Table S1. List of T-DDOGs Used in This Study, Related to Figure 1

T-DDOG	DBDG	ADG[a]	Used in Figure X
Gal4-based T-DDOG			
Gal4-GBP6$^{VP16\text{-}GBP1}$	Gal4DBD-GBP6	(NLS)-VP16AD-10gly-GBP1	2B-2E, S1
Gal4-GBP1$^{VP16\text{-}GBP6}$	Gal4DBD-GBP1	(NLS)-VP16AD-GBP6	3F
Gal4-GBP1$^{VPminx2\text{-}GBP6}$	Gal4DBD-GBP1	GBP6-10gly-VPminx2	3F
Gal4-GBP1$^{VPminx3\text{-}GBP6}$	Gal4DBD-GBP1	GBP6-10gly-VPminx3	3F
Gal4-GBP1$^{VPminx4\text{-}GBP6}$	Gal4DBD-GBP1	GBP6-10gly-VPminx4	3F
Gal4-GBP1x2$^{VP16\text{-}GBP6}$	Gal4DBD-GBP1x2	(NLS)-VP16AD-GBP6	3F
Gal4-GBP1x2$^{VPminx2\text{-}GBP6}$	Gal4DBD-GBP1x2	GBP6-10gly-VPminx2	3F
Gal4-GBP1x2$^{VPminx3\text{-}GBP6}$	Gal4DBD-GBP1x2	GBP6-10gly-VPminx3	3F
Gal4-GBP1x2$^{VPminx4\text{-}GBP6}$	Gal4DBD-GBP1x2	GBP6-10gly-VPminx4	3F
Gal4-GBP1-B$^{VP16\text{-}GBP6}$	GBP1-10gly-Gal4DBD	(NLS)-VP16AD-GBP6	3F, 3G
Gal4-GBP1$^{p65\text{-}GBP6}$	GBP1-10gly-Gal4DBD	(NLS)-p65AD-GBP6	3G, 4, 5, 7, S3-S7
Gal4-GBP2$^{VP16\text{-}GBP7}$	GBP2-10gly-Gal4DBD	(NLS)-VP16AD-10gly-GBP7	2B, 2D, S1
Gal4-GBP2$^{p65\text{-}GBP7}$	Gal4DBD-GBP2	(NLS)-GBP7-p65AD	6
Gal4-GBP2-B$^{VP16\text{-}GBP7}$	GBP2-Gal4DBD	(NLS)-VP16AD-10gly-GBP7	S3
Gal4-GBP5$^{VPminx2\text{-}GBP1}$	GBP5-10gly-Gal4DBD	GBP1-10gly-VPminx2	S3
LexA-based T-DDOG			
LexA-GBP1$^{VP16\text{-}GBP6}$	GBP1-10gly-LexADBD	(NLS)-VP16AD-GBP6	3B
rTetR-based T-DDOG			
rTetR-GBP1$^{VP16\text{-}GBP6}$	rTetRDBD-GBP1	(NLS)-VP16AD-GBP6	3D, 3E

a.) Nuclear localization signal (NLS) added to indicated constructs, but not specified in main text

Table S2. Quantitative Summary of Data Presented in Figure S2, Related to Figure 2

Condition[a]	n[b]	# of GFP+ cells given tdT+ cell counted[c]	% GFP+ cells given tdT+ cells	# of tdT+ cells given GFP cell counted[d]	Average % tdT+ cells given GFP+ cells[e]	SEM[f]	*p* value (GFP vs. GFPmG 1)[g]
GFP + Gal4-GBP6$^{VP16\text{-}GBP1}$ + UAS-tdT	6(4)	590/592	99.7	446/600	74.3	2.1	1.6E-07
GFPmG1 + Gal4-GBP6$^{VP16\text{-}GBP1}$ + UAS-tdT	6(4)	32/33*	97	24/600	4.0	0.5	
pBScript + Gal4-GBP6$^{VP16\text{-}GBP1}$ + UAS-tdT	4(4)	0/10*	0	-	-	-	-
GFP + Gal4-GBP2$^{VP16\text{-}GBP7}$ + UAS-tdT	6(4)	570/571	99.8	432/600	72.0	1.0	2.2E-02
GFPmG1 + Gal4-GBP2$^{VP16\text{-}GBP7}$ + UAS-tdT	7(4)	608/609	99.8	447/700	63.9	2.7	
pBScript + Gal4-GBP2$^{VP16\text{-}GBP7}$ + UAS-tdT	5(4)	0/11*	0	-	-	-	-

a) Experiments performed as indicated in Figure S1

b) Sample size indicates number of micrographs taken. Parenthesized number indicates number of independent transfections analyzed.

c) 66-100 cells were counted per micrograph, except in conditions indicated by asterisks, where all the cells within micrographs were counted

d) 100 cells were counted per sample

e) Average of the % tdT+/GFP+ cells values from each sample

f) SEM for average % tdT+/GFP+ cells

g) 2-tailed Student's t-test of values from average % tdT/GFP+ column, assuming unequal variance

Table S3. Quantitative Summary of Results Presented in Figures S4B, S4E, and S4H, Related to Figure 4

Panel	Promoter for GFP	Condition	n (retinas)	Total n (cells)	% tdT+/ n-βgal+ cells in ONL[a]	SEM
S4B	CAG	+ CAG-GFP	3	150	57.3	2.9
	-	- CAG-GFP	3	151	0.7	0.7
Panel	Promoter for GFP	Condition	n (retinas)	Total n (cells)	% tdT+/GFP+ cells[b]	SEM
S4E	Rho	+ ADG	4	201	56.7 (ONL)[c]	3.2
	Rho	- ADG	3	150	0.7 (ONL)	0.7
S4H	mGluR6	+ ADG	3	122	42.8 (INL)[c]	7.6
	mGluR6	- ADG	3	161	0.0 (INL)	0.0

a) Value derived from average of parameter measured per retina. At least 50 cells were sampled from each retina in the ONL.
b) Value derived from average of parameter measured per retina. At least 50 and 30 cells were sampled from each retina in the ONL and INL, respectively.
c) Note these data were presented again in Table S6.

Table S4. Quantitative Summary of Results Presented in Figures S4C and S4F, Related to Figure 4

Panel	Promoter for GFP	Cells counted	n (retinas)	Total n (cells)	% cells in ONL[a]	% cells in INL[a]	SEM
S4C	CAG	GFP+	3	795	78.0	22.0	0.3
	CAG	tdT+	3	570	77.0	23.0	0.1
S4F	Rho	GFP+	4	917	98.3	1.7	0.5
	Rho	tdT+	4	517	98.7	1.3	0.5

a) Value derived from average of parameter measured per retina. All cells within a 20μm thick retina slice (>100 cells) were counted per retina.

Table S5. Quantitative Summary of Results Presented in Figure S4I, Related to Figure 4

Panel	Promoter for GFP	Cells analyzed	n (cells)	Median normalized fluorescence intensity (a.u.)	Interquartile range
S4I	mGluR6	GFP ONL	25	4.9	6.0
	mGluR6	tdT ONL	25	1.8	1.9
	mGluR6	GFP INL	26	35.4	106.8
	mGluR6	tdT INL	26	89.3	98.5

Table S6. Quantitative Summary of Results Presented in Figures S5A and S5B, Related to Figure 4

Panel	Promoter for GFP	Layer analyzed	n (retinas)	Total n (cells)	% GFP+/tdT+ cells[a]	SEM
S5A	CAG	ONL	3	150	96.7	0.7
	CAG	INL	3	86	95.4	1.0
	Rho	ONL	4	200	97.5	1.0
	mGluR6	INL	3	90	90.6	3.1
Panel	Promoter for GFP	Layer analyzed	n (retinas)	Total n (cells)	% tdT+/GFP+ cells[a]	SEM
S5B	CAG	ONL	3	150	66.7	4.1
	CAG	INL	3	90	70.0	3.3
	Rho	ONL	4	201	56.7[b]	3.2
	mGluR6	INL	3	122	42.8[b]	7.6

a) Value derived from average of % tdT+/GFP+ cells per retina. At least 50 and 30 cells were sampled from each retina in the ONL and INL, respectively.
b) Note these data were presented again in Table S3.

Table S7. Additional Quantification of Intrinsic Membrane and Action Potential Properties of L2/3 S1 Pyramidal Neurons, Related to Figure 5

Property	GFP- (n = 10)	GFP+/tdT- (n = 8)	GFP+/tdT+ (n = 8)	*p* value
τ_m, ms	67.15 ± 4.56	67.71 ± 7.69	60.52 ± 6.03	0.66
$V_{m,}$ mV	-65.44 ± 1.19	-66.62 ± 1.50	-68.18 ± 1.44	0.37
AP threshold, mV	-39.43 ± 0.87	-38.54 ± 1.32	-39.57 ± 0.96	0.77
AP height, mV	66.75 ± 2.71	65.32 ± 2.60	69.57 ± 2.35	0.54

Values are mean ± SEM. Membrane constant, τm; resting membrane potential, Vm; action potential, AP. Intrinsic and action potential properties did not differ among GFP-, GFP+/tdT- and GFP+/tdT+ layers 2/3 pyramidal neurons in electroporated somatosensory cortex. *p* value, one-way ANOVA.