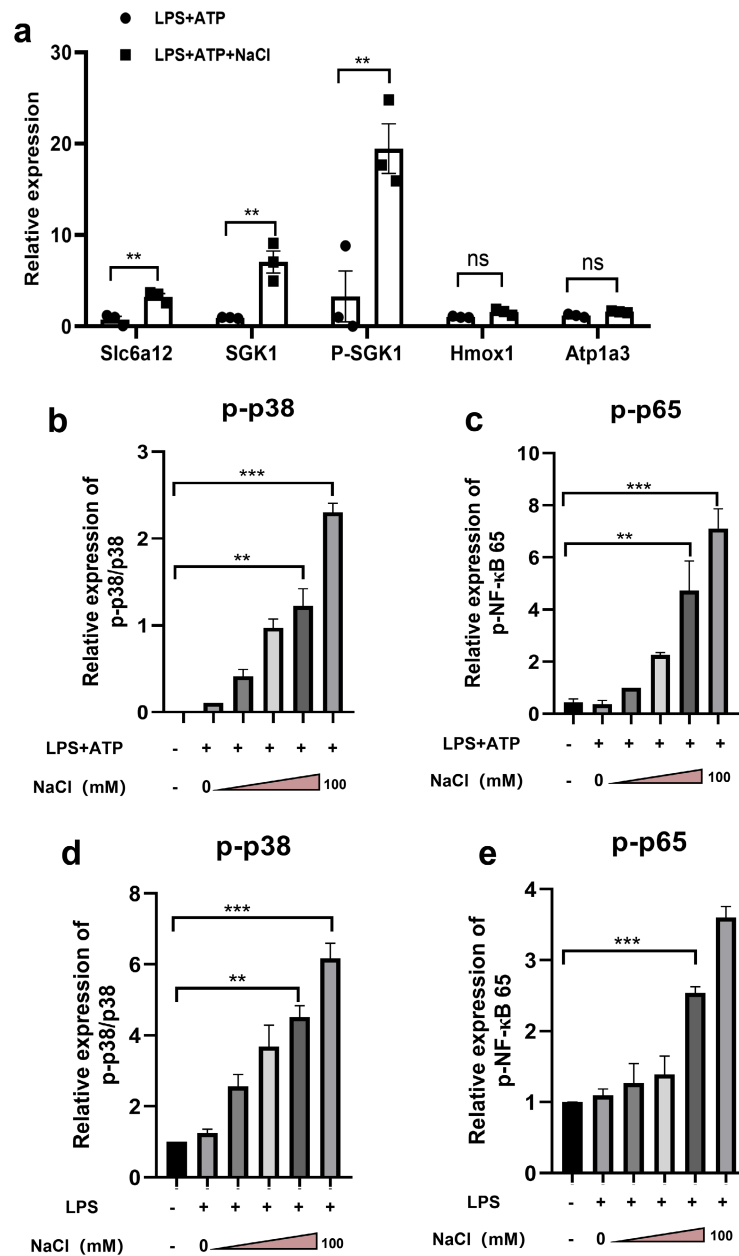
Supplementary Fig1. The gating strategy and represent image for flow cytometry. The proportion of CD3⁺ T cell, CD19⁺ B cells, CD11b⁺Ly6G⁺ neutrophils, CD11b⁺Ly6C⁺ monocytes and macrophages in mice paws assessed using flow cytometry. As illustrated, the combination of HSD and CIA led to a heightened level of immune cell infiltration in the paws compared to the CIA group.

sFig 2



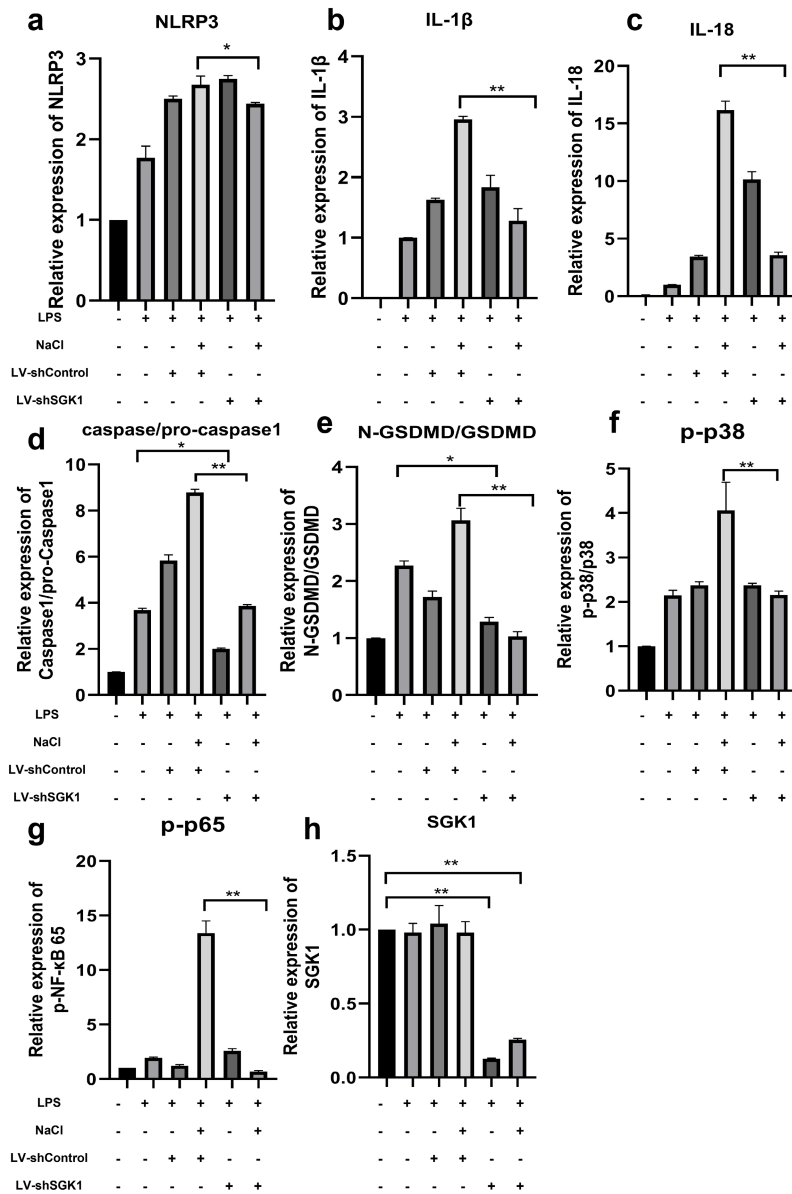
Supplementary Fig2. Quantitative analysis of western blot bands on the impact of sodium chloride on macrophage pyroptosis. (a-e) The impact of sodium chloride on the expression of NLRP3 (a), GSDMD-N (b), Caspase1 (c), IL-1 β (d) and IL-18 (e) in Raw264.7 macrophages under LPS combined with ATP priming conditions. **(f-j)** The impact of sodium chloride on the expression of NLRP3 (f), GSDMD-N (g), Caspase1 (h), IL-1 β (i) and IL-18 (j) in THP-1 induced macrophages under the treatment of LPS. Data are expressed as the mean \pm SD, n=3. ** $p < 0.01$, *** $p < 0.001$.

sFig 3



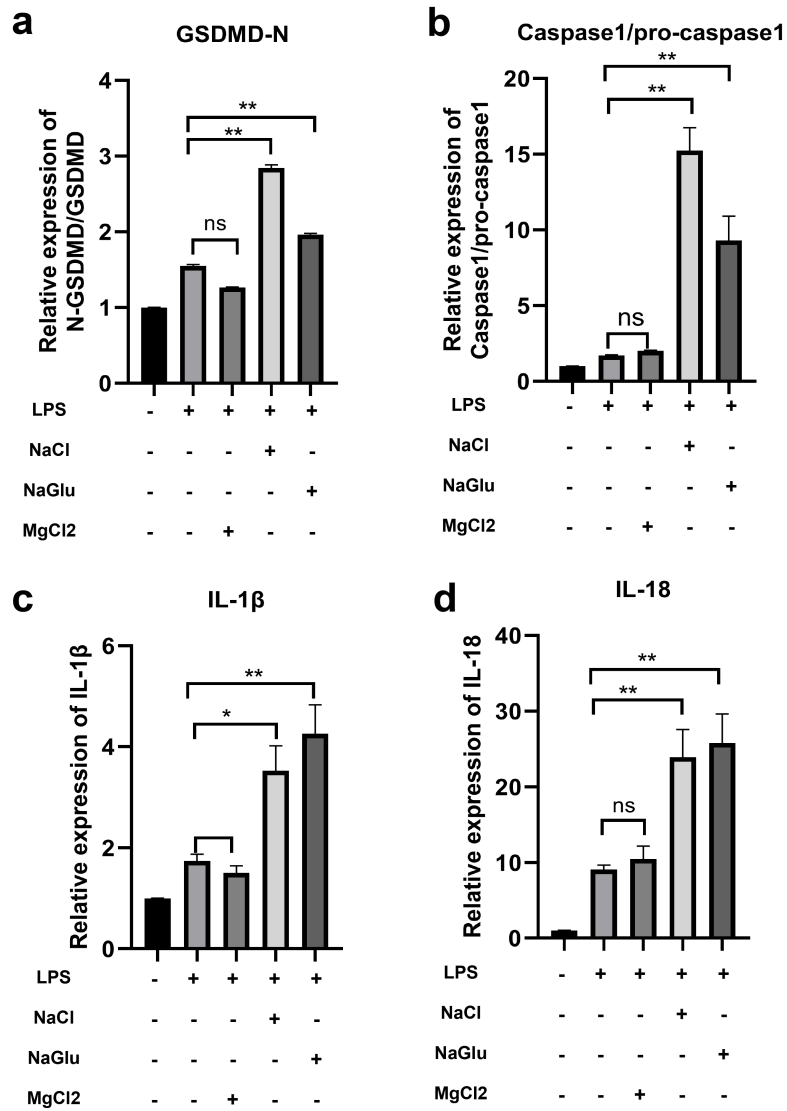
Supplementary Fig3. Quantitative Western blot analysis of Na⁺ transport proteins and MAPK/NF-kappaB under the treatment of 50 mM NaCl. (a) Quantitative Western blot analysis of the effects of NaCl on the expression of Slc6a12, SGK1, p-SGK1, Hmox1 and Atp1a3 proteins based on RNA-seq results. (b-c) Quantitative Western blot analysis of the effects of NaCl on the phosphorylation of MAPK p38 (b) and NF-κB p65 (c) in Raw264.7 cells. (d-e) Quantitative Western blot analysis of the effects of NaCl on the phosphorylation of MAPK p38 (d) and NF-κB p65 (e) in THP-1-induced macrophages. Data are expressed as the mean ± SD, n=3. ** $p < 0.01$, *** $p < 0.001$.

sFig 4



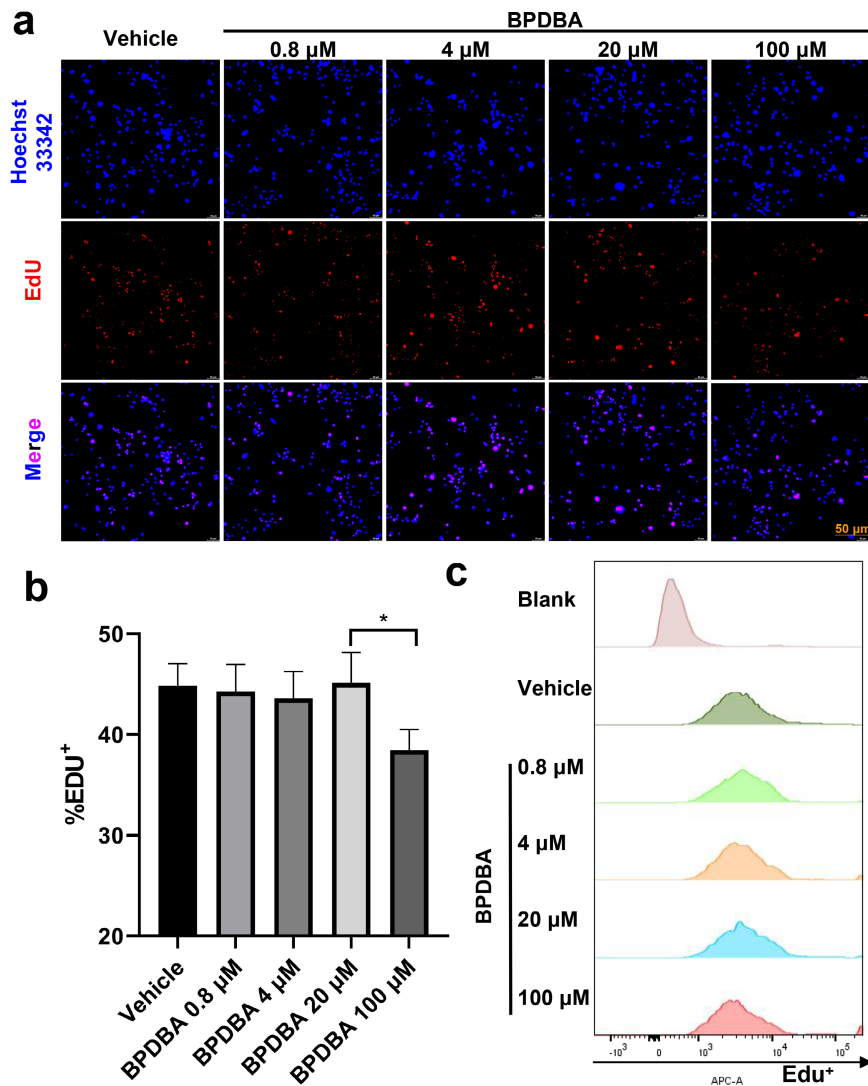
Supplementary Fig4. Quantitative Western blot analysis of the effects of SGK1 knockout on the expression of apoptosis-related proteins in THP-1 derived macrophages. (a-e) Quantitative Western blot analysis of the effects of SGK1 knockout on the expression of proteins NLRP3(a), IL-1 β (b), IL-18(c), caspase1(d) and N-GSDMD (e) under treatment NaCl and LPS. **(f-h)** Quantitative Western blot analysis of the effects of SGK1 knockout on the expression of proteins SGK1 (h) and phosphorylation of MAPK p38 (f) and NF- κ B p65 (g) under treatment NaCl and LPS in THP-1 induced macrophages. Data are expressed as the mean \pm SD, n=3. * $p < 0.05$, ** $p < 0.01$.

sFig 5



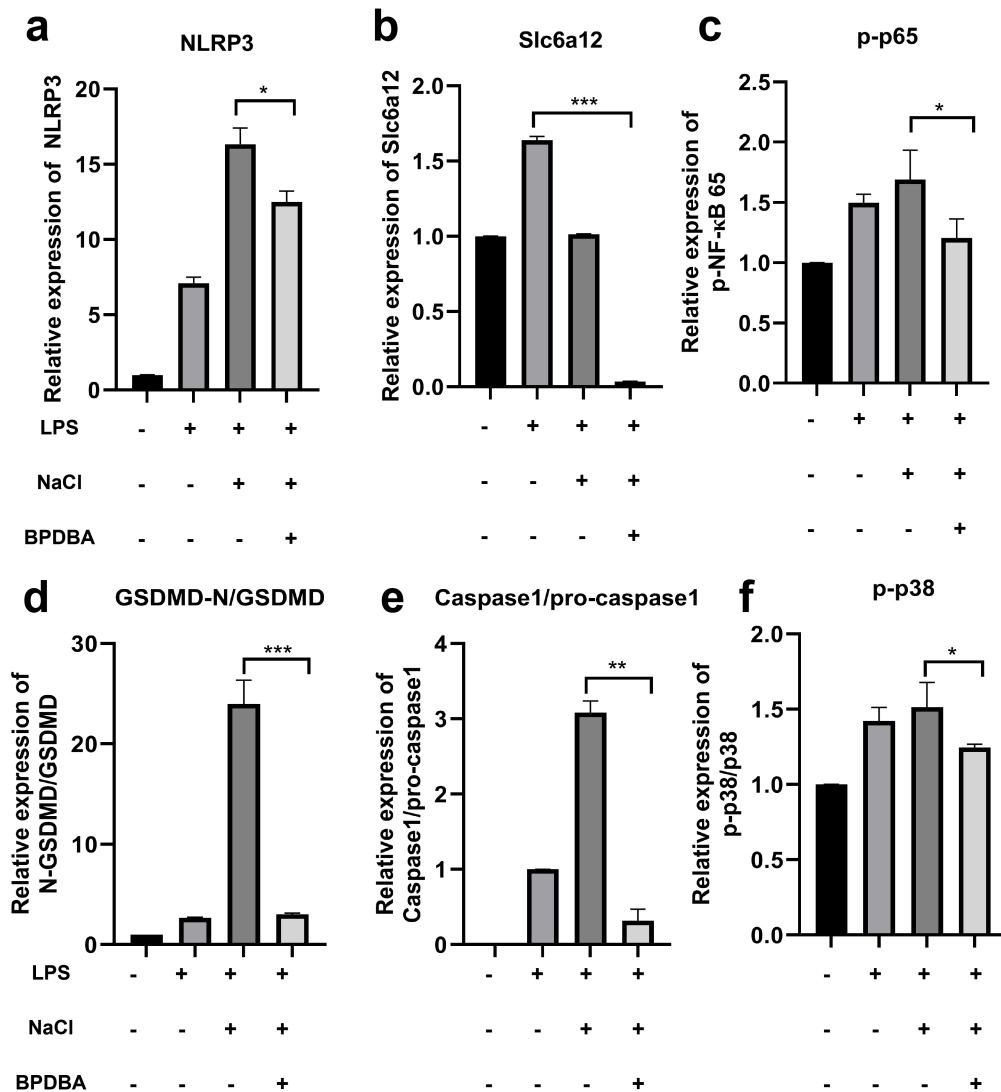
Supplementary Fig5. Quantitative Western blot analysis of the effects of sodium ions, magnesium ions, and chloride ions on pyroptosis of THP-1 derived macrophages. (a-d) Quantitative Western blot analysis of the effects of pre-treatment with different ions on the expression of proteins GSDMD-N(a), caspase1(b), IL-1 β (c) and IL-18(d) in THP-1 macrophages.

sFig 6



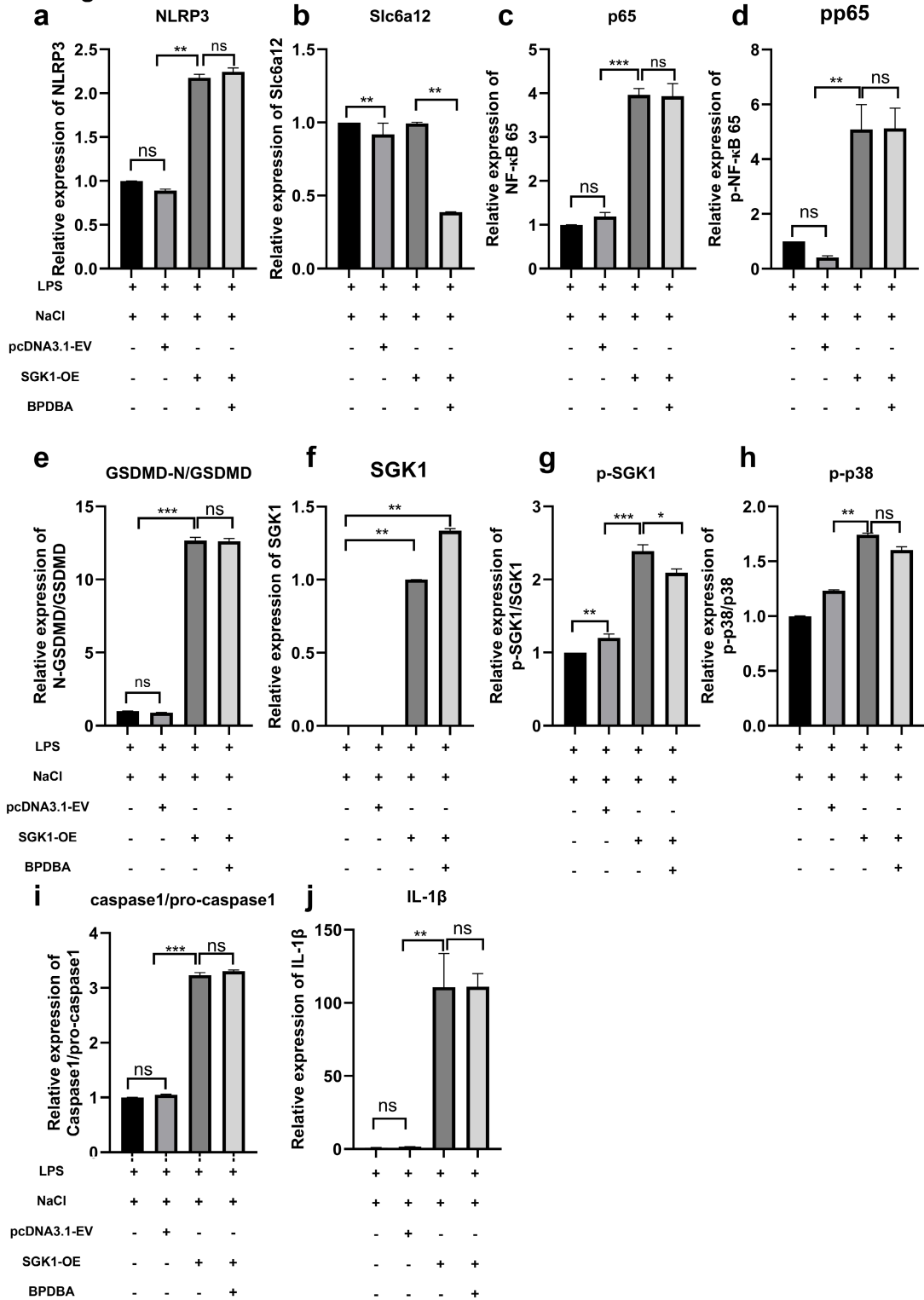
Supplementary Fig6. Testing the effects of the Slc6a12 specific inhibitor BPDBA on the proliferation of THP-1 derived macrophages. (a). Representative images showing the effect of different concentrations of BPDBA on THP-1 cell proliferation using EDU and Hoechst fluorescence staining, scale bar=50 μ m. **(b).** Statistical chart of the EDU positive rate. **(c).** Histogram showing the fluorescence intensity of EDU detected by flow cytometry. Data are expressed as the mean \pm SD, n=3. * p <0.05.

sFig 7



Supplementary Fig7. Quantitative Western blot analysis of the effects of the Slc6a12-specific inhibitor BPDBA on the expression of pyroptosis related proteins in THP-1 derived macrophages. (a-f) Quantitative Western blot analysis of the effects of 20 μM BPDBA on the expression of proteins NLRP3 (a), Slc6a12 (b), p-P65 (c), GSDMD-N (d), caspase1 (e) and p38 (f) in THP-1 macrophages. Data are expressed as the mean ± SD, n=3. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

sFig 8



Supplementary Fig8. Quantitative Western blot analysis of the impact of restoring SGK1 expression in SGK1 knockout THP-1 macrophages under NaCl and LPS co-treatment conditions.

(a-j) Statistical and quantitative analysis of the gray scale of Western blot bands of proteins NLRP3 **(a)**, Slc6a12**(b)**, p65**(c)**, p-65**(d)**, GSDMD/GSDMD-N**(e)**, SGK1**(f)**, p-SGK1**(g)**, p-p38/p38**(h)**, caspase1/pro-caspase1**(i)** and IL-1 β **(j)** by software Image J. Data are expressed as the mean \pm SD, n=3. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. ns represent no statistical significance.