

Suppl. Table 1 - PDZ Domain Array III

PDZ domain	full name of protein	accession	mean grey values	
			Ca _v 1.2	PMCA4b
MAGI3-D2	membrane-associated guanylate kinase-related 3, Domain 2	Q5TCQ9	17.9	160.3
MAGI3-D4	membrane-associated guanylate kinase-related 3, Domain 4	Q5TCQ9	18.3	17.9
MAGI3-D5	membrane-associated guanylate kinase-related 3, Domain 5	Q5TCQ9	18.1	25.7
MAGI3-D6	membrane-associated guanylate kinase-related 3, Domain 6	Q5TCQ9	72.7	203.3
MAGI1-D2	membrane-associated guanylate kinase inverted 1; brain-specific angiogenesis inhibitor-associated protein 1; WW domain-containing protein 3; atrophin-1 interacting protein 3, Domain 2	Q96QZ7	39.5	55.5
MAGI1-D3	membrane-associated guanylate kinase inverted 1; brain-specific angiogenesis inhibitor-associated protein 1; WW domain-containing protein 3; atrophin-1 interacting protein 3, Domain 3	Q96QZ7	41.0	218.7
MAGI1-D4	membrane-associated guanylate kinase inverted 1; brain-specific angiogenesis inhibitor-associated protein 1; WW domain-containing protein 3; atrophin-1 interacting protein 3, Domain 4	Q96QZ7	22.3	22.5
MAGI1-D1	membrane-associated guanylate kinase inverted 1; brain-specific angiogenesis inhibitor-associated protein 1; WW domain-containing protein 3; atrophin-1 interacting protein 3, Domain 1	Q96QZ7	17.0	1.8
MAGI1-D6	membrane-associated guanylate kinase inverted 1; brain-specific angiogenesis inhibitor-associated protein 1; WW domain-containing protein 3; atrophin-1 interacting protein 3, Domain 6	Q96QZ7	26.7	4.7
MAGI2-D2	membrane-associated guanylate kinase inverted 1; atrophin-1 interacting protein 1, Domain 2	Q86UL8	2.9	48.5
MAGI2-D3	membrane-associated guanylate kinase inverted 1; atrophin-1 interacting protein 1, Domain 3	Q86UL8	14.9	226.5
MAGI2-D4	membrane-associated guanylate kinase inverted 1; atrophin-1 interacting protein 1, Domain 4	Q86UL8	13.5	13.7
MAGI2-D5	membrane-associated guanylate kinase inverted 1; atrophin-1 interacting protein 1, Domain 5	Q86UL8	28.3	98.6
MAGI2-D6	membrane-associated guanylate kinase inverted 1; atrophin-1 interacting protein 1, Domain 6	Q86UL8	98.9	229.2
hPTP1E-D2	protein tyrosine phosphatase, non-receptor type 13 isoform 4; protein-tyrosine phosphatase PTPL1; protein tyrosine phosphatase 1E; Fas-associated phosphatase-1; protein-tyrosine phosphatase 1, Fas-associated APO-1/CD95 (Fas)-associated phosphatase, Domain 2	Q12923	17.4	0.1
hPTP1E-D3	protein tyrosine phosphatase, non-receptor type 13 isoform 4; protein-tyrosine phosphatase PTPL1; protein tyrosine phosphatase 1E; Fas-associated phosphatase-1; protein-tyrosine phosphatase 1, Fas-associated APO-1/CD95 (Fas)-associated phosphatase, Domain 3	Q12923	8.8	0.1
hPTP1E-D4	protein tyrosine phosphatase, non-receptor type 13 isoform 4; protein-tyrosine phosphatase PTPL1; protein tyrosine phosphatase 1E; Fas-associated phosphatase-1; protein-tyrosine phosphatase 1, Fas-associated APO-1/CD95 (Fas)-associated phosphatase, Domain 4	Q12923	23.7	0.5
PTPN4	protein tyrosine phosphatase, non-receptor type 4; megakaryocyte phosphatase; PTPase-MEG1	P29074	22.8	0.1

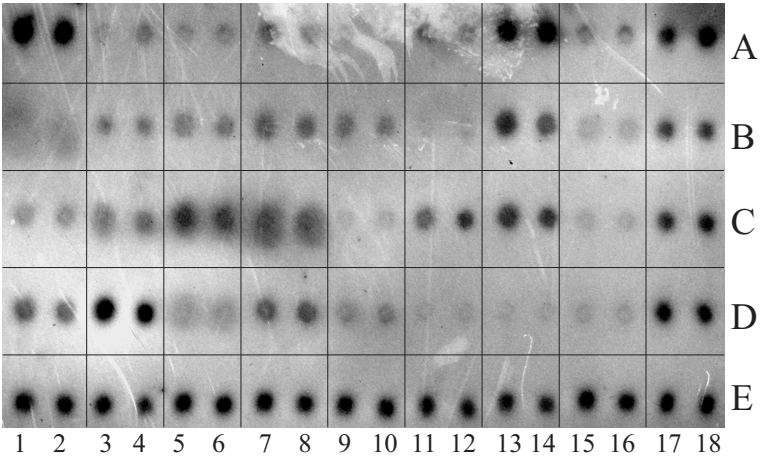
Suppl. Figure 1

A

Mint-2 D1	Mint-3 D1	Mint-3 D2	Mint-1 D1	Mint-1 D2	CASK	Dlg-D1	Dlg1-D3	pos	A								
Dlg2-D2	Dlg4-D3	DVL1	DVL3	DVLL	GIPC	HtrA2	LIMK2	pos	B								
MPP2	NEB1	OMP25	hCLIM1	PTPH1	ZO-2 D1	hPTP1E D1	hPTP1E D5	pos	C								
RGS12	RIL	ZO-1 D3	ZO-2 D3	GST				pos	D								
pos	pos	pos	pos	pos	pos	pos	pos	pos	E								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

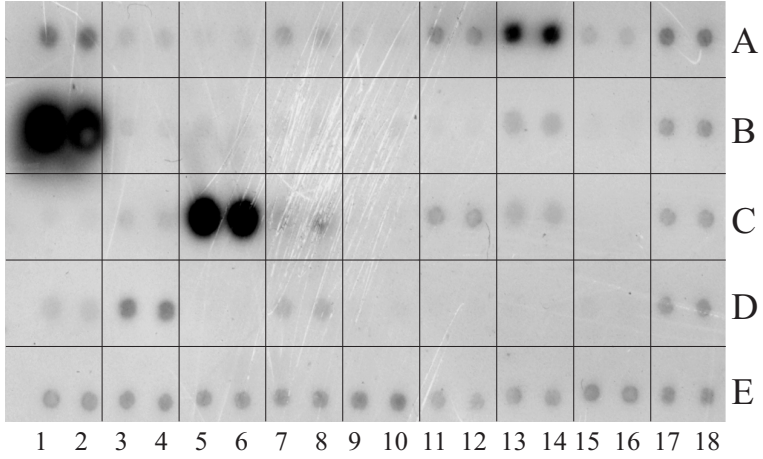
B

Ca_v1.2 C-terminus



C

PMCA4b C-terminus



Suppl. Table 2 - PDZ Domain Array I

PDZ domain	full name of protein	accession	mean grey values	
			Ca _v 1.2	PMCA4b
Mint-2-D1	X11L protein PDZ Domain 1	Q99767	31.5	17.7
Mint-3-D1	X11L2 protein, PDZ Domain 1	O96018	0	0.5
Mint-3-D2	X11L2 protein, PDZ Domain 2	O96018	0	0
Mint-1-D1	X11 protein, PDZ Domain 1	Q02410	2.2	0.3
Mint-1-D2	X11 protein, PDZ Domain 2	Q02410	0.1	0.9
CASK	Calcium/Calmodulin-dependent serine protein kinase	O14936	11.0	4.4
Dlg-D1	Synapse-associated protein 97 PDZ-Domain 1	Q12959	30.4	49.8
Dlg1-D3	Synapse-associated protein 97 PDZ-Domain 3	Q12959	0	0.3
Dlg2-D2	Channel associated protein of synapse-110, PDZ Domain 2, PSD-93	Q15700	0.1	242.8
Dlg4-D3	Human postsynaptic density-95, PDZ Domain 3	P78352	0.2	0.2
DVL1	Dishevelled 1	O14640	0.2	0.9
DVL3	Dishevelled 3	Q92997	0.3	0
DVLL	Dishevelled-1-like	P54792	0.3	0
GIPC	GAIP C-terminus interacting protein GIPC	O14908	0.2	0
HtrA2	High temperature requirement protein A2	O43464	0	0
LIMK2	LIM motif-containing protein kinase-2	P53671	8.9	0
MPP2	MAGUK p55 subfamily member 2	Q14168	0	0
OMP25	Mitochondrial outer membrane protein 25	P57105	0.3	0.1
NEB1	Neurabin-1, neural tissue-specific F-actin-binding protein I	Q9ULJ8	0.2	0.1
hCLIM1	Human 36kDa carboxyl terminal LIM domain protein	O00151	5.4	132.5
PTPH1	Protein-tyrosine phosphatase H1	P26045	2.3	0
ZO-2-D1	Zonula occludens protein 2, PDZ Domain 1	Q9UDY2	0	0
hPTP1E-D1	Protein-tyrosine phosphatase 1E, PDZ Domain 1	Q12923	5.2	0
hPTP1E-D5	Protein-tyrosine phosphatase 1E, PDZ Domain 5	Q12923	7.9	0
RGS12	Regulator of G-protein signaling 12	O14924	0	0.1
RIL	Reversion-induced LIM protein	P50479	14.8	0.9
ZO-1-D3	Zonula occludens protein 1, PDZ Domain 3	Q07157	0.3	0
ZO-2-D3	Zonula occludens protein 2, PDZ Domain 3	Q9UDY2	8.2	0.1
pos	PDZ Domain positive control for Kv1.4 ligand		102.2	153.3
GST	Glutathione-S-Transferase (negative control)		0.0	0.0

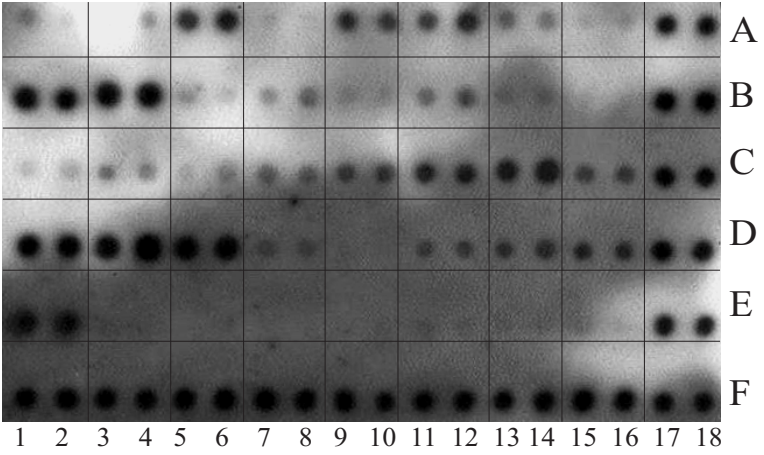
Suppl. Figure 2

A

KIAA 0300-D6	KIAA 0303	KIAA 0316	KIAA 0559	KIAA 0613	KIAA 1719-D7	KIAA 1719-D4	KIAA 1719-D3	pos	A								
KIAA 1526-D3	MAST 205	KIAA 1849	PALS1 D8	PALS1 D9	PALS1 D1	PALS1 D2	PALS1 D5	pos	B								
PALS1 D3	MGC 5395	FLJ 23209 D1	FLJ 23209 D2	KIAA 1719-D6	FLJ 00011	NHERF2 D1	NHERF2 D2	pos	C								
NHERF1 D1	ZO1-D1	ZO1-D2	SDB1 D2	SDB1 D2	IL16(2) D3	LNX1 D3	nNOS	pos	D								
PDZ-pos	GST							pos	E								
pos	pos	pos	pos	pos	pos	pos	pos	pos	F								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

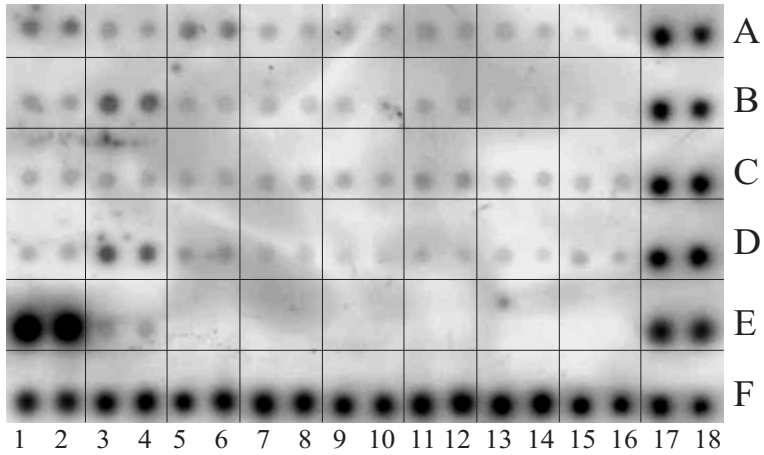
B

Ca_v1.2 C-terminus



C

PMCA4b C-terminus



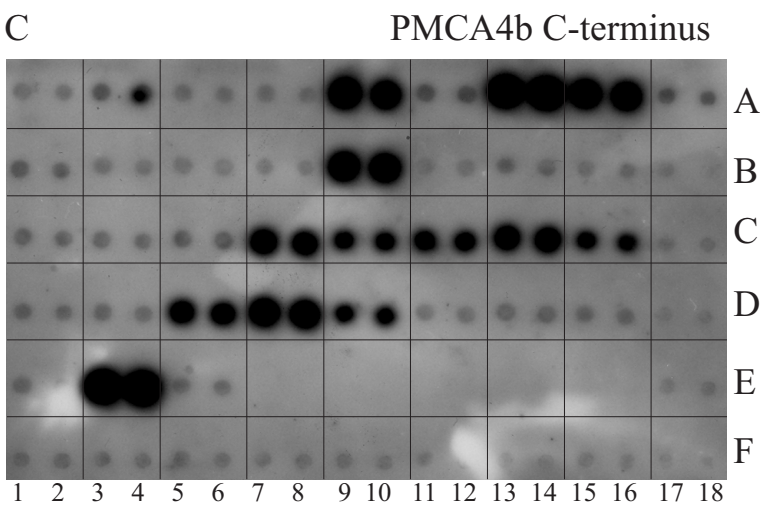
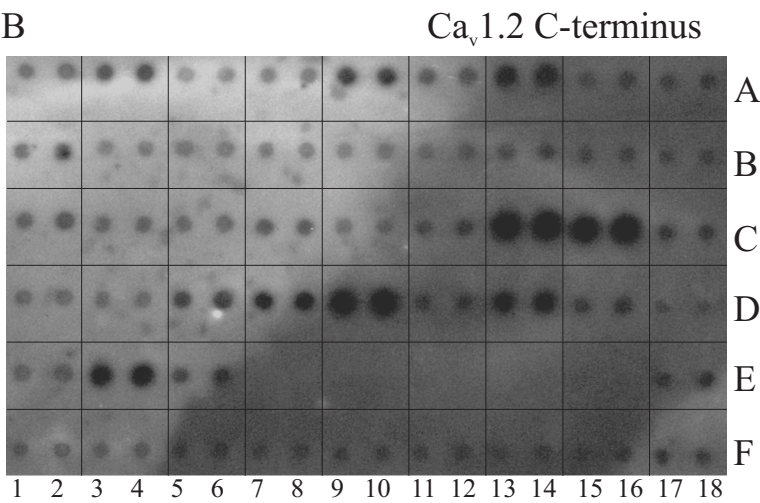
Suppl. Table 3 - PDZ Domain Array II

PDZ domain	full name of protein	accession	mean grey values	
			Ca _v 1.2	PMCA4b
KIAA0300-D6	KIAA0300 protein, Domain 6	O15018	0	20.8
KIAA0303	KIAA0303 protein	O15021	0	0
KIAA0316	KIAA0316 protein	Q14CM0	24.8	8.2
KIAA0559	KIAA0559 protein	Q9Y6V0	0	0
KIAA0613	KIAA0613 protein, Domain 7	Q75112	10.8	0
KIAA1719-D7	KIAA1719 protein, Domain 7	Q9C0E4	18.2	0
KIAA1719-D4	KIAA1719 protein, Domain 4	Q9C0E4	0	0
KIAA1719-D3	KIAA1719 protein, Domain 3	Q9C0E4	0	0
KIAA1526-D3	KIAA1526 protein, Domain 3	Q9P202	66.5	0
MAST205	microtubule associated testis specific serine/threonine protein kinase	Q6P0Q8	77.7	53.5
KIAA1849	hypothetical protein KIAA1849	Q96JH8	0	0
PALS1-D8	Pals1-associated tight junction protein, Domain 8	Q8NI35	0	0
PALS1-D9	Pals1-associated tight junction protein, Domain 9	Q8NI35	0	0
PALS1-D1	Pals1-associated tight junction protein, Domain 1	Q8NI35	0	0
PALS1-D2	Pals1-associated tight junction protein, Domain 2	Q8NI35	0	0
PALS1-D5	Pals1-associated tight junction protein, Domain 5	Q8NI35	0	0
PALS1-D3	Pals1-associated tight junction protein, Domain 3	Q8NI35	0	0
MGC5395	similar to hypothetical protein MGC5395	AAH12477	0	0
FLJ23209-D1	hypothetical protein FLJ23209, Domain 1	NP_079171	0	0
FLJ23209-D2	hypothetical protein FLJ23209, Domain 2	NP_079171	0	0
KIAA1719-D6	KIAA1719 protein, Domain 6	Q9C0E4	7.6	0
FLJ00011	FLJ00011 protein (Fragment)	Q9H7Q6	45.5	0
NHERF2-D2	solute carrier family 9 (sodium/hydrogen exchanger), 3 regulatory factor 2, Domain 1	Q15599	77.0	0
NHERF2-D2	solute carrier family 9 (sodium/hydrogen exchanger), 3 regulatory factor 2, Domain 2	Q15599	0	0
NHERF1-D1	solute carrier family 9 (sodium/hydrogen exchanger) 3 regulatory factor 1, Domain 1	O14745	84.8	0
Z01-D1	tight junction protein 1 (zona occludens), Domain 1	Q07157	130.7	40.6
Z01-D2	tight junction protein 1 (zona occludens), Domain 2	Q07157	152.0	0
SDB1-D1	syndecan binding protein (syntenin), melanoma differentiation associated protein-9, Pro-TGF-alpha cytoplasmic domain interacting protein 18 (TACIP18), Domain 1	NP_005616S	0	0
SDB1-D2	syndecan binding protein (syntenin), melanoma differentiation associated protein-9, Pro-TGF-alpha cytoplasmic domain interacting protein 18 (TACIP18), Domain 2	NP_005616S	0	0
IL16(2)-D3	interleukin 16 isoform 2; lymphocyte chemoattractant factor, Domain 3	Q14005	2.5	0
LNx1-D3	numb-binding protein 1; ligand of numb-protein, Domain 3	Q8TBB1	23.5	0
nNOS	nitric oxide synthase 1 (neuronal), Domain 5	P29475	36.2	0
PDZ-pos	PDZ Domain positive control for Kv1.4 ligand synapse associated protein 102		172.4	241.4
pos	PDZ Domain positive control for Kv1.4 ligand		102.2	153.3
GST	Glutathione-S-Transferase (negative control)		0.0	0.0

Suppl. Figure 3

A

MUPP1 D6	MUPP1 D12	MUPP1 D2	MUPP1 D3	MUPP1 D13	MUPP1 D1	Dlg3 D2	Dlg3 D3	pos	A								
Dlg5 D1	Dlg5 D4	Dlg5 D3	Dlg5 D2	Dlg2 D3	PAR68	LIK1	LOMP	pos	B								
RIL	A2LIM	TIAM1	LIN7C	LIN7B	LIN7A	GEF11	GEF12	pos	C								
PDZK1 D1	PDZK1 D2	SNB1	SNA1	SHK1	MPP6	PIST	GEF2	pos	D								
RIM2	PDZ-pos	GST						pos	E								
pos	pos	pos	pos	pos	pos	pos	pos	pos	F								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18



Suppl. Table 4 - PDZ Domain Array IV

PDZ domain	full name of protein	accession	mean grey values	
			Ca _v 1.2	PMCA4b
MUPP1-D6	multiple PDZ domain protein, Domain 6	O75970	0	0
MUPP1-D12	multiple PDZ domain protein, Domain 12	O75970	0	22.3
MUPP1-D2	multiple PDZ domain protein, Domain 2	O75970	0	0
MUPP1-D3	multiple PDZ domain protein, Domain 3	O75970	0	0
MUPP1-D13	multiple PDZ domain protein, Domain 13	O75970	0	195.2
MUPP1-D1	multiple PDZ domain protein, Domain 1	O75970	0	25.3
DLG3-D2	synapse-associated protein 102; neuroendocrine dlg, discs large homolog 3, Domain 2	Q92796	10.9	244.5
Dlg3-D3	synapse-associated protein 102; neuroendocrine dlg, discs large homolog 3, Domain 3	Q92796	0	204.5
Dlg5-D1	discs, large homolog 5, Domain 1	Q8TDM6	0	0
Dlg5-D4	discs, large homolog 5, Domain 4	Q8TDM6	0	0
Dlg5-D3	discs, large homolog 5, Domain 3	Q8TDM6	0	0
Dlg5-D2	discs, large homolog 5, Domain 2	Q8TDM6	0	0
Dlg2-D3	Channel associated protein of synapse-110 (Chapsyn-110), Domain 3	Q15700	0	191.7
PAR6B	Partitioning defective-6 homolog beta, Domain 1	Q9BYG5	0	0
LIK1	LIM domain kinase 1 isoform; LIM motif containing protein kinase	P53667	0	0
LOMP	LIM domain only 7 isoform a; KIAA0858 protein	Q8WWI1	0	0
RIL	LIM protein RIL (Reversion-induced LIM protein)	P50479	0	0
A2LIM	alpha-actinin-2-associated LIM protein; enigma homolog	Q53GG5	0	0
TIAM1	T-cell lymphoma invasion and metastasis 1	Q13009	0	0
LIN7C	Lin-7 homolog C	Q9NUP9	0	112.6
LIN7B	Lin-7 homolog B	Q9HAP6	0	66.9
LIN7A	Lin-7 homolog A	O14910	0	85.9
GEF11	Rho guanine exchange factor (GEF) 11; glutamate transporter EAAT4-associated protein 48; KIAA0380 protein	O15085	62.9	134.6
GEF12	Rho guanine exchange factor (GEF) 12; leukemia-associated GEF; similar to mouse Lsc oncogene	Q9NZN5	55.9	68.9
PDZK1-D1	PDZ domain containing 1, Domain 1	Q5T2W1	0	0
PDZK1-D2	PDZ domain containing 1, Domain 2	Q5T2W1	0	0
SNB1	Beta-1-syntrophin; tax interaction protein 43; dystrophin-associated protein A1,59kD, basic component 1	Q13884	0	101.1
SNA1	acidic alpha 1 syntrophin; dystrophin-associated protein A1, 59kD, acidic component; pro-TGF-alpha cytoplasmic domain-interacting protein 1	Q13424	10.0	163.6
SHK1	somatostatin receptor-interacting protein; Sh3 and multiple ankyrin repeat domains 1	Q9Y566	47.8	52.1
MPP6	membrane protein, palmitoylated 6; protein associated with Lin7 2; VELI-associated MAGUK 1; MAGUK protein p55T	Q9NZW5	0.5	0
PIST	Golgi associated and coiled-coil motif containing protein; CFTR-associated PDZ/coiled-coil domain binding partner for the rho-family GTPase Tc10; fused in glioblastoma; Golgi associated PDZ an coiled-coil motif containing protein	Q9HD26	26.0	0
GEF2	Rap guanine nucleotide exchange factor; PDZ domain-containing guanine nucleotide exchange factor 1	Q8TEU7	0.3	0
RIM2	regulating synaptic membrane exocytosis 2; RAB3 interacting protein 3; KIAA0751 protein	Q9UQ26	0	0
PDZ-pos	PDZ Domain positive control for Kv1.4 ligand synapse associated protein 102		172.4	241.4
pos	PDZ Domain positive control for Kv1.4 ligand		102.2	153.3
GST	Glutathione-S-Transferase (negative control)		0.0	0.0

PDZ domain	full name of protein	accession	mean grey values	
			Ca _v 1.2	PMCA4b
GRIP1-D4	glutamate receptor-interacting protein1; GRIP1 protein, Domain 4	Q9Y3R0	20.9	0.3
GRIP1-D3	glutamate receptor-interacting protein1; GRIP1 protein, Domain 3	Q9Y3R0	27.1	25.4
GRIP1-D2	glutamate receptor-interacting protein1; GRIP1 protein, Domain 2	Q9Y3R0	5.9	2.1
SCRIB1-D1	Scribble, Domain 1	Q14160	102.6	253.3
SCRIB1-D2	Scribble, Domain 2	Q14160	43.6	232.8
SCRIB1-D4	Scribble, Domain 4	Q14160	38.3	52.9
PARD3-D2	partitioning-defective protein 3 homolog; atypical PKC isotype-specific interacting protein, Domain 2	Q8TEW0	20.1	1.4
PARD3-D3	partitioning-defective protein 3 homolog; atypical PKC isotype-specific interacting protein, Domain 3	Q8TEW0	41.9	58.3
HARM-D3	harmonin; PDZ-73 protein; antigen NY-CO-38, Domain 3	Q9Y6N9	9.9	0.0
MLL4	myeloid/lymphoid or mixed-lineage leukemia, translocated to, 4	Q9UMN6	64.9	18.8
TIP1	Tax interaction protein 1	O14907	65.6	228.2
SDB2D2	syntenin-2beta; syntenin-2; similar to syndecan binding protein, Domain 2	Q9H190	40.6	52.6
PDZ-pos	PDZ Domain positive control for Kv1.4 ligand synapse associated protein 102		41.4	254.5
pos	PDZ Domain positive control for Kv1.4 ligand		57.8	42.9
GST	Glutathione-S-Transferase (negative control)		0.1	0.0

Suppl. Table 5:

	V_{\max} (mV)	k_{act}	$V_{1/2}$ activation (mV)	Activation threshold (mV)	Current density (pA/pF)
Ctrl	10.0 ± 0.52	-5.40 ± 0.22	-3.23 ± 1.64	-30.00 ± 2.36	16.49 ± 3.68
nNOS	20.0 ± 0.7	-6.44 ± 0.22	1.46 ± 0.71	-27.78 ± 2.78	19.09 ± 1.78