

Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Portfolio policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a	Confirmed
☐	☒ The exact sample size (<i>n</i>) for each experimental group/condition, given as a discrete number and unit of measurement
☐	☒ A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
☐	☒ The statistical test(s) used AND whether they are one- or two-sided <i>Only common tests should be described solely by name; describe more complex techniques in the Methods section.</i>
☒	☐ A description of all covariates tested
☒	☐ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
☐	☒ A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
☐	☒ For null hypothesis testing, the test statistic (e.g. <i>F</i> , <i>t</i> , <i>r</i>) with confidence intervals, effect sizes, degrees of freedom and <i>P</i> value noted <i>Give P values as exact values whenever suitable.</i>
☒	☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
☒	☐ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
☒	☐ Estimates of effect sizes (e.g. Cohen's <i>d</i> , Pearson's <i>r</i>), indicating how they were calculated

Our web collection on [statistics for biologists](#) contains articles on many of the points above.

Software and code

Policy information about [availability of computer code](#)

Data collection	All Immunofluorescence data were collected by Leica Application Suite X (LAS X). Western blotting results were collected by ImageQuant LAS 4000. LDH assay were collected by Gen5 Software(version 3.04).
Data analysis	All statistical analyses were performed using Graphpad Prism (version 8.4.3). For immuno-blotting and immunofluorescence staining, images were analyzed with ImageJ (version 1.52r) and Adobe photoshop respectively.

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [guidelines for submitting code & software](#) for further information.

Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

Uncropped western blot images are available in the Supplementary Information. The numerical source data for graphs in this paper are provided in the Supplementary Data. All other original data supporting this study are available upon reasonable request from the corresponding author.

Research involving human participants, their data, or biological material

Policy information about studies with [human participants or human data](#). See also policy information about [sex, gender \(identity/presentation\), and sexual orientation](#) and [race, ethnicity and racism](#).

Reporting on sex and gender	n/a
Reporting on race, ethnicity, or other socially relevant groupings	n/a
Population characteristics	n/a
Recruitment	n/a
Ethics oversight	n/a

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☒ Life sciences ☐ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see nature.com/documents/nr-reporting-summary-flat.pdf

Life sciences study design

All studies must disclose on these points even when the disclosure is negative.

Sample size	Samples were taken from at least three repeat experiments. Sample sizes were determined according to a pilot study as well as on the basis of previous experimental experience.
Data exclusions	No data were excluded.
Replication	Each experiment was performed with at least 3 biological replicates. All the reported results are from experiments in which every repeat gave similar results.
Randomization	All samples were randomly allocated into experimental groups.
Blinding	No formal blinding was used.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☐	☒ Antibodies
☐	☒ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☐	☒ Animals and other organisms
☒	☐ Clinical data
☒	☐ Dual use research of concern
☒	☐ Plants

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Antibodies

Antibodies used	Antibodies: mouse anti-cleaved caspase-1 (p20) antibody (Cat# AG20B0042C100, Adipogen) , rabbit anti-phosphorylated TAK1 antibody (Cat# 9339s, CST), rabbit anti-phosphorylated MLKL (Cat# 37333s, CST) antibody, rabbit anti-cleaved caspase-3 antibody (Cat# 9661s, CST), rabbit cleaved caspase-8 antibody (Cat# 8592s, CST), mouse anti-GSDMD antibody (Cat# ab209845, Abcam) ,
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rabbit anti-actin antibody (Cat# AC038, ABclonal) , rabbit anti-NLRP3 antibody (Cat# ab270449, Abcam), mouse anti-caspase-8 antibody (Cat# SC-81656, Santa Cruz), rabbit anti-RIPK1 antibody (Cat# 3493s, CST), Goat anti-Rabbit IgG (H+L) Secondary Antibody (Cat# 31460, Thermo Fisher Scientific), Goat anti-Mouse IgG (H+L) Secondary Antibody (Cat# 31430, Thermo Fisher Scientific), rabbit anti caspase-3 antibody (Cat# 9662, CST), rabbit anti caspase-8 antibody (Cat# 4790, CST)

Validation

All antibodies were validated by their source company. The antibodies used in this study have been previously described and used in previously published research.

Eukaryotic cell lines

Policy information about [cell lines and Sex and Gender in Research](#)

Cell line source(s)

J774A.1 cells (GDC0176) was purchased from China Center for Type Culture Collection (CCTCC).

Authentication

J774A.1 cells (GDC0176) was authenticated by the supplier.

Mycoplasma contamination

J774A.1 cells (GDC0176) were tested for mycoplasma contamination. No mycoplasma contamination was found.

Commonly misidentified lines (See [ICLAC](#) register)

This study did not use commonly misidentified cell lines.

Animals and other research organisms

Policy information about [studies involving animals; ARRIVE guidelines](#) recommended for reporting animal research, and [Sex and Gender in Research](#)

Laboratory animals

Blue gourami (5.25 ± 0.94 g) and mandarin fish (approximately 500 g) were purchased from the aquaculture company. Before infection, blue gourami was maintained for 2 weeks prior to infection. Mandarin fish were used to isolate leukocytes in head kidney .

Wild animals

This study did not involve wild animals

Reporting on sex

The sex of the fish was not controlled, they were used randomly in the fish experiments.

Field-collected samples

This study did not involve field-collected samples

Ethics oversight

All animal experiments were conducted in accordance with the Guiding Principles for the Care and Use of Laboratory Animals and were approved by the Institute of Hydrobiology, Chinese Academy of Sciences (Approval ID, E211030102).

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Plants

Seed stocks

n/a

Novel plant genotypes

n/a

Authentication

n/a