Coupled flip-flop model for REM sleep regulation in the rat

Justin R. Dunmyre[1,4], George A. Mashour[2,3] and Victoria Booth[1,2,3,*]

[1]Department of Mathematics, University of Michigan, Ann Arbor, MI, USA
[2]Department of Anesthesiology, University of Michigan Medical School, Ann Arbor, MI, USA
[3]Neuroscience Graduate Program, University of Michigan, Ann Arbor, MI, USA
[4]Department of Mathematics, Frostburg State University, Frostburg, MD, USA
∗ E-mail: vbooth@umich.edu

Table S1 Model parameter values

$g_{S,W}$	-2	W_{max}	6.5	k_S^1	0	α_W	0.5	τ_W	$25s$	$\tau_{stp,up}$	$400s$
$g_{W,S}$	-2	S_{max}	5	k_S^2	-1.5	α_S	0.25	τ_S	$10s$	$\tau_{stp,down}$	$400s$
$g_{R^{off},R^{on}}$	-2	R_{max}^{on}	5	$k_{R^{off}}^1$	0.8	$\alpha_{R^{on}}$	0.5	$\tau_{R^{on}}$	$1s$	$\tau_{stp,W}$	$30s$
$g_{R^{on},R^{off}}$	-5	R_{max}^{off}	5	$k_{R^{off}}^2$	7	$\alpha_{R^{off}}$	0.5	$\tau_{R^{off}}$	$1s$	τ_{stim}	$10s$
						$\beta_{\infty,W}$	-0.3	τ_{cW}	$10s$	τ_ω	$5s$
		h_{max}	0.6			$\beta_{\infty,R^{on}}$	-0.5	τ_{cS}	$10s$		
		h_{min}	0.2	γ_W	5			$\tau_{cR^{on}}$	$10s$	ξ_W	$*$
		stp_{max}	1.2	γ_S	4			$\tau_{cR^{off}}$	$10s$	ξ_S	$*$
θ_W	1.5	stp_{min}	-0.8	$\gamma_{R^{on}}$	4	ω_{max}	0.01	$\tau_{h,up}$	$600s$	$\xi_{R^{on}}$	$*$
$\theta_{R^{on}}$	1.5	stp_r	0	$\gamma_{R^{off}}$	5	ω_{min}	0.003	$\tau_{h,down}$	$700s$	$\xi_{R^{off}}$	$*$

Table S1: Model parameter values for baseline sleep case