

Table S1: Summary of experimental evidences of identified peptides.

(A) Protein name & Ensembl ID	(B) Peptide sequence	(C) Mr	(D) Error	(E) Z	(F) m/z	(G) VG _A R α 1 Data 1	(H) VG _A R α 1 Data 2	(H) GFP Data 2
GABA _A R β 2 ENSMUSP0000007797 (GABA _A R β 1, GABA _A R β 3)	25-QSVNDPSNMSLVK-37	1400.670	0.01	2	701.343	MS/MS	MS/MS	-
	111-VADQLWVPDITYFLNDK-126 (*)	1922.952	0.011	2	962.484	MS/MS	MS/MS	-
	111-VADQLWVPDITYFLNDKK-127 (*)	2051.048	0.012	3	684.691	MS/MS	MS/MS	-
	128-SFVHGVTVK-136 (*)	972.543	0.004	2	487.279	MS/MS	MS	-
	142-LHPDGTVLYGLR-153 (*)	1339.732	0.008	3	447.585	MS/MS	MS/MS	-
	154-ITTTAACMMDLR-165 (*)	1382.643	0.008	2	692.330	MS/MS	MS/MS	-
	182-GYTTDDIEFYWR-193 (*)	1564.689	0.006	2	783.352	MS/MS	-	-
	184-TTDDIEFYWR-193 (*)	1344.598	0	2	673.307	MS/MS	-	-
	194-GDDNAVTVTK-204	1075.519	0.005	2	538.767	MS/MS	MS/MS	-
	205-IELPQFSIVDYK-216 (*)	1450.780	0.009	2	726.398	MS/MS	MS/MS	MS
	222-VVFSTGSYPR-231	1111.572	0.007	2	556.794	MS/MS	MS/MS	-
	360-MDPHENILLSTLEIK-374	1767.917	0.01	3	590.314	MS/MS	MS/MS	-
	375-NEMATSEAVMGLGDPR-390	1676.762	0.013	2	839.389	MS/MS	MS/MS	-
	391-STMLAYDASSIQYR-404	1620.755	0.01	2	811.385	MS/MS	MS/MS	-
	438-ITIPDLTDVNAIDR-451	1554.834	0.01	2	778.425	MS/MS	MS/MS	MS
GABA _A R β 1 ENSMUSP00000031122 (GABA _A R β 2, GABA _A R β 3)	52-LRPDFGGPPVDVGM-66	1627.823	0.01	3	543.616	MS/MS	MS/MS	-
	112-VADQLWVPDITYFLNDK-127 (*)	1922.952	0.011	2	962.484	MS/MS	MS/MS	-
	112-VADQLWVPDITYFLNDKK-128 (*)	1922.952	0.012	3	641.992	MS/MS	MS/MS	-
	129-SFVHGVTVK-137 (*)	972.543	0.004	2	487.279	MS/MS	MS	-
	143-LHPDGTVLYG LR-154 (*)	1339.732	0.008	3	447.585	MS/MS	MS/MS	-
	155-ITTTAACMMDLR-166 (*)	1382.643	0.008	2	692.330	MS/MS	MS/MS	-
	206-IELPQFSIVDYK-217 (*)	1450.780	0.009	2	726.398	MS/MS	MS/MS	MS
	222-KVEFTTGAYPR-232	1267.660	0.004	2	634.838	MS/MS	MS	-
	359-VQVDAHGNILLSTLEIR-375	1877.042	0.006	2	939.529	MS/MS	-	-
	375-NETSGSEVLTGVSDPK-391	1618.778	0.01	2	810.397	MS/MS	MS/MS	-
	392-ATMYSYDSASIQYR-405	1670.736	0.012	2	836.376	MS/MS	MS/MS	-
	396-SYDSASIQYR-405	1188.552	0.012	2	595.284	MS/MS	MS/MS	-
	438-VKIPDLTDVNSIDK-451	1555.852	0.007	3	519.625	MS/MS	MS/MS	-
	440-IPDLTDVNSIDKWSR-454	1757.904	0.01	3	586.976	MS/MS	MS/MS	-
	440-IPDLTDVNSIDK-451	1328.693	0.011	2	665.354	MS/MS	MS	MS
GABA _A R β 3 ENSMUSP00000038051 (GABA _A R β 1, GABA _A R β 2)	26-QSVNDPGNMSFVK-38	1404.640	0.006	2	703.328	MS/MS	MS/MS	-
	112-VADQLWVPDITYFLNDK-127 (*)	1922.952	0.011	2	962.484	MS/MS	MS/MS	-
	112-VADQLWVPDITYFLNDKK-128 (*)	2051.048	0.012	3	684.691	MS/MS	MS/MS	-
	129-SFVHGVTVK-137 (*)	972.543	0.004	2	487.279	MS/MS	MS	-
	143-LHPDGTVLYGLR-154 (*)	1339.732	0.008	3	447.585	MS/MS	MS/MS	-
	155-ITTTAACMMDLR-166 (*)	1382.643	0.008	2	692.330	MS/MS	MS/MS	-

	183-GYTDDIEFYWR-194 (*)	1564.689	0.006	2	783.352	MS/MS	-	-
	185-TTDDIEFYWR-194 (*)	1344.598	0	2	673.307	MS/MS	-	-
	206-IELPQFSIVEHR-217	1466.795	0.007	2	734.405	MS/MS	MS	-
	222-NVVFATGAYPR-232	1193.626	0.008	2	597.821	MS/MS	MS/MS	-
	390-NSAISFDNSGIQYR-403	1570.750	0.013	2	786.383	MS/MS	MS/MS	-
	437-IKIPDLTDVNAIDR-450	1581.881	0.009	3	528.302	MS/MS	MS/MS	-
Neuroigin-2 ENSMUSP00000053097 (Neuroigin-1)	17-GGGGPGGGAPGGPGLGLGSLGEER-40	1961.965	0.01	2	981.990	MS/MS	MS/MS	-
	57-ELNNEILGPVVQF-69	1470.783	0.012	2	736.399	MS/MS	MS	-
	84-FQPPEAPASWPGVR-97	1537.778	0.011	3	513.601	MS/MS	MS/MS	-
	160-DEATLNPPDTPDIR-172	1455.692	0.008	2	728.854	MS/MS	MS	-
	231-GNYGLLDQIQALR-243 (*)	1459.787	0.009	2	730.901	MS/MS	MS/MS	-
	244-WLSENIAHFGGDPER-258	1726.818	0.012	2	864.417	MS/MS	-	-
	315-VGCDREDSTEAVECLR-330	1894.826	0.012	2	948.421	MS/MS	MS	-
	433-FMYTDWADR-441 (*)	1203.507	0.006	2	602.761	MS/MS	MS	-
	450-TLLALFTDHQWVAPAVATAK-469	2152.176	0.009	3	718.400	MS/MS	-	-
	470-LHADYQSPVYFYTFY-484	1912.868	0.002	2	957.442	MS/MS	-	-
	544-TGDPNQVPQDTK-556	1395.668	0.005	2	698.842	MS/MS	MS/MS	-
	557-FIHTKPNR-564	1011.565	0.004	3	338.196	MS/MS	-	-
	565-FEEVWSK-572	1022.515	0.008	2	512.265	MS/MS	MS/MS	-
	736-ELPPEEELVSLQLK-749	1622.887	0.011	2	812.451	MS/MS	MS/MS	-
	751-GGGVGADPAEALRPACPPDYTLALR-775	2523.267	0.014	3	842.097	MS/MS	MS	-
GABA _A R α 1 ENSMUSP00000020707 (GABA _A R α 2, GABA _A R α 3, GABA _A R α 4, GABA _A R α 5)	56-LRPGLGER-63 (*)	896.524	0.005	2	449.270	MS/MS	MS/MS	-
	120-IWTPDTFFHNGK-131 (*)	1461.716	0.013	2	731.866	MS/MS	MS/MS	-
	147-ITEDGTLTYTMR-158	1411.709	0.008	2	706.863	MS/MS	MS/MS	-
	163-AECPMHLEDFPMDAHACPLK-182	2400.022	0.022	3	801.015	MS/MS	MS	-
	163-AECPMHLEDFPMDAH-177 (*)	1798.718	0.007	3	600.580	MS/MS	MS	-
	191-AEVVYEWTR-199	1151.567	0.006	2	576.791	MS/MS	MS/MS	MS
	204-SVVVAEDGSR-213 (*)	1017.513	0.004	2	509.764	MS/MS	MS/MS	-
	339-RGYAWDGK-346	951.460	0.005	2	476.738	MS/MS	MS/MS	-
	340-GYAWDGK-346	795.359	0.004	2	398.687	MS/MS	MS/MS	-
	363-KNNTYAPTATSYPNLAR-380	1982.978	0.008	3	662.000	MS/MS	MS/MS	-
	363-KNNTYAPTATSYPN-377	1641.771	0.008	2	821.894	MS/MS	MS/MS	-
	364-NNTYAPTATSYPNLAR-380	1854.888	0.014	2	928.452	MS/MS	MS/MS	-
	398-EVKPETKPPEPK-409	1377.755	0.005	2	689.885	MS/MS	MS/MS	-
Gephyrin ENSMUSP00000054064	2-ATEGMILTNDHQIR-16	1792.863	0.011	3	598.629	MS/MS	MS	-
	41-DLVQDPSLLGGTISAYK-57	1775.936	0.006	2	888.976	MS/MS	MS/MS	MS

	78-ELNLILTGGTGFAPR-93	1658.912	0.014	2	830.464	MS/MS	MS	-
	139-TLIINLPGSK-148	1054.643	0.005	2	528.330	MS/MS	MS/MS	MS
	244-IPDSIISR-251	899.513	0.006	2	450.764	MS/MS	MS/MS	MS
	279-LSTASCPTPK-288	1060.527	0.005	2	531.271	MS/MS	MS/MS	-
	335-ASHSAVDITK-344	1027.536	0.007	3	343.520	MS/MS	MS	-
	351-MSPFPLTSMKD-361	1268.589	0.012	2	635.302	MS/MS	-	-
	387-VLAQDVYAK-395	1005.554	0.005	2	503.785	MS/MS	MS	-
	396-DNLPPFPASVK-406	1183.630	0.007	2	592.823	MS/MS	MS/MS	-
	421-FIIGESQAGEQPTQTVMPGQVMR-443	2503.227	0.007	3	835.417	MS/MS	-	-
	468-ESDDGTEELEVR-479	1377.589	0	2	689.802	MS/MS	MS/MS	-
GABA _A γ ₂ ENSMUSP00000063812 (GABA _A γ ₁)	60-VPEGDVTVILNNLLEGYDNK-79	2201.132	0.011	2	1101.574	MS/MS	-	-
	80-LRPDIGVK-87	896.551	0.007	2	449.283	MS/MS	MS	-
	144-IWIPDTFFR-152 (*)	1193.630	0.006	2	597.823	MS/MS	MSMS	-
	156-KADAHWITTPNR-167	1408.729	0.008	3	470.584	MS/MS	MS/MS	MS
	202-SCPLEFSSYGYPR-214	1561.696	0.01	2	781.856	MS/MS	MS	-
	208-SSYGYPR-214	828.378	0.002	2	415.197	MS/MS	MS	-
	224-SSVEVGDTR-232	948.455	0.005	2	475.236	MS/MS	MS/MS	-
	236-LYQFSFVGLR-245	1228.665	0.005	2	615.340	MS/MS	MS/MS	-
	393-SATIQMNNATHLQER-407	1712.832	0.006	2	857.424	MS/MS	MS	-
	408-DEEYGYECLDGK-419	1476.581	0.01	2	739.298	MS/MS	MS/MS	-
GABA _A α ₃ ENSMUSP00000062638 (GABA _A α ₁ , GABA _A α ₂ , GABA _A α ₄ , GABA _A α ₅)	34-RQEPGDFVK-42	1074.551	0.006	2	538.283	MS	MS/MS	-
	146-IWTPDTFFHNGK-157 (*)	1461.703	0.013	2	731.859	MS/MS	MS/MS	-
	240-LNQYDLLGHVVGTEIIR-256	1939.052	0.017	3	647.359	MS/MS	-	-
	409-DTEFSTISK-417	1026.486	0.011	2	514.251	MS/MS	MS	-
	418-SAAAPSASSTPTAIASPK-435	1613.825	0.014	2	807.920	MS/MS	MS	MS
	436-ATYVQDSPAETK-447	1308.619	0.01	2	655.317	MS/MS	MS	-
Neuroigin-3 ENSMUSP00000066304 (Neuroigin-2)	231-GNYGLLDQIQALR-243 (*)	1459.787	0.009	2	730.901	MS/MS	MS/MS	-
	315-VGCNVLDTVDMVDCLR-330	1864.857	0.009	2	933.436	MS/MS	-	-
	433-FMYTDWADR-441 (*)	1203.507	0.006	2	602.761	MS/MS	MS	-
	544-TGDPNKPVPQDTK-556	1395.705	0.007	3	466.243	MS/MS	MS	-
	763-LTALPDYTLTLR-774	1375.780	0.009	2	688.898	MS/MS	MS/MS	MS
Neurobeachin ENSMUSP00000029374	559-AVLEQFLSFAK-569	1251.697	0.011	2	626.856	MS/MS	-	-
	1293-VDLGFR-1298	705.383	0.002	2	353.699	MS/MS	MS	-
	1891-EIFVDFAPFLSR-1902	1439.755	0.011	2	720.885	MS/MS	-	-
	1945-NAGLAFIELINEGR-1958	1515.818	0.014	2	758.917	MS/MS	-	-
	2087-SAVEYGTEDVVK-2099	1424.678	0.012	2	713.347	MS/MS	MS	-
	2247-VGVGTSYGLPQAR-2259	1303.688	0.008	2	652.852	MS/MS	MS	-
GABA _A α ₂ ENSMUSP00000000572 (GABA _A α ₁ , GABA _A α ₃ ,	121-IWTPDTFFHNGK-132 (*)	1461.703	0.013	2	731.859	MS/MS	MS/MS	-
	148-IQDDGTLTYTMR-159	1424.705	0.009	2	713.360	MS/MS	MS/MS	-
	164-AECPMHLEDFPMDAH-178 (*)	1798.718	0.007	3	600.580	MS/MS	MS	-
	215-LNQYDLLGQSIGK-227	1447.777	0.011	2	724.896	MS/MS	MS/MS	-

GABA _A R α 4, GABA _A R α 5)	390-SATTPEPNKKPENKPAAEK-408	2036.073	0.02	3	679.699	MS/MS	MS	-
GABA _A R α 4 ENSMUSP00000031121 (GABA _A R α 1, GABA _A R α 2, GABA _A R α 3, GABA _A R α 5)	51-ILDSLLDGYDNR-62	1392.698	0.01	2	697.357	MS/MS	MS/MS	-
	190-FGSYAYPK-197	931.444	0.001	2	466.730	MS/MS	MS	-
	355-ISKPPPEVPAAPVLK-369	1541.930	0.013	3	514.985	MS/MS	MS	-
	390-TNALVHSESDVK-401	1298.657	0.011	2	650.336	MS/MS	MS	-
	413-TSAVQESSEATPK-425	1333.640	0.005	2	667.828	MS/MS	MS	-
GABA _A R α 5 ENSMUSP00000063276 (GABA _A R α 1, GABA _A R α 2, GABA _A R α 3, GABA _A R α 4)	52-ILDGLLDGYDNR-63	1362.686	0.008	2	682.351	MS	MS/MS	-
	64-LRPGLGER-71 (*)	896.524	0.005	2	449.270	MS/MS	MS/MS	-
	128-IWTPDTFFHNGK-139 (*)	1461.716	0.013	2	731.866	MS/MS	MS/MS	-
	212-SVVVAEDGSR-221 (*)	1017.513	0.004	2	509.764	MS/MS	MS/MS	-
	392-EQPPAGTANAPT/VSİK-407	1579.827	0.007	2	790.921	MS/MS	MS	-
Neurexin 1 ENSMUSP00000057294	173-TGSISDFR-181	1028.499	0.007	2	515.257	MS/MS	-	-
	824-LAIGFSTVQK-833	1062.614	0.007	2	532.315	MS/MS	MS	MS
	1084-EPYPGSAEVIR-1094	1216.616	0.008	2	609.316	MS/MS	-	-
	1126-NRDEGSYHVDESR-1138	1562.679	0.008	3	521.901	MS/MS	-	-
GABA _A R γ 1 ENSMUSP00000031119 (GABA _A R γ 2)	59-IHEGDITQILNSLLQGYDNK-78	2270.164	0.01	3	757.729	MS/MS	-	-
	79-LRPDIGVR-86	924.556	0.006	3	309.193	MS/MS	MS	-
	143-IWIPDTFFR-151 (*)	1193.630	0.006	2	597.823	MS/MS	MSMS	-
	155-KSDAHWITTPNR-166	1424.726	0.011	3	475.917	MS/MS	MS	-
	235-LYQFAFVGLR-244	1212.665	0	2	607.340	MS/MS	MS	-
Lipoma HMGIC fusion partner-like 4 protein ENSMUSP00000061172	10-LYHEHYMR-17	1147.527	0.004	2	574.771	MS/MS	MS	MS
	79-GSFTDFSTIP SSAFK -93	1590.764	0.01	2	796.390	MS	MSMS	-
	166-YSLGDCSVR-174	1055.473	0.003	2	528.744	MS/MS	MS	-
	201-QTDLLQEELK-210	1215.640	0.006	2	608.828	MS/MS	MS	-
	215- DFVGTTVSSVLRPGGDVSGWGVLPVVAH TQGP-247	3348.676	0.021	3	1117.23 3	MS/MS	-	-
GABA _A R δ ENSMUSP00000030925	119-LWLPDTFIVNAK-130	1415.789	0.007	2	708.902	MS/MS	-	-
	416-LKPIDADTIDIYAR-429	1602.870	0.009	3	535.297	MS/MS	MS	-
Collybistin ENSMUSP00000085403	154-VIFGNIEDIYR-164	1337.709	0.012	2	669.862	MS/MS	MS	-