

1 **Supplementary Information Guide**

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3 **Intercalated amygdala clusters orchestrate a switch in fear state**

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9 **Supplementary Table 1 | Cross-study comparison of ITC cluster nomenclature.**

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11 Because different nomenclature and abbreviations were used for individual ITC clusters in previous work,  
12 here we organize them from representative references and summarize their correspondence to  
13 our definition used in this study. Of note, our detailed reconstructions led us to distinguish ITC<sub>vm</sub> from a  
14 more rostrally located ventral cluster, which we label ITC<sub>av</sub>. Also, we report a new  
15 cluster – ITC<sub>pv</sub>, which has not been reported previously.

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19 **Supplementary Table 2 | Statistical analyses summary for chemogenetic experiments.**

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21 For each chemogenetic manipulation group mice with combined unilateral and bilateral, unilateral only  
22 and bilateral expression were compared using two-way ANOVA. Separate statistical analyses were  
23 conducted for each behavioral stage (fear conditioning, extinction, and retrieval). The F statistics for  
24 effects of each variable and interaction of variables are listed and sample size (n) for each group is  
25 provided. For retrieval data mean±SEM values are shown for Cre- and Cre+ mice. Post-hoc comparisons  
26 carried out using Sidak test are indicated as appropriate, separately for baseline and CS during retrieval.  
27 Statistical analyses were performed with an  $\alpha$  level of 0.05. P values <0.05 were considered significant.

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31 **Supplementary Video 1 | 3D-reconstruction of individual ITC clusters.**

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33 An example 3D-reconstruction of ITC clusters from a cleared FoxP2-Cre crossed with tdTomato reporter  
34 mouse brain. The same sample as shown in **Extended Data Fig.1b** is presented. Note, this intercross  
35 mouse line shows tdTomato signal in some CeA neurons and blood vessels in addition to ITCs, likely  
36 because of developmental transient expression of FoxP2.

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40 **Supplementary Video 2 | Post-hoc identification of ITCdm in a 3D confocal image of a cleared**  
41 **tissue.**

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43 An example confocal 3D image stack of cleared and stained tissue acquired with a 20x objective. The  
44 same sample as shown in **Fig.1d,e** is presented.

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48 **Supplementary Video 3 | Spatially clustered robust aversive shock responses in ITCdm.**

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50 Example Ca<sup>2+</sup> movies from simultaneously recorded BLA, CeA, and ITCdm regions. ITCdm shows  
51 spatially clustered and robust responses to 5 trials of aversive footshock presentation. The video was  
52 sped up 2x. The timing of shock presentation is indicated with red 'shock' text. The same sample as  
53 shown in **Fig.1f,g** is presented.