

**Table S1. Common driver lines and their corresponding t-types, related to Figure 1.** Cell counts from driver lines used both in this study and Tasic et al. (2018). Dissociated cells from Tasic et al. (2018): left, Patch-seq cells from this study; right. Only Patch-seq cells with highly-consistent mapping are included.

t-type	Chat-IRES-Cre-neo	Chma2-Cre_OE25	Ch-IRES-Cre_ZfH; Sst-IRES-FloP	Etv1-CreERT2; Pvalb-T2A-FloP	Hrf3a-Cre_N0152	Hrf3a-Cre_N0152; Sst-IRES-FloP	Ndnf-IRES2-4gCre	Ndnf-IRES2-4gCre; Slc32a1-IRES2-FloP	Nkx2-1-CreERT2	Nost1-CreERT2	Nost1-CreERT2; Sst-IRES-FloP	Oxlr-T2A-Cre	Oxlr-T2A-Cre; Pvalb-T2A-FloP	Pdyn-T2A-CreERT2	Pvalb-IRES-Cre	Slc17a8-Cre	Slc17a8-IRES2-Cre	Slc17a8-IRES2-Cre; Slc32a1-IRES2-FloP	Sst-IRES-Cre	Tact1-IRES2-Cre; Sst-IRES-FloP	Th-Cre_FH172	Vip-IRES-Cre	Vipr2-IRES2-Cre	Vipr2-IRES2-Cre; Pvalb-T2A-FloP	Vipr2-IRES2-Cre; Slc32a1-T2A-FloP
Lamp5 Krt73	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
Lamp5 Fam19a1 Pax6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lamp5 Fam19a1 Tmem182	0	0	0	0	0	0	2	1	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
Lamp5 Ntn1 Npy2r	0	0	0	0	0	12	3	0	17	24	12	21	0	1	0	0	0	0	0	0	0	0	1	0	0
Lamp5 Pch2 Dock5	0	0	0	0	0	6	10	0	29	32	33	42	0	6	3	0	13	5	0	0	0	0	1	0	0
Lamp5 Lsp1	0	0	2	0	0	10	50	0	5	7	5	10	2	0	25	6	0	18	11	0	0	0	2	4	0
Lamp5 Lhx6	0	0	0	0	0	0	1	0	0	0	0	0	12	4	12	6	0	0	0	0	0	0	0	0	0
Sncg Slc17a8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sncg Vip Npx2	0	0	0	1	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	0
Sncg Gpr50	0	0	1	3	0	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sncg Vip Itih5	1	0	0	1	0	0	0	3	9	0	0	0	0	0	0	0	0	0	0	0	0	3	5	2	0
Serpin1 Cim1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Serpin1 Aqp5 Vip	0	0	0	0	0	0	2	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0
Vip Igfbp6 Car10	0	1	0	0	0	0	2	2	0	0	0	0	1	0	0	0	2	0	0	0	0	0	5	0	0
Vip Igfbp6 Pltp	0	0	0	0	0	0	6	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0	1	0	0
Vip Lmo1 Fam159b	0	0	2	1	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	1	19	7	1
Vip Lmo1 Myl1	0	1	0	1	0	0	0	7	9	0	0	0	0	2	0	0	0	0	0	0	0	0	17	38	1
Vip Igfbp4 Mab211l	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	8	7	0
Vip Arhgap36 Hmcn1	0	0	4	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	24	0
Vip Gpc3 Slc18a3	0	0	3	0	0	0	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	31	11	1
Vip Ptprt Pkp2	36	23	0	1	0	0	0	15	5	0	0	0	0	9	1	0	0	0	0	0	0	0	38	66	3
Vip Rspo4 Rxfp1 Chat	4	14	0	0	0	0	0	5	1	0	0	0	0	6	0	0	0	0	0	0	0	0	15	7	0
Vip Lect1 Oxtr	0	0	0	0	0	0	0	5	3	0	0	0	0	0	0	0	13	1	0	0	0	0	14	14	1
Vip Rspo1 Itga4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	3	0	0	0	0	0	6	3	0
Vip Chat Htr1f	1	3	0	0	0	0	0	9	3	0	0	0	0	5	0	0	11	1	0	0	0	0	31	17	6
Vip Pygm C1ql1	1	0	0	0	0	0	0	6	2	0	0	0	0	0	0	0	5	1	0	0	0	0	29	36	1
Vip Crisp1d2 Htr2c	1	0	0	0	0	0	0	5	1	0	0	0	0	1	0	0	13	1	0	0	0	1	28	14	0
Vip Crisp1d2 Kcne4	0	0	0	0	0	0	0	5	7	0	0	0	0	0	0	0	15	1	0	0	0	3	21	39	2
Vip Col15a1 Pde1a	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	3	0
Sst Chodl	0	0	0	0	0	0	0	0	0	1	1	1	0	25	11	20	74	3	3	0	0	0	3	2	0
Sst Mme Fam114a1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	2	0	1	0	0	2	1	0
Sst Tac1 Htr1d	0	0	0	2	1	0	0	0	0	0	0	0	0	3	9	0	0	4	1	0	0	0	6	2	0
Sst Tac1 Tacr3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	9	0	1	0	4	0	0	0	0	0
Sst Calb2 Necab1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	13	8	4
Sst Calb2 Pdlim5	0	0	0	1	1	0	0	0	0	0	0	0	0	1	4	13	0	0	0	0	0	0	38	134	0
Sst Nr2f2 Necab1	0	0	2	1	0	0	0	0	0	0	0	0	0	1	4	2	0	2	0	1	0	0	5	11	0
Sst Myh8 Etv1	0	0	6	3	1	1	0	0	0	0	0	0	0	4	2	0	0	1	0	0	0	0	14	26	0
Sst Chma2 Gira3	0	0	27	2	3	0	0	0	4	0	18	0	0	1	0	0	0	0	0	0	0	0	33	3	3
Sst Myh8 Fibin	0	1	6	1	0	0	0	2	0	9	0	0	1	0	0	0	0	0	0	0	0	0	27	6	0
Sst Chma2 Ptgdr	0	0	14	0	2	0	0	2	0	4	0	0	0	0	0	0	9	0	0	0	0	0	15	1	0
Sst Tac2 Myh4	0	0	3	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0
Sst Hpse Sema3c	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	0	6	3	0	0	73	11	0	0	0
Sst Hpse Cbln4	0	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	6	15	0	0	0	3	15	0	0
Sst Cnr2 Efemp1	0	0	1	0	0	1	0	0	0	1	1	0	0	1	1	0	2	6	3	0	0	2	0	0	0
Sst Cnr 4930553C11Rik	0	0	0	1	3	5	0	0	0	0	0	0	0	2	0	0	4	0	0	0	0	0	1	4	0
Sst Esm1	0	0	6	4	3	12	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0
Sst Tac2 Tacstd2	0	0	4	2	15	18	0	1	1	2	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0
Sst Rxfp1 Eya1	0	0	0	0	23	28	0	0	1	1	1	0	0	1	0	0	1	1	0	0	0	1	0	1	0
Sst Rxfp1 Prdm8	0	0	1	2	12	10	0	0	1	5	5	0	0	1	0	0	1	0	0	0	0	0	1	0	0
Sst Nts	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9	14	0
Pvalb Gabrg1	0	0	8	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	8	5	2
Pvalb Th Sst	0	0	3	2	2	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	2	0	11	0	0
Pvalb Calb1 Sst	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	3	0	0	0	0	0	7	2	0	0
Pvalb Akrlc18 Ntf3	0	0	2	0	0	1	0	0	1	1	0	0	0	0	0	0	15	11	1	1	2	3	10	2	0
Pvalb Sema3e Kank4	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3	2	0	0	0	20	64	0	0
Pvalb Gpr149 Islr	0	0	1	1	0	0	0	6	1	0	0	0	0	0	0	0	55	11	0	0	0	12	0	1	0
Pvalb ReIn Itm2a	0	0	0	0	0	4	1	0	2	0	0	0	0	1	0	0	28	111	0	1	6	2	0	1	0
Pvalb ReIn Tac1	0	0	1	0	0	0	4	0	1	1	0	0	0	1	1	2	0	0	0	0	0	156	7	1	0
Pvalb Tpbg	0	1	0	0	0	43	0	0	1	1	0	0	0	1	2	0	15	8	15	2	0	0	4	17	0
Pvalb Vipr2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0	0	0

Table S2. Summary of Sst met-type properties and relationships to the literature, related to Figure 6.

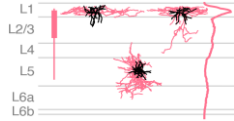
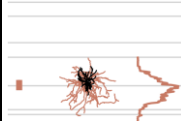
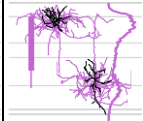

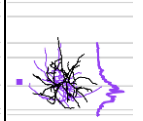
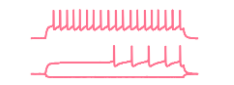
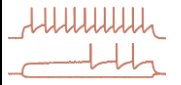
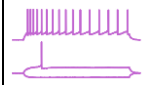
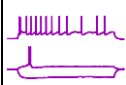
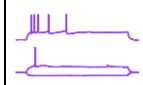
MET-type:	Sst-MET-1	Sst-MET-2	Sst-MET-3	Sst-MET-4	Sst-MET-5	Sst-MET-6	Sst-MET-7
Example Morphologies							
Morphological Description	wide branching, horizontal bitufted dendrites with overlapping and axon that densely innervates the somato-dendritic area ventral to the soma; examples of translaminar and local axon	Mix of superficial Sst neurons that either densely innervate L2/3 and most largely avoid L1, or that densely innervate L1; small number deep neurons; most neurons also extend axon into deeper layers	dendrites that mostly avoid L1; Axon that dominantly innervates L1 and to a lesser extent, L2/3; occasionally sparse axon collaterals that extend to L6	Multipolar dendrites, restricted to deep layers; L1 dominant axon, with multiple collaterals branching widely or in a bundle and heading up to L1	L5 dominant axon with sparse collaterals heading up to L1. Some cells also have enrichment of L2/3 axon. Dendrites are located in deep L5 and are offset with the bulk of local axon in superficial L5.	Ascending axon that either projects up to L1 and branches or terminates without a tuft at L1-L2/3 border. Dendrites are located in deep L5 and are offset with the bulk of local axon.	Dense L4 innervation, with or without axon that extends all the way up to L1
Layer	All layers	L2/3-5	L2/3, L4	Superficial L5	Deep L5	L5	Superficial L5
Example Ephys Traces							
Ephys Description	irregular spiking/adapting with long $\tau_m$	Mostly fast spiking (Sst Tac1 Htr1d and Sst Tac1 Tacr3) and mid-width spiking Sst neurons (Sst Calb2 Necab1)	mid-width spiking	Mostly mid-width spiking; Some cells (Sst Nr2f2 Necab1) had burst like or very strongly adapting firing	Mostly mid-width spiking; Some cells (Sst Nr2f2 Necab1) had burst like or very strongly adapting firing	mid-width spiking with higher input resistance than Sst-MET-5	mid-width spiking
Up-regulated Gene Transcripts	Sst, Chodl, Calb2 (CR)	Sst, Tac1, Calb2, Necab1, Pvalb	Sst, Calb2 (CR), Pdlim5, Hpse	Sst, Calb2 (CR), Pdlim5, Hpse	Sst, Necab1, Nr2f2	Sst, Nr2f2, Chrna2	Sst, Sema3c, Hpse
Down-regulated Gene Transcripts	Pvalb, Lamp5, Ndnf, Npy, Chat, Tac1, Pdlim5, Necab1, Nr2f2, Chrna2, Sema3c, Hpse, Crh, Rxfp1, Esm1, Nts	Lamp5, Ndnf, Vip, Chodl, Pdlim5, Nr2f2, Chrna2, Sema3c, Hpse, Ndnf, Crh, Rxfp1, Esm1, Nts	Lamp5, Ndnf, Chodl, Tac1, Necab1, Nr2f2, Chrna2, Sema3c, Crh, Rxfp1, Esm1, Nts	Lamp5, Ndnf, Vip, Chodl, Tac1, Necab1, Nr2f2, Chrna2, Sema3c, Crh, Rxfp1, Esm1, Nts	Ndnf, Chodl, Tac1, Calb2 (CR), Pdlim5, Chrna2, Sema3c, Hpse, Crh, Rxfp1, Esm1, Nts	Ndnf, Chodl, Tac1, Calb2 (CR), Pdlim5, Necab1, Sema3c, Hpse, Crh, Rxfp1, Esm1, Nts	Ndnf, Chodl, Tac1, Calb2 (CR), Pdlim5, Necab1, Nr2f2, Chrna2, Crh, Rxfp1, Esm1, Nts
Previously Described Cell Types	long-range projecting interneuron (He et al., 2016); me-type 22-23 (Gouwens et al., 2019)	Mix of L2/3 Non-Martinotti (mostly avoids L1) and L2/3 Martinotti (densely innervates L1) (Muñoz et al., 2017); me-type 15 and 26 (Gouwens et al., 2019)	L2/3 and L4 Martinotti (Muñoz et al., 2017; Wang et al., 2004); me-type 15, 24 and 26 (Gouwens et al., 2019)	Fanning and T-shaped Martinotti (Muñoz et al., 2017; Nigro et al., 2019); L5 Martinotti (Wang et al., 2004; Markram et al., 2015); me-type 25 (Gouwens et al., 2019)	Fanning Martinotti (Muñoz et al., 2017; Nigro et al., 2019); me-type 25 (Gouwens et al., 2019)	T-shaped and non-Martinotti (Muñoz et al., 2017; Nigro et al., 2019); MC <sup>2</sup> (Hilscher et al., 2017); me-type 24 (Gouwens et al., 2019)	T-shaped and L4 non-Martinotti (Muñoz et al., 2017); me-type 24 (Gouwens et al., 2019)
ViSp-ALM Transcriptomic type(s) within MET-type	Sst Chodl	Sst Tac1 Htr1d Sst Tac1 Tacr3 Sst Calb2 Necab1	Sst Calb2 Pdlim5 Sst Calb2 Necab1 Sst Hpse Cbln4	Sst Calb2 Pdlim5 Sst Calb2 Necab1 Sst Nr2f2 Necab1	Sst Nr2f2 Necab1 Sst Myh8 Etv1	Sst Chrna2 Glra3 Sst Myh8 Etv1 Sst Chrna2 Ptgdr	Sst Hpse Sema3c

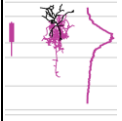
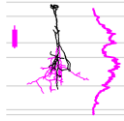
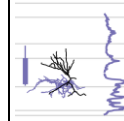
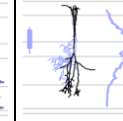
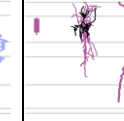

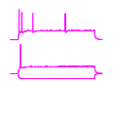
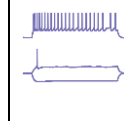
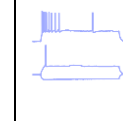

MET-type:	Sst-MET-8	Sst-MET-9	Sst-MET-10	Sst-MET-11	Sst-MET-12	Sst-MET-13
Example Morphologies						
Morphological Description	Dense L2/3 and dominant L4 axon innervation, with or without axon that extends all the way up to L1	L5-L6 dendrites, dense local L5 axon, multiple axon collaterals projecting up to L1, sparse to dense L1 axon	Dendrites and axon distributed across L5 and L6, with clear avoidance of L4 apart from a single collateral crossing L4. Sometimes reaches L1.	Small mixed cluster: Either dense L2/3 axon that extends up to L1 and turns, or local L5 and L6 axon	Large, mixed cluster: Axon sparsely elaborates either in L2/3, L4 or deep layers, infrequently extends all the way up to L1	L5 or L6 dominant axon, clear avoidance of L4 apart from sparse axon extending up to L1.
Layer	L4 and superficial L5	L5, minimal L6	Deep L5 and L6	superficial L5	L4-6	Deep L5 and L6
Example Ephys Traces						
Ephys Description	lower AP thresholds, less hyperpolarization-evoked sag, and more transient or irregular firing	mid-width spiking	mid-width spiking; much less sag than Sst-MET-9	mid-width spiking; L5 cells with low upstroke/downstroke ratio and low input resistances	mid-width spiking	mid-width spiking
Up-regulated Gene Transcripts	Sst, Hpse	Sst, Nr2f2, Sema3c, Ndnf, Crh, Rxfp1, Esm1, Nts	Sst, Pdlim5, Necab1, Sema3c, Crh, Rxfp1	Sst, Necab1, Hpse	Sst, Pdlim5, Hpse, Crh, Rxfp1, Esm1	Sst, Pdlim5, Crh, Esm1, Nts
Down-regulated Gene Transcripts	Ndnf, Chodl, Tac1, Calb2 (CR), Pdlim5, Necab1, Nr2f2, Chrna2, Sema3c, Crh, Rxfp1, Esm1, Nts	Chodl, Tac1, Calb2 (CR), Pdlim5, Necab1, Chrna2, Hpse, Esm1, Nts	Chodl, Tac1, Calb2 (CR), Nr2f2, Chrna2, Hpse, Ndnf, Esm1, Nts	Chodl, Tac1, Calb2, Pdlim5, Nr2f2, Crh, Rxfp1, Esm1, Nts	Chodl, Tac1, Calb2(CR), Necab1, Chrna2, Sema3c, Ndnf, Nts	Chodl, Tac1, Calb2(CR), Necab1, Chrna2, Sema3c, Pvalb, Hpse, Ndnf, Rxfp1
Previously Described Cell Types	L4/L5 Martinotti and Non-Martinotti (Naka et al., 2019; Scala et al., 2019; Muñoz et al., 2017; Ma et al., 2006); me-type 24-25 (Gouwens et al., 2019)	Wide Fanning Martinotti (Muñoz et al., 2017); Deep Non-Martinotti; me-type 24-25 (Gouwens et al., 2019)	L5 and L6 Non-Martinotti and Martinotti; me-type 22 and 25 (Gouwens et al., 2019)	L5 Martinotti with turning L1 axon; L5 deep non-Martinotti; me-type 26 (Gouwens et al., 2019)	Mostly Non-Martinotti (Nigro et al., 2018); me-type 6, 22 (Gouwens et al., 2019)	Deep Non-Martinotti and Martinotti (Naka et al., 2019; Scala et al., 2019; Muñoz et al., 2017; Ma et al., 2006); me-type 6, 24-25 (Gouwens et al., 2019)
ViSp-ALM Transcriptomic type(s) within MET-type	Sst Hpse Cbln4	Sst Tac2 Tacstd2 Sst Tac2 Myh4	Sst Rxfp1 Prdm8 Pvalb Th Sst	Sst Mme Fam114a1 Sst Hpse Cbln4	Sst Hpse Cbln4 Sst Mme Fam114a1 Sst Esm1 Sst Crhr2 Efemp1  Sst Crh 4930553C11Rik Sst Rxfp1 Eya1	Sst Esm1 Sst Nts

Table S3. Summary of Pvalb met-type properties and relationships to the literature, related to Figure 6.

MET-type:	Pvalb-MET-1	Pvalb-MET-2	Pvalb-MET-3	Pvalb-MET-4	Pvalb-MET-5
Example Morphologies					
Morphological Description	dendrites and sparse axon in deep L5 and L6 with horizontal orientation; dendrites and axon overlap	translaminal dendrites and a descending, frequently triangular-shaped axon; axons mostly restricted to L5 and/or L6	mix of translaminal axon and local axon with the major axon in superficial L5	superficial translaminal cells with dense L2/3 axon and sparse descending branches; small number of Lamp5 ngc-like cells with similar morphology	L1 Dendrites, descending axons offset from dendrites with cartridge-like boutons
Layer	L5/6 border only	L6	L4, superficial L5	L2/3 and L4	L2/3
Example Ephys Traces					
Ephys Description	fast spiking with more hyperpolarization-induced sag than other Pvalb MET-types	fast spiking	fast spiking	fast spiking	fast spiking
Up-regulated Gene Transcripts	Pvalb, Gabrg1, Bche, Th	Pvalb, Sst, Sema3e, Htr2c	Pvalb, Htr2c, Reln	Pvalb, Reln, Calb1, Pdlim3	Pvalb, Gabrg1, Pdlim3, Vipr2
Down-regulated Gene Transcripts	Sst, Sema3e, Htr2c, Reln, Calb1, Pdlim3, Vipr2, Vip, Chat, Sncg	Gabrg1, Bche, Th, Reln, Calb1, Pdlim3, Vipr2, Vip, Chat, Sncg	Gabrg1, Bche, Th, Sst, Calb1, Vipr2, Vip, Chat, Sncg	Gabrg1, Bche, Th, Sst, Sema3e, Htr2c, Vipr2, Vip, Chat, Sncg	Bche, Th, Sst, Sema3e, Htr2c, Reln, Calb1, Vip, Chat, Sncg
Previously Described Cell Types	fast spiking basket cell (BC), nest basket cell (Markram et al., 2015); fast spiking BC, DBC, (Jiang et al., 2015; Scala et al., 2019); locally-projecting L6 BCs (Bortone et al., 2014); me-type 7 (Gouwens et al., 2019)	Basket Cell (Markram et al., 2015); Descending Cell (DC) (Jiang et al., 2015); locally-projecting L6 BCs (Bortone et al., 2014); me-type 9 (Gouwens et al., 2019)	Interlaminar (Frandonig et al., 2019); basket cell (Markram et al., 2015); BC, Horizontally Extending Cell (HEC) (Jiang et al., 2015); me-type 11 (Gouwens et al., 2019)	Interlaminar (Frandonig et al., 2019); Translaminal (Bortone et al., 2014); me-type 16 (Gouwens et al., 2019)	Chandelier (Woodruff and Yuste, 2008; Taniguchi et al., 2013; Inan and Anderson, 2014); me-type 21 (Gouwens et al., 2019)
VISp-ALM Transcriptomic type(s) within MET-type	Pvalb Gabrg1	Pvalb Sema3e Kank4 Pvalb Akrc18 Ntf3 Pvalb Th Sst Pvalb Calb1 Sst	Pvalb Reln Tac1 Pvalb Gpr149 Islr	Pvalb Tpbp Pvalb Reln Itm2a	Pvalb Vipr2

Table S4. Summary of Lamp5, Sncg, and Vip met-type properties and relationships to the literature, related to Figure 7.

MET-type:	Lamp5-MET-1	Lamp5-MET-2	Sncg-MET-1	Sncg-MET-2	Sncg-MET-3
Example Morphologies					
Morphological Description	small, complex dendrites, dense axon that is either isolated to L1 or crosses multiple layers; dendrite and axon overlap	small, complex dendrites, dense axon that crosses layers and overlaps with dendrites	bitufted and multipolar dendrites; wide translaminal axon with enriched local (somato-dendritic) axon innervation pattern; axon mostly avoids L1	bitufted dendrites, sparse, descending axon	Large, multi-polar dendrites
Layer	All layers	L6 only	L2/3-6	L1 and L2/3	L5
Example Ephys Traces					
Ephys Description	high upstroke/downstroke ratios; mix of late-spiking phenotype, as measured by the latency to the first action potential at rheobase	high upstroke/downstroke ratios; late spiking	regular, adapting firing	irregular spiking; very high input resistances	irregular spiking
Up-regulated Gene Transcripts	Lamp5, Npy, Ndnf, Necab1, Sema3e, Nr2f2, Pde1a	Lamp5, Npy, Lhx6, Plch2, Nkx2.1	Vip, Sncg, Cck, Reln, Nptx2, Ptprr, Pde1a	Vip, Sncg, Cck, Reln, Nptx2, Car10, Ptprr, Pde1a	Vip, Sst, Pvalb, Nptx2, Reln, Nptx2, Car10
Down-regulated Gene Transcripts	Sst, Pvalb, Vip, Sncg, Pax6, Krt73, Lhx6	Sst, Pvalb, Vip, Sncg, Ndnf, Necab 1, Sema3e, Nr2f2, Pax6, Pde1a	Sst, Pvalb, Ndnf, Rspo4, Chat, Car10, Krt73, Slc17a8	Sst, Pvalb, Ndnf, Rspo4, Chat, Krt73, Slc17a8	Vip, Sst, Pvalb, Nptx2, Reln, Nptx2, Car10
Previously Described Cell Types	L1 neurogliaform cells (NGCs) (Jiang et al., 2015; Jiang et al., 2013); Canopy-like NGCs (Schuman et al., 2019); L2/3-6 late spiking NGCs; me-type 17-20 (Gouwens et al., 2019)	deep late spiking NGC, me-type 19 (Gouwens et al., 2019)	Vip+/Cck+ basket cells (Tasic 2018)	Vip+/Cck+ basket cells (Tasic 2018)	Vip+/Cck+ basket cells (Tasic 2018)
ViSp-ALM Transcriptomic type(s) within MET-type	Lamp5 Lsp1 Lamp5 Ntn1 Npy2r Lamp5 Plch2 Dock5	Lamp5 Lhx6	Sncg Gpr50 Sncg Vip Itih5 Sncg Vip Nptx2 Vip Col15a1 Pde1a	Sncg Gpr50 Sncg Vip Nptx2	Sncg Slc17a8

MET-type:	Vip-MET-1	Vip-MET-2	Vip-MET-3	Vip-MET-4	Vip-MET-5
Example Morphologies					
Morphological Description	Bitufted dendrites, descending axon, wider branching near soma with majority of axon in L2/3	Bitufted and bipolar dendrites and narrow axon that descends to L6; wider axonal branching in deep layers; axon avoids L4	Small cluster: Short, wide branching bitufted dendrites, descending axon with elaborate branching at layer boundaries	Bitufted and bipolar dendrites and narrow axon that descends to L6. Wider axonal branching in deep layers, with enriched axonal innervation in L2/3 and L4.	Bitufted and bipolar dendrites with axon that ascends to L1 with wider axon and descends to L6
Layer	L2/3 and 4	L2/3 and L4	L2/3 and L5	L2/3-5	L2/3
Example Ephys Traces					
Ephys Description	regular, sustained firing	irregular spiking	irregular spiking	irregular firing and had more hyperpolarization-evoked sag	irregular spiking with deeper hyperpolarization-induced sag
Up-regulated Gene Transcripts	Vip, Cck, Npy, Chat	Vip, Cck, Chat, Ptprt, Rspo1	Vip, Cck, Sfrp2, Lmo1	Vip, Chat, Sfrp2, Lmo1, Myl1, Crispld2	Vip, Cck, Crispld2
Down-regulated Gene Transcripts	Sst, Pvalb, Lamp5, Ndnf, Ptprt, Rspo1, Sfrp2, Lmo1, Myl1, Crispld2	Sst, Pvalb, Lamp5, Ndnf, Npy, Sfrp2, Lmo1, Myl1, Crispld2	Sst, Pvalb, Lamp5, Ndnf, Npy, Chat, Ptprt, Rspo1, Myl1, Crispld2	Sst, Pvalb, Lamp5, Ndnf, Cck, Npy, Ptprt, Rspo1	Sst, Pvalb, Lamp5, Npy, Chat, Ptprt, Rspo1, Sfrp2, Lmo1, Myl1
Previously Described Cell Types	Bipolar and Bitufted cells (Prönneke et al., 2015; Peters and Kara, 1985); me-type 1-3 (Gouwens et al., 2019)	Bipolar and Bitufted cells (Prönneke et al., 2015; Peters and Kara, 1985); me-type 3 (Gouwens et al., 2019)	Bipolar and Bitufted cells (Prönneke et al., 2015; Peters and Kara, 1985); me-type 1-5 (Gouwens et al., 2019)	Bipolar and Bitufted cells (Prönneke et al., 2015; Peters and Kara, 1985); me-type 1-5 (Gouwens et al., 2019)	Bipolar and Bitufted cells (Prönneke et al., 2015; Peters and Kara, 1985); me-type 1-2 (Gouwens et al., 2019)
ViSp-ALM Transcriptomic type(s) within MET-type	Vip Rspo1 Itga4 Vip Chat Htr1f Vip Pygm C1q1 Vip Igfbp4 Mab2111	Vip Ptprt Pkp2 Vip Rspo4 Rxfp1 Chat Vip Gpc3 Slc18a3	Vip Lmo1 Fam159b	Vip Lmo1 Myl1 Vip Crispld2 Kcne4 Vip Lect1 Oxtr	Vip Crispld2 Htr2c Vip Lect1 Oxtr Vip Crispld2 Kcne4 Vip Rspo1 Itga4