Fig. A  Distributions of surrogate θ- and δ-burst durations markedly deviates from the original distributions discussed in the main text (Fig. 2). Procedure for generating surrogate θ- and δ-burst durations is explained in the Materials and methods, Data analysis. (a) Probability density of original θ-burst durations for control (open circles) and PZ-lesioned rats (full triangles) over the 24h period (pooled data) are compared with the probability density of surrogate θ-burst durations (magenta dashed line). In contrast to the original θ-burst durations, the probability density of surrogates does not follow a power-law behavior, and is close to an exponential distribution. (b) Probability density of original δ-burst durations for control (open circles) and PZ-lesioned rats (full triangles) over 24 h period (pooled data) are compared with the probability density of surrogate δ-burst durations (magenta dashed line). The probability density of surrogate δ-burst durations departs from the original Weibull and follows an exponential behavior.
Fig. B Distribution of θ- and δ-burst durations in the dark period are independent of the specific threshold $Th$ used to identify bursts and can be described by unique scaling functions. Distribution of θ- and δ-burst durations in the dark period for different threshold values $Th$ on the ratio $R_{θδ}$ and window size $w = 5$ s. (a) Distribution of θ-burst durations for control rats over a 12 h dark period (pooled data). Distributions evaluated using different $Th$ values consistently follow the same power-law behaviour (red tick line), with an exponential cutoff that is controlled by $Th$. Inset: the data collapse onto a universal function $f_θ$ when we plot $P(d) d^α$ versus $Th^2 d$, with $α = 2.45$ and $ε = 0.8$. (b) Rescaled distribution of δ-burst durations for control rats over a 12 h dark period (pooled data). Distributions are rescaled by $⟨d_δ⟩^η$, with $⟨d_δ⟩$ mean δ-burst duration and $η = 1.2$. After rescaling, distributions collapse onto a single function that is well fitted by a Weibull distribution $f(d; λ, β)$ (black thick line), with $λ = 0.60$ and $β = 0.54$. Inset: distributions $P_δ$ for different thresholds $Th$ (not rescaled). (c) Distribution of θ-burst durations for PZ-lesioned rats over a 12h period (pooled data). Distributions evaluated using different $Th$ values consistently follow the same power-law behavior (red tick line), with a cutoff that is controlled by $Th$. Inset: Data collapse onto a single function by plotting $P(d) d^α$ versus $Th^2 d$ with $α = 2.45$ and $ε = 0.8$. (d) Rescaled distribution of δ-burst durations for PZ-lesioned rats over a 12h dark period (pooled data). Distributions are rescaled by $⟨d_δ⟩^η$, with $⟨d_δ⟩$ mean δ-burst
duration and $\eta = 1.2$. After rescaling, the distributions collapse onto a single function that is well fitted by a Weibull distribution $f(d; \lambda, \beta)$ (black thick line), with $\beta = 0.50$ and $\lambda = 0.37$. Inset: Distributions $P_\delta$ for different thresholds (not rescaled).
Fig. C  Distribution of $\theta$- and $\delta$-burst durations in the light period are independent of the specific threshold $Th$ used to identify bursts and can be described by scaling functions. Distribution of $\theta$- and $\delta$-burst durations in the light period for different threshold values $Th$ on the ratio $R_{\theta\delta}$ and window size $w = 5$ s. (a) Distribution of $\theta$-burst durations for control rats over a 12 h light period (pooled data). Distributions evaluated using different $Th$ values consistently follow the same power-law behaviour (red tick line), with a cutoff that is controlled by $Th$. Inset: the data collapse onto a single function when we plot $P(\delta)d^{\alpha}$ versus $Th'd$, with $\alpha = 2.25$ and $\epsilon = 0.8$. (b) Rescaled distribution of $\delta$-burst durations for control rats over a 12 h light period (pooled data). Distributions are rescaled by $(d_\delta)^\eta$, with $(d_\delta)$ mean $\delta$-burst duration and $\eta = 1.2$. After rescaling, distributions collapse onto a single function, a Weibull distribution $f(d; \lambda, \beta)$ (black thick line), with $\beta = 0.55$ and $\lambda = 0.46$. Inset: Distributions $P_\delta$ for different thresholds (not rescaled). (c) Distribution of $\theta$-burst durations for PZ-lesioned rats over a 12 h period (pooled data). Distributions evaluated using different $Th$ values consistently follow the same power-law behaviour (red tick line), with a cutoff that is controlled by $Th$. Inset: data collapse onto a universal function $f_\theta$ by plotting $P(\delta)d^{\alpha}$ versus $Th'd$ with $\alpha = 2.25$ and $\epsilon = 0.8$. (d) Rescaled distribution of $\delta$-burst durations for PZ-lesioned rats over a 12 h light period (pooled data). Distributions are rescaled by $(d_\delta)^\eta$, with $(d_\delta)$ mean $\delta$-burst duration and $\eta = 1.2$. After rescaling, the distributions...
collapse onto a single function, a Weibull distribution $f(d; \lambda, \beta)$ (black thick line), with $\beta = 0.56$ and $\lambda = 0.47$. Inset: Distributions $P_d$ for different thresholds (not rescaled).
**Fig. D** Distribution of θ- and δ-burst durations in the dark period are independent of the specific window size \( w \) used to identify bursts and can be described by unique scaling functions. Distribution of θ- and δ-burst durations in dark period for different window sizes \( w \) and \( Th = 1 \) on the ratio \( R_{\theta\delta} \). (a) Rescaled distribution of θ-burst durations for control rats over a 12h dark period (pooled data). Distributions are rescaled by the window size \( w \) and consistently show the same power-law behavior with \( \alpha = 2.45 \) (red tick line), as proven by the data collapse. Inset: Distributions \( P_\theta \) for different window sizes (not rescaled). (b) Rescaled distribution of δ-burst durations for control rats over a 12 h dark period (pooled data). Distributions are rescaled by \( \langle d_\delta \rangle^\xi \), with \( \langle d_\delta \rangle \) mean δ-burst duration and \( \xi = 1.2 \), and collapse onto a single function that is well described by a Weibull distribution \( f(d; \lambda, \beta) \) (black thick line), with \( \beta = 0.59 \) and \( \lambda = 0.57 \). Inset: Distributions \( P_\delta \) for different window sizes (not rescaled). (c) Rescaled distribution of θ-burst durations for PZ-lesioned rats over a 12 h dark period (pooled data). Distributions are rescaled by the window size \( w \) and consistently show the same power-law behavior with \( \alpha = 2.45 \) (red tick line), as proven by the data collapse. Inset: Distributions \( P_\theta \) for different window sizes (not rescaled). (d) Rescaled distribution of δ-burst durations for PZ-lesioned rats over a 12h dark period (pooled data). Distributions are rescaled by \( \langle d_\delta \rangle^\xi \), with \( \langle d_\delta \rangle \) mean δ-burst duration and \( \xi = 1.2 \), and collapse onto a single function that is well fitted by a Weibull distribution.
\( f(d; \lambda, \beta) \) (black thick line), with \( \beta = 0.54 \) and \( \lambda = 0.45 \). Inset: Distributions \( P_{\delta} \) for different window sizes (not rescaled).
Fig. E  Distribution of $\theta$- and $\delta$-burst durations in the light period are independent of the specific window size $w$ used to identify bursts and can be described by unique scaling functions. Distribution of $\theta$- and $\delta$-burst durations in light period for different window sizes $w$ and $Th = 1$ on the ratio $R_{\theta\delta}$. (a) Rescaled distribution of $\theta$-burst durations for control rats over a 12h light period (pooled data). Distributions are rescaled by the window size $w$ and consistently show the same power-law behavior with $\alpha \approx 2.25$ (red tick line), as proven by the data collapse. Inset: Distributions $P_{\theta}$ for different window sizes (not rescaled). (b) Rescaled distribution of $\delta$-burst durations for control rats over a 12h light period (pooled data). Distributions are rescaled by $\langle d_\delta \rangle^\xi$, with $\langle d_\delta \rangle$ mean $\delta$-burst duration and $\xi = 1.2$, and collapse onto a single function that is well described by a Weibull distribution $f(d; \lambda, \beta)$ (black thick line), with $\beta = 0.54$ and $\lambda = 0.44$. Inset: Distributions $P_{\delta}$ for different window sizes (not rescaled). (c) Rescaled distribution of $\theta$-burst durations for PZ-lesioned rats over a 12h light period (pooled data). Distributions are rescaled by the window size $w$ and consistently show the same power-law behavior with $\alpha = 2.25$ (red tick line), as proven by the data collapse. Inset: Distributions $P_{\theta}$ for different window sizes (not rescaled). (d) Rescaled distribution of $\delta$-burst durations for PZ-lesioned rats over a 12h light period (pooled data). Distributions are rescaled by $\langle d_\delta \rangle^\xi$, with $\langle d_\delta \rangle$ mean $\delta$-burst duration and $\xi = 1.2$, and collapse onto a single function that is well described by a...
Weibull distribution $f(d; \lambda, \beta)$ (black thick line), with $\beta = 0.56$ and $\lambda = 0.48$. Inset: Distributions $P_\delta$ for different window sizes (not rescaled).
Fig. F  Distribution of quiet times between consecutive $\theta$-bursts for different thresholds $D_0$ on $\theta$-burst durations in dark and light periods. When rescaled by $\langle \Delta t \rangle$ (main panels), distributions collapse onto a unique function that is well fitted by a generalized Gamma function $G(x; b, \nu, p)$ (green tick lines). (a) Distributions of quiet times for different thresholds $D_0$ on $\theta$-burst durations in 12h dark period for control rats. Generalized gamma fit (green tick line): $b = 1$, $\nu = 0.58$, and $p = 0.8$. (b) Distributions of quiet times for different thresholds $D_0$ on $\theta$-burst durations in 12 h light period for control rats. Generalized gamma fit (green tick line): $b = 1$, $\nu = 0.47$, and $p = 0.77$. (c) Distributions of quiet times for different thresholds $D_0$ on $\theta$-burst durations in 12 h dark period for PZ-lesioned rats. Generalized gamma (green tick line): $b = 0.95$, $\nu = 0.47$, and $p = 0.72$. (d) Distributions of quiet times for different thresholds $D_0$ on $\theta$-burst durations in 12 h light period for PZ-lesioned rats. Generalized gamma fit (green tick line): $b = 1.89$, $\nu = 0.35$, and $p = 0.93$. 


Fig. G Distributions of conditional probabilities for \( \delta \)-burst durations. (a) Distribution of durations \( d_\delta \) given that the duration of the preceding \( \theta \)-burst is larger than a given threshold \( d^* \) (\( d^* = 15 \text{s} \) and \( d^* = 50 \text{s} \)) for control rats in dark periods. (b) Distribution of durations \( d_\delta \) given that the duration of the preceding \( \theta \)-burst is larger than a given threshold, \( d^* = 15 \text{s} \) and \( d^* = 50 \text{s} \), for PZ-lesioned rats in dark periods. Durations are calculated using a window \( w = 5 \text{s} \) and a threshold \( T_h = 1 \) on the ratio \( R_{\theta/\delta} \). (c) Distribution of durations \( d_\delta \) given that the duration of the preceding \( \theta \)-burst is larger than a given threshold \( d^* \) (\( d^* = 15 \text{s} \) and \( d^* = 50 \text{s} \)) for control rats in light periods. (d) Distribution of durations \( d_\delta \) given that the duration of the preceding \( \theta \)-burst is larger than a given threshold, \( d^* = 15 \text{s} \) and \( d^* = 50 \text{s} \), for PZ-lesioned rats in light periods. Durations are calculated using a window \( w = 5 \text{s} \) and a threshold \( T_h = 1 \) on the ratio \( R_{\theta/\delta} \). Inset in each panel shows details of conditional probability distribution for short \( d_\delta < 0.4 \text{ min} \).