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**Supplementary information**

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**Stimulus-specific hypothalamic encoding of a persistent defensive state**

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In the format provided by the authors and unedited

**Supplementary Table 1: Statistical significance testing**

All t-tests are two-sided unless otherwise stated. All tests from distinct samples unless otherwise stated.

For all repeated measures ANOVA tests, the covariates tested were group vs time.

Statistical significance in figures and text is set at \* =  $P < 0.05$ , \*\* =  $P < 0.01$ , \*\*\* =  $P < 0.001$ , \*\*\*\* =  $P < 0.0001$ .

| Figure              | Panel          | Identifier                               | Sample size                          | Statistical test | Test stat.       | CI                 | Effect size | DF           | p-value  |
|---------------------|----------------|--|--------------------------------------|------------------|------------------|--------------------|-------------|--------------|----------|
| 1                   | e              | rat vs toy - home cage                   | 4 mice                               | paired t-test    | t = 5.456        | -26.96 to -10.65   | 2.279       | 7            | 0.0010   |
|                     | g              | rat vs mouse - headfixed                 | 8 mice                               | paired t-test    | t = 4.344        | -20.15 to -6.829   | 1.234       | 14           | 0.0007   |
|                     |                | rat vs toy - headfixed                   | 8 mice                               | paired t-test    | t = 5.443        | -27.16 to -12.11   | 1.8739      | 14           | 0.0001   |
|                     |                | mouse vs toy - head                      | 8 mice                               | paired t-test    | t = 4.157        | -10.32 to -3.325   | 1.465       | 15           | 0.0008   |
|                     |                | rat vs mouse - headfixed                 | 8 mice                               | paired t-test    | t = 2.903        | -22.05 to -3.234   | 1.255       | 13           | 0.0123   |
|                     | j              | control vs iC++                          | 7 mice                               | paired t-test    | t = 2.703        | 3.599 to 33.50     | 1.445       | 12           | 0.0192   |
|                     | l              | during+after vs control                  | 12 mice control, 6 mice during+after | rep. meas. ANOVA | F = 9.227        | 0.06152 to 0.3457  | 0.366       | DFn=1;DFd=16 | 0.0078   |
|                     |                | after only vs control                    | 12 mice control, 6 mice after-only   | rep. meas. ANOVA | F = 6.74         | 0.04131 to 0.3997  | 0.284       | DFn=1;DFd=16 | 0.0321   |
|                     | m              | control before vs after rat              | 12 mice                              | paired t-test    | t = 4.417        | 0.1657 to 0.4948   | 1.2189      | 11           | 0.0006   |
|                     |                | control before rat vs after PS off       | 12 mice                              | paired t-test    | t = 2.812        | 0.05562 to 0.4562  | 0.9376      | 11           | 0.0074   |
|                     |                | after rat, control vs PS during+after    | 12 mice control, 6 mice during+after | t-test           | t = 3.307        | -0.4967 to -0.1083 | 1.354       | 16           | 0.0023   |
|                     |                | after PS off, control vs PS during+after | 12 mice control, 6 mice during+after | t-test           | t = 2.452        | -0.5823 to -0.4226 | 1.2288      | 16           | 0.0223   |
|                     |                | after PS off, control vs PS after only   | 12 mice control, 6 mice after-only   | t-test           | t = 3.123        | -0.6622 to -0.1267 | 1.5629      | 16           | 0.0062   |
|                     | n              | control vs PS during+after               | 12 mice control, 6 mice during+after | rep. meas. ANOVA | F = 20.62        | -0.3065 to -0.1147 | 0.563       | DFn=1;DFd=16 | 0.0003   |
|                     |                | control vs PS after only                 | 12 mice control, 6 mice after-only   | rep. meas. ANOVA | F = 10.94        | -0.3797 to -0.2018 | 0.406       | DFn=1;DFd=16 | 0.0044   |
|                     | q              | ctrl vs tettox                           | 5 mice per group                     | t-test           | t = 0.2694       | -4.363 to 3.371    | 0.1213      | 18           | 0.7907   |
| r                   | ctrl vs tettox | 5 mice per group                         | t-test                               | t = 4.808        | 5.996 to 15.83   | 2.1489             | 18          | 0.0004       |          |
| 2                   | d              | rat vs mouse                             | 5 mice                               | paired t-test    | t = 3.3452       | 3.136 to 33.757    | 1.496       | 4            | 0.0287   |
| ED 1                | g              | rat urine vs water                       | 6 mice, 2 trials/mouse               | paired t-test    | t = 10.08        | -14.37 to -9.219   | 3.727       | 11           | 0.0001   |
|                     | h              | rat vs rat urine                         | 8 mice (rat), 6 mice (urine)         | t-test           | t = 2.39         | -17.94 to -1.315   | 0.959       | 24           | 0.0250   |
|                     | k              | rat vs toy                               | 4 mice, 1 trial/mouse                | paired t-test    | t = 3.469        | 1.729 to 40.09     | 2.139       | 3            | 0.0400   |
| rat vs looming disk |                | 4 mice, 1 trial/mouse                    | paired t-test                        | t = 4.037        | -38.29 to -4.534 | 2.226              | 3           | 0.0273       |          |
| ED 2                | e              | 473 nm stim vs mock stim                 | 4 mice, 2 trial/condition            | rep. meas. ANOVA | F = 17.15        | -59.08 to -18.57   | 0.569       | DFn=1;DFd=14 | 0.0012   |
| ED 3                | a              | control, before vs after rat             | 12 mice control                      | paired t-test    | t = 5.559        | 4.675 to 10.8      | 2.3         | 11           | 1.80E-05 |
|                     |                | after rat, control vs PS during+after    | 12 mice control, 6 mice during+after | t-test           | t = 5.028        | -10.53 to -4.285   | 2.5151      | 16           | 5.20E-05 |
|                     |                | after rat, control vs PS after           | 12 mice control, 6 mice after-only   | t-test           | t = 2.731        | -8.007 to -1.009   | 1.3664      | 16           | 0.0250   |
|                     |                | after PS off, control vs PS during+after | 12 mice control, 6 mice during+after | t-test           | t = 2.5          | -9.611 to -0.7788  | 1.0451      | 16           | 0.0240   |
|                     |                | after PS off, control vs PS after only   | 12 mice control, 6 mice after-only   | t-test           | t = 2.369        | -11.66 to -0.6467  | 1.1839      | 16           | 0.0460   |
|                     | b              | iC++, light off vs light on              | 7 mice                               | paired t-test    | t = 1.005        | -0.5391 to 1.291   | 0.6557      | 6            | 0.7059   |
|                     |                | control, light off vs light on           | 7 mice                               | paired t-test    | t = 0.3959       | -0.991 to 1.385    | 0.1975      | 6            | 0.3537   |
|                     | d              | open field vs head-fixed                 | 9 mice open field, 8 mice head-fixed | t-test           | t = 0.5964       | -15.82 to 28.64    | 0.2482      | 23           | 0.4681   |
|                     | e              | open field vs head-fixed                 | 9 mice open field, 8 mice head-fixed | t-test           | t = 0.9276       | -31.18 to 11.87    | 0.3864      | 23           | 0.3633   |
|                     | g              | distance vs DF/F                         | 9 mice                               | paired t-test    | t = 0.7985       | -29.79 to 14.46    | 0.3463      | 8            | 0.4476   |
| j                   | EYFP vs iC++   | 5 mice EYFP, 6 mice iC++                 | rep. meas. ANOVA                     | F = 5.525        | 0.7323 to 38.18  | 0.38               | DFn=1;DFd=9 | 0.0433       |          |
| ED 4                | d              | control vs glutamate receptor blockade   | 7 cells per condition                | paired t-test    | t = 4.501        | 8.619 to 29.15     | 3.164       | 6            | 0.0041   |