

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	Not applicable
Data analysis	-Statistical analysis was performed using GraphPad Prism V.10.1.1. Software. -Analysis of images was performed using Image J Fiji software.

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](#)

The raw data generated in this study are provided in the Source Data file. Source data are provided with this paper.

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 Not applicable

Reporting on race, ethnicity, or other socially relevant groupings Not applicable

Population characteristics Not applicable

Recruitment Not applicable

Ethics oversight Not applicable

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](https://www.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 The sample sizes were chosen based on experimental feasibility, the predicted number of surviving mosquitoes, and statistical analysis requirements. Some treatments (i.e., Clodronate liposome injections) cause high mortality rates, and a smaller number of surviving mosquitoes were obtained until the last time point of experiments. Sample sizes and statistical tests performed are indicated in the figure legends. Information about the software used to perform the statistical analysis is specified in the Methods section. The source data file contains details about raw data and statistical tests used in this work. To ensure reproducibility and minimize the error, each experiment was performed at least three times, using different mosquito and parasite batches.

Data exclusions No data were excluded.

Replication Each experiment was performed at least three times; each biological replicate was performed using mosquitoes from one cage of the same lot. In this study, only adult female mosquitoes three days old were used.

Randomization Mosquitoes from same cage and same lot were randomly chosen to apply any of the treatments.

Blinding No blinding was performed. No clinical trials or placebo effects could result from our experiments.

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	anti-histone H3 phospho S10 (PH3) primary antibody (Abcam-ab47297)
Validation	The anti-histone H3 phospho s10 primary antibody from Abcam, was previously cross reactivity with mosquitoes: -Maya-Maldonado, K. et al. DNA synthesis increases during the first hours post-emergence in Anopheles albimanus mosquito midgut. Developmental & Comparative Immunology 112, 103753 (2020). -Maya-Maldonado, K. et al. Plasmodium exposure alters midgut epithelial cell dynamics during the immune memory in Anopheles albimanus. Developmental & Comparative Immunology 133, 104424 (2022).

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	Mosquitoes Anopheles gambiae, Keele strain from the Johns Hopkins Malaria Research Institute Insectary Core Facility
Wild animals	The study did not involve wild animals.
Reporting on sex	This study only used female mosquitoes 3 days old, which were classified by peculiar phenotypic characteristics of Anopheles gambiae females.
Field-collected samples	The study did not involve samples collected from the field.
Ethics oversight	Guide for Care and Use of Laboratory Animal of the National Institutes of Health (NIH), USA and those of the Animal Care and Use Committee of Johns Hopkins University (permit no. M006H300)

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

Plants

Seed stocks	Not applicable
Novel plant genotypes	Not applicable
Authentication	Not applicable