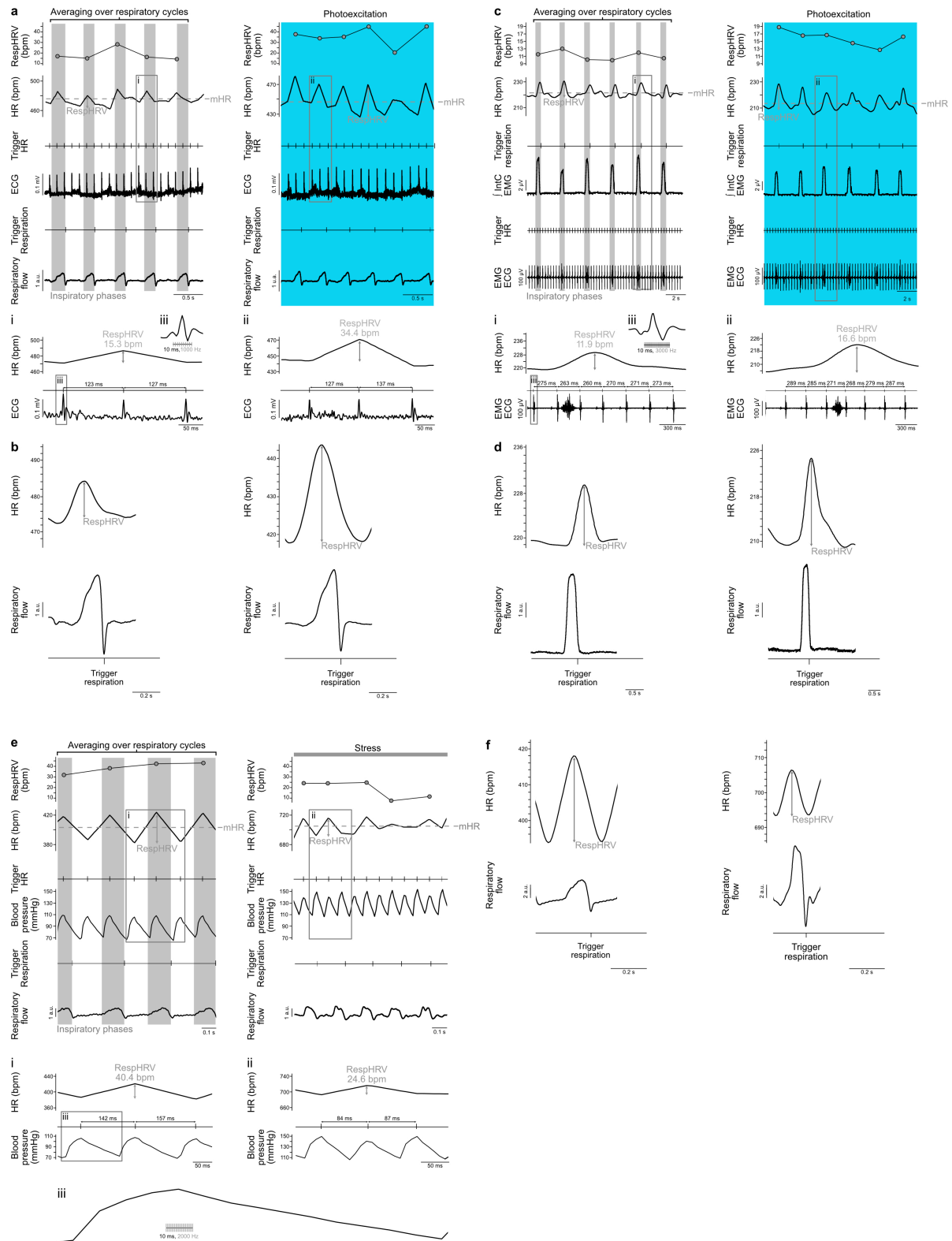


Oxytocin modulates respiratory heart rate variability through a hypothalamus–brainstem–heart neuronal pathway

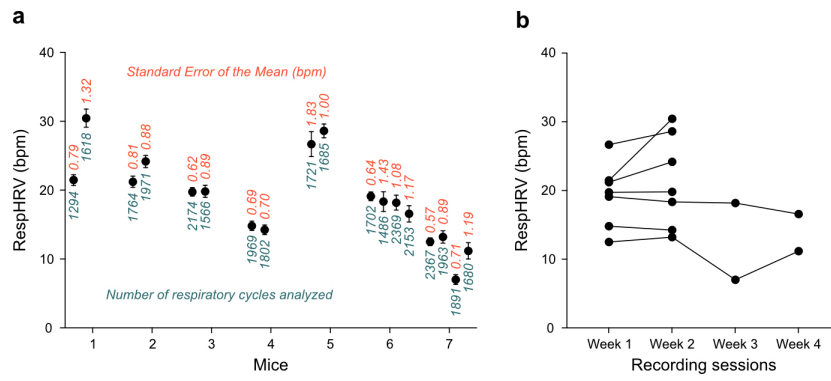
In the format provided by the
authors and unedited

Supplementary figures and table



Supplementary Fig. 1: Method for the analysis of mean heart rate (mHR) and respiratory heart rate variability (RespHRV).

a, Recordings of respiratory activity (plethysmography) and HR (electrocardiogram (ECG) telemetry) of a freely moving OT::Cre;Ai27(LSL-ChR2) mouse before and during photoexcitation of OT fibers in the preBötC/nA (Fig. 1e). R-waves on the ECG recordings were automatically detected, manually verified, and labeled “trigger HR”. The instantaneous frequency HR trace, in beats per minute (bpm), was then automatically calculated ($60 / \text{interval in seconds between each trigger HR}$). mHR was calculated as the average HR over each period analyzed (gray dotted line on HR traces), and RespHRV was calculated as the difference between maximal HR during inspiration and minimal HR during expiration within each respiratory cycle (gray double arrow on HR traces). Inspiratory phases are represented by the gray shaded areas and “trigger respiration” indicates the end of inspiration. The RespHRV calculated for each respiratory cycle is shown on the top trace. Open gray rectangles correspond to the recordings expanded in i and ii, showing the HR variation and RespHRV over one respiratory cycle. iii represents an expanded ECG recording of a single heartbeat with the acquisition sampling rate of 1000 Hz. **b**, To reduce the endogenous RespHRV variability from one respiratory cycle to the next, RespHRV quantifications were made after respiratory triggered averaging of HR recordings over at least 15 respiratory cycles, using the respiratory trigger shown in (a). **c-d**, Same arrangement as in (a) and (b) except that data were obtained from an anesthetized OT::Cre;Ai27(LSL-ChR2) mouse (Fig. 2b). ECG and electromyogram (EMG) recordings were obtained using subcutaneous electrodes. iii represents the ECG recorded for one heartbeat with the acquisition sampling rate of 3000 Hz. **e-f**, Same arrangement as in (a) and (b) except that data were obtained from a freely moving OT::Cre;R26-LSL-hM4Di-DREADD mouse before and during a restraint stress test (Fig. 7d). Respiratory activity was recorded by plethysmography, and blood pressure was recorded with telemetry probes. To obtain HR, the systolic blood pressure was automatically detected, manually verified, and labeled “trigger HR”. iii represents the blood pressure variation over a single cardiac cycle with the sampling rate of 2000 Hz.



Supplementary Fig. 2: Stability of RespHRV amplitude during quiet breathing.

a-b, RespHRV measured during quiet breathing periods in single recording sessions (~3 h around midday) over two (n = 5) or four (n = 2) consecutive weeks in WT mice using plethysmography (respiratory activity) and telemetry probes (ECG or blood pressure). RespHRV remains stable in each mouse during a recording session, as shown by its little variability (Standard Error of the Mean, SEM) over more than 1,000 respiratory cycles analyzed (**a**). RespHRV also remains stable in each mouse over two to four weeks (**b**). Week 1 vs. week 2, Wilcoxon matched-pairs signed rank test (**b**). Detailed statistics are presented in Supplementary Table 1.

Supplementary Table 1: Statistical table for Main Figures, Extended Data Figures and Supplementary Figure 2.

Figures and panels	Type of data	Comparison	Test used	Number of animals	p-values	Mean	SEM
1a	Relative values	OT fibers nA vs. preBötC (Absolute values in Ext. Data Fig. 1d)	n/a	n = 6	n/a	nA, 37.38 % preBötC, 62.64 %	nA, 4.85 % preBötC, 4.85 %
1c	Relative values	Colocalization OT and Chr2	n/a	n = 1	n/a	OT ⁺ Chr2 ⁺ , 89.13 % OT ⁺ Chr2 ⁻ , 10.87 % Chr2 ⁺ OT ⁺ , 96.85 % Chr2 ⁺ OT ⁻ , 3.15 %	n/a
1f	Absolute values	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On) vs. Post-photoexcitation (Post-Off)	Repeated Measures one-way ANOVA, Tukey's multiple comparison	n = 8	RespHRV: Pre-Off vs. On, p = 0.0022 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p = 0.0081 mHR: Pre-Off vs. On, p < 0.0001 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p = 0.0093 Respiratory freq: Pre-Off vs. On, p = 0.0488 Pre-Off vs. Post-Off, p = 0.0402 On vs. post-Off, p > 0.1 Respiratory ampl: Pre-Off vs. On, p > 0.1 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p > 0.1	RespHRV: Pre-Off, 13.23 bpm On, 19.53 bpm Post-Off, 13.50 bpm mHR: Pre-Off, 531.74 bpm On, 497.05 bpm Post-Off, 519.44 bpm Respiratory freq: Pre-Off, 124.91 cpm On, 130.64 cpm Post-Off, 132.48 cpm Respiratory ampl: Pre-Off, 1.76 (a.u.) On, 1.71 (a.u.) Post-Off, 1.65 (a.u.)	RespHRV: Pre-Off, 3.24 bpm On, 4.36 bpm Post-Off, 3.22 bpm mHR: Pre-Off, 18.47 bpm On, 18.99 bpm Post-Off, 20.75 bpm Respiratory freq: Pre-Off, 8.74 cpm On, 8.89 cpm Post-Off, 8.23 cpm Respiratory ampl: Pre-Off, 0.23 (a.u.) On, 0.22 (a.u.) Post-Off, 0.22 (a.u.)
1g	Delta changes	Intra-group analysis from 1f: pre-photoexcitation (Pre-Off) vs. Photoexcitation (On)	Repeated Measures one-way ANOVA, Tukey's multiple comparison (test performed on pre-photoexcitation (Pre-Off) vs. photoexcitation	n = 8	RespHRV: Pre-Off vs. On, p = 0.0022 mHR: Pre-Off vs. On, p < 0.0001 Respiratory freq: Pre-Off vs. On, p = 0.0488	RespHRV: Pre-Off, 13.23 bpm On, 19.53 bpm mHR: Pre-Off, 531.74 bpm On, 497.05 bpm Respiratory freq: Pre-Off, 124.91 cpm On, 130.64 cpm	RespHRV: Pre-Off, 3.24 bpm On, 4.36 bpm mHR: Pre-Off, 18.47 bpm On, 18.99 bpm Respiratory freq: Pre-Off, 8.74 cpm On, 8.89 cpm

			(On) vs. post-photoexcitation (Post-Off) data)		Respiratory ampl: Pre-Off vs. On, $p > 0.1$	Respiratory ampl: Pre-Off, 1.76 (a.u.) On, 1.71 (a.u.)	Respiratory ampl: Pre-Off, 0.23 (a.u.) On, 0.22 (a.u.)
1g	Delta changes	Inter-group analysis: Cre ⁺ vs. Cre ⁻	Unpaired t-test	Cre ⁺ , n = 8; Cre ⁻ , n = 4	RespHRV , $p < 0.0001$ mHR , $p = 0.0003$ Respiratory freq , $p = 0.0305$ Respiratory ampl , $p > 0.1$	RespHRV: Cre ⁺ , +56.30 % Cre ⁻ , +0.66 % mHR Cre ⁺ , -34.69 bpm Cre ⁻ , -3.95 bpm Respiratory freq: Cre ⁺ , +4.81 % Cre ⁻ , -2.24 % Respiratory ampl: Cre ⁺ , -3.44 % Cre ⁻ , -4.48 %	RespHRV: Cre ⁺ , 6.03 % Cre ⁻ , 0.60 % mHR Cre ⁺ , 3.04 bpm Cre ⁻ , 5.19 bpm Respiratory freq: Cre ⁺ , 1.75 % Cre ⁻ , 2.17 % Respiratory ampl: Cre ⁺ , 2.10 % Cre ⁻ , 2.12 %
1h	Absolute values vs. delta changes	Pre-stim RespHRV vs. Delta RespHRV Pre-stim mHR vs. Delta mHR	Pearson correlation analysis, simple linear regression plotted	n = 8	Pre-stim RespHRV vs. Delta RespHRV: $p < 0.0001$, $R^2 = 97\%$ Pre-stim mHR vs. Delta mHR: $p = 0.8348$, $R^2 = 0.7\%$	n/a	n/a
Ext. Data Fig. 1d	Absolute values	preBötC vs. nA	Paired t-test	n = 6	$p = 0.0299$	preBötC, 9.50 fibers nA, 5.67 fibers	preBötC, 1.06 fibers nA, 1.15 fibers
Ext. Data Fig. 1e	Relative values	Colocalization CTB and OT	n/a	n = 2	n/a	PS38 ⁺ CTB ⁺ , 35.11 % PS38 ⁺ CTB ⁻ , 64.89 % CTB ⁺ PS38 ⁺ , 29.45 % CTB ⁺ PS38 ⁻ , 70.55 %	PS38 ⁺ CTB ⁺ , 1.91 % PS38 ⁺ CTB ⁻ , 1.91 % CTB ⁺ PS38 ⁺ , 7.59 % CTB ⁺ PS38 ⁻ , 7.59 %
2c	Delta changes	Intra-group analysis from Ext. Data Fig. 3a: pre-photoexcitation (Pre-Off) vs. Photoexcitation (On)	Repeated Measures one-way ANOVA, Tukey's multiple comparison (test performed on pre-photoexcitation (Pre-Off) vs. photoexcitation	Cre ⁺ females, n = 15; Cre ⁺ males, n = 15; Cre ⁻ , n = 5	RespHRV: Cre ⁺ Females, Pre-Off vs. On, $p < 0.0001$ Cre ⁺ Males, Pre-Off vs. On, $p < 0.0001$ Cre ⁻ , Pre-Off vs. On, $p > 0.1$	RespHRV: Cre⁺ Females Pre-Off, 3.82 bpm On, 5.82 bpm Cre⁺ Males Pre-Off, 6.13 bpm On, 8.97 bpm Cre⁻ Pre-Off, 4.60 bpm On, 4.52 bpm	RespHRV: Cre⁺ Females Pre-Off, 0.51 bpm On, 0.78 bpm Cre⁺ Males Pre-Off, 0.93 bpm On, 1.28 bpm Cre⁻ Pre-Off, 3.52 bpm On, 3.05 bpm

			(On) vs. post-photoexcitation (Post-Off) data)		mHR: Cre ⁺ Females, Pre-Off vs. On, p = 0.0001 Cre ⁺ Males, Pre-Off vs. On, p < 0.0001 Cre ⁻ , Pre-Off vs. On, p > 0.1 Respiratory freq: Cre ⁺ Females, Pre-Off vs. On, p > 0.1 Cre ⁺ Males, Pre-Off vs. On, p > 0.1 Cre ⁻ , Pre-Off vs. On, p > 0.1 Respiratory ampl: Cre ⁺ Females, Pre-Off vs. On, p = 0.0039 Cre ⁺ Males, Pre-Off vs. On, p > 0.1 Cre ⁻ , Pre-Off vs. On, p > 0.1	mHR: Cre⁺ Females Pre-Off, 269.48 bpm On, 264.54 bpm Cre⁺ Males Pre-Off, 214.12 bpm On, 207.75 bpm Cre⁻ Pre-Off, 249.79 bpm On, 249.83 bpm Respiratory freq: Cre⁺ Females Pre-Off, 32.62 cpm On, 31.64 cpm Cre⁺ Males Pre-Off, 24.39 cpm On, 24.54 cpm Cre⁻ Pre-Off, 34.98 bpm On, 34.86 bpm Respiratory ampl: Cre⁺ Females Pre-Off, 6.40 (a.u.) On, 6.94 (a.u.) Cre⁺ Males Pre-Off, 4.80 (a.u.) On, 5.03 (a.u.) Cre⁻ Pre-Off, 4.63 (a.u.) On, 4.73 (a.u.)	mHR: Cre⁺ Females Pre-Off, 11.91 bpm On, 12.04 bpm Cre⁺ Males Pre-Off, 6.64 bpm On, 6.60 bpm Cre⁻ Pre-Off, 18.83 bpm On, 16.69 bpm Respiratory freq: Cre⁺ Females Pre-Off, 2.29 cpm On, 2.27 cpm Cre⁺ Males Pre-Off, 1.31 cpm On, 1.26 cpm Cre⁻ Pre-Off, 5.12 bpm On, 4.17 bpm Respiratory ampl: Cre⁺ Females Pre-Off, 0.54 (a.u.) On, 0.62 (a.u.) Cre⁺ Males Pre-Off, 0.34 (a.u.) On, 0.34 (a.u.) Cre⁻ Pre-Off, 0.95 (a.u.) On, 0.97 (a.u.)
2c	Delta changes	Inter-group analysis: Cre ⁺ females vs. Cre ⁺ males vs. Cre ⁻	One-way ANOVA, Tukey's multiple comparison (RespHRV, mHR, respiratory frequency) or Kruskal-Wallis	Cre ⁺ females, n = 15; Cre ⁺ males, n = 15; Cre ⁻ , n = 5	RespHRV , p < 0.0001 mHR , p = 0.0296	RespHRV: Cre ⁺ females, +53.37 % Cre ⁺ males, +50.00 % Cre ⁻ , -1.39 % mHR: Cre ⁺ females, -4.59 bpm Cre ⁺ males, -6.37 bpm	RespHRV: Cre ⁺ females, 3.68 % Cre ⁺ males, 4.87 % Cre ⁻ , 5.31 % mHR: Cre ⁺ females, 0.85 bpm Cre ⁺ males, 0.99 bpm Cre ⁻ , 0.27 bpm

			test, Dunn's multiple comparison (respiratory amplitude)		Respiratory freq, $p > 0.1$ Respiratory ampl, $p > 0.1$	Cre ⁻ , +0.05 bpm Respiratory freq: Cre ⁺ females, -0.88 % Cre ⁺ males, +0.99 % Cre ⁻ , +0.21 % Respiratory ampl: Cre ⁺ females, +7.96 % Cre ⁺ males, +5.96 % Cre ⁻ , +1.11 %	Respiratory freq: Cre ⁺ females, 0.86 % Cre ⁺ males, 1.19 % Cre ⁻ , 1.75 % Respiratory ampl: Cre ⁺ females, 1.72 % Cre ⁺ males, 2.18 % Cre ⁻ , 2.60 %
2d	Absolute values vs. delta changes	Pre-stim RespHRV vs. Delta RespHRV Pre-stim mHR vs. Delta mHR	Pearson correlation analysis, simple linear regression plotted	Cre ⁺ females, n = 15; Cre ⁺ males, n = 15	Pre-stim RespHRV vs. Delta RespHRV: $p < 0.0001$, $R^2 = 75\%$ Pre-stim mHR vs. Delta mHR: $p = 0.5179$, $R^2 = 2\%$	n/a	n/a
2g	Delta changes	Intra-group analysis from Ext. Data Fig. 3c-d: pre-photoexcitation (Pre-Off) vs. Photoexcitation (On)	Repeated Measures one-way ANOVA, Tukey's multiple comparison (test performed on pre-photoexcitation (Pre-Off) vs. photoexcitation (On) vs. post-photoexcitation (Post-Off) data)	"ipsi" and "OT-R antagonist + ipsi", n = 9; "OT-R antagonist + contra", n = 6; Vehicle injections, n = 5	RespHRV: "Ipsi before OT-R antagonist", $p < 0.0001$ "OT-R antagonist + ipsi", $p > 0.1$ "OT-R antagonist + contra", $p = 0.0004$ "Ipsi before vehicle", $p = 0.0293$ "vehicle + ipsi", $p = 0.0009$ mHR: "Ipsi before OT-R antagonist", $p = 0.0029$ "OT-R antagonist + ipsi", $p = 0.0339$ "OT-R antagonist + contra", $p = 0.0134$	RespHRV: "Ipsi before OT-R antagonist" Pre-Off, 3.54 bpm On, 5.04 bpm "OT-R antagonist + ipsi" Pre-Off, 5.18 bpm On, 5.53 bpm "OT-R antagonist + contra" Pre-Off, 3.63 bpm On, 5.58 bpm "Ipsi before vehicle" Pre-Off, 5.49 bpm On, 8.24 bpm "vehicle + ipsi" Pre-Off, 3.91 bpm On, 5.51 bpm mHR: "Ipsi before OT-R antagonist" Pre-Off, 245.68 bpm	RespHRV: "Ipsi before OT-R antagonist" Pre-Off, 0.71 bpm On, 0.90 bpm "OT-R antagonist + ipsi" Pre-Off, 1.38 bpm On, 1.31 bpm "OT-R antagonist + contra" Pre-Off, 0.66 bpm On, 0.95 bpm "Ipsi before vehicle" Pre-Off, 2.50 bpm On, 3.51 bpm "vehicle + ipsi" Pre-Off, 0.86 bpm On, 1.10 bpm mHR: "Ipsi before OT-R antagonist" Pre-Off, 15.72 bpm

					"Ipsi before vehicle", p = 0.0293 "vehicle + ipsi", p = 0.0734	On, 241.29 bpm "OT-R antagonist + ipsi" Pre-Off, 260.61 bpm On, 257.64 bpm "OT-R antagonist + contra" Pre-Off, 288.06 bpm On, 285.38 bpm "Ipsi before vehicle" Pre-Off, 250.32 bpm On, 246.55 bpm "vehicle + ipsi" Pre-Off, 272.1 bpm On, 270.30 bpm	On, 16.10 bpm "OT-R antagonist + ipsi" Pre-Off, 18.13 bpm On, 18.91 bpm "OT-R antagonist + contra" Pre-Off, 13.72 bpm On, 13.26 bpm "Ipsi before vehicle" Pre-Off, 17.82 bpm On, 17.85 bpm "vehicle + ipsi" Pre-Off, 22.22 bpm On, 21.89 bpm
2g	Delta changes (OT-R antagonist)	Inter-group analysis: "ipsi" vs. "OT-R antagonist + ipsi" vs. "OT-R antagonist + contra"	Repeated Measures mixed-effects analysis with the Geisser-Greenhouse correction, Tukey's multiple comparison	"ipsi" and "OT-R antagonist + ipsi", n = 9; "OT-R antagonist + contra", n = 6	RespHRV: "Ipsi" vs. "OT-R antagonist + ipsi", p = 0.0003 "OT-R antagonist + ipsi" vs. "OT-R antagonist + contra", p = 0.0016 "Ipsi" vs. "OT-R antagonist + contra", p > 0.1 mHR: "Ipsi" vs. "OT-R antagonist + ipsi", p > 0.1 "OT-R antagonist + ipsi" vs. "OT-R antagonist + contra", p > 0.1 "Ipsi" vs. "OT-R antagonist + contra", p > 0.1	RespHRV: "Ipsi", +48.84 % "OT-R antagonist + ipsi", +13.34 % "OT-R antagonist + contra", +59.99 % mHR: "Ipsi", -4.39 bpm "OT-R antagonist + ipsi", -2.97 bpm "OT-R antagonist + contra", -2.68 bpm	RespHRV: "Ipsi", 7.80 % "OT-R antagonist + ipsi", 4.99 % "OT-R antagonist + contra", 10.74 % mHR: "Ipsi", 1.18 bpm "OT-R antagonist + ipsi", 1.25 bpm "OT-R antagonist + contra", 0.76 bpm
2g	Delta changes (vehicle)	Inter-group analysis: "ipsi" vs. "vehicle + ipsi"	Paired t-test	n = 5	RespHRV, p > 0.1 mHR, p > 0.1	RespHRV: "Ipsi", +53.82 % "vehicle + ipsi", +43.48 % mHR: "Ipsi", -3.77 bpm "vehicle + ipsi", -1.81 bpm	RespHRV: "Ipsi", 5.40 % "vehicle + ipsi", 4.96 % mHR: "Ipsi", 1.18 bpm "vehicle + ipsi", 0.93 bpm

Ext. Data Fig. 3a	Absolute values (Cre ⁺)	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On) vs. Post- photoexcitation (Post-Off)	Repeated Measures two- way ANOVA, Sidak's multiple comparison	Cre ⁺ females, n = 15; Cre ⁺ males, n=15	RespHRV: Females Pre-Off vs. On, p < 0.0001 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p < 0.0001 Males Pre-Off vs. On, p < 0.0001 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p < 0.0001 Females vs. Males Pre-Off F vs. Pre-Off M, p > 0.1 Pre-Off F vs. On M, p > 0.1 Pre-Off F vs. Post-Off M, p > 0.1 On F vs. Pre-off M, p > 0.1 On F vs. On M, p > 0.1 On F vs. Post-off M, p > 0.1 Post-off F vs. Pre-off M, p > 0.1 Post-off F vs. On M, p > 0.1 Post-off F vs. Post-off M, p > 0.1 mHR: Females Pre-Off vs. On, p = 0.0001 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p = 0.0012 Males Pre-Off vs. On, p < 0.0001 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p = 0.0001 Females vs. Males Pre-Off F vs. Pre-Off M, p = 0.0018 Pre-Off F vs. On M, p > 0.1 Pre-Off F vs. Post-Off M, p > 0.1 On F vs. Pre-off M, p > 0.1 On F vs. On M, p = 0.0015 On F vs. Post-off M, p > 0.1 Post-off F vs. Pre-off M, p > 0.1 Post-off F vs. On M, p > 0.1	RespHRV: Females Pre-Off, 3.82 bpm On, 5.82 bpm Post-Off, 4.06 bpm Males Pre-Off, 6.13 bpm On, 8.97 bpm Post-Off, 6.10 bpm mHR: Females Pre-Off, 269.48 bpm On, 264.54 bpm Post-Off, 269.75 bpm Males Pre-Off, 214.12 bpm On, 207.75 bpm Post-Off, 214.01 bpm	RespHRV: Females Pre-Off, 0.51 bpm On, 0.78 bpm Post-Off, 0.57 bpm Males Pre-Off, 0.93 bpm On, 1.28 bpm Post-Off, 0.96 bpm mHR: Females Pre-Off, 11.91 bpm On, 12.04 bpm Post-Off, 11.83 bpm Males Pre-Off, 6.64 bpm On, 6.60 bpm Post-Off, 6.70 bpm
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				Post-off F vs. Post-off M, $p = 0.0016$ Respiratory freq: Females Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Males Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Females vs. Males Pre-Off F vs. Pre-Off M, $p = 0.0149$ Pre-Off F vs. On M, $p > 0.1$ Pre-Off F vs. Post-Off M, $p > 0.1$ On F vs. Pre-off M, $p > 0.1$ On F vs. On M, $p = 0.0359$ On F vs. Post-off M, $p > 0.1$ Post-off F vs. Pre-off M, $p > 0.1$ Post-off F vs. On M, $p > 0.1$ Post-off F vs. Post-off M, $p = 0.0202$ Respiratory ampl: Females Pre-Off vs. On, $p = 0.0044$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0394$ Males Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Females vs. Males Pre-Off F vs. Pre-Off M, $p = 0.0564$ Pre-Off F vs. On M, $p > 0.1$ Pre-Off F vs. Post-Off M, $p > 0.1$ On F vs. Pre-off M, $p > 0.1$ On F vs. On M, $p = 0.0400$ On F vs. Post-off M, $p > 0.1$	Respiratory freq: Females Pre-Off, 32.62 cpm On, 31.64 cpm Post-Off, 32.81 cpm Males Pre-Off, 24.39 cpm On, 24.54 cpm Post-Off, 24.59 cpm Respiratory ampl: Females Pre-Off, 6.40 (a.u.) On, 6.94 (a.u.) Post-Off, 6.43 (a.u.) Males Pre-Off, 4.80 (a.u.) On, 5.03 (a.u.) Post-Off, 4.80 (a.u.)	Respiratory freq: Females Pre-Off, 2.29 cpm On, 2.27 cpm Post-Off, 2.43 cpm Males Pre-Off, 1.31 cpm On, 1.26 cpm Post-Off, 1.25 cpm Respiratory ampl: Females Pre-Off, 0.54 (a.u.) On, 0.62 (a.u.) Post-Off, 0.62 (a.u.) Males Pre-Off, 0.34 (a.u.) On, 0.34 (a.u.) Post-Off, 0.33 (a.u.)
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					Post-off F vs. Pre-off M, $p > 0.1$ Post-off F vs. On M, $p > 0.1$ Post-off F vs. Post-off M, $p = 0.0860$		
Ext. Data Fig. 3a	Absolute values (Cre ⁻)	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On) vs. Post-photoexcitation (Post-Off)	Repeated Measures one-way ANOVA, Tukey's multiple comparison	n = 5	RespHRV: Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ mHR: Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory freq: Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory ampl: Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$	RespHRV: Pre-Off, 4.60 bpm On, 4.52 bpm Post-Off, 4.53 bpm mHR: Pre-Off, 249.79 bpm On, 249.83 bpm Post-Off, 249.47 bpm Respiratory freq: Pre-Off, 34.98 bpm On, 34.86 bpm Post-Off, 33.77 bpm Respiratory ampl: Pre-Off, 4.63 (a.u.) On, 4.73 (a.u.) Post-Off, 4.76 (a.u.)	RespHRV: Pre-Off, 3.52 bpm On, 3.41 bpm Post-Off, 3.37 bpm mHR: Pre-Off, 18.83 bpm On, 18.66 bpm Post-Off, 19.00 bpm Respiratory freq: Pre-Off, 5.12 bpm On, 4.67 bpm Post-Off, 4.39 bpm Respiratory ampl: Pre-Off, 0.95 (a.u.) On, 1.09 (a.u.) Post-Off, 1.07 (a.u.)
Ext. Data Fig. 3b	Absolute values	Before ("Control") vs. after "OT-R antagonist" or "Vehicle"	Paired t-test or Wilcoxon matched-pairs signed rank test	OT-R antagonist injections, n = 9; Vehicle injections, n = 5	RespHRV: "Control" vs. after "OT-R antagonist", $p > 0.1$ "Control" vs. after "Vehicle", $p > 0.1$ mHR: "Control" vs. after "OT-R antagonist", $p > 0.1$ "Control" vs. after "Vehicle", $p > 0.1$	RespHRV: "Control before OT-R antagonist", 3.54 bpm After "OT-R antagonist", 5.18 bpm "Control before vehicle", 5.49 bpm After "Vehicle", 3.91 bpm mHR: "Control before OT-R antagonist", 245.68 bpm After "OT-R antagonist", 260.61 bpm	RespHRV: "Control before OT-R antagonist", 0.71 bpm After "OT-R antagonist", 1.38 bpm "Control before vehicle", 2.50 bpm After "Vehicle", 0.86 bpm mHR: "Control before OT-R antagonist", 15.72 bpm After "OT-R antagonist", 18.13 bpm "Control before vehicle", 17.82 bpm

					Respiratory freq: “Control” vs. after “OT-R antagonist”, p = 0.0761 “Control” vs. after “Vehicle”, p = 0.0625 Respiratory ampl: “Control” vs. after “OT-R antagonist”, p > 0.1 “Control” vs. after “Vehicle”, p = 0.0367	“Control before vehicle”, 250.32 bpm After “Vehicle”, 271.11 bpm Respiratory freq: “Control before OT-R antagonist”, 34.09 cpm After “OT-R antagonist”, 29.18 cpm “Control before vehicle”, 29.34 bpm After “Vehicle”, 25.43 bpm Respiratory ampl: “Control before OT-R antagonist”, 5.65 (a.u.) After “OT-R antagonist”, 6.17 (a.u.) “Control before vehicle”, 5.72 (a.u.) After “Vehicle”, 6.64 (a.u.)	After “Vehicle”, 22.22 bpm Respiratory freq: “Control before OT-R antagonist”, 3.82 cpm After “OT-R antagonist”, 3.05 cpm “Control before vehicle”, 2.78 bpm After “Vehicle”, 1.03 bpm Respiratory ampl: “Control before OT-R antagonist”, 0.49 (a.u.) After “OT-R antagonist”, 0.65 (a.u.) “Control before vehicle”, 0.88 (a.u.) After “Vehicle”, 0.83 (a.u.)
Ext. Data Fig. 3c	Absolute values	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On) vs. Post-photoexcitation (Post-Off)	Repeated Measures one-way ANOVA, Tukey’s multiple comparison	“ipsi” and “OT-R antagonist + ipsi”, n = 9; “OT-R antagonist + contra”, n = 6;	RespHRV: “ipsilateral” Pre-Off vs. On, p < 0.0001 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p < 0.0001 “OT-R antagonist + ipsilateral” Pre-Off vs. On, p > 0.1 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p > 0.1 “OT-R antagonist + controlateral” Pre-Off vs. On, p = 0.0004 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p = 0.0008	RespHRV: “ipsilateral” Pre-Off, 3.54 bpm On, 5.04 bpm Post-Off, 3.61 bpm “OT-R antagonist + ipsilateral” Pre-Off, 5.18 bpm On, 5.53 bpm Post-Off, 5.13 bpm “OT-R antagonist + controlateral” Pre-Off, 3.63 bpm On, 5.58 bpm	RespHRV: “ipsilateral” Pre-Off, 0.71 bpm On, 0.90 bpm Post-Off, 0.77 bpm “OT-R antagonist + ipsilateral” Pre-Off, 1.38 bpm On, 1.31 bpm Post-Off, 1.47 bpm “OT-R antagonist + controlateral” Pre-Off, 0.66 bpm On, 0.95 bpm

					mHR: "ipsilateral" Pre-Off vs. On, $p = 0.0029$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p < 0.0001$ "OT-R antagonist + ipsilateral" Pre-Off vs. On, $p = 0.0339$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0017$ "OT-R antagonist + controlateral" Pre-Off vs. On, $p = 0.0134$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0013$ Respiratory freq: "ipsilateral" Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ "OT-R antagonist + ipsilateral" Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ "OT-R antagonist + controlateral" Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory ampl: "ipsilateral" Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$	Post-Off, 3.82 bpm	Post-Off, 0.65 bpm
					mHR: "ipsilateral" Pre-Off, 245.68 bpm On, 241.29 bpm Post-Off, 247.62 bpm "OT-R antagonist + ipsilateral" Pre-Off, 260.61 bpm On, 257.64 bpm Post-Off, 262.18 bpm "OT-R antagonist + controlateral" Pre-Off, 288.06 bpm On, 285.38 bpm Post-Off, 289.19 bpm Respiratory freq: "ipsilateral" Pre-Off, 34.09 cpm On, 33.63 cpm Post-Off, 34.31 cpm "OT-R antagonist + ipsilateral" Pre-Off, 29.18 cpm On, 29.80 cpm Post-Off, 29.55 cpm "OT-R antagonist + controlateral" Pre-Off, 30.23 cpm On, 30.61 cpm Post-Off, 30.42 cpm Respiratory ampl: "ipsilateral" Pre-Off, 5.65 (a.u.) On, 5.99 (a.u.)	Post-Off, 3.82 bpm On, 3.63 cpm Post-Off, 4.03 cpm Pre-Off, 3.05 cpm On, 2.82 cpm Post-Off, 3.09 cpm Pre-Off, 3.76 cpm On, 3.08 cpm Post-Off, 4.31 cpm	Post-Off, 15.72 bpm On, 16.10 bpm Post-Off, 15.57 bpm Pre-Off, 18.13 bpm On, 18.91 bpm Post-Off, 18.02 bpm Pre-Off, 13.72 bpm On, 13.26 bpm Post-Off, 13.46 bpm

					On vs. post-Off, $p = 0.0782$ “OT-R antagonist + ipsilateral” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0021$ “OT-R antagonist + controlateral” Pre-Off vs. On, $p = 0.0969$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0530$	Post-Off, 5.52 (a.u.) “OT-R antagonist + ipsilateral” Pre-Off, 6.17 (a.u.) On, 6.37 (a.u.) Post-Off, 5.97 (a.u.) “OT-R antagonist + controlateral” Pre-Off, 5.93 (a.u.) On, 6.35 (a.u.) Post-Off, 5.87 (a.u.)	Post-Off, 0.62 (a.u.) “OT-R antagonist + ipsilateral” Pre-Off, 0.65 (a.u.) On, 0.64 (a.u.) Post-Off, 0.64 (a.u.) “OT-R antagonist + controlateral” Pre-Off, 0.86 (a.u.) On, 0.96 (a.u.) Post-Off, 0.79 (a.u.)
Ext. Data Fig. 3d	Absolute values	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On) vs. Post-photoexcitation (Post-Off)	Repeated Measures one-way ANOVA, Tukey’s multiple comparison	$n = 5$	RespHRV: “ipsilateral” Pre-Off vs. On, $p = 0.0293$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0267$ “vehicle + ipsilateral” Pre-Off vs. On, $p = 0.0009$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0014$ mHR: “ipsilateral” Pre-Off vs. On, $p = 0.0293$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0178$ “Vehicle + ipsilateral” Pre-Off vs. On, $p = 0.0734$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0451$ Respiratory freq: “ipsilateral” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “vehicle + ipsilateral” Pre-Off vs. On, $p > 0.1$	RespHRV: “ipsilateral” Pre-Off, 5.49 bpm On, 8.24 bpm Post-Off, 5.43 bpm “vehicle + ipsilateral” Pre-Off, 3.91 bpm On, 5.51 bpm Post-Off, 4.01 bpm mHR: “ipsilateral” Pre-Off, 250.32 bpm On, 246.55 bpm Post-Off, 250.73 bpm “vehicle + ipsilateral” Pre-Off, 272.1 bpm On, 270.30 bpm Post-Off, 272.34 bpm Respiratory freq: “ipsilateral” Pre-Off, 29.34 cpm On, 29.33 cpm Post-Off, 29.32 cpm “vehicle + ipsilateral” Pre-Off, 25.43 cpm	RespHRV: “ipsilateral” Pre-Off, 2.50 bpm On, 3.51 bpm Post-Off, 2.46 bpm “vehicle + ipsilateral” Pre-Off, 0.86 bpm On, 1.10 bpm Post-Off, 0.93 bpm mHR: “ipsilateral” Pre-Off, 17.82 bpm On, 17.85 bpm Post-Off, 18.27 bpm “vehicle + ipsilateral” Pre-Off, 22.22 bpm On, 21.89 bpm Post-Off, 22.08 bpm Respiratory freq: “ipsilateral” Pre-Off, 2.78 cpm On, 2.94 cpm Post-Off, 2.86 cpm “vehicle + ipsilateral” Pre-Off, 1.03 cpm

					Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory ampl: “ipsilateral” Pre-Off vs. On, $p = 0.0551$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “vehicle + ipsilateral” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$	On, 26.44 cpm Post-Off, 25.60 cpm Respiratory ampl: “ipsilateral” Pre-Off, 5.72 (a.u.) On, 5.93 (a.u.) Post-Off, 5.89 (a.u.) “vehicle + ipsilateral” Pre-Off, 6.64 (a.u.) On, 6.73 (a.u.) Post-Off, 6.59 (a.u.)	On, 0.83 cpm Post-Off, 1.19 cpm Respiratory ampl: “ipsilateral” Pre-Off, 0.88 (a.u.) On, 0.92 (a.u.) Post-Off, 0.96 (a.u.) “vehicle + ipsilateral” Pre-Off, 0.83 (a.u.) On, 0.81 (a.u.) Post-Off, 0.85 (a.u.)
Ext. Data Fig. 3e	Delta changes	Intra-group analysis from Ext. Data Fig. 3-d: pre-photoexcitation (Pre-Off) vs. Photoexcitation (On)	Repeated Measures one-way ANOVA, Tukey’s multiple comparison (test performed on pre-photoexcitation (Pre-Off) vs. photoexcitation (On) vs. post-photoexcitation (Post-Off) data)	“ipsi” and “OT-R antagonist + ipsi”, $n = 9$; “OT-R antagonist + contra”, $n = 6$; Vehicle injections, $n = 5$	Respiratory freq: “Ipsi before OT-R antagonist”, $p > 0.1$ “OT-R antagonist + ipsi”, $p > 0.1$ “OT-R antagonist + contra”, $p > 0.1$ “Ipsi before vehicle”, $p > 0.1$ “vehicle + ipsi”, $p > 0.1$ Respiratory ampl: “Ipsi before OT-R antagonist”, $p > 0.1$ “OT-R antagonist + ipsi”, $p > 0.1$ “OT-R antagonist + contra”, $p = 0.0969$ “Ipsi before vehicle”, $p = 0.0551$ “vehicle + ipsi”, $p > 0.1$	Respiratory freq: “Ipsi before OT-R antagonist” Pre-Off, 34.09 cpm On, 33.63 cpm “OT-R antagonist + ipsi” Pre-Off, 29.18 cpm On, 29.80 cpm “OT-R antagonist + contra” Pre-Off, 30.23 cpm On, 30.61 cpm “Ipsi before vehicle” Pre-Off, 29.34 cpm On, 29.33 cpm “vehicle + ipsi” Pre-Off, 25.43 cpm On, 26.44 cpm Respiratory ampl: “Ipsi before OT-R antagonist” Pre-Off, 5.65 (a.u.) On, 5.99 (a.u.)	Respiratory freq: “Ipsi before OT-R antagonist” Pre-Off, 3.82 cpm On, 3.63 cpm “OT-R antagonist + ipsi” Pre-Off, 3.05 cpm On, 2.82 cpm “OT-R antagonist + contra” Pre-Off, 3.76 cpm On, 3.08 cpm “Ipsi before vehicle” Pre-Off, 2.78 cpm On, 2.94 cpm “vehicle + ipsi” Pre-Off, 1.03 cpm On, 0.83 cpm Respiratory ampl: “Ipsi before OT-R antagonist” Pre-Off, 0.49 (a.u.) On, 0.51 (a.u.)

						“OT-R antagonist + ipsi” Pre-Off, 6.17 (a.u.) On, 6.37 (a.u.) “OT-R antagonist + contra” Pre-Off, 5.93 (a.u.) On, 6.35 (a.u.) “Ipsi before vehicle” Pre-Off, 5.72 (a.u.) On, 5.93 (a.u.) “vehicle + ipsi” Pre-Off, 6.64 (a.u.) On, 6.73 (a.u.)	“OT-R antagonist + ipsi” Pre-Off, 0.65 (a.u.) On, 0.64 (a.u.) “OT-R antagonist + contra” Pre-Off, 0.86 (a.u.) On, 0.96 (a.u.) “Ipsi before vehicle” Pre-Off, 0.88 (a.u.) On, 0.92 (a.u.) “vehicle + ipsi” Pre-Off, 0.83 (a.u.) On, 0.81 (a.u.)
Ext. Data Fig. 3e	Delta changes (OT-R antagonist)	Inter-group analysis: “ipsi” vs. “OT-R antagonist + ipsi” vs. “OT-R antagonist + contra”	Repeated Measures mixed-effects analysis with the Geisser-Greenhouse correction, Tukey’s multiple comparison	“ipsi” and “OT-R antagonist + ipsi”, n = 9; “OT-R antagonist + contra”, n = 6;	Respiratory freq: “ipsi” vs. “OT-R antagonist + ipsi”, p > 0.1 “OT-R antagonist + ipsi” vs. “OT-R antagonist + contra”, p > 0.1 “ipsi” vs. “OT-R antagonist + contra”, p > 0.1 Respiratory ampl: “ipsi” vs. “OT-R antagonist + ipsi”, p > 0.1 “OT-R antagonist + ipsi” vs. “OT-R antagonist + contra”, p > 0.1 “ipsi” vs. “OT-R antagonist + contra”, p > 0.1	Respiratory freq: “ipsi”, -0.81 % “OT-R antagonist + ipsi”, +3.34 % “OT-R antagonist + contra”, +2.59 % Respiratory ampl: “ipsi”, +6.19 % “OT-R antagonist + ipsi”, +3.67 % “OT-R antagonist + contra”, +6.86 %	Respiratory freq: “ipsi”, 1.33 % “OT-R antagonist + ipsi”, 2.49 % “OT-R antagonist + contra”, 2.94 % Respiratory ampl: “ipsi”, 1.72 % “OT-R antagonist + ipsi”, 1.72 % “OT-R antagonist + contra”, 2.76 %
Ext. Data Fig. 3e	Delta changes (vehicle)	Inter-group analysis: “ipsi” vs. “vehicle + ipsi”	Paired t-test	n = 5	Respiratory freq, p > 0.1 Respiratory ampl, p > 0.1	Respiratory freq: “ipsi”, -0.19 % “Vehicle + ipsi”, +4.18 % Respiratory ampl: “ipsi”, +3.69 % “Vehicle + ipsi”, +1.53 %	Respiratory freq: “ipsi”, 1.06 % “Vehicle + ipsi”, 1.85 % Respiratory ampl: “ipsi”, 0.56 % “Vehicle + ipsi”, 2.09 %
Ext. Data Fig. 4c	Absolute values	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On)	Repeated Measures one-way ANOVA,	n = 5	RespHRV: Pre-Off vs. On, p > 0.1 Pre-Off vs. Post-Off, p > 0.1	RespHRV: Pre-Off, 1.37 bpm On, 1.32 bpm	RespHRV: Pre-Off, 0.43 bpm On, 0.36 bpm

		vs. Post-photoexcitation (Post-Off)	Tukey's multiple comparison, except for mHR, Friedman test, Dunn's multiple comparison		On vs. post-Off, $p > 0.1$ mHR: Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory freq: Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory ampl: Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$	Post-Off, 1.36 bpm mHR: Pre-Off, 205.54 bpm On, 205.44 bpm Post-Off, 204.76 bpm Respiratory freq: Pre-Off, 97.74 cpm On, 97.60 cpm Post-Off, 97.01 cpm Respiratory ampl: Pre-Off, 2.46 (a.u.) On, 2.45 (a.u.) Post-Off, 2.45 (a.u.)	Post-Off, 0.34 bpm mHR: Pre-Off, 21.38 bpm On, 21.40 bpm Post-Off, 21.66 bpm Respiratory freq: Pre-Off, 11.71 cpm On, 11.66 cpm Post-Off, 11.14 cpm Respiratory ampl: Pre-Off, 0.56 (a.u.) On, 0.54 (a.u.) Post-Off, 0.58 (a.u.)
Ext. Data Fig. 4c	Delta changes	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On)	n/a	n = 5	n/a	RespHRV , -0.78 % mHR , -0.10 bpm Respiratory freq , -0.11 % Respiratory ampl , +1.17 %	RespHRV , 4.65 % mHR , 0.31 bpm Respiratory freq , 0.27 % Respiratory ampl , 2.07 %
Ext. Data Fig. 5d	Absolute values	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On) vs. Post-photoexcitation (Post-Off)	Repeated Measures one-way ANOVA, Tukey's multiple comparison	n = 6	RespHRV: "preBötC/nA" Pre-Off vs. On, $p = 0.0029$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0033$ "DMV" Pre-Off vs. On, $p = 0.0043$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0221$ mHR: "preBötC/nA" Pre-Off vs. On, $p = 0.0080$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0013$ "DMV" Pre-Off vs. On, $p = 0.0023$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0011$	RespHRV: "preBötC/nA" Pre-Off, 3.58 bpm On, 5.90 bpm Post-Off, 3.62 bpm "DMV" Pre-Off, 4.67 bpm On, 5.78 bpm Post-Off, 4.94 bpm mHR: "preBötC/nA" Pre-Off, 218.67 bpm On, 211.56 bpm Post-Off, 220.89 bpm "DMV" Pre-Off, 224.62 bpm On, 220.51 bpm Post-Off, 225.07 bpm	RespHRV: "preBötC/nA" Pre-Off, 0.86 bpm On, 1.47 bpm Post-Off, 0.95 bpm "DMV" Pre-Off, 1.52 bpm On, 1.65 bpm Post-Off, 1.46 bpm mHR: "preBötC/nA" Pre-Off, 4.24 bpm On, 4.74 bpm Post-Off, 5.67 bpm "DMV" Pre-Off, 12.68 bpm On, 12.85 bpm Post-Off, 12.90 bpm

					Respiratory freq: “preBötC/nA” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “DMV” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory ampl: “preBötC/nA” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “DMV” Pre-Off vs. On, $p = 0.0041$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0063$	Respiratory freq: “preBötC/nA” Pre-Off, 32.52 cpm On, 32.12 cpm Post-Off, 32.69 cpm “DMV” Pre-Off, 26.44 cpm On, 26.14 cpm Post-Off, 26.63 cpm Respiratory ampl: “preBötC/nA” Pre-Off, 6.28 (a.u.) On, 6.91 (a.u.) Post-Off, 6.83 (a.u.) “DMV” Pre-Off, 7.49 (a.u.) On, 8.23 (a.u.) Post-Off, 7.54 (a.u.)	Respiratory freq: “preBötC/nA” Pre-Off, 4.93 cpm On, 4.65 cpm Post-Off, 4.97 cpm “DMV” Pre-Off, 2.12 cpm On, 1.93 cpm Post-Off, 2.11 cpm Respiratory ampl: “preBötC/nA” Pre-Off, 1.23 (a.u.) On, 1.38 (a.u.) Post-Off, 1.30 (a.u.) “DMV” Pre-Off, 1.17 (a.u.) On, 1.31 (a.u.) Post-Off, 1.28 (a.u.)
Ext. Data Fig. 5e	Absolute values	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On) vs. Post-photoexcitation (Post-Off)	Repeated Measures one-way ANOVA, Tukey’s multiple comparison	n = 7	RespHRV: “OT-R antagonist + preBötC/nA” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “OT-R antagonist + DMV” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ mHR: “OT-R antagonist + preBötC/nA” Pre-Off vs. On, $p = 0.0082$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0012$ “OT-R antagonist + DMV” Pre-Off vs. On, $p = 0.0008$ Pre-Off vs. Post-Off, $p > 0.1$	RespHRV: “OT-R antagonist + preBötC/nA” Pre-Off, 4.65 bpm On, 5.00 bpm Post-Off, 4.70 bpm “OT-R antagonist + DMV” Pre-Off, 3.48 bpm On, 3.62 bpm Post-Off, 3.45 bpm mHR: “OT-R antagonist + preBötC/nA” Pre-Off, 252.80 bpm On, 248.66 bpm Post-Off, 254.02 bpm “OT-R antagonist + DMV”	RespHRV: “OT-R antagonist + preBötC/nA” Pre-Off, 1.74 bpm On, 1.64 bpm Post-Off, 1.88 bpm “OT-R antagonist + DMV” Pre-Off, 0.57 bpm On, 0.62 bpm Post-Off, 0.72 bpm mHR: “OT-R antagonist + preBötC/nA” Pre-Off, 22.29 bpm On, 23.15 bpm Post-Off, 22.14 bpm “OT-R antagonist + DMV”

					On vs. post-Off, $p = 0.0003$ Respiratory freq: “OT-R antagonist + preBötC/nA” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “OT-R antagonist + DMV” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory ampl: “OT-R antagonist + preBötC/nA” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0278$ “OT-R antagonist + DMV” Pre-Off vs. On, $p = 0.0041$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0472$	Pre-Off, 266.22 bpm On, 263.92 bpm Post-Off, 266.50 bpm Respiratory freq: “OT-R antagonist + preBötC/nA” Pre-Off, 30.40 cpm On, 30.74 cpm Post-Off, 30.60 cpm “OT-R antagonist + DMV” Pre-Off, 30.74 cpm On, 29.95 cpm Post-Off, 30.80 cpm Respiratory ampl: “OT-R antagonist + preBötC/nA” Pre-Off, 6.45 (a.u.) On, 6.57 (a.u.) Post-Off, 6.28 (a.u.) “OT-R antagonist + DMV” Pre-Off, 6.48 (a.u.) On, 6.85 (a.u.) Post-Off, 6.28 (a.u.)	Pre-Off, 21.74 bpm On, 21.97 bpm Post-Off, 21.88 bpm Respiratory freq: “OT-R antagonist + preBötC/nA” Pre-Off, 3.64 cpm On, 3.32 cpm Post-Off, 3.74 cpm “OT-R antagonist + DMV” Pre-Off, 3.80 cpm On, 3.46 cpm Post-Off, 3.90 cpm Respiratory ampl: “OT-R antagonist + preBötC/nA” Pre-Off, 0.80 (a.u.) On, 0.80 (a.u.) Post-Off, 0.80 (a.u.) “OT-R antagonist + DMV” Pre-Off, 0.69 (a.u.) On, 0.74 (a.u.) Post-Off, 0.70 (a.u.)
Ext. Data Fig. 5f	Delta changes	Intra-group analysis from Ext. Data Fig. 5d-e: pre-photoexcitation (Pre-Off) vs. Photoexcitation (On)	Repeated Measures one-way ANOVA, Tukey’s multiple comparison (test performed on pre-photoexcitation (Pre-Off) vs. photoexcitation (On) vs. post-	“preBötC/nA” and “DMV” before OT-R antagonist, $n = 6$; “preBötC/nA” and “DMV” after OT-R antagonist, $n = 7$	RespHRV: before OT-R antagonist, “preBötC/nA”, $p = 0.0029$ “DMV”, $p = 0.0043$ “OT-R antagonist + preBötC/nA”, $p > 0.1$ “OT-R antagonist + DMV”, $p > 0.1$	RespHRV: “preBötC/nA” Pre-Off, 3.58 bpm On, 5.90 bpm “DMV” Pre-Off, 4.67 bpm On, 5.78 bpm “OT-R antagonist + preBötC/nA” Pre-Off, 4.65 bpm On, 5.00 bpm	RespHRV: “preBötC/nA” Pre-Off, 0.86 bpm On, 1.47 bpm “DMV” Pre-Off, 1.52 bpm On, 1.65 bpm “OT-R antagonist + preBötC/nA” Pre-Off, 1.74 bpm On, 1.64 bpm

			photoexcitation (Post-Off) data)		mHR: before OT-R antagonist, “preBötC/nA”, p = 0.0080 “DMV”, p = 0.0023 “OT-R antagonist + preBötC/nA”, p = 0.0082 “OT-R antagonist + DMV”, p = 0.0008 Respiratory ampl: before OT-R antagonist, preBötC/nA, p > 0.1 DMV, p = 0.0041 after OT-R antagonist, preBötC/nA, p > 0.1 DMV, p > 0.1	“OT-R antagonist + DMV” Pre-Off, 3.48 bpm On, 3.62 bpm mHR: “preBötC/nA” Pre-Off, 218.67 bpm On, 211.56 bpm “DMV” Pre-Off, 224.62 bpm On, 220.51 bpm “OT-R antagonist + preBötC/nA” Pre-Off, 252.80 bpm On, 248.66 bpm “OT-R antagonist + DMV” Pre-Off, 266.22 bpm On, 263.92 bpm Respiratory ampl: “preBötC/nA” Pre-Off, 6.28 (a.u.) On, 6.91 (a.u.) “DMV” Pre-Off, 7.49 (a.u.) On, 8.23 (a.u.) “OT-R antagonist + preBötC/nA” Pre-Off, 6.45 (a.u.) On, 6.57 (a.u.) “OT-R antagonist + DMV” Pre-Off, 6.48 (a.u.) On, 6.85 (a.u.)	“OT-R antagonist + DMV” Pre-Off, 0.57 bpm On, 0.62 bpm mHR: “preBötC/nA” Pre-Off, 4.24 bpm On, 4.74 bpm “DMV” Pre-Off, 12.68 bpm On, 12.85 bpm “OT-R antagonist + preBötC/nA” Pre-Off, 22.29 bpm On, 23.15 bpm “OT-R antagonist + DMV” Pre-Off, 21.74 bpm On, 21.97 bpm Respiratory ampl: “preBötC/nA” Pre-Off, 1.23 (a.u.) On, 1.38 (a.u.) “DMV” Pre-Off, 1.17 (a.u.) On, 1.31 (a.u.) “OT-R antagonist + preBötC/nA” Pre-Off, 0.80 (a.u.) On, 0.80 (a.u.) “OT-R antagonist + DMV” Pre-Off, 0.69 (a.u.) On, 0.74 (a.u.)
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					Respiratory freq: before OT-R antagonist, preBötC/nA, $p > 0.1$ DMV, $p > 0.1$ after OT-R antagonist, preBötC/nA, $p > 0.1$ DMV, $p > 0.1$	Respiratory freq: “preBötC/nA” Pre-Off, 32.52 cpm On, 32.12 cpm “DMV” Pre-Off, 26.44 cpm On, 26.14 cpm “OT-R antagonist + preBötC/nA” Pre-Off, 30.40 cpm On, 30.74 cpm “OT-R antagonist + DMV” Pre-Off, 30.74 cpm On, 29.95 cpm	Respiratory freq: “preBötC/nA” Pre-Off, 4.93 cpm On, 4.65 cpm “DMV” Pre-Off, 2.12 cpm On, 1.93 cpm “OT-R antagonist + preBötC/nA” Pre-Off, 3.64 cpm On, 3.32 cpm “OT-R antagonist + DMV” Pre-Off, 3.80 cpm On, 3.46 cpm
Ext. Data Fig. 5f	Delta changes	Inter-group analysis: “preBötC/nA” vs. “DMV”	Paired t-test	“preBötC/nA” and “DMV” before OT-R antagonist, $n = 6$; “preBötC/nA” and “DMV” after OT-R antagonist, $n = 7$	RespHRV: Before OT-R antagonist “preBötC/nA” vs. “DMV”, $p = 0.0569$ After OT-R antagonist “preBötC/nA” vs. “DMV”, $p > 0.1$ mHR: Before OT-R antagonist “preBötC/nA” vs. “DMV”, $p > 0.1$ After OT-R antagonist “preBötC/nA” vs. “DMV”, $p > 0.1$ Respiratory ampl: Before OT-R antagonist “preBötC/nA” vs. “DMV”, $p > 0.1$ After OT-R antagonist “preBötC/nA” vs. “DMV”, $p > 0.1$	RespHRV: Before OT-R antagonist, preBötC/nA, +63.16 % DMV, +34.35 % After OT-R antagonist, preBötC/nA, +18.45 % DMV, +4.87 % mHR: Before OT-R antagonist, preBötC/nA, -7.11 bpm DMV, -4.10 bpm After OT-R antagonist, preBötC/nA, -4.46 bpm DMV, -2.00 bpm Respiratory ampl: Before OT-R antagonist: preBötC/nA, +10.05 % DMV, +9.46 % After OT-R antagonist: preBötC/nA, +2.25 % DMV, +5.69 %	RespHRV: Before OT-R antagonist, preBötC/nA, 6.09 % DMV, 11.31 % After OT-R antagonist, preBötC/nA, 6.25 % DMV, 6.63 % mHR: Before OT-R antagonist, preBötC/nA, 2.00 bpm DMV, 0.54 bpm After OT-R antagonist, preBötC/nA, 1.18 bpm DMV, 0.45 bpm Respiratory ampl: Before OT-R antagonist: preBötC/nA, 3.64 % DMV, 1.39 % After OT-R antagonist: preBötC/nA, 1.85 % DMV, 1.77 %

					Respiratory freq: Before OT-R antagonist “preBötC/nA” vs. “DMV”, $p > 0.1$ After OT-R antagonist “preBötC/nA” vs. “DMV”, $p > 0.1$	Respiratory freq: Before OT-R antagonist: preBötC/nA, -0.13 % DMV, -0.77 % After OT-R antagonist: preBötC/nA, +2.58 % DMV, -1.82 %	Respiratory freq: Before OT-R antagonist: preBötC/nA, 3.18 % DMV, 1.51 % After OT-R antagonist: preBötC/nA, 3.19 % DMV, 2.25 %
Ext. Data Fig. 6a	Absolute values and delta changes	Pre-stim RespHRV vs. Pre-stim mHR Delta RespHRV vs. Delta mHR	Pearson correlation analysis, simple linear regression plotted	n = 8	Pre-stim RespHRV vs. Pre-stim mHR: $p = 0.6453$, $R^2 = 3 \%$ Delta RespHRV vs. Delta mHR: $p = 0.4939$, $R^2 = 8 \%$	n/a	n/a
Ext. Data Fig. 6b	Absolute values and delta changes	Pre-stim RespHRV vs. Pre-stim mHR Delta RespHRV vs. Delta mHR	Pearson correlation analysis, simple linear regression plotted	Cre ⁺ females, n = 15; Cre ⁺ males, n = 15	Pre-stim RespHRV vs. Pre-stim mHR: $p = 0.9230$, $R^2 = 0.0 \%$ Delta RespHRV vs. Delta mHR: $p = 0.0059$, $R^2 = 24 \%$	n/a	n/a
Ext. Data Fig. 6c	Absolute values and delta changes	Pre-stim RespHRV vs. Pre-stim mHR Delta RespHRV vs. Delta mHR	Pearson correlation analysis, simple linear regression plotted	Stim preBötC/nA ipsilateral, n = 14; Stim DMV ipsilateral, n = 6; “OT-R antagonist + preBötC/nA ipsilateral”, n = 9; “OT-R antagonist + preBötC/nA contralateral”, n = 6; “OT-R antagonist + DMV ipsilateral”,	Pre-stim RespHRV vs. Pre-stim mHR: $p = 0.9105$, $R^2 = 0.1 \%$ Delta RespHRV vs. Delta mHR, stim preBötC/nA ipsi: $p = 0.0279$, $R^2 = 34 \%$ Delta RespHRV vs. Delta mHR, stim DMV ipsi: $p = 0.4910$, $R^2 = 13 \%$ Delta RespHRV vs. Delta mHR, stim preBötC/nA ipsi + OT-R antagonist: $p = 0.2355$, $R^2 = 17 \%$ Delta RespHRV vs. Delta mHR, stim preBötC/nA contra + OT-R antagonist: $p = 0.1216$, $R^2 = 49 \%$ Delta RespHRV vs. Delta mHR, stim DMV ipsi + OT-R antagonist:	n/a	n/a

				n = 7	p = 0.8304, R ² = 1 %		
Ext. Data Fig. 6d	Absolute values and delta changes	Pre-stim RespHRV vs. Pre-stim mHR Delta RespHRV vs. Delta mHR	Pearson correlation analysis, simple linear regression plotted	n = 10	Pre-stim RespHRV vs. Pre-stim mHR: p = 0.9517, R ² = 0.01 % Delta RespHRV vs. Delta mHR: p < 0.0001, R ² = 68 %	n/a	n/a
Ext. Data Fig. 6e	Absolute values and delta changes	Pre-TGOT RespHRV vs. Pre-TGOT mHR Delta RespHRV vs. Delta mHR	Pearson correlation analysis, simple linear regression plotted	Pre-TGOT (basal) state, n = 19; After TGOT injection, n = 14	Pre-TGOT RespHRV vs. Pre-TGOT mHR: p = 0.1196, R ² = 14 % Delta RespHRV vs. Delta mHR: p = 0.4377, R ² = 5 %	n/a	n/a
Ext. Data Fig. 6f	Absolute values and delta changes	Pre-TGOT RespHRV vs. Pre-TGOT mHR Delta RespHRV vs. Delta mHR	Pearson correlation analysis, simple linear regression plotted	n = 18	Pre-TGOT RespHRV vs. Pre-TGOT mHR: p = 0.5798, R ² = 2 % Delta RespHRV vs. Delta mHR: p = 0.8527, R ² = 0.2 %	n/a	n/a
3a	Relative values	Colocalization FG and OT-R (Absolute values in Ext. Data Fig. 7a)	n/a	nA counts, n = 6; DMV count, n = 5	n/a	nA FG ⁺ OT-R ⁺ , 1.16 % FG ⁺ OT-R ⁻ , 98.84 % nA ^{Cardiac} FG ⁺ CGRP ⁻ OT-R ⁺ , 1.65 % FG ⁺ CGRP ⁻ OT-R ⁻ , 98.35 % DMV FG ⁺ OT-R ⁺ , 69.35 % FG ⁺ OT-R ⁻ , 30.65 %	nA FG ⁺ OT-R ⁺ , 0.56 % FG ⁺ OT-R ⁻ , 0.56 % nA ^{Cardiac} FG ⁺ CGRP ⁻ OT-R ⁺ , 0.77 % FG ⁺ CGRP ⁻ OT-R ⁻ , 0.77 % DMV FG ⁺ OT-R ⁺ , 4.61 % FG ⁺ OT-R ⁻ , 4.61 %
3b	Relative values	Colocalization OT-R and FG, NeuN, GS, NK1-R or μO-R (Absolute values in Ext. Data Fig. 7b-c)	n/a	FG, n = 4; NeuN, n = 4; GS, n = 4; NK1-R, n = 4; μO-R, n = 6	n/a	OT-R ⁺ FG ⁺ , 5.40 % OT-R ⁺ FG ⁻ , 94.60 % OT-R ⁺ NeuN ⁺ , 65.96 % OT-R ⁺ NeuN ⁻ , 34.04 % OT-R ⁺ GS ⁺ , 12.11 % OT-R ⁺ GS ⁻ , 87.89 % OT-R ⁺ NK1-R ⁺ , 26.76 % OT-R ⁺ NK1-R ⁻ , 73.24 % OT-R ⁺ μO-R ⁺ , 21.55 % OT-R ⁺ μO-R ⁻ , 78.45 %	OT-R ⁺ FG ⁺ , 3.92 % OT-R ⁺ FG ⁻ , 3.92 % OT-R ⁺ NeuN ⁺ , 4.31 % OT-R ⁺ NeuN ⁻ , 4.31 % OT-R ⁺ GS ⁺ , 2.57 % OT-R ⁺ GS ⁻ , 2.57 % OT-R ⁺ NK1-R ⁺ , 2.81 % OT-R ⁺ NK1-R ⁻ , 2.81 % OT-R ⁺ μO-R ⁺ , 1.18 % OT-R ⁺ μO-R ⁻ , 1.18 %

3f	Relative values	Colocalization OT-R and Glut or Gly (Absolute values in Ext. Data Fig. 7d)	n/a	n = 4	n/a	OT-R ⁺ Glut ⁺ , 9.52 % OT-R ⁺ Gly ⁺ , 89.16 % OT-R ⁺ Gly ⁻ Glut ⁻ , 1.32 %	OT-R ⁺ Glut ⁺ , 2.56 % OT-R ⁺ Gly ⁺ , 2.80 % OT-R ⁺ Gly ⁻ Glut ⁻ , 0.49 %
Ext. Data Fig. 7a	Absolute and relative values	Colocalization FG and OT-R	n/a	nA counts, n = 6; DMV count, n = 5	n/a	nA FG ⁺ , 595.67 cells FG ⁺ OT-R ⁺ , 7.67 cells FG ⁺ OT-R ⁺ /FG ⁺ , 1.16 % nA ^{Cardiac} FG ⁺ CGRP ⁻ , 120.33 cells FG ⁺ CGRP ⁻ OT-R ⁺ , 2.00 cells FG ⁺ CGRP ⁻ OT-R ⁺ /FG ⁺ CGRP ⁻ , 1.65 % DMV FG ⁺ , 854.40 cells FG ⁺ OT-R ⁺ , 587.20 cells FG ⁺ OT-R ⁺ /FG ⁺ , 69.35 %	nA FG ⁺ , 43.29 cells FG ⁺ OT-R ⁺ , 3.77 cells FG ⁺ OT-R ⁺ /FG ⁺ , 0.56 % nA ^{Cardiac} FG ⁺ CGRP ⁻ , 8.97 cells FG ⁺ CGRP ⁻ OT-R ⁺ , 0.89 cells FG ⁺ CGRP ⁻ OT-R ⁺ /FG ⁺ CGRP ⁻ , 0.77 % DMV FG ⁺ , 155.67 cells FG ⁺ OT-R ⁺ , 106.38 cells FG ⁺ OT-R ⁺ /FG ⁺ , 4.61 %
Ext. Data Fig. 7b	Absolute and relative values	Colocalization OT-R and NeuN, GS, NK1-R or μ O-R	n/a	n = 4	n/a	OT-R ⁺ , 362.00 cells OT-R ⁺ NeuN ⁺ , 239.00 cells OT-R ⁺ GS ⁺ , 46.00 cells OT-R ⁺ NeuN ⁺ /OT-R ⁺ , 65.96 % OT-R ⁺ GS ⁺ /OT-R ⁺ , 12.11 %	OT-R ⁺ , 29.96 cells OT-R ⁺ NeuN ⁺ , 24.08 cells OT-R ⁺ GS ⁺ , 14.09 cells OT-R ⁺ NeuN ⁺ /OT-R ⁺ , 4.31 % OT-R ⁺ GS ⁺ /OT-R ⁺ , 2.57 %
Ext. Data Fig. 7c	Absolute and relative values	Colocalization OT-R and FG, NK1-R or μ O-R	n/a	FG, n = 4; NK1-R, n = 4; μ O-R, n = 6	n/a	FG OT-R ⁺ , 353.00 cells OT-R ⁺ FG ⁺ , 16.00 cells OT-R ⁺ FG ⁺ /OT-R ⁺ , 5.40 % NK1-R OT-R ⁺ , 353.00 cells OT-R ⁺ NK1-R ⁺ , 90.00 cells OT-R ⁺ NK1-R ⁺ /OT-R ⁺ , 26.76 % μO-R	FG OT-R ⁺ , 55.48 cells OT-R ⁺ FG ⁺ , 10.71 cells OT-R ⁺ FG ⁺ /OT-R ⁺ , 3.92 % NK1-R OT-R ⁺ , 55.48 cells OT-R ⁺ NK1-R ⁺ , 5.03 cells OT-R ⁺ NK1-R ⁺ /OT-R ⁺ , 2.81 % μO-R

						OT-R ⁺ , 271.33 cells OT-R ⁺ μ O-R ⁺ , 58.67 cells OT-R ⁺ μ O-R ⁺ /OT-R ⁺ , 21.55 %	OT-R ⁺ , 24.25 cells OT-R ⁺ μ O-R ⁺ , 6.82 cells OT-R ⁺ μ O-R ⁺ /OT-R ⁺ , 1.18 %
Ext. Data Fig. 7d	Absolute and relative values	Colocalization OT-R and Glut or Gly	n/a	n = 4	n/a	OT-R ⁺ , 156.75 cells OT-R ⁺ Gly ⁺ , 140.25 cells OT-R ⁺ Glut ⁺ , 14.50 cells OT-R ⁺ Gly ⁻ Glut ⁻ , 2.00 cells OT-R ⁺ Gly ⁺ / OT-R ⁺ , 89.16 % OT-R ⁺ Glut ⁺ / OT-R ⁺ , 9.52 % OT-R ⁺ Gly ⁻ Glut ⁻ / OT-R ⁺ , 1.32 %	OT-R ⁺ , 6.50 cells OT-R ⁺ Gly ⁺ , 9.90 cells OT-R ⁺ Glut ⁺ , 3.59 cells OT-R ⁺ Gly ⁻ Glut ⁻ , 0.71 cells OT-R ⁺ Gly ⁺ / OT-R ⁺ , 2.80 % OT-R ⁺ Glut ⁺ / OT-R ⁺ , 2.56 % OT-R ⁺ Gly ⁻ Glut ⁻ / OT-R ⁺ , 0.49 %
Ext. Data Fig. 7e-g	Absolute and relative values	Colocalization OT-R and GAD67 or GlyT2	n/a	n = 4	n/a	GAD67 OT-R ⁺ , 207.50 cells OT-R ⁺ GAD67 ⁺ , 103.00 cells OT-R ⁺ GAD67 ⁺ /OT-R ⁺ , 50.15 % GlyT2 OT-R ⁺ , 271.50 cells OT-R ⁺ GlyT2 ⁺ , 114.00 cells OT-R ⁺ GlyT2 ⁺ /OT-R ⁺ , 41.64 %	GAD67 OT-R ⁺ , 10.37 cells OT-R ⁺ GAD67 ⁺ , 11.00 cells OT-R ⁺ GAD67 ⁺ /OT-R ⁺ , 3.01 % GlyT2 OT-R ⁺ , 10.56 cells OT-R ⁺ GlyT2 ⁺ , 13.04 cells OT-R ⁺ GlyT2 ⁺ /OT-R ⁺ , 3.32 %
Ext. Data Fig. 7j	Absolute values	pre-photoexcitation (Pre-Off) vs. Photoexcitation (On) vs. Post- photoexcitation (Post-Off)	Repeated Measures one- way ANOVA, Tukey's multiple	Cre ⁺ no treatment, n = 8; Cre ⁺ atropine, n = 6; Cre ⁻ no treatment, n = 4	RespHRV: "Cre⁺ no treatment" Pre-Off vs. On, p = 0.0013 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p = 0.0305 "Cre⁺ atropine" Pre-Off vs. On, p > 0.1 Pre-Off vs. Post-Off, p > 0.1 On vs. post-Off, p > 0.1 "Cre⁻ no treatment" Pre-Off vs. On, p > 0.1	RespHRV: "Cre⁺ no treatment" Pre-Off, 2.38 bpm On, 1.06 bpm Post-Off, 1.90 bpm "Cre⁺ atropine" Pre-Off, 1.72 bpm On, 1.83 bpm Post-Off, 1.65 bpm "Cre⁻ no treatment" Pre-Off, 2.93 bpm	RespHRV: "Cre⁺ no treatment" Pre-Off, 0.56 bpm On, 0.26 bpm Post-Off, 0.52 bpm "Cre⁺ atropine" Pre-Off, 0.38 bpm On, 0.39 bpm Post-Off, 0.35 bpm "Cre⁻ no treatment" Pre-Off, 0.65 bpm

				Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ mHR: "Cre⁺ no treatment" Pre-Off vs. On, $p = 0.0061$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0093$ "Cre⁺ atropine" Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ "Cre⁻ no treatment" Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory freq: "Cre⁺ no treatment" Pre-Off vs. On, $p = 0.0178$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0030$ "Cre⁺ atropine" Pre-Off vs. On, $p = 0.0015$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0013$ "Cre⁻ no treatment" Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory ampl: "Cre⁺ no treatment" Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ "Cre⁺ atropine" Pre-Off vs. On, $p > 0.1$	On, 3.03 bpm Post-Off, 2.93 bpm mHR: "Cre⁺ no treatment" Pre-Off, 246.59 bpm On, 258.22 bpm Post-Off, 247.29 bpm "Cre⁺ atropine" Pre-Off, 256.88 bpm On, 258.28 bpm Post-Off, 259.36 bpm "Cre⁻ no treatment" Pre-Off, 255.57 bpm On, 255.64 bpm Post-Off, 255.96 bpm Respiratory freq: "Cre⁺ no treatment" Pre-Off, 24.28 cpm On, 30.16 cpm Post-Off, 22.57 cpm "Cre⁺ atropine" Pre-Off, 23.76 cpm On, 28.70 cpm Post-Off, 23.68 cpm "Cre⁻ no treatment" Pre-Off, 23.16 cpm On, 22.91 cpm Post-Off, 22.97 cpm Respiratory ampl: "Cre⁺ no treatment" Pre-Off, 3.86 (a.u.) On, 3.87 (a.u.) Post-Off, 3.97 (a.u.) "Cre⁺ atropine" Pre-Off, 3.65 (a.u.)	On, 0.65 bpm Post-Off, 0.67 bpm mHR: "Cre⁺ no treatment" Pre-Off, 22.73 bpm On, 22.74 bpm Post-Off, 22.42 bpm "Cre⁺ atropine" Pre-Off, 16.28 bpm On, 15.92 bpm Post-Off, 15.41 bpm "Cre⁻ no treatment" Pre-Off, 8.79 bpm On, 8.74 bpm Post-Off, 8.66 bpm Respiratory freq: "Cre⁺ no treatment" Pre-Off, 1.76 cpm On, 3.13 cpm Post-Off, 1.76 cpm "Cre⁺ atropine" Pre-Off, 1.46 cpm On, 1.43 cpm Post-Off, 1.75 cpm "Cre⁻ no treatment" Pre-Off, 1.75 cpm On, 1.93 cpm Post-Off, 1.78 cpm Respiratory ampl: "Cre⁺ no treatment" Pre-Off, 0.62 (a.u.) On, 0.62 (a.u.) Post-Off, 0.70 (a.u.) "Cre⁺ atropine" Pre-Off, 0.56 (a.u.)
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					Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “Cre⁻ no treatment” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$	On, 3.62 (a.u.) Post-Off, 3.59 (a.u.) “Cre⁻ no treatment” Pre-Off, 4.46 (a.u.) On, 4.49 (a.u.) Post-Off, 4.70 (a.u.)	On, 0.52 (a.u.) Post-Off, 0.49 (a.u.) “Cre⁻ no treatment” Pre-Off, 0.33 (a.u.) On, 0.33 (a.u.) Post-Off, 0.42 (a.u.)
Ext. Data Fig. 7k	Absolute values	pre-photoinhibition (Pre-Off) vs. Photoinhibition (On) vs. Post-photoinhibition (Post-Off)	Repeated Measures one-way ANOVA, Tukey's multiple	Cre ⁺ no treatment, $n = 10$; Cre ⁺ atropine, $n = 6$; Cre ⁻ , $n = 4$	RespHRV: “Cre⁺ no treatment” Pre-Off vs. On, $p = 0.0046$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0038$ “Cre⁺ atropine” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “Cre⁻ no treatment” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ mHR: “Cre⁺ no treatment” Pre-Off vs. On, $p = 0.0002$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0003$ “Cre⁺ atropine” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “Cre⁻ no treatment” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory freq: “Cre⁺ no treatment” Pre-Off vs. On, $p < 0.0001$ Pre-Off vs. Post-Off, $p > 0.1$	RespHRV: “Cre⁺ no treatment” Pre-Off, 2.32 bpm On, 3.80 bpm Post-Off, 2.29 bpm “Cre⁺ atropine” Pre-Off, 1.61 bpm On, 1.61 bpm Post-Off, 1.56 bpm “Cre⁻ no treatment” Pre-Off, 3.37 bpm On, 3.44 bpm Post-Off, 3.31 bpm mHR: “Cre⁺ no treatment” Pre-Off, 259.95 bpm On, 252.46 bpm Post-Off, 259.56 bpm “Cre⁺ atropine” Pre-Off, 262.15 bpm On, 262.50 bpm Post-Off, 262.44 bpm “Cre⁻ no treatment” Pre-Off, 245.69 bpm On, 246.08 bpm Post-Off, 246.17 bpm Respiratory freq: “Cre⁺ no treatment” Pre-Off, 23.34 cpm On, 20.06 cpm	RespHRV: “Cre⁺ no treatment” Pre-Off, 0.43 bpm On, 0.75 bpm Post-Off, 0.49 bpm “Cre⁺ atropine” Pre-Off, 0.30 bpm On, 0.32 bpm Post-Off, 0.33 bpm “Cre⁻ no treatment” Pre-Off, 0.60 bpm On, 0.62 bpm Post-Off, 0.69 bpm mHR: “Cre⁺ no treatment” Pre-Off, 20.89 bpm On, 21.41 bpm Post-Off, 20.98 bpm “Cre⁺ atropine” Pre-Off, 15.76 bpm On, 15.94 bpm Post-Off, 15.98 bpm “Cre⁻ no treatment” Pre-Off, 6.89 bpm On, 6.88 bpm Post-Off, 6.71 bpm Respiratory freq: “Cre⁺ no treatment” Pre-Off, 2.02 cpm On, 1.85 cpm

					On vs. post-Off, $p = 0.0001$ “Cre⁺ atropine” Pre-Off vs. On, $p = 0.0062$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p = 0.0016$ “Cre⁻ no treatment” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ Respiratory ampl: “Cre⁺ no treatment” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “Cre⁺ atropine” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$ “Cre⁻ no treatment” Pre-Off vs. On, $p > 0.1$ Pre-Off vs. Post-Off, $p > 0.1$ On vs. post-Off, $p > 0.1$	Post-Off, 22.96 cpm “Cre⁺ atropine” Pre-Off, 24.07 cpm On, 22.64 cpm Post-Off, 24.38 cpm “Cre⁻ no treatment” Pre-Off, 27.27 cpm On, 27.51 cpm Post-Off, 26.82 cpm Respiratory ampl: “Cre⁺ no treatment” Pre-Off, 4.13 (a.u.) On, 4.24 (a.u.) Post-Off, 4.04 (a.u.) “Cre⁺ atropine” Pre-Off, 3.65 (a.u.) On, 3.76 (a.u.) Post-Off, 3.72 (a.u.) “Cre⁻ no treatment” Pre-Off, 4.22 (a.u.) On, 4.13 (a.u.) Post-Off, 4.15 (a.u.)	Post-Off, 2.19 cpm “Cre⁺ atropine” Pre-Off, 1.86 cpm On, 1.77 cpm Post-Off, 1.78 cpm “Cre⁻ no treatment” Pre-Off, 3.78 cpm On, 3.73 cpm Post-Off, 3.52 cpm Respiratory ampl: “Cre⁺ no treatment” Pre-Off, 0.47 (a.u.) On, 0.53 (a.u.) Post-Off, 0.48 (a.u.) “Cre⁺ atropine” Pre-Off, 0.55 (a.u.) On, 0.56 (a.u.) Post-Off, 0.56 (a.u.) “Cre⁻ no treatment” Pre-Off, 0.43 (a.u.) On, 0.47 (a.u.) Post-Off, 0.36 (a.u.)
Ext. Data Fig. 7l	Absolute values	BCHE ⁺ vs. Calb ⁺	n/a	n = 4	n/a	BCHE ⁺ , 12.75 cells Calb ⁺ , 4.25 cells	BCHE ⁺ , 3.82 cells Calb ⁺ , 1.44 cells
4c	Delta changes	Intra-group analysis from Ext. Data Fig. 7j: pre-photoexcitation (Pre-Off) vs. Photoexcitation (On)	Repeated Measures one-way ANOVA, Tukey's multiple comparison (test performed on pre-photoexcitation (Pre-Off) vs. photoexcitation (On) vs. post-	Cre ⁺ no treatment, n = 8; Cre ⁺ atropine, n = 6; Cre ⁻ no treatment, n = 4	RespHRV: “Cre ⁺ no treatment”, Pre-Off vs. On, $p = 0.0013$ “Cre ⁺ atropine”, Pre-Off vs. On, $p > 0.1$ “Cre ⁻ no treatment”, Pre-Off vs. On, $p > 0.1$	RespHRV: “Cre⁺ no treatment” Pre-Off, 2.38 bpm On, 1.06 bpm “Cre⁺ atropine” Pre-Off, 1.72 bpm On, 1.83 bpm “Cre⁻ no treatment” Pre-Off, 2.93 bpm On, 3.03 bpm	RespHRV: “Cre⁺ no treatment” Pre-Off, 0.56 bpm On, 0.26 bpm “Cre⁺ atropine” Pre-Off, 0.38 bpm On, 0.39 bpm “Cre⁻ no treatment” Pre-Off, 0.65 bpm On, 0.65 bpm

			photoexcitation (Post-Off) data)		mHR: “Cre⁺ no treatment”, Pre-Off vs. On, p = 0.0061 “Cre⁺ atropine”, Pre-Off vs. On, p > 0.1 “Cre⁻ no treatment”, Pre-Off vs. On, p > 0.1 Respiratory freq: “Cre⁺ no treatment”, Pre-Off vs. On, p = 0.0178 “Cre⁺ atropine”, Pre-Off vs. On, p = 0.0015 “Cre⁻ no treatment”, Pre-Off vs. On, p > 0.1 Respiratory ampl: “Cre⁺ no treatment”, Pre-Off vs. On, p > 0.1 “Cre⁺ atropine”, Pre-Off vs. On, p > 0.1 “Cre⁻ no treatment”, Pre-Off vs. On, p > 0.1	mHR: “Cre⁺ no treatment” Pre-Off, 246.59 bpm On, 258.22 bpm “Cre⁺ atropine” Pre-Off, 256.88 bpm On, 258.28 bpm “Cre⁻ no treatment” Pre-Off, 255.57 bpm On, 255.64 bpm Respiratory freq: “Cre⁺ no treatment” Pre-Off, 24.28 cpm On, 30.16 cpm “Cre⁺ atropine” Pre-Off, 23.76 cpm On, 28.70 cpm “Cre⁻ no treatment” Pre-Off, 23.16 cpm On, 22.91 cpm Respiratory ampl: “Cre⁺ no treatment” Pre-Off, 3.86 (a.u.) On, 3.87 (a.u.) “Cre⁺ atropine” Pre-Off, 3.65 (a.u.) On, 3.62 (a.u.) “Cre⁻ no treatment” Pre-Off, 4.46 (a.u.) On, 4.49 (a.u.)	mHR: “Cre⁺ no treatment” Pre-Off, 22.73 bpm On, 22.74 bpm “Cre⁺ atropine” Pre-Off, 16.28 bpm On, 15.92 bpm “Cre⁻ no treatment” Pre-Off, 8.79 bpm On, 8.74 bpm Respiratory freq: “Cre⁺ no treatment” Pre-Off, 1.76 cpm On, 3.13 cpm “Cre⁺ atropine” Pre-Off, 1.46 cpm On, 1.43 cpm “Cre⁻ no treatment” Pre-Off, 1.75 cpm On, 1.93 cpm Respiratory ampl: “Cre⁺ no treatment” Pre-Off, 0.62 (a.u.) On, 0.62 (a.u.) “Cre⁺ atropine” Pre-Off, 0.56 (a.u.) On, 0.52 (a.u.) “Cre⁻ no treatment” Pre-Off, 0.33 (a.u.) On, 0.33 (a.u.)
4c	Delta changes	Intra-group analysis: “Cre ⁺ no treatment” vs. “Cre ⁺ atropine”	Paired t-test or Wilcoxon matched-pairs signed rank test	Cre ⁺ no treatment, n = 8; Cre ⁺ atropine, n = 6	RespHRV, p = 0.0106	RespHRV: Cre⁺ no treatment, -49.94 % Cre⁺ atropine, +6.57 %	RespHRV: Cre⁺ no treatment, 6.63 % Cre⁺ atropine, 6.97 %

					mHR , $p = 0.0386$ Respiratory freq , $p > 0.1$ Respiratory ampl , $p > 0.1$	mHR: Cre ⁺ no treatment, +12.71 bpm Cre ⁺ atropine, +0.52 bpm Respiratory freq: Cre ⁺ no treatment, +23.22 % Cre ⁺ atropine, +21.97 % Respiratory ampl: Cre ⁺ no treatment, +0.94 % Cre ⁺ atropine, -0.06 %	mHR: Cre ⁺ no treatment, 4.52 bpm Cre ⁺ atropine, 0.17 bpm Respiratory freq: Cre ⁺ no treatment, 7.31 % Cre ⁺ atropine, 5.82 % Respiratory ampl: Cre ⁺ no treatment, 4.00 % Cre ⁺ atropine, 1.59 %
4c	Delta changes	Inter-group analysis: "Cre ⁺ no treatment" vs. "Cre ⁺ atropine" vs. "Cre ⁻ no treatment"	Kruskal-Wallis test, Dunn's multiple comparison	Cre ⁺ no treatment, $n = 8$; Cre ⁺ atropine, $n = 6$; Cre ⁻ no treatment, $n = 4$	RespHRV: "Cre ⁺ no treatment" vs. "Cre ⁻ no treatment", $p = 0.0003$ "Cre ⁺ atropine" vs. "Cre ⁻ no treatment", $p > 0.1$ mHR: "Cre ⁺ no treatment" vs. "Cre ⁻ no treatment", $p = 0.0040$ "Cre ⁺ atropine" vs. "Cre ⁻ no treatment", $p > 0.1$ Respiratory freq: "Cre ⁺ no treatment" vs. "Cre ⁻ no treatment", $p = 0.0280$ "Cre ⁺ atropine" vs. "Cre ⁻ no treatment", $p > 0.1$ Respiratory ampl: "Cre ⁺ no treatment" vs. "Cre ⁻ no treatment", $p > 0.1$ "Cre ⁺ atropine" vs. "Cre ⁻ no treatment", $p > 0.1$	RespHRV: Cre ⁺ no treatment, -49.94 % Cre ⁺ atropine, +6.57 % Cre ⁻ no treatment, +4.05 % mHR: Cre ⁺ no treatment, +12.71 bpm Cre ⁺ atropine, +0.52 bpm Cre ⁻ no treatment, +0.07 bpm Respiratory freq: Cre ⁺ no treatment, +23.22 % Cre ⁺ atropine, +21.97 % Cre ⁻ no treatment, -1.29 % Respiratory ampl: Cre ⁺ no treatment, +0.94 % Cre ⁺ atropine, -0.06 % Cre ⁻ no treatment, +0.76 %	RespHRV: Cre ⁺ no treatment, 6.63 % Cre ⁺ atropine, 6.97 % Cre ⁻ no treatment, 3.03 % mHR: Cre ⁺ no treatment, 4.52 bpm Cre ⁺ atropine, 0.17 bpm Cre ⁻ no treatment, 0.07 bpm Respiratory freq: Cre ⁺ no treatment, 7.31 % Cre ⁺ atropine, 5.82 % Cre ⁻ no treatment, 1.36 % Respiratory ampl: Cre ⁺ no treatment, 4.00 % Cre ⁺ atropine, 1.59 % Cre ⁻ no treatment, 1.26 %

4d	Delta changes	Intra-group analysis from Ext. Data Fig. 7k: pre-photoinhibition (Pre-Off) vs. Photoinhibition (On)	Repeated Measures one-way ANOVA, Tukey's multiple comparison or Friedman test, Dunn's multiple comparison (Cre ⁻ RespHRV photoinhibition) (test performed on pre-photoexcitation (Pre-Off) vs. photoexcitation (On) vs. post-photoexcitation (Post-Off) data)	Cre ⁺ no treatment, n = 10; Cre ⁺ atropine, n = 6; Cre ⁻ no treatment, n = 4	RespHRV: "Cre⁺ no treatment", Pre-Off vs. On, p = 0.0046 "Cre⁺ atropine", Pre-Off vs. On, p > 0.1 "Cre⁻ no treatment", Pre-Off vs. On, p > 0.1 mHR: "Cre⁺ no treatment", Pre-Off vs. On, p = 0.0002 "Cre⁺ atropine", Pre-Off vs. On, p > 0.1 "Cre⁻ no treatment", Pre-Off vs. On, p > 0.1 Respiratory freq: "Cre⁺ no treatment", Pre-Off vs. On, p < 0.0001 "Cre⁺ atropine", Pre-Off vs. On, p = 0.0062 "Cre⁻ no treatment", Pre-Off vs. On, p > 0.1 Respiratory ampl: "Cre⁺ no treatment", Pre-Off vs. On, p > 0.1 "Cre⁺ atropine", Pre-Off vs. On, p > 0.1 "Cre⁻ no treatment", Pre-Off vs. On, p > 0.1	RespHRV: "Cre⁺ no treatment" Pre-Off, 2.32 bpm On, 3.80 bpm "Cre⁺ atropine" Pre-Off, 1.61 bpm On, 1.61 bpm "Cre⁻ no treatment" Pre-Off, 3.37 bpm On, 3.44 bpm mHR: "Cre⁺ no treatment" Pre-Off, 259.95 bpm On, 252.46 bpm "Cre⁺ atropine" Pre-Off, 262.15 bpm On, 262.50 bpm "Cre⁻ no treatment" Pre-Off, 245.69 bpm On, 246.08 bpm Respiratory freq: "Cre⁺ no treatment" Pre-Off, 23.34 cpm On, 20.06 cpm "Cre⁺ atropine" Pre-Off, 24.07 cpm On, 22.64 cpm "Cre⁻ no treatment" Pre-Off, 27.27 cpm On, 27.51 cpm Respiratory ampl: "Cre⁺ no treatment" Pre-Off, 4.13 (a.u.) On, 4.24 (a.u.) "Cre⁺ atropine" Pre-Off, 3.65 (a.u.)	RespHRV: "Cre⁺ no treatment" Pre-Off, 0.43 bpm On, 0.75 bpm "Cre⁺ atropine" Pre-Off, 0.30 bpm On, 0.32 bpm "Cre⁻ no treatment" Pre-Off, 0.60 bpm On, 0.62 bpm mHR: "Cre⁺ no treatment" Pre-Off, 20.89 bpm On, 21.41 bpm "Cre⁺ atropine" Pre-Off, 15.76 bpm On, 15.94 bpm "Cre⁻ no treatment" Pre-Off, 6.89 bpm On, 6.88 bpm Respiratory freq: "Cre⁺ no treatment" Pre-Off, 2.02 cpm On, 1.85 cpm "Cre⁺ atropine" Pre-Off, 1.86 cpm On, 1.77 cpm "Cre⁻ no treatment" Pre-Off, 3.78 cpm On, 3.73 cpm Respiratory ampl: "Cre⁺ no treatment" Pre-Off, 0.47 (a.u.) On, 0.53 (a.u.) "Cre⁺ atropine" Pre-Off, 0.55 (a.u.)
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						On, 3.76 (a.u.) "Cre⁻ no treatment" Pre-Off, 4.22 (a.u.) On, 4.13 (a.u.)	On, 0.56 (a.u.) "Cre⁻ no treatment" Pre-Off, 0.43 (a.u.) On, 0.47 (a.u.)
4d	Delta changes	Intra-group analysis: "Cre ⁺ no treatment" vs. "Cre ⁺ atropine"	Paired t-test or Wilcoxon matched-pairs signed rank test	Cre ⁺ no treatment, n = 10; Cre ⁺ atropine, n = 6	RespHRV , p = 0.0158 mHR , p = 0.0147 Respiratory freq , p = 0.0174 Respiratory ampl , p > 0.1	RespHRV: Cre ⁺ no treatment, +77.16 % Cre ⁺ atropine, +0.54 % mHR: Cre ⁺ no treatment, - 7.49 bpm Cre ⁺ atropine, +0.36 bpm Respiratory freq: Cre ⁺ no treatment, - 14.32 % Cre ⁺ atropine, -5.86 % Respiratory ampl: Cre ⁺ no treatment, +2.82 % Cre ⁺ atropine, +3.17 %	RespHRV: Cre ⁺ no treatment, 18.49 % Cre ⁺ atropine, 4.08 % mHR: Cre ⁺ no treatment, 1.78 bpm Cre ⁺ atropine, 0.25 bpm Respiratory freq: Cre ⁺ no treatment, 1.83 % Cre ⁺ atropine, 1.75 % Respiratory ampl: Cre ⁺ no treatment, 2.43 % Cre ⁺ atropine, 1.27 %
4d	Delta changes	Inter-group analysis: "Cre ⁺ no treatment" vs. "Cre ⁺ atropine" vs. "Cre ⁻ no treatment"	Kruskal-Wallis test, Dunn's multiple comparison	Cre ⁺ no treatment, n = 10; Cre ⁺ atropine, n = 6; Cre ⁻ , n = 4	RespHRV: "Cre ⁺ no treatment" vs. "Cre ⁻ no treatment", p = 0.0020 "Cre ⁺ atropine" vs. "Cre ⁻ no treatment", p > 0.1 mHR: "Cre ⁺ no treatment" vs. "Cre ⁻ no treatment", p = 0.0020 "Cre ⁺ atropine" vs. "Cre ⁻ no treatment", p > 0.1 Respiratory freq: "Cre ⁺ no treatment" vs. "Cre ⁻ no treatment", p = 0.0036	RespHRV: Cre ⁺ no treatment, +77.16 % Cre ⁺ atropine, +0.54 % Cre ⁻ no treatment, +2.14 % mHR: Cre ⁺ no treatment, - 7.49 bpm Cre ⁺ atropine, +0.36 bpm Cre ⁻ no treatment, +0.39 bpm Respiratory freq: Cre ⁺ no treatment, - 14.32 % Cre ⁺ atropine, -5.86 %	RespHRV: Cre ⁺ no treatment, 18.49 % Cre ⁺ atropine, 4.08 % Cre ⁻ no treatment, 3.49 % mHR: Cre ⁺ no treatment, 1.78 bpm Cre ⁺ atropine, 0.25 bpm Cre ⁻ no treatment, 0.20 bpm Respiratory freq: Cre ⁺ no treatment, 1.83 % Cre ⁺ atropine, 1.75 %

					"Cre ⁺ atropine" vs. "Cre ⁻ no treatment", p > 0.1 Respiratory ampl: "Cre ⁺ no treatment" vs. "Cre ⁻ no treatment", p > 0.1 "Cre ⁺ atropine" vs. "Cre ⁻ no treatment", p > 0.1	Cre ⁻ no treatment, +0.99 % Respiratory ampl: Cre ⁺ no treatment, +2.82 % Cre ⁺ atropine, +3.17 % Cre ⁻ no treatment, -2.28 %	Cre ⁻ no treatment, 1.37 % Respiratory ampl: Cre ⁺ no treatment, 2.43 % Cre ⁺ atropine, 1.27 % Cre ⁻ no treatment, 3.01 %
5c	Absolute values	Ctrl vs. TGOT	Wilcoxon matched-pairs signed rank test	n = 12	p = 0.0010	Ctrl, 6.51 bpm TGOT, 8.66 bpm	Ctrl, 0.81 bpm TGOT, 0.84 bpm
5c	Delta changes	TGOT	n/a	n = 12	n/a	+47.00 %	20.40 %
5e	Absolute values	Ctrl vs. TGOT	Paired t-test	n = 5	p = 0.0368	Ctrl, 14.26 bpm TGOT, 19.29 bpm	Ctrl, 3.07 bpm TGOT, 3.46 bpm
5e	Delta changes	TGOT	n/a	n = 5	n/a	+40.07 %	11.55 %
5h	Absolute values	Ctrl vs. TGOT	Paired t-test	n = 7	p < 0.0001	Ctrl, -52.14 mV TGOT, -47.23 mV	Ctrl, 2.08 mV TGOT, 2.46 mV
5h	Delta changes	TGOT	n/a	n = 7	n/a	+4.91 %	0.51 %
5l	Absolute values	Ctrl vs. TGOT	Paired t-test	n = 10	p = 0.0026	Ctrl, 0.033 nanoAmp TGOT, 0.051 nanoAmp	Ctrl, 0.007 nanoAmp TGOT, 0.010 nanoAmp
5l	Delta changes	TGOT vs. Bic vs. Stry	Friedman test, Dunn's multiple comparison	n = 8	TGOT vs. Bic, p > 0.1 Bic vs. Stry, p = 0.0081 TGOT vs. Stry, p = 0.0081	Delta TGOT, +53.80 % Delta Bic, +52.01 % Delta Stry, -175.42 %	Delta TGOT, 10.14 % Delta Bic, 21.24 % Delta Stry, 39.51 %
6c	Absolute values (TGOT)	Ctrl vs. TGOT	Wilcoxon matched-pairs signed rank test or paired t-test (respiratory frequency)	n = 15	RespHRV , p = 0.0006 mHR , p = 0.0346 Respiratory freq , p = 0.0638 Respiratory ampl , p = 0.0067	RespHRV: Ctrl, 1.45 bpm TGOT, 2.10 bpm mHR: Ctrl, 295.06 bpm TGOT, 291.96 bpm Respiratory freq: Ctrl, 55.39 cpm TGOT, 54.22 cpm Respiratory ampl: Ctrl, 19.48 (a.u.) TGOT, 21.51 (a.u.)	RespHRV: Ctrl, 0.45 bpm TGOT, 0.67 bpm mHR: Ctrl, 8.60 bpm TGOT, 8.33 bpm Respiratory freq: Ctrl, 2.74 cpm TGOT, 2.95 cpm Respiratory ampl: Ctrl, 2.98 (a.u.) TGOT, 3.67 (a.u.)
6c	Delta changes	Inter-group analysis: TGOT vs. Vehicle	Mann-Whitney test or unpaired t-test (mHR)	TGOT, n = 15; Vehicle, n = 10	RespHRV , p = 0.0003	RespHRV: TGOT, +52.65 % Vehicle, -5.44 %	RespHRV: TGOT, 15.82 % Vehicle, 4.37 %

					mHR , $p > 0.1$ Respiratory freq , $p = 0.0476$ Respiratory ampl , $p = 0.0101$	mHR: TGOT, -3.10 bpm Vehicle, -5.46 bpm Respiratory freq: TGOT, -2.34 % Vehicle, +0.48 % Respiratory ampl: TGOT, +7.02 % Vehicle, -1.76 %	mHR: TGOT, 1.31 bpm Vehicle, 1.96 bpm Respiratory freq: TGOT, 1.19 % Vehicle, 0.56 % Respiratory ampl: TGOT, 4.07 % Vehicle, 1.23 %
6f	Absolute values (TGOT)	Ctrl vs. TGOT	Paired t-test or Wilcoxon matched-pairs	RespHRV, $n = 16$; mHR, $n = 18$; PNA frequency, $n = 19$; PNA amplitude, $n = 18$; VNA, $n = 7$; tSNA, $n = 8$; mPP, $n = 18$	RespHRV , $p < 0.0001$ mHR , $p > 0.1$ PNA frequency , $p = 0.0627$ PNA amplitude , $p > 0.1$ VNA amplitude , $p = 0.0578$ Mean tSNA activity $p > 0.1$ mPP , $p > 0.1$	RespHRV: Ctrl, 1.40 bpm TGOT, 2.60 bpm mHR: Ctrl, 340.74 bpm TGOT, 338.71 bpm PNA frequency: Ctrl, 22.32 cpm TGOT, 24.27 cpm PNA amplitude: Ctrl, 10.35 μV TGOT, 9.65 μV VNA amplitude: Ctrl, 1.69 μV TGOT, 1.40 μV Mean tSNA activity: Ctrl, 3.00 μV TGOT, 3.06 μV mPP: Ctrl, 63.11 mmHg TGOT, 61.63 mmHg	RespHRV: Ctrl, 0.17 bpm TGOT, 0.31 bpm mHR: Ctrl, 7.15 bpm TGOT, 7.02 bpm PNA frequency: Ctrl, 1.89 cpm TGOT, 2.37 cpm PNA amplitude: Ctrl, 1.03 μV TGOT, 1.10 μV VNA amplitude: Ctrl, 0.23 μV TGOT, 0.20 μV Mean tSNA activity: Ctrl, 0.28 μV TGOT, 0.29 μV mPP: Ctrl, 5.37 mmHg TGOT, 5.84 mmHg
6f	Delta changes	Inter-group analysis: TGOT vs. Vehicle	Mann-Whitney test or unpaired t-test	TGOT RespHRV, $n = 16$; mHR, $n = 18$; PNA frequency, $n = 19$; PNA amplitude,	RespHRV , $p = 0.0003$ mHR , $p = 0.0986$ PNA frequency , $p > 0.1$	RespHRV: TGOT, +105.29 % Vehicle, -8.46 % mHR: TGOT, -2.03 bpm Vehicle, +3.98 bpm PNA frequency: TGOT, +8.18 %	RespHRV: TGOT, 18.27 % Vehicle, 12.04 % mHR: TGOT, 1.59 bpm Vehicle, 3.91 bpm PNA frequency: TGOT, 4.05 %

				n = 18; VNA, n = 7; tSNA, n = 8; mPP, n = 18 Vehicle RespHRV, n = 8; mHR, n=8; PNA frequency, n = 9; PNA amplitude, n = 8; VNA, n = 9; tSNA, n = 8; mPP, n = 8	PNA amplitude , p > 0.1 VNA amplitude , p > 0.1 Mean tSNA activity , p > 0.1 mPP , p > 0.1	Vehicle, +9.25 % PNA amplitude: TGOT, -4.54 % Vehicle, -2.58 % VNA amplitude: TGOT, -15.74 % Vehicle, -8.39 % Mean tSNA activity: TGOT, +2.04 % Vehicle, +9.53 % mPP: TGOT, -2.97% Vehicle, -0.81 %	Vehicle, 5.30 % PNA amplitude: TGOT, 6.54 % Vehicle, 3.93 % VNA amplitude: TGOT, 5.12 % Vehicle, 4.49 % Mean tSNA activity: TGOT, 1.23 % Vehicle, 6.33 % mPP: TGOT, 1.33 % Vehicle, 1.80 %
6g	Delta changes	Delta RespHRV vs. Pre-injection RespHRV	Pearson correlation analysis, simple linear regression plotted	n = 16	Pre-stim RespHRV vs. Pre-stim mHR: p = 0.0050, R ² = 42 %	n/a	n/a
6i	Absolute values (TGOT)	Ctrl vs. TGOT	Paired t-test	n = 7	p = 0.0020	CVBA activity: Ctrl, 0.115 μV TGOT, 0.197 μV	CVBA activity: Ctrl, 0.0016 μV TGOT, 0.028 μV
6i	Delta changes	TGOT	n/a	n = 7	n/a	+73.63 %	10.14 %
Ext. Data Fig. 9b	Absolute values (vehicle)	Ctrl vs. Vehicle	Paired t-test or Wilcoxon matched-pairs signed rank test (RespHRV)	n = 10	RespHRV , p > 0.1 mHR , p = 0.0209 Respiratory freq , p > 0.1 Respiratory ampl , p > 0.1	RespHRV: Ctrl, 0.95 bpm Vehicle, 0.89 bpm mHR: Ctrl, 318.85 bpm Vehicle, 313.38 bpm Respiratory freq: Ctrl, 50.45 cpm Vehicle, 50.69 cpm Respiratory ampl: Ctrl, 18.41 (a.u.) Vehicle, 18.11 (a.u.)	RespHRV: Ctrl, 0.22 bpm Vehicle, 0.20 bpm mHR: Ctrl, 10.05 bpm Vehicle, 8.59 bpm Respiratory freq: Ctrl, 0.90 cpm Vehicle, 0.97 cpm Respiratory ampl: Ctrl, 3.36 (a.u.) Vehicle, 3.37 (a.u.)

Ext. Data Fig. 9e	Absolute values (vehicle)	Ctrl vs. vehicle	Paired t-test or Wilcoxon matched-pairs	HR, n = 8; PNA frequency, n = 9; PNA amplitude, n = 8; VNA, n = 9; tSNA, n = 8; mPP, n = 8	RespHRV , p > 0.1 mHR , p > 0.1 PNA frequency , p = 0.0868 PNA amplitude , p > 0.1 VNA amplitude , p = 0.0547 mPP , p > 0.1 Mean SNA activity , p > 0.1 Tonic SNA , p = 0.0455 RespSNA , p > 0.1	RespHRV: Ctrl, 1.50 bpm Vehicle, 1.06 bpm mHR: Ctrl, 341.19 bpm Vehicle, 345.17 bpm PNA frequency: Ctrl, 28.87 cpm Vehicle, 30.63 cpm PNA amplitude: Ctrl, 10.13 μ V Vehicle, 9.53 μ V VNA amplitude: Ctrl, 1.41 μ V Vehicle, 1.25 % mPP: Ctrl, 72.97 mmHg Vehicle, 72.49 mmHg Mean tSNA activity: Ctrl, 4.44 μ V Vehicle, 4.76 μ V Tonic SNA: Ctrl, 4.10 μ V Vehicle, 4.63 μ V RespSNA: Ctrl, 0.78 μ V Vehicle, 0.73 μ V	RespHRV: Ctrl, 0.45 bpm Vehicle, 0.10 bpm mHR: Ctrl, 17.58 bpm Vehicle, 19.11 bpm PNA frequency: Ctrl, 4.59 cpm Vehicle, 4.28 cpm PNA amplitude: Ctrl, 2.52 μ V Vehicle, 2.27 μ V VNA amplitude: Ctrl, 0.20 μ V Vehicle, 0.16 % mPP: Ctrl, 3.71 mmHg Vehicle, 4.09 mmHg Mean tSNA activity: Ctrl, 0.65 μ V Vehicle, 0.60 μ V Tonic SNA: Ctrl, 0.41 μ V Vehicle, 0.45 μ V RespSNA: Ctrl, 0.26 μ V Vehicle, 0.32 μ V
Ext. Data Fig. 9f	Absolute values (TGOT)	Ctrl vs. TGOT	Paired t-test	n = 8	RespSNA , p > 0.1 Tonic SNA , p > 0.1	RespSNA: Ctrl, 0.56 (a.u.) TGOT, 0.57 (a.u.) Tonic SNA: Ctrl, 2.86 μ V TGOT, 2.87 μ V	RespSNA: Ctrl, 0.12 (a.u.) TGOT, 0.17 (a.u.) Tonic SNA: Ctrl, 0.26 μ V TGOT, 0.25 μ V
Ext. Data Fig. 9f	Delta changes	Inter-group analysis: TGOT vs. Vehicle	Unpaired t-test (RespSNA) or Mann-Whitney test (tonic SNA)	TGOT, n = 8; vehicle, n = 8	RespSNA , p > 0.1 Tonic SNA , p = 0.0207	RespSNA: TGOT, -5.02 % Vehicle, -10.81 % Tonic SNA: TGOT, +0.86 %	RespSNA: TGOT, 11.69 % Vehicle, 10.54 % Tonic SNA: TGOT, 1.17 %

						Vehicle, +13.75 %	Vehicle, 5.61 %
7b	Absolute values	Ctrl vs. C21 vs. Wash	Repeated Measures one-way ANOVA with the Geisser-Greenhouse correction, Tukey's multiple comparison	Cre ⁺ , n = 3 (11 cells); Cre ⁻ , n = 2 (6 cells)	Cre⁺ Ctrl vs. C21, p < 0.0001 Ctrl vs. Wash, p = 0.0004 C21 vs. Wash, p = 0.0033 Cre⁻ Ctrl vs. C21, p > 0.1 Ctrl vs. Wash, p > 0.1 C21 vs. Wash, p > 0.1	Cre⁺: Ctrl, 82.18 AP/min C21, 30.30 AP/min Wash, 61.91 AP/min Cre⁻: Ctrl, 191.83 AP/min C21, 191.50 AP/min Wash, 188.94 AP/min	Cre⁺: Ctrl, 13.01 AP/min C21, 8.91 AP/min Wash, 13.10 AP/min Cre⁻: Ctrl, 47.44 AP/min C21, 48.29 AP/min Wash, 50.66 AP/min
7e	Absolute values (Cre ⁺)	Pre-stress period, C21 vs. vehicle	Paired t-test	n = 7	RespHRV , p > 0.1 mHR , p = 0.0132 mBP , p = 0.0680 Respiratory freq , p > 0.1 Respiratory ampl , p > 0.1	RespHRV: C21, 28.05 bpm Vehicle, 25.12 bpm mHR: C21, 436.24 bpm Vehicle, 475.59 bpm mBP: C21, 96.46 mmHg Vehicle, 91.72 mmHg Respiratory freq: C21, 194.58 cpm Vehicle, 201.62 cpm Respiratory ampl: C21, 0.44 (a.u.) Vehicle, 0.48 (a.u.)	RespHRV: C21, 3.18 bpm Vehicle, 3.69 bpm mHR: C21, 16.37 bpm Vehicle, 16.67 bpm mBP: C21, 4.73 mmHg Vehicle, 4.91 mmHg Respiratory freq: C21, 6.43 cpm Vehicle, 5.48 cpm Respiratory ampl: C21, 0.07 (a.u.) Vehicle, 0.07 (a.u.)
7f	Delta changes (Cre ⁺)	Stress vs. 30min vs. 60min, C21 vs. vehicle	Repeated Measures two-way ANOVA, Sidak's multiple comparison	n = 7	RespHRV: C21 Stress vs. 30min, p > 0.1 Stress vs. 60min, p = 0.0010 30min vs. 60min, p = 0.0995 Vehicle Stress vs. 30min, p = 0.0029 Stress vs. 60min, p = 0.0025 30min vs. 60min, p > 0.1 C21 vs. Vehicle Stress C21 vs. Stress vehicle, p > 0.1 Stress C21 vs. 30min vehicle, p > 0.1 Stress C21 vs. 60min vehicle, p > 0.1	RespHRV: C21 Stress, -50.84 % 30 min, -32.64 % 60 min, -9.84 % Vehicle Stress, -44.99 % 30 min, -7.80 % 60 min, -7.17 %	RespHRV: C21 Stress, 3.76 % 30 min, 3.41 % 60 min, 8.62 % Vehicle Stress, 6.52 % 30 min, 8.94 % 60 min, 9.98 %

					30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p = 0.0432$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$ mHR: C21 Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ Vehicle Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ C21 vs. Vehicle Stress C21 vs. Stress vehicle, $p = 0.0044$ Stress C21 vs. 30min vehicle, $p > 0.1$ Stress C21 vs. 60min vehicle, $p > 0.1$ 30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p = 0.0053$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$ mBP: C21 Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p = 0.0002$ Vehicle Stress vs. 30min, $p = 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p = 0.0011$ C21 vs. Vehicle	mHR: C21 Stress, +260.66 bpm 30 min, +138.83 bpm 60 min, +95.08 bpm Vehicle Stress, +206.18 bpm 30 min, +85.65 bpm 60 min, +87.14 bpm mBP: C21 Stress, +39.18 % 30 min, +17.86 % 60 min, -1.49 % Vehicle Stress, +34.93 % 30 min, +14.94 % 60 min, -1.78 %	mHR: C21 Stress, 20.60 bpm 30 min, 11.62 bpm 60 min, 15.58 bpm Vehicle Stress, 16.26 bpm 30 min, 17.15 bpm 60 min, 9.50 bpm mBP: C21 Stress, 4.08 % 30 min, 1.55 % 60 min, 4.82 % Vehicle Stress, 4.82 % 30 min, 2.38 % 60 min, 1.69 %
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					Stress C21 vs. Stress vehicle, $p = 0.0792$ Stress C21 vs. 30min vehicle, $p > 0.1$ Stress C21 vs. 60min vehicle, $p > 0.1$ 30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p > 0.1$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$ Respiratory freq: C21 Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ Vehicle Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ C21 vs. Vehicle Stress C21 vs. Stress vehicle, $p > 0.1$ Stress C21 vs. 30min vehicle, $p > 0.1$ Stress C21 vs. 60min vehicle, $p > 0.1$ 30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p > 0.1$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$ Respiratory ampl: C21 Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ Vehicle Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$	Respiratory freq: C21 Stress, +82.87 % 30 min, +12.56 % 60 min, +7.85 % Vehicle Stress, +75.53 % 30 min, +14.80 % 60 min, +1.31 % Respiratory ampl: C21 Stress, +198.26 % 30 min, +34.57 % 60 min, +3.67 % Vehicle Stress, +177.27 % 30 min, +37.57 %	Respiratory freq: C21 Stress, 12.68 % 30 min, 6.27 % 60 min, 4.64 % Vehicle Stress, 7.75 % 30 min, 4.33 % 60 min, 2.01 % Respiratory ampl: C21 Stress, 32.19 % 30 min, 5.20 % 60 min, 4.01 % Vehicle Stress, 14.32 % 30 min, 8.79 %
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					30min vs. 60min, $p > 0.1$ C21 vs. Vehicle Stress C21 vs. Stress vehicle, $p > 0.1$ Stress C21 vs. 30min vehicle, $p > 0.1$ Stress C21 vs. 60min vehicle, $p > 0.1$ 30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p > 0.1$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$	60 min, -0.47 %	60 min, 3.73 %
Ext. Data Fig. 10b	Absolute values (Cre ⁻)	Pre-stress period, C21 vs. vehicle	Paired t-test	n = 5	RespHRV , $p > 0.1$ mHR , $p = 0.0049$ mBP , $p > 0.1$ Respiratory freq , $p > 0.1$ Respiratory ampl , $p > 0.1$	RespHRV: C21, 19.46 bpm Vehicle, 20.26 bpm mHR: C21, 455.15 bpm Vehicle, 487.81 bpm mBP: C21, 104.84 mmHg Vehicle, 103.16 mmHg Respiratory freq: C21, 184.90 cpm Vehicle, 183.43 cpm Respiratory ampl: C21, 0.35 (a.u.) Vehicle, 0.34 (a.u.)	RespHRV: C21, 1.97 bpm Vehicle, 1.76 bpm mHR: C21, 15.35 bpm Vehicle, 19.37 bpm mBP: C21, 3.09 mmHg Vehicle, 3.00 mmHg Respiratory freq: C21, 9.10 cpm Vehicle, 10.89 cpm Respiratory ampl: C21, 0.02 (a.u.) Vehicle, 0.05 (a.u.)
Ext. Data Fig. 10c	Delta changes (Cre ⁻)	Stress vs. 30min vs. 60min, C21 vs. vehicle	Repeated Measures two-way ANOVA, Sidak's multiple comparison	n = 5	RespHRV: C21 Stress vs. 30min, $p = 0.0401$ Stress vs. 60min, $p = 0.0363$ 30min vs. 60min, $p > 0.1$ Vehicle Stress vs. 30min, $p > 0.1$ Stress vs. 60min, $p = 0.0257$ 30min vs. 60min, $p > 0.1$ C21 vs. Vehicle Stress C21 vs. Stress vehicle, $p > 0.1$ Stress C21 vs. 30min vehicle, $p > 0.1$	RespHRV: C21 Stress, -41.70 % 30 min, -15.45 % 60 min, -15.01 % Vehicle Stress, -41.83 % 30 min, -24.64 % 60 min, -13.66 %	RespHRV: C21 Stress, 8.76 % 30 min, 6.15 % 60 min, 9.80 % Vehicle Stress, 4.78 % 30 min, 4.58 % 60 min, 6.06 %

				Stress C21 vs. 60min vehicle, $p > 0.1$ 30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p > 0.1$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$ mHR: C21 Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ Vehicle Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ C21 vs. Vehicle Stress C21 vs. Stress vehicle, $p > 0.1$ Stress C21 vs. 30min vehicle, $p > 0.1$ Stress C21 vs. 60min vehicle, $p > 0.1$ 30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p > 0.1$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$ mBP: C21 Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p = 0.0044$ Vehicle Stress vs. 30min, $p = 0.0270$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p = 0.0009$ C21 vs. Vehicle	mHR: C21 Stress, +240.55 bpm 30 min, +78.50 bpm 60 min, +60.08 bpm Vehicle Stress, +225.54 bpm 30 min, +95.99 bpm 60 min, +43.57 bpm mBP: C21 Stress, +36.04 % 30 min, +12.02 % 60 min, -4.46 % Vehicle Stress, +29.92 % 30 min, +16.90 % 60 min, -2.40 %	mHR: C21 Stress, 13.19 bpm 30 min, 16.95 bpm 60 min, 20.95 bpm Vehicle Stress, 18.32 bpm 30 min, 11.32 bpm 60 min, 9.97 bpm mBP: C21 Stress, 3.89 % 30 min, 4.80 % 60 min, 1.83 % Vehicle Stress, 2.12 % 30 min, 4.14 % 60 min, 0.27 %
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					Stress C21 vs. Stress vehicle, $p > 0.1$ Stress C21 vs. 30min vehicle, $p > 0.1$ Stress C21 vs. 60min vehicle, $p > 0.1$ 30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p > 0.1$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$ Respiratory freq: C21 Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ Vehicle Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ C21 vs. Vehicle Stress C21 vs. Stress vehicle, $p > 0.1$ Stress C21 vs. 30min vehicle, $p > 0.1$ Stress C21 vs. 60min vehicle, $p > 0.1$ 30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p > 0.1$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$ Respiratory ampl: C21 Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$ 30min vs. 60min, $p > 0.1$ Vehicle Stress vs. 30min, $p < 0.0001$ Stress vs. 60min, $p < 0.0001$	Respiratory freq: C21 Stress, +78.27 % 30 min, +11.24 % 60 min, +6.47 % Vehicle Stress, +90.58 % 30 min, +18.15 % 60 min, +7.33 % Respiratory ampl: C21 Stress, +165.35 % 30 min, +31.60 % 60 min, +10.51 % Vehicle Stress, +156.33 % 30 min, +25.89 %	Respiratory freq: C21 Stress, 12.29 % 30 min, 4.71 % 60 min, 3.35 % Vehicle Stress, 7.23 % 30 min, 5.30 % 60 min, 3.16 % Respiratory ampl: C21 Stress, 25.65 % 30 min, 15.82 % 60 min, 8.59 % Vehicle Stress, 22.81 % 30 min, 10.79 %
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					30min vs. 60min, $p > 0.1$ C21 vs. Vehicle Stress C21 vs. Stress vehicle, $p > 0.1$ Stress C21 vs. 30min vehicle, $p > 0.1$ Stress C21 vs. 60min vehicle, $p > 0.1$ 30min C21 vs. stress vehicle, $p > 0.1$ 30min C21 vs. 30min vehicle, $p > 0.1$ 30min C21 vs. 60min vehicle, $p > 0.1$ 60min C21 vs. stress vehicle, $p > 0.1$ 60min C21 vs. 30min vehicle, $p > 0.1$ 60min C21 vs. 60min vehicle, $p > 0.1$	60 min, -0.19 %	60 min, 4.67 %
Suppl. Fig. 2a	Absolute values	RespHRV per mouse over consecutive weeks	n/a	n = 7	n/a	Mouse 1 Week 1, 21.47 bpm Week 2, 30.46 bpm Mouse 2 Week 1, 21.23 bpm Week 2, 24.17 bpm Mouse 3 Week 1, 19.76 bpm Week 2, 19.83 bpm Mouse 4 Week 1, 14.82 bpm Week 2, 14.24 bpm Mouse 5 Week 1, 26.69 bpm Week 2, 28.63 bpm Mouse 6 Week 1, 19.12 bpm Week 2, 18.34 bpm Week 3, 18.19 bpm Week 4, 16.57 bpm Mouse 7 Week 1, 12.50 bpm Week 2, 13.21 bpm Week 3, 7.03 bpm Week 4, 11.19 bpm	Mouse 1 Week 1, 0.79 bpm Week 2, 1.32 bpm Mouse 2 Week 1, 0.81 bpm Week 2, 0.88 bpm Mouse 3 Week 1, 0.62 bpm Week 2, 0.89 bpm Mouse 4 Week 1, 0.69 bpm Week 2, 0.70 bpm Mouse 5 Week 1, 1.83 bpm Week 2, 1.00 bpm Mouse 6 Week 1, 0.64 bpm Week 2, 1.43 bpm Week 3, 1.08 bpm Week 4, 1.17 bpm Mouse 7 Week 1, 0.57 bpm Week 2, 0.89 bpm Week 3, 0.71 bpm Week 4, 1.19 bpm

Suppl. Fig. 2b	Absolute values	RespHRV Week 1 vs. Week 2	Wilcoxon matched-pairs signed rank test	n = 7	p > 0.1	Week 1, 19.37 bpm Week 2, 21.27 bpm	Week 1, 1.76 bpm Week 2, 2.55 bpm
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