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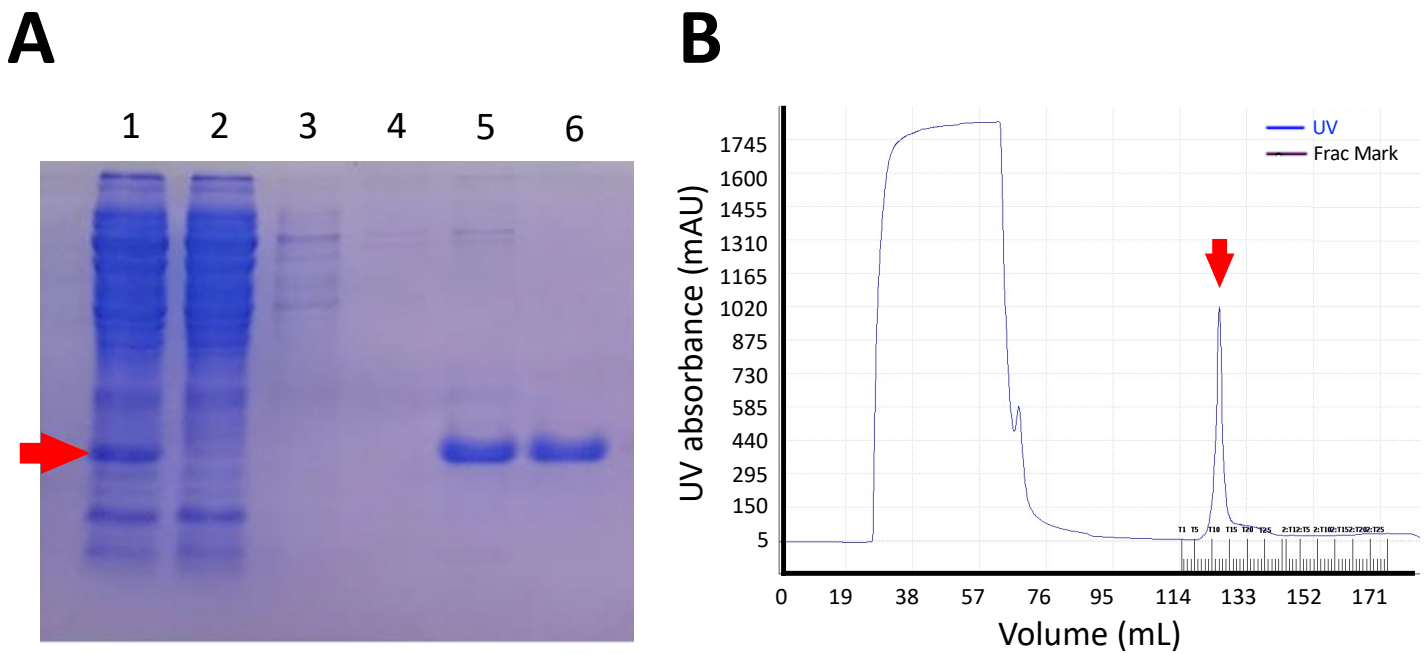
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45  QSPNASDSSWAGMPYTLYADGALLKQGVLDERQGISVDHQVVTR   88
89  SYKLEMANGVSYQIPVAEAYSRPEQGELANRGFHHHTSQAASDI   132
133 NPPSSHTEHRNTYADLLDGHIEQDESQ

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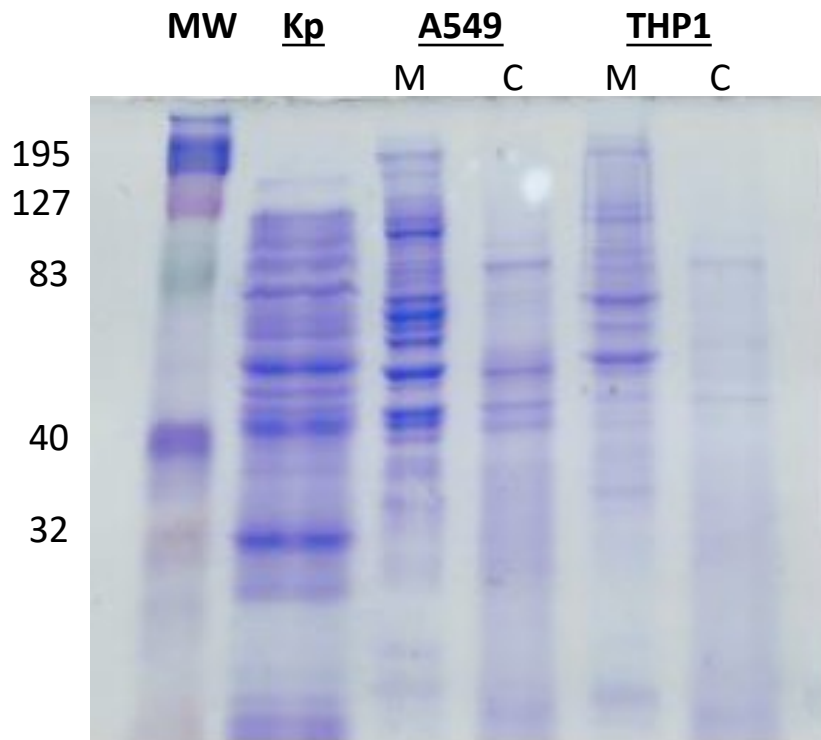
Supplementary Figure 1: Recombinant VgrG4CTD.

A) Schematic representation of the plasmid used for the recombinant protein expression. B) RecombinantVgrG4-CTD primary sequence. The histidine tag and the thrombin recognition site are shadowed in gray.



Supplementary Figure 2: VgrG4-CTD purification on a nickel affinity column.

A) Polyacrylamide electrophoresis showing: (1) protein profile of *E. coli* expressing VgrG4-CTD; (2) non-bound fraction; (3 and 4) column washings; and (5 and 6) VgrG4-CTD eluted in 500 mM imidazole buffer. B) Chromatographic profile of VgrG4-CTD in a nickel affinity column. The red arrows point to VgrG4-CTD band and peak.



Supplementary Figure 3: Protein profile of the cell lysates used in pulldown experiments. M: membrane-enriched fractions, C: soluble fractions. The molecular weights of the Kaleidoscope prestained protein standard (Biorad) are shown in kDa.

Table S1: Putative VgrG4-CTD ligands identified in lung epithelial cells (A549) soluble fraction

	Accession	Score	Mass	N° of matches	N° of significant matches	N° of sequences	N° of significant sequences	emPAI	Description
1	MYH9_HUMAN	1005	227646	32	28	28	25	0.52	Myosin-9 OS=Homo sapiens GN=MYH9 PE=1 SV=4
2	TBB5_HUMAN	846	50095	17	17	11	11	1.55	Tubulin beta chain OS=Homo sapiens GN=TUBB PE=1 SV=2
3	TBA1C_HUMAN	502	50548	16	16	13	13	1.53	Tubulin alpha-1C chain OS=Homo sapiens GN=TUBA1C PE=1 SV=1
4	ANXA2_HUMAN	413	38808	11	11	9	9	1.52	Annexin A2 OS=Homo sapiens GN=ANXA2 PE=1 SV=2
5	ACTB_HUMAN	372	42052	14	14	8	8	1.35	Actin, cytoplasmic 1 OS=Homo sapiens GN=ACTB PE=1 SV=1
6	FLNA_HUMAN	348	283301	14	11	13	10	0.14	Filamin-A OS=Homo sapiens GN=FLNA PE=1 SV=4
7	EF2_HUMAN	205	96246	9	9	8	8	0.35	Elongation factor 2 OS=Homo sapiens GN=EEF2 PE=1 SV=4
8	RLA2_HUMAN	146	11658	5	5	3	3	1.41	60S acidic ribosomal protein P2 OS=Homo sapiens GN=RPLP2 PE=1 SV=1
9	1433T_HUMAN	144	28032	3	3	2	2	0.29	14-3-3 protein theta OS=Homo sapiens GN=YWHAQ PE=1 SV=1
10	ACTN4_HUMAN	139	105245	3	3	2	2	0.07	Alpha-actinin-4 OS=Homo sapiens GN=ACTN4 PE=1 SV=2
11	RLA1_HUMAN	123	11621	3	3	2	2	0.8	60S acidic ribosomal protein P1 OS=Homo sapiens GN=RPLP1 PE=1 SV=1
12	NOLC1_HUMAN	116	73560	2	2	1	1	0.05	Nucleolar and coiled-body phosphoprotein 1 OS=Homo sapiens GN=NOLC1 PE=1 SV=2
13	K2C8_HUMAN	114	53671	3	3	3	3	0.22	Keratin, type II cytoskeletal 8 OS=Homo sapiens GN=KRT8 PE=1 SV=7
14	RL7A_HUMAN	113	30148	4	4	3	3	0.42	60S ribosomal protein L7a OS=Homo sapiens GN=RPL7A PE=1 SV=2
15	RS8_HUMAN	106	24475	4	3	3	2	0.34	40S ribosomal protein S8 OS=Homo sapiens GN=RPS8 PE=1 SV=2
16	RS5_HUMAN	104	23033	3	3	2	2	0.36	40S ribosomal protein S5 OS=Homo sapiens GN=RPS5 PE=1 SV=4
17	RL27A_HUMAN	102	16665	1	1	1	1	0.23	60S ribosomal protein L27a OS=Homo sapiens GN=RPL27A PE=1 SV=2
18	RL18_HUMAN	98	21735	2	1	2	1	0.18	60S ribosomal protein L18 OS=Homo sapiens GN=RPL18 PE=1 SV=2
19	RL14_HUMAN	95	23531	2	2	2	2	0.35	60S ribosomal protein L14 OS=Homo sapiens GN=RPL14 PE=1 SV=4
20	NPM_HUMAN	92	32726	2	2	2	2	0.24	Nucleophosmin OS=Homo sapiens GN=NPM1 PE=1 SV=2
21	RS18_HUMAN	87	17708	4	4	3	3	0.81	40S ribosomal protein S18 OS=Homo sapiens GN=RPS18 PE=1 SV=3
22	HS90B_HUMAN	86	83554	9	4	7	3	0.14	Heat shock protein HSP 90-beta OS=Homo sapiens GN=HSP90AB1 PE=1 SV=4
23	HSPB1_HUMAN	83	22826	3	2	3	2	0.36	Heat shock protein beta-1 OS=Homo sapiens GN=HSPB1 PE=1 SV=2

24	RS2_HUMAN	80	31590	2	2	2	2	0.25	40S ribosomal protein S2 OS=Homo sapiens GN=RPS2 PE=1 SV=2
25	RL6_HUMAN	72	32765	3	3	3	3	0.39	60S ribosomal protein L6 OS=Homo sapiens GN=RPL6 PE=1 SV=3
26	CALM1_HUMAN	70	16827	1	1	1	1	0.23	Calmodulin-1 OS=Homo sapiens GN=CALM1 PE=1 SV=1
27	ML12A_HUMAN	67	19839	2	2	1	1	0.19	Myosin regulatory light chain 12A OS=Homo sapiens GN=MYL12A PE=1 SV=2
28	RS16_HUMAN	65	16549	3	2	3	2	0.52	40S ribosomal protein S16 OS=Homo sapiens GN=RPS16 PE=1 SV=2
29	TEBP_HUMAN	64	18971	3	2	3	2	0.45	Prostaglandin E synthase 3 OS=Homo sapiens GN=PTGES3 PE=1 SV=1
30	RLA0L_HUMAN	63	34514	2	2	2	2	0.23	60S acidic ribosomal protein P0-like OS=Homo sapiens GN=RPLP0P6 PE=5 SV=1
31	LDHA_HUMAN	62	36950	4	3	4	3	0.34	L-lactate dehydrogenase A chain OS=Homo sapiens GN=LDHA PE=1 SV=2
32	TCP4_HUMAN	56	14386	2	2	2	2	0.62	Activated RNA polymerase II transcriptional coactivator p15 OS=Homo sapiens GN=SUB1 PE=1 SV=3
33	RS7_HUMAN	56	22113	3	3	3	3	0.61	40S ribosomal protein S7 OS=Homo sapiens GN=RPS7 PE=1 SV=1
34	RL30_HUMAN	53	12947	1	1	1	1	0.3	60S ribosomal protein L30 OS=Homo sapiens GN=RPL30 PE=1 SV=2
35	RL18A_HUMAN	52	21034	1	1	1	1	0.18	60S ribosomal protein L18a OS=Homo sapiens GN=RPL18A PE=1 SV=2
36	RL3_HUMAN	52	46365	2	2	1	1	0.08	60S ribosomal protein L3 OS=Homo sapiens GN=RPL3 PE=1 SV=2
37	FAS_HUMAN	49	275877	1	1	1	1	0.01	Fatty acid synthase OS=Homo sapiens GN=FASN PE=1 SV=3
38	RS3_HUMAN	48	26842	1	1	1	1	0.14	40S ribosomal protein S3 OS=Homo sapiens GN=RPS3 PE=1 SV=2
39	AK1C1_HUMAN	45	37221	1	1	1	1	0.1	Aldo-keto reductase family 1 member C1 OS=Homo sapiens GN=AKR1C1 PE=1 SV=1
40	TGM2_HUMAN	43	78420	1	1	1	1	0.05	Protein-glutamine gamma-glutamyltransferase 2 OS=Homo sapiens GN=TGM2 PE=1 SV=2
41	RL12_HUMAN	43	17979	2	2	2	2	0.48	60S ribosomal protein L12 OS=Homo sapiens GN=RPL12 PE=1 SV=1
42	KRT81_HUMAN	42	56832	1	1	1	1	0.07	Keratin, type II cuticular Hb1 OS=Homo sapiens GN=KRT81 PE=1 SV=3
43	PRDX1_HUMAN	42	22324	1	1	1	1	0.17	Peroxiredoxin-1 OS=Homo sapiens GN=PRDX1 PE=1 SV=1
44	RS19_HUMAN	40	16051	2	2	2	2	0.54	40S ribosomal protein S19 OS=Homo sapiens GN=RPS19 PE=1 SV=2
45	RL5_HUMAN	40	34569	2	2	1	1	0.11	60S ribosomal protein L5 OS=Homo sapiens GN=RPL5 PE=1 SV=3
46	MYL6_HUMAN	40	17090	2	1	2	1	0.23	Myosin light polypeptide 6 OS=Homo sapiens GN=MYL6 PE=1 SV=2
47	RACK1_HUMAN	39	35511	1	1	1	1	0.11	Receptor of activated protein C kinase 1 OS=Homo sapiens GN=RACK1 PE=1 SV=3
48	ALBU_HUMAN	38	71317	2	1	2	1	0.05	Serum albumin OS=Homo sapiens GN=ALB PE=1 SV=2
49	RL7_HUMAN	36	29264	1	1	1	1	0.13	60S ribosomal protein L7 OS=Homo sapiens GN=RPL7 PE=1 SV=1
50	NUCL_HUMAN	36	76625	2	1	2	1	0.05	Nucleolin OS=Homo sapiens GN=NCL PE=1 SV=3

51	RS3A_HUMAN	36	30154	2	1	2	1	0.13	40S ribosomal protein S3a OS=Homo sapiens GN=RPS3A PE=1 SV=2
52	RS13_HUMAN	34	17212	1	1	1	1	0.23	40S ribosomal protein S13 OS=Homo sapiens GN=RPS13 PE=1 SV=2
53	RS9_HUMAN	34	22635	2	2	2	2	0.37	40S ribosomal protein S9 OS=Homo sapiens GN=RPS9 PE=1 SV=3
54	RL22_HUMAN	33	14835	1	1	1	1	0.26	60S ribosomal protein L22 OS=Homo sapiens GN=RPL22 PE=1 SV=2
55	RL4_HUMAN	33	47953	2	2	2	2	0.16	60S ribosomal protein L4 OS=Homo sapiens GN=RPL4 PE=1 SV=5
56	RL8_HUMAN	32	28235	1	1	1	1	0.13	60S ribosomal protein L8 OS=Homo sapiens GN=RPL8 PE=1 SV=2
57	H2B1A_HUMAN	31	14159	1	1	1	1	0.28	Histone H2B type 1-A OS=Homo sapiens GN=HIST1H2BA PE=1 SV=3
58	RL24_HUMAN	31	17882	2	2	2	2	0.48	60S ribosomal protein L24 OS=Homo sapiens GN=RPL24 PE=1 SV=1
59	RS4X_HUMAN	29	29807	3	1	3	1	0.13	40S ribosomal protein S4, X isoform OS=Homo sapiens GN=RPS4X PE=1 SV=2
60	G3P_HUMAN	28	36201	1	1	1	1	0.1	Glyceraldehyde-3-phosphate dehydrogenase OS=Homo sapiens GN=GAPDH PE=1 SV=3
61	RL23A_HUMAN	27	17684	1	1	1	1	0.22	60S ribosomal protein L23a OS=Homo sapiens GN=RPL23A PE=1 SV=1
62	H2A1B_HUMAN	26	14127	3	2	2	2	0.63	Histone H2A type 1-B/E OS=Homo sapiens GN=HIST1H2AB PE=1 SV=2
63	RS10_HUMAN	21	18886	2	1	1	1	0.2	40S ribosomal protein S10 OS=Homo sapiens GN=RPS10 PE=1 SV=1
64	PUR6_HUMAN	19	47790	1	1	1	1	0.08	Multifunctional protein ADE2 OS=Homo sapiens GN=PAICS PE=1 SV=3

Table S2: Putative VgrG4-CTD ligands identified in lung epithelial cells (A549) membrane-enriched fraction

	Accession	Score	Mass	N° of matches	N° of significant matches	N° of sequences	N° of significant sequences	emPAI	Description
1	VIME_HUMAN	1095	53676	35	34	22	22	4.35	Vimentin OS=Homo sapiens GN=VIM PE=1 SV=4
2	KPYM_HUMAN	947	58470	23	23	18	18	2.23	Pyruvate kinase PKM OS=Homo sapiens GN=PKM PE=1 SV=4
3	K1C18_HUMAN	939	48029	33	29	19	16	2.85	Keratin, type I cytoskeletal 18 OS=Homo sapiens GN=KRT18 PE=1 SV=2
4	K2C8_HUMAN	800	53671	28	26	18	17	2.13	Keratin, type II cytoskeletal 8 OS=Homo sapiens GN=KRT8 PE=1 SV=7
5	FLNA_HUMAN	786	283301	29	24	19	15	0.23	Filamin-A OS=Homo sapiens GN=FLNA PE=1 SV=4
6	ACTB_HUMAN	714	42052	17	13	11	9	1.35	Actin, cytoplasmic 1 OS=Homo sapiens GN=ACTB PE=1 SV=1
7	ANXA2_HUMAN	623	38808	17	16	9	8	1.29	Annexin A2 OS=Homo sapiens GN=ANXA2 PE=1 SV=2
8	ACTN4_HUMAN	590	105245	15	15	10	10	0.41	Alpha-actinin-4 OS=Homo sapiens GN=ACTN4 PE=1 SV=2
9	ATPB_HUMAN	482	56525	12	10	8	8	0.67	ATP synthase subunit beta, mitochondrial OS=Homo sapiens GN=ATP5B PE=1 SV=3
10	HSP7C_HUMAN	460	71082	13	12	9	8	0.5	Heat shock cognate 71 kDa protein OS=Homo sapiens GN=HSPA8 PE=1 SV=1
11	CH60_HUMAN	385	61187	13	11	9	9	0.7	60 kDa heat shock protein, mitochondrial OS=Homo sapiens GN=HSPD1 PE=1 SV=2
12	HNRPK_HUMAN	344	51230	10	9	4	4	0.42	Heterogeneous nuclear ribonucleoprotein K OS=Homo sapiens GN=HNRNPK PE=1 SV=1
13	AL1A1_HUMAN	342	55454	9	8	9	8	0.68	Retinal dehydrogenase 1 OS=Homo sapiens GN=ALDH1A1 PE=1 SV=2
14	TBB5_HUMAN	319	50095	9	9	7	7	0.65	Tubulin beta chain OS=Homo sapiens GN=TUBB PE=1 SV=2
15	ANXA1_HUMAN	308	38918	13	11	7	5	0.74	Annexin A1 OS=Homo sapiens GN=ANXA1 PE=1 SV=2
16	GRP75_HUMAN	255	73920	9	9	7	7	0.41	Stress-70 protein, mitochondrial OS=Homo sapiens GN=HSPA9 PE=1 SV=2
17	H33_HUMAN	217	15376	4	4	3	3	0.97	Histone H3.3 OS=Homo sapiens GN=H3F3A PE=1 SV=2
18	PDIA6_HUMAN	205	48490	6	6	3	3	0.25	Protein disulfide-isomerase A6 OS=Homo sapiens GN=PDIA6 PE=1 SV=1
19	H2B1C_HUMAN	204	13898	7	6	3	3	1.71	Histone H2B type 1-C/E/F/G/I OS=Homo sapiens GN=HIST1H2BC PE=1 SV=4
20	ENOA_HUMAN	198	47481	8	7	8	7	0.7	Alpha-enolase OS=Homo sapiens GN=ENO1 PE=1 SV=2
21	EF1A1_HUMAN	194	50451	11	8	7	5	0.43	Elongation factor 1-alpha 1 OS=Homo sapiens GN=EEF1A1 PE=1 SV=1
22	EF2_HUMAN	181	96246	11	8	9	6	0.25	Elongation factor 2 OS=Homo sapiens GN=EEF2 PE=1 SV=4
23	ROA2_HUMAN	179	37464	4	3	4	3	0.33	Heterogeneous nuclear ribonucleoproteins A2/B1 OS=Homo sapiens GN=HNRNPA2B1 PE=1 SV=2
24	AK1C2_HUMAN	170	37111	5	5	5	5	0.62	Aldo-keto reductase family 1 member C2 OS=Homo sapiens GN=AKR1C2 PE=1 SV=3
25	TBA1B_HUMAN	162	50804	4	4	3	3	0.24	Tubulin alpha-1B chain OS=Homo sapiens GN=TUBA1B PE=1 SV=1
26	HSPB1_HUMAN	162	22826	5	5	3	3	0.59	Heat shock protein beta-1 OS=Homo sapiens GN=HSPB1 PE=1 SV=2

27	LMNA_HUMAN	159	74380	5	5	4	4	0.28	Prelamin-A/C OS=Homo sapiens GN=LMNA PE=1 SV=1
28	IF5A1_HUMAN	155	17049	5	4	4	3	0.85	Eukaryotic translation initiation factor 5A-1 OS=Homo sapiens GN=EIF5A PE=1 SV=2
29	4F2_HUMAN	150	68180	4	4	2	2	0.11	4F2 cell-surface antigen heavy chain OS=Homo sapiens GN=SLC3A2 PE=1 SV=3
31	PRDX1_HUMAN	139	22324	3	2	3	2	0.37	Peroxiredoxin-1 OS=Homo sapiens GN=PRDX1 PE=1 SV=1
30	PRDX6_HUMAN	139	25133	4	4	4	4	0.76	Peroxiredoxin-6 OS=Homo sapiens GN=PRDX6 PE=1 SV=3
32	ANXA4_HUMAN	136	36088	2	2	2	2	0.22	Annexin A4 OS=Homo sapiens GN=ANXA4 PE=1 SV=4
34	RAB10_HUMAN	124	22755	3	3	1	1	0.17	Ras-related protein Rab-10 OS=Homo sapiens GN=RAB10 PE=1 SV=1
33	PDIA1_HUMAN	124	57480	10	8	6	5	0.46	Protein disulfide-isomerase OS=Homo sapiens GN=P4HB PE=1 SV=3
35	SDHA_HUMAN	120	73672	1	1	1	1	0.05	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial OS=Homo sapiens GN=SDHA PE=1 SV=2
36	UGDH_HUMAN	116	55674	3	3	3	3	0.21	UDP-glucose 6-dehydrogenase OS=Homo sapiens GN=UGDH PE=1 SV=1
37	RA1L2_HUMAN	113	34375	2	2	2	2	0.23	Heterogeneous nuclear ribonucleoprotein A1-like 2 OS=Homo sapiens GN=HNRNPA1L2 PE=2 SV=2
38	K2C1_HUMAN	109	66170	3	3	2	2	0.12	Keratin, type II cytoskeletal 1 OS=Homo sapiens GN=KRT1 PE=1 SV=6
39	TCPB_HUMAN	108	57794	2	1	2	1	0.06	T-complex protein 1 subunit beta OS=Homo sapiens GN=CCT2 PE=1 SV=4
40	ACOC_HUMAN	103	98850	2	2	1	1	0.08	Cytoplasmic aconitate hydratase OS=Homo sapiens GN=ACO1 PE=1 SV=3
41	RAP1A_HUMAN	95	21316	2	2	1	1	0.18	Ras-related protein Rap-1A OS=Homo sapiens GN=RAP1A PE=1 SV=1
42	TLN1_HUMAN	92	271766	2	2	2	2	0.03	Talin-1 OS=Homo sapiens GN=TLN1 PE=1 SV=3
43	TERA_HUMAN	91	89950	6	4	5	4	0.18	Transitional endoplasmic reticulum ATPase OS=Homo sapiens GN=VCP PE=1 SV=4
44	DDX5_HUMAN	90	69618	2	2	1	1	0.05	Probable ATP-dependent RNA helicase DDX5 OS=Homo sapiens GN=DDX5 PE=1 SV=1
45	H2A1D_HUMAN	90	14099	5	5	3	3	1.09	Histone H2A type 1-D OS=Homo sapiens GN=HIST1H2AD PE=1 SV=2
47	LPPRC_HUMAN	81	159003	1	1	1	1	0.02	Leucine-rich PPR motif-containing protein, mitochondrial OS=Homo sapiens GN=LRPPRC PE=1 SV=3
46	STML2_HUMAN	81	38624	2	2	1	1	0.1	Stomatin-like protein 2, mitochondrial OS=Homo sapiens GN=STOML2 PE=1 SV=1
48	EEF1G_HUMAN	81	50429	2	2	2	2	0.15	Elongation factor 1-gamma OS=Homo sapiens GN=EEF1G PE=1 SV=3
49	CKAP4_HUMAN	80	66097	2	1	2	1	0.06	Cytoskeleton-associated protein 4 OS=Homo sapiens GN=CKAP4 PE=1 SV=2
50	RSSA_HUMAN	78	32947	1	1	1	1	0.11	40S ribosomal protein SA OS=Homo sapiens GN=RPSA PE=1 SV=4
51	1433E_HUMAN	78	29326	3	3	3	3	0.44	14-3-3 protein epsilon OS=Homo sapiens GN=YWHAE PE=1 SV=1
52	SPTN1_HUMAN	75	285163	2	2	2	2	0.03	Spectrin alpha chain, non-erythrocytic 1 OS=Homo sapiens GN=SPTAN1 PE=1 SV=3
54	LDHA_HUMAN	73	36950	2	1	2	1	0.1	L-lactate dehydrogenase A chain OS=Homo sapiens GN=LDHA PE=1 SV=2
53	EEF1D_HUMAN	73	31217	4	3	3	3	0.41	Elongation factor 1-delta OS=Homo sapiens GN=EEF1D PE=1 SV=5
55	SFPQ_HUMAN	71	76216	2	2	2	2	0.1	Splicing factor, proline- and glutamine-rich OS=Homo sapiens GN=SFPQ PE=1 SV=2
56	TAGL2_HUMAN	71	22548	2	1	2	1	0.17	Transgelin-2 OS=Homo sapiens GN=TAGLN2 PE=1 SV=3

57	NUCL_HUMAN	71	76625	3	3	3	3	0.15	Nucleolin OS=Homo sapiens GN=NCL PE=1 SV=3
58	HOOK3_HUMAN	68	83474	1	1	1	1	0.04	Protein Hook homolog 3 OS=Homo sapiens GN=HOOK3 PE=1 SV=2
59	ADT2_HUMAN	67	33059	3	3	3	3	0.38	ADP/ATP translocase 2 OS=Homo sapiens GN=SLC25A5 PE=1 SV=7
60	RLA1_HUMAN	67	11621	5	3	3	2	0.8	60S acidic ribosomal protein P1 OS=Homo sapiens GN=RPLP1 PE=1 SV=1
61	AL3A1_HUMAN	66	50762	1	1	1	1	0.07	Aldehyde dehydrogenase, dimeric NADP-preferring OS=Homo sapiens GN=ALDH3A1 PE=1 SV=3
62	PDIA3_HUMAN	66	57146	2	2	2	2	0.13	Protein disulfide-isomerase A3 OS=Homo sapiens GN=PDIA3 PE=1 SV=4
63	TPM1_HUMAN	64	32746	1	1	1	1	0.12	Tropomyosin alpha-1 chain OS=Homo sapiens GN=TPM1 PE=1 SV=2
65	ARP3B_HUMAN	63	48090	2	2	1	1	0.08	Actin-related protein 3B OS=Homo sapiens GN=ACTR3B PE=2 SV=1
66	PRDX3_HUMAN	63	28017	2	2	1	1	0.14	Thioredoxin-dependent peroxide reductase, mitochondrial OS=Homo sapiens GN=PRDX3 PE=1 SV=3
64	SAP_HUMAN	63	59899	5	3	3	2	0.13	Prosaposin OS=Homo sapiens GN=PSAP PE=1 SV=2
67	C1QBP_HUMAN	60	31742	2	2	1	1	0.12	Complement component 1 Q subcomponent-binding protein, mitochondrial OS=Homo sapiens GN=C1QBP PE=1 SV=1
68	ATP5H_HUMAN	59	18537	2	2	2	2	0.46	ATP synthase subunit d, mitochondrial OS=Homo sapiens GN=ATP5H PE=1 SV=3
69	RPN2_HUMAN	56	69355	1	1	1	1	0.05	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 2 OS=Homo sapiens GN=RPN2 PE=1 SV=3
70	HNRPL_HUMAN	55	64720	1	1	1	1	0.06	Heterogeneous nuclear ribonucleoprotein L OS=Homo sapiens GN=HNRNPL PE=1 SV=2
71	RLA2_HUMAN	53	11658	3	3	2	2	0.8	60S acidic ribosomal protein P2 OS=Homo sapiens GN=RPLP2 PE=1 SV=1
72	RS12_HUMAN	52	14905	1	1	1	1	0.26	40S ribosomal protein S12 OS=Homo sapiens GN=RPS12 PE=1 SV=3
73	RAB1A_HUMAN	52	22891	2	2	1	1	0.17	Ras-related protein Rab-1A OS=Homo sapiens GN=RAB1A PE=1 SV=3
75	NPM_HUMAN	51	32726	1	1	1	1	0.12	Nucleophosmin OS=Homo sapiens GN=NPM1 PE=1 SV=2
74	ETFA_HUMAN	51	35400	2	2	2	2	0.22	Electron transfer flavoprotein subunit alpha, mitochondrial OS=Homo sapiens GN=ETFA PE=1 SV=1
76	KTN1_HUMAN	51	156464	2	1	2	1	0.02	Kinectin OS=Homo sapiens GN=KTN1 PE=1 SV=1
77	PLEC_HUMAN	50	533462	7	2	6	2	0.01	Plectin OS=Homo sapiens GN=PLEC PE=1 SV=3
78	PP1A_HUMAN	48	38229	1	1	1	1	0.1	Serine/threonine-protein phosphatase PP1-alpha catalytic subunit OS=Homo sapiens GN=PPP1CA PE=1 SV=1
80	KYNU_HUMAN	43	52831	1	1	1	1	0.07	Kynureninase OS=Homo sapiens GN=KYNU PE=1 SV=1
79	HCD2_HUMAN	43	27134	2	1	2	1	0.14	3-hydroxyacyl-CoA dehydrogenase type-2 OS=Homo sapiens GN=HSD17B10 PE=1 SV=3
81	PTBP1_HUMAN	42	57357	2	1	2	1	0.06	Polypyrimidine tract-binding protein 1 OS=Homo sapiens GN=PTBP1 PE=1 SV=1
82	PDXK_HUMAN	41	35308	2	2	1	1	0.22	Pyridoxal kinase OS=Homo sapiens GN=PDXK PE=1 SV=1
83	PPIA_HUMAN	40	18229	1	1	1	1	0.21	Peptidyl-prolyl cis-trans isomerase A OS=Homo sapiens GN=PPIA PE=1 SV=2
85	ML12A_HUMAN	40	19839	1	1	1	1	0.19	Myosin regulatory light chain 12A OS=Homo sapiens GN=MYL12A PE=1 SV=2
84	HNRH1_HUMAN	40	49484	3	2	2	2	0.16	Heterogeneous nuclear ribonucleoprotein H OS=Homo sapiens GN=HNRNPH1 PE=1 SV=4
86	CAPR1_HUMAN	39	78489	1	1	1	1	0.05	Caprin-1 OS=Homo sapiens GN=CAPRIN1 PE=1 SV=2

87	EF1B_HUMAN	39	24919	1	1	1	1	0.15	Elongation factor 1-beta OS=Homo sapiens GN=EEF1B2 PE=1 SV=3
88	GSTO1_HUMAN	38	27833	1	1	1	1	0.14	Glutathione S-transferase omega-1 OS=Homo sapiens GN=GSTO1 PE=1 SV=2
89	RS4X_HUMAN	37	29807	1	1	1	1	0.13	40S ribosomal protein S4, X isoform OS=Homo sapiens GN=RPS4X PE=1 SV=2
90	HSP74_HUMAN	36	95127	1	1	1	1	0.04	Heat shock 70 kDa protein 4 OS=Homo sapiens GN=HSPA4 PE=1 SV=4
91	CLH1_HUMAN	35	193260	1	1	1	1	0.02	Clathrin heavy chain 1 OS=Homo sapiens GN=CLTC PE=1 SV=5
92	PHB_HUMAN	35	29843	1	1	1	1	0.13	Prohibitin OS=Homo sapiens GN=PHB PE=1 SV=1
93	MIC60_HUMAN	35	84026	1	1	1	1	0.04	MICOS complex subunit MIC60 OS=Homo sapiens GN=IMMT PE=1 SV=1
94	EFTU_HUMAN	34	49852	1	1	1	1	0.07	Elongation factor Tu, mitochondrial OS=Homo sapiens GN=TUFM PE=1 SV=2
95	ATPA_HUMAN	33	59828	1	1	1	1	0.06	ATP synthase subunit alpha, mitochondrial OS=Homo sapiens GN=ATP5A1 PE=1 SV=1
97	MATR3_HUMAN	32	95078	1	1	1	1	0.04	Matrin-3 OS=Homo sapiens GN=MATR3 PE=1 SV=2
98	RS27A_HUMAN	32	18296	1	1	1	1	0.21	Ubiquitin-40S ribosomal protein S27a OS=Homo sapiens GN=RPS27A PE=1 SV=2
99	LDHB_HUMAN	32	36900	1	1	1	1	0.1	L-lactate dehydrogenase B chain OS=Homo sapiens GN=LDHB PE=1 SV=2
96	MYL6_HUMAN	32	17090	2	1	2	1	0.23	Myosin light polypeptide 6 OS=Homo sapiens GN=MYL6 PE=1 SV=2
101	NP1L1_HUMAN	31	45631	1	1	1	1	0.08	Nucleosome assembly protein 1-like 1 OS=Homo sapiens GN=NAP1L1 PE=1 SV=1
100	LRC59_HUMAN	31	35308	2	1	2	1	0.11	Leucine-rich repeat-containing protein 59 OS=Homo sapiens GN=LRR59 PE=1 SV=1
102	H4_HUMAN	30	11360	1	1	1	1	0.35	Histone H4 OS=Homo sapiens GN=HIST1H4A PE=1 SV=2
103	RS16_HUMAN	30	16549	1	1	1	1	0.23	40S ribosomal protein S16 OS=Homo sapiens GN=RPS16 PE=1 SV=2
104	RRBP1_HUMAN	30	152780	1	1	1	1	0.02	Ribosome-binding protein 1 OS=Homo sapiens GN=RRBP1 PE=1 SV=4
105	ENPL_HUMAN	29	92696	1	1	1	1	0.04	Endoplasmic reticulum protein OS=Homo sapiens GN=HSP90B1 PE=1 SV=1
106	TCPG_HUMAN	29	61066	1	1	1	1	0.06	T-complex protein 1 subunit gamma OS=Homo sapiens GN=CCT3 PE=1 SV=4
107	ANXA5_HUMAN	26	35971	1	1	1	1	0.1	Annexin A5 OS=Homo sapiens GN=ANXA5 PE=1 SV=2
108	2B1D_HUMAN	26	30331	1	1	1	1	0.13	HLA class II histocompatibility antigen, DRB1-13 beta chain OS=Homo sapiens GN=HLA-DRB1 PE=1 SV=1
109	HNRDL_HUMAN	26	46580	1	1	1	1	0.08	Heterogeneous nuclear ribonucleoprotein D-like OS=Homo sapiens GN=HNRNPDL PE=1 SV=3
110	IF4A1_HUMAN	24	46353	1	1	1	1	0.08	Eukaryotic initiation factor 4A-I OS=Homo sapiens GN=EIF4A1 PE=1 SV=1
111	TALDO_HUMAN	24	37688	1	1	1	1	0.1	Transaldolase OS=Homo sapiens GN=TALDO1 PE=1 SV=2
112	6PGD_HUMAN	24	53619	2	1	2	1	0.07	6-phosphogluconate dehydrogenase, decarboxylating OS=Homo sapiens GN=PGD PE=1 SV=3
113	UBA1_HUMAN	22	118858	2	1	2	1	0.03	Ubiquitin-like modifier-activating enzyme 1 OS=Homo sapiens GN=UBA1 PE=1 SV=3
114	LEG1_HUMAN	21	15048	2	1	2	1	0.26	Galectin-1 OS=Homo sapiens GN=LGALS1 PE=1 SV=2
115	CNPY2_HUMAN	20	20981	1	1	1	1	0.18	Protein canopy homolog 2 OS=Homo sapiens GN=CNPY2 PE=1 SV=1
116	HNRPQ_HUMAN	20	69788	1	1	1	1	0.05	Heterogeneous nuclear ribonucleoprotein Q OS=Homo sapiens GN=SYNCRIP PE=1 SV=2

117	LBX1_HUMAN	19	30430	1	1	1	1	0.12	Transcription factor LBX1 OS=Homo sapiens GN=LBX1 PE=2 SV=2
118	HNRPU_HUMAN	16	91269	1	1	1	1	0.04	Heterogeneous nuclear ribonucleoprotein U OS=Homo sapiens GN=HNRNPU PE=1 SV=6
119	SRSF3_HUMAN	15	19546	2	1	1	1	0.2	Serine/arginine-rich splicing factor 3 OS=Homo sapiens GN=SRSF3 PE=1 SV=1

Table S3: Putative VgrG4-CTD ligands identified in THP1 macrophages soluble fraction

	Accession	Score	Mass	N° of matches	N° of significant matches	N° of sequences	N° of significant sequences	emPAI	Description
1	ENOA_HUMAN	2362	47481	66	64	14	14	2.91	Alpha-enolase OS=Homo sapiens GN=ENO1 PE=1 SV=2
2	G3P_HUMAN	986	36201	31	29	8	7	1.21	Glyceraldehyde-3-phosphate dehydrogenase OS=Homo sapiens GN=GAPDH PE=1 SV=3
3	EF1A1_HUMAN	923	50451	32	25	9	5	0.9	Elongation factor 1-alpha 1 OS=Homo sapiens GN=EEF1A1 PE=1 SV=1
4	ACTB_HUMAN	807	42052	23	20	6	6	0.98	Actin, cytoplasmic 1 OS=Homo sapiens GN=ACTB PE=1 SV=1
5	KPYM_HUMAN	621	58470	26	23	12	10	0.85	Pyruvate kinase PKM OS=Homo sapiens GN=PKM PE=1 SV=4
6	TCPB_HUMAN	486	57794	21	15	8	6	0.55	T-complex protein 1 subunit beta OS=Homo sapiens GN=CCT2 PE=1 SV=4
7	K2C1_HUMAN	435	66170	28	25	10	8	0.64	Keratin, type II cytoskeletal 1 OS=Homo sapiens GN=KRT1 PE=1 SV=6
8	RS13_HUMAN	315	17212	11	11	3	3	0.84	40S ribosomal protein S13 OS=Homo sapiens GN=RPS13 PE=1 SV=2
9	RS19_HUMAN	315	16051	16	14	6	6	2.66	40S ribosomal protein S13 OS=Homo sapiens GN=RPS13 PE=1 SV=2
10	PRDX6_HUMAN	266	25133	14	11	5	3	0.53	Peroxiredoxin-6 OS=Homo sapiens GN=PRDX6 PE=1 SV=3
11	RS5_HUMAN	261	23033	9	9	2	2	0.36	40S ribosomal protein S5 OS=Homo sapiens GN=RPS5 PE=1 SV=4
12	K1C10_HUMAN	231	59020	15	12	7	6	0.44	Keratin, type I cytoskeletal 10 OS=Homo sapiens GN=KRT10 PE=1 SV=6
13	RS18_HUMAN	231	17708	18	13	6	5	1.68	40S ribosomal protein S18 OS=Homo sapiens GN=RPS18 PE=1 SV=3
14	TCPZ_HUMAN	222	58444	10	5	6	2	0.13	T-complex protein 1 subunit zeta OS=Homo sapiens GN=CCT6A PE=1 SV=3
15	RAP1A_HUMAN	187	21316	5	5	1	1	0.18	Ras-related protein Rap-1A OS=Homo sapiens GN=RAP1A PE=1 SV=1
16	K1C9_HUMAN	183	62255	7	7	5	5	0.34	Keratin, type I cytoskeletal 9 OS=Homo sapiens GN=KRT9 PE=1 SV=3
17	RS25_HUMAN	172	13791	9	7	4	4	1.73	40S ribosomal protein S25 OS=Homo sapiens GN=RPS25 PE=1 SV=1
18	RS10_HUMAN	167	18886	16	10	4	3	0.75	40S ribosomal protein S10 OS=Homo sapiens GN=RPS10 PE=1 SV=1
19	RS20_HUMAN	162	13478	8	6	2	2	0.67	40S ribosomal protein S20 OS=Homo sapiens GN=RPS20 PE=1 SV=1
20	HSPB1_HUMAN	149	22826	9	6	4	3	0.59	Heat shock protein beta-1 OS=Homo sapiens GN=HSPB1 PE=1 SV=2
21	IF4G1_HUMAN	147	176124	5	4	3	2	0.04	Eukaryotic translation initiation factor 4 gamma 1 OS=Homo sapiens GN=EIF4G1 PE=1 SV=4
22	RL12_HUMAN	138	17979	4	2	2	1	0.21	60S ribosomal protein L12 OS=Homo sapiens GN=RPL12 PE=1 SV=1

23	TBA1B_HUMAN	133	50804	11	7	5	2	0.15	Tubulin alpha-1B chain OS=Homo sapiens GN=TUBA1B PE=1 SV=1
24	LDHA_HUMAN	126	36950	8	5	3	2	0.21	L-lactate dehydrogenase A chain OS=Homo sapiens GN=LDHA PE=1 SV=2
25	RS3A_HUMAN	112	30154	5	3	3	2	0.27	40S ribosomal protein S3a OS=Homo sapiens GN=RPS3A PE=1 SV=2
26	RS7_HUMAN	107	22113	5	5	2	2	0.61	40S ribosomal protein S7 OS=Homo sapiens GN=RPS7 PE=1 SV=1
27	HS90B_HUMAN	95	83554	8	2	5	2	0.09	Heat shock protein HSP 90-beta OS=Homo sapiens GN=HSP90AB1 PE=1 SV=4
28	RS14_HUMAN	89	16434	3	3	1	1	0.24	40S ribosomal protein S14 OS=Homo sapiens GN=RPS14 PE=1 SV=3
29	TCPD_HUMAN	89	58401	7	4	4	2	0.13	T-complex protein 1 subunit delta OS=Homo sapiens GN=CCT4 PE=1 SV=4
30	RS4X_HUMAN	79	29807	6	5	2	2	0.27	40S ribosomal protein S4, X isoform OS=Homo sapiens GN=RPS4X PE=1 SV=2
31	RS16_HUMAN	78	16549	5	4	1	1	0.23	40S ribosomal protein S16 OS=Homo sapiens GN=RPS16 PE=1 SV=2
32	RAB1A_HUMAN	69	22891	9	5	4	3	0.59	Ras-related protein Rab-1A OS=Homo sapiens GN=RAB1A PE=1 SV=3
33	CALX_HUMAN	68	67982	2	1	1	1	0.05	Calnexin OS=Homo sapiens GN=CANX PE=1 SV=2
34	ARF1_HUMAN	67	20741	5	3	3	1	0.18	ADP-ribosylation factor 1 OS=Homo sapiens GN=ARF1 PE=1 SV=2
35	TCPE_HUMAN	63	60089	2	2	2	2	0.13	T-complex protein 1 subunit epsilon OS=Homo sapiens GN=CCT5 PE=1 SV=1
36	ITB2_HUMAN	54	87976	7	3	4	2	0.09	Integrin beta-2 OS=Homo sapiens GN=ITGB2 PE=1 SV=2
37	RS17_HUMAN	53	15597	4	3	2	2	0.56	40S ribosomal protein S17 OS=Homo sapiens GN=RPS17 PE=1 SV=2
38	TCPG_HUMAN	47	61066	2	2	1	1	0.06	T-complex protein 1 subunit gamma OS=Homo sapiens GN=CCT3 PE=1 SV=4
39	RL11_HUMAN	47	20468	2	2	1	1	0.19	60S ribosomal protein L11 OS=Homo sapiens GN=RPL11 PE=1 SV=2
40	ARPC4_HUMAN	47	19768	5	4	3	3	0.71	Actin-related protein 2/3 complex subunit 4 OS=Homo sapiens GN=ARPC4 PE=1 SV=3
41	SERA_HUMAN	46	57356	10	5	2	2	0.13	D-3-phosphoglycerate dehydrogenase OS=Homo sapiens GN=PHGDH PE=1 SV=4
42	AMPN_HUMAN	45	109870	3	2	3	2	0.07	Aminopeptidase N OS=Homo sapiens GN=ANPEP PE=1 SV=4
43	FACE1_HUMAN	44	55063	1	1	1	1	0.07	CAAX prenyl protease 1 homolog OS=Homo sapiens GN=ZMPSTE24 PE=1 SV=2
44	H4_HUMAN	43	11360	8	6	3	2	0.83	Histone H4 OS=Homo sapiens GN=HIST1H4A PE=1 SV=2
45	RAC2_HUMAN	42	21814	10	6	4	4	0.91	Ras-related C3 botulinum toxin substrate 2 OS=Homo sapiens GN=RAC2 PE=1 SV=1
46	RS3_HUMAN	40	26842	5	3	4	3	0.49	40S ribosomal protein S3 OS=Homo sapiens GN=RPS3 PE=1 SV=2
47	USO1_HUMAN	39	108740	3	2	1	1	0.03	General vesicular transport factor p115 OS=Homo sapiens GN=USO1 PE=1 SV=2
48	CDC42_HUMAN	39	21587	3	2	1	1	0.39	Cell division control protein 42 homolog OS=Homo sapiens GN=CDC42 PE=1 SV=2

49	LEG1_HUMAN	39	15048	4	3	2	2	0.58	Galectin-1 OS=Homo sapiens GN=LGALS1 PE=1 SV=2
50	COF1_HUMAN	35	18719	2	1	2	1	0.21	Cofilin-1 OS=Homo sapiens GN=CFL1 PE=1 SV=3
51	RL31_HUMAN	33	14454	1	1	1	1	0.27	60S ribosomal protein L31 OS=Homo sapiens GN=RPL31 PE=1 SV=1
52	RL30_HUMAN	32	12947	1	1	1	1	0.3	60S ribosomal protein L30 OS=Homo sapiens GN=RPL30 PE=1 SV=2
53	PUR6_HUMAN	31	47790	1	1	1	1	0.08	Multifunctional protein ADE2 OS=Homo sapiens GN=PAICS PE=1 SV=3
54	RL27A_HUMAN	31	16665	4	2	1	1	0.23	60S ribosomal protein L27a OS=Homo sapiens GN=RPL27A PE=1 SV=2
55	TCPA_HUMAN	31	60819	4	3	2	2	0.13	T-complex protein 1 subunit alpha OS=Homo sapiens GN=TCP1 PE=1 SV=1
56	RL23A_HUMAN	29	17684	1	1	1	1	0.22	60S ribosomal protein L23a OS=Homo sapiens GN=RPL23A PE=1 SV=1
57	ADT1_HUMAN	27	33271	3	3	1	1	0.11	ADP/ATP translocase 1 OS=Homo sapiens GN=SLC25A4 PE=1 SV=4
58	RL36_HUMAN	27	12303	3	1	3	1	0.32	60S ribosomal protein L36 OS=Homo sapiens GN=RPL36 PE=1 SV=3
59	TBB2A_HUMAN	26	50274	1	1	1	1	0.07	Tubulin beta-2A chain OS=Homo sapiens GN=TUBB2A PE=1 SV=1
60	SMAP2_HUMAN	21	47097	4	2	4	2	0.17	Stromal membrane-associated protein 2 OS=Homo sapiens GN=SMAP2 PE=1 SV=1
61	DYHC2_HUMAN	21	495790	7	2	2	1	0.01	Cytoplasmic dynein 2 heavy chain 1 OS=Homo sapiens GN=DYNC2H1 PE=1 SV=4
62	PDIA6_HUMAN	18	48490	1	1	1	1	0.08	Protein disulfide-isomerase A6 OS=Homo sapiens GN=PDIA6 PE=1 SV=1
63	4F2_HUMAN	18	68180	1	1	1	1	0.05	4F2 cell-surface antigen heavy chain OS=Homo sapiens GN=SLC3A2 PE=1 SV=3
64	LDHB_HUMAN	17	36900	1	1	1	1	0.1	L-lactate dehydrogenase B chain OS=Homo sapiens GN=LDHB PE=1 SV=2
65	ANX11_HUMAN	15	54697	1	1	1	1	0.07	Annexin A11 OS=Homo sapiens GN=ANXA11 PE=1 SV=1
66	EHD4_HUMAN	14	61365	1	1	1	1	0.06	EH domain-containing protein 4 OS=Homo sapiens GN=EHD4 PE=1 SV=1
67	RS11_HUMAN	14	18590	3	1	1	1	0.22	40S ribosomal protein S11 OS=Homo sapiens GN=RPS11 PE=1 SV=3
68	MOT4_HUMAN	13	50064	2	1	1	1	0.07	Monocarboxylate transporter 4 OS=Homo sapiens GN=SLC16A3 PE=1 SV=1

Table S4: Putative VgrG4-CTD ligands identified in THP1 macrophages membrane-enriched fraction

	Accession	Score	Mass	N° of matches	N° of significant matches	N° of sequences	N° of significant sequences	empAI	Description
1	K1C10_HUMAN	1229	59020	46	41	18	16	1.83	Keratin, type I cytoskeletal 10 OS=Homo sapiens GN=KRT10 PE=1 SV=6
2	K1C9_HUMAN	1034	62255	35	32	12	11	1.13	Keratin, type I cytoskeletal 9 OS=Homo sapiens GN=KRT9 PE=1 SV=3
3	K2C1_HUMAN	1009	66170	38	35	11	11	0.82	Keratin, type II cytoskeletal 1 OS=Homo sapiens GN=KRT1 PE=1 SV=6
4	PDIA1_HUMAN	532	57480	28	23	12	11	0.99	Protein disulfide-isomerase OS=Homo sapiens GN=P4HB PE=1 SV=3
5	H2B1C_HUMAN	462	13898	11	8	4	3	1.11	Histone H2B type 1-C/E/F/G/I OS=Homo sapiens GN=HIST1H2BC PE=1 SV=4
6	G3P_HUMAN	385	36201	12	11	6	6	1	Glyceraldehyde-3-phosphate dehydrogenase OS=Homo sapiens GN=GAPDH PE=1 SV=3
7	PDIA6_HUMAN	371	48490	11	8	4	3	0.25	Protein disulfide-isomerase A6 OS=Homo sapiens GN=PDIA6 PE=1 SV=1
8	ACTB_HUMAN	338	42052	16	12	7	7	0.82	Actin, cytoplasmic 1 OS=Homo sapiens GN=ACTB PE=1 SV=1
9	GRP78_HUMAN	322	72402	13	9	7	5	0.28	78 kDa glucose-regulated protein OS=Homo sapiens GN=HSPA5 PE=1 SV=2
10	ATPB_HUMAN	318	56525	17	13	8	6	0.47	ATP synthase subunit beta, mitochondrial OS=Homo sapiens GN=ATP5B PE=1 SV=3
11	CALX_HUMAN	287	67982	11	9	6	5	0.3	Calnexin OS=Homo sapiens GN=CANX PE=1 SV=2
12	H4_HUMAN	255	11360	15	13	4	3	2.34	Histone H4 OS=Homo sapiens GN=HIST1H4A PE=1 SV=2
13	TBA1B_HUMAN	247	50804	9	7	4	3	0.24	Tubulin alpha-1B chain OS=Homo sapiens GN=TUBA1B PE=1 SV=1
14	TBB5_HUMAN	231	50095	9	5	5	3	0.33	Tubulin beta chain OS=Homo sapiens GN=TUBB PE=1 SV=2
15	GRP75_HUMAN	200	73920	7	5	3	3	0.16	Stress-70 protein, mitochondrial OS=Homo sapiens GN=HSPA9 PE=1 SV=2
16	ENPL_HUMAN	190	92696	14	8	10	6	0.26	Endoplasmic OS=Homo sapiens GN=HSP90B1 PE=1 SV=1
17	H32_HUMAN	185	15436	3	3	1	1	0.25	Histone H3.2 OS=Homo sapiens GN=HIST2H3A PE=1 SV=3
18	H2A1B_HUMAN	184	14127	11	10	2	2	1.09	Histone H2A type 1-B/E OS=Homo sapiens GN=HIST1H2AB PE=1 SV=2
19	RPN2_HUMAN	168	69355	7	5	4	3	0.17	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 2 OS=Homo sapiens GN=RPN2 PE=1 SV=3
20	CH60_HUMAN	167	61187	4	2	4	2	0.13	60 kDa heat shock protein, mitochondrial OS=Homo sapiens GN=HSPD1 PE=1 SV=2
21	EST1_HUMAN	164	62766	10	7	5	4	0.26	Liver carboxylesterase 1 OS=Homo sapiens GN=CES1 PE=1 SV=2
22	RAB1A_HUMAN	152	22891	6	5	4	4	0.86	Ras-related protein Rab-1A OS=Homo sapiens GN=RAB1A PE=1 SV=3
23	ANXA2_HUMAN	150	38808	3	3	2	2	0.2	Annexin A2 OS=Homo sapiens GN=ANXA2 PE=1 SV=2
24	ILF2_HUMAN	141	43263	3	3	2	2	0.18	Interleukin enhancer-binding factor 2 OS=Homo sapiens GN=ILF2 PE=1 SV=2
25	HNRH1_HUMAN	139	49484	4	4	2	2	0.16	Heterogeneous nuclear ribonucleoprotein H OS=Homo sapiens GN=HNRNPH1 PE=1 SV=4
26	ROA2_HUMAN	133	37464	7	3	4	1	0.1	Heterogeneous nuclear ribonucleoproteins A2/B1 OS=Homo sapiens GN=HNRNPA2B1 PE=1 SV=2
27	HNRPK_HUMAN	131	51230	2	2	1	1	0.07	Heterogeneous nuclear ribonucleoprotein K OS=Homo sapiens GN=HNRNPK PE=1 SV=1
28	ATPA_HUMAN	129	59828	8	6	5	4	0.27	ATP synthase subunit alpha, mitochondrial OS=Homo sapiens GN=ATP5A1 PE=1 SV=1
29	CAP1_HUMAN	129	52325	14	9	8	5	0.41	Adenylyl cyclase-associated protein 1 OS=Homo sapiens GN=CAP1 PE=1 SV=5
30	ADT3_HUMAN	124	33073	7	7	2	2	0.24	ADP/ATP translocase 3 OS=Homo sapiens GN=SLC25A6 PE=1 SV=4
31	RPN1_HUMAN	120	68641	9	6	6	4	0.23	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1 OS=Homo sapiens GN=RPN1 PE=1 SV=1

32	PLD3_HUMAN	110	55127	6	5	5	4	0.3	Phospholipase D3 OS=Homo sapiens GN=PLD3 PE=1 SV=1
33	PPIB_HUMAN	110	23785	7	6	3	2	0.35	Peptidyl-prolyl cis-trans isomerase B OS=Homo sapiens GN=PPIB PE=1 SV=2
34	RAP1A_HUMAN	105	21316	3	3	2	2	0.39	Ras-related protein Rap-1A OS=Homo sapiens GN=RAP1A PE=1 SV=1
35	COMT_HUMAN	103	30474	3	3	1	1	0.12	Catechol O-methyltransferase OS=Homo sapiens GN=COMT PE=1 SV=2
36	HSPB1_HUMAN	102	22826	3	3	1	1	0.17	Heat shock protein beta-1 OS=Homo sapiens GN=HSPB1 PE=1 SV=2
37	EF1A1_HUMAN	97	50451	7	4	3	3	0.33	Elongation factor 1-alpha 1 OS=Homo sapiens GN=EEF1A1 PE=1 SV=1
38	ROA1_HUMAN	95	38837	4	3	4	3	0.32	Heterogeneous nuclear ribonucleoprotein A1 OS=Homo sapiens GN=HNRNPA1 PE=1 SV=5
39	VDAC3_HUMAN	91	30981	6	5	2	2	0.26	Voltage-dependent anion-selective channel protein 3 OS=Homo sapiens GN=VDAC3 PE=1 SV=1
40	ALBU_HUMAN	88	71317	6	1	3	1	0.05	Serum albumin OS=Homo sapiens GN=ALB PE=1 SV=2
41	PDIA3_HUMAN	87	57146	6	4	4	4	0.29	Protein disulfide-isomerase A3 OS=Homo sapiens GN=PDIA3 PE=1 SV=4
42	H33_HUMAN	84	15376	1	1	1	1	0.25	Histone H3.3 OS=Homo sapiens GN=H3F3A PE=1 SV=2
43	HNRPU_HUMAN	82	91269	4	3	2	2	0.08	Heterogeneous nuclear ribonucleoprotein U OS=Homo sapiens GN=HNRNPU PE=1 SV=6
44	TPP1_HUMAN	81	61723	1	1	1	1	0.06	Tripeptidyl-peptidase 1 OS=Homo sapiens GN=TPP1 PE=1 SV=2
45	DHE3_HUMAN	78	61701	4	4	3	3	0.19	Glutamate dehydrogenase 1, mitochondrial OS=Homo sapiens GN=GLUD1 PE=1 SV=2
46	PPIA_HUMAN	77	18229	4	3	4	3	0.78	Peptidyl-prolyl cis-trans isomerase A OS=Homo sapiens GN=PPIA PE=1 SV=2
47	CALR_HUMAN	77	48283	7	5	5	5	0.45	Calreticulin OS=Homo sapiens GN=CALR PE=1 SV=1
48	PTBP1_HUMAN	71	57357	3	3	2	2	0.13	Polypyrimidine tract-binding protein 1 OS=Homo sapiens GN=PTBP1 PE=1 SV=1
49	ITB2_HUMAN	69	87976	7	4	5	4	0.18	Integrin beta-2 OS=Homo sapiens GN=ITGB2 PE=1 SV=2
50	CATD_HUMAN	67	45037	3	2	3	2	0.17	Cathepsin D OS=Homo sapiens GN=CTSD PE=1 SV=1
51	PRDX3_HUMAN	61	28017	4	2	3	2	0.29	Thioredoxin-dependent peroxide reductase, mitochondrial OS=Homo sapiens GN=PRDX3 PE=1 SV=3
52	COF1_HUMAN	60	18719	2	1	2	1	0.21	Cofilin-1 OS=Homo sapiens GN=CFL1 PE=1 SV=3
53	RAB7A_HUMAN	60	23760	2	1	2	1	0.16	Ras-related protein Rab-7a OS=Homo sapiens GN=RAB7A PE=1 SV=1
54	DECR_HUMAN	59	36330	3	2	3	2	0.22	2,4-dienoyl-CoA reductase, mitochondrial OS=Homo sapiens GN=DECR1 PE=1 SV=1
55	LMNA_HUMAN	59	74380	6	3	3	2	0.1	Prelamin-A/C OS=Homo sapiens GN=LMNA PE=1 SV=1
56	DHB12_HUMAN	58	34416	2	2	1	1	0.11	Very-long-chain 3-oxoacyl-CoA reductase OS=Homo sapiens GN=HSD17B12 PE=1 SV=2
57	HNRPM_HUMAN	57	77749	3	2	2	2	0.1	Heterogeneous nuclear ribonucleoprotein M OS=Homo sapiens GN=HNRNPM PE=1 SV=3
58	RL14_HUMAN	53	23531	1	1	1	1	0.16	60S ribosomal protein L14 OS=Homo sapiens GN=RPL14 PE=1 SV=4
59	GLYM_HUMAN	53	56414	4	3	3	2	0.14	Serine hydroxymethyltransferase, mitochondrial OS=Homo sapiens GN=SHMT2 PE=1 SV=3
60	CLH1_HUMAN	53	193260	7	3	3	1	0.02	Clathrin heavy chain 1 OS=Homo sapiens GN=CLTC PE=1 SV=5
61	GELS_HUMAN	51	86043	3	1	3	1	0.04	Gelsolin OS=Homo sapiens GN=GSN PE=1 SV=1
62	ARP3B_HUMAN	50	48090	2	1	2	1	0.08	Actin-related protein 3B OS=Homo sapiens GN=ACTR3B PE=2 SV=1
63	CATB_HUMAN	49	38766	3	2	3	2	0.2	Cathepsin B OS=Homo sapiens GN=CTSB PE=1 SV=3
64	LMNB1_HUMAN	48	66653	4	1	3	1	0.06	Lamin-B1 OS=Homo sapiens GN=LMNB1 PE=1 SV=2
65	APEX1_HUMAN	46	35931	1	1	1	1	0.1	DNA-(apurinic or apyrimidinic site) lyase OS=Homo sapiens GN=APEX1 PE=1 SV=2
66	APOC2_HUMAN	46	11277	2	2	2	2	0.83	Apolipoprotein C-II OS=Homo sapiens GN=APOC2 PE=1 SV=1

67	FACE1_HUMAN	46	55063	2	2	2	2	0.14	CAAX prenyl protease 1 homolog OS=Homo sapiens GN=ZMPSTE24 PE=1 SV=2
68	MYH9_HUMAN	46	227646	3	1	3	1	0.02	Myosin-9 OS=Homo sapiens GN=MYH9 PE=1 SV=4
69	ROA3_HUMAN	45	39799	2	1	2	1	0.09	Heterogeneous nuclear ribonucleoprotein A3 OS=Homo sapiens GN=HNRNPA3 PE=1 SV=2
70	STML2_HUMAN	45	38624	2	2	1	1	0.1	Stomatin-like protein 2, mitochondrial OS=Homo sapiens GN=STOML2 PE=1 SV=1
71	ESYT1_HUMAN	42	123293	2	2	1	1	0.03	Extended synaptotagmin-1 OS=Homo sapiens GN=ESYT1 PE=1 SV=1
72	RTN4_HUMAN	40	130250	1	1	1	1	0.03	Reticulon-4 OS=Homo sapiens GN=RTN4 PE=1 SV=2
73	TCPE_HUMAN	40	60089	2	1	1	1	0.06	T-complex protein 1 subunit epsilon OS=Homo sapiens GN=CCT5 PE=1 SV=1
74	EF1G_HUMAN	40	50429	2	1	2	1	0.07	Elongation factor 1-gamma OS=Homo sapiens GN=EEF1G PE=1 SV=3
75	LEG1_HUMAN	39	15048	2	1	2	1	0.26	Galectin-1 OS=Homo sapiens GN=LGALS1 PE=1 SV=2
76	COX2_HUMAN	38	25719	2	1	1	1	0.15	Cytochrome c oxidase subunit 2 OS=Homo sapiens GN=MT-CO2 PE=1 SV=1
77	6PGD_HUMAN	38	53619	2	1	1	1	0.07	6-phosphogluconate dehydrogenase, decarboxylating OS=Homo sapiens GN=PGD PE=1 SV=3
78	ACTN1_HUMAN	38	103563	7	1	6	1	0.04	Alpha-actinin-1 OS=Homo sapiens GN=ACTN1 PE=1 SV=2
79	HNRPO_HUMAN	37	69788	1	1	1	1	0.05	Heterogeneous nuclear ribonucleoprotein Q OS=Homo sapiens GN=SYNCRIP PE=1 SV=2
80	NUCL_HUMAN	37	76625	2	2	1	1	0.05	Nucleolin OS=Homo sapiens GN=NCL PE=1 SV=3
81	PP1A_HUMAN	36	38229	1	1	1	1	0.1	Serine/threonine-protein phosphatase PP1-alpha catalytic subunit OS=Homo sapiens GN=PPP1CA PE=1 SV=1
82	MOGS_HUMAN	36	92032	1	1	1	1	0.04	Mannosyl-oligosaccharide glucosidase OS=Homo sapiens GN=MOGS PE=1 SV=5
83	SYVC_HUMAN	35	141642	1	1	1	1	0.03	Valine--tRNA ligase OS=Homo sapiens GN=VAR5 PE=1 SV=4
84	GANAB_HUMAN	35	107263	1	1	1	1	0.03	Neutral alpha-glucosidase AB OS=Homo sapiens GN=GANAB PE=1 SV=3
85	ILF3_HUMAN	32	95678	1	1	1	1	0.04	Interleukin enhancer-binding factor 3 OS=Homo sapiens GN=ILF3 PE=1 SV=3
86	DHX15_HUMAN	32	91673	3	1	2	1	0.04	Pre-mRNA-splicing factor ATP-dependent RNA helicase DHX15 OS=Homo sapiens GN=DHX15 PE=1 SV=2
87	TTC24_HUMAN	31	64041	3	1	1	1	0.06	Tetratricopeptide repeat protein 24 OS=Homo sapiens GN=TTC24 PE=4 SV=1
88	SFXN3_HUMAN	30	35823	1	1	1	1	0.1	Sideroflexin-3 OS=Homo sapiens GN=SFXN3 PE=1 SV=3
89	RBBP4_HUMAN	30	47911	1	1	1	1	0.08	Histone-binding protein RBBP4 OS=Homo sapiens GN=RBBP4 PE=1 SV=3
90	HNRPL_HUMAN	30	64720	1	1	1	1	0.06	Heterogeneous nuclear ribonucleoprotein L OS=Homo sapiens GN=HNRNPL PE=1 SV=2
91	1433Z_HUMAN	30	27899	2	2	2	2	0.29	14-3-3 protein zeta/delta OS=Homo sapiens GN=YWHAZ PE=1 SV=1
92	XRCC6_HUMAN	29	70084	5	1	3	1	0.05	X-ray repair cross-complementing protein 6 OS=Homo sapiens GN=XRCC6 PE=1 SV=2
93	PRKDC_HUMAN	28	473749	3	1	3	1	0.01	DNA-dependent protein kinase catalytic subunit OS=Homo sapiens GN=PRKDC PE=1 SV=3
94	RAB31_HUMAN	27	21897	1	1	1	1	0.18	Ras-related protein Rab-31 OS=Homo sapiens GN=RAB31 PE=1 SV=1
95	ATP5L_HUMAN	27	11421	1	1	1	1	0.35	ATP synthase subunit g, mitochondrial OS=Homo sapiens GN=ATP5L PE=1 SV=3
96	OST48_HUMAN	27	50940	1	1	1	1	0.07	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 48 kDa subunit OS=Homo sapiens GN=DDOST PE=1 SV=4
97	DDX17_HUMAN	26	80906	2	1	2	1	0.05	Probable ATP-dependent RNA helicase DDX17 OS=Homo sapiens GN=DDX17 PE=1 SV=2
98	ARPC4_HUMAN	24	19768	1	1	1	1	0.19	Actin-related protein 2/3 complex subunit 4 OS=Homo sapiens GN=ARPC4 PE=1 SV=3
99	RS27A_HUMAN	24	18296	1	1	1	1	0.21	Ubiquitin-40S ribosomal protein S27a OS=Homo sapiens GN=RPS27A PE=1 SV=2
100	SRSF3_HUMAN	22	19546	1	1	1	1	0.2	Serine/arginine-rich splicing factor 3 OS=Homo sapiens GN=SRSF3 PE=1 SV=1
101	DCD_HUMAN	20	11391	1	1	1	1	0.35	Dermcidin OS=Homo sapiens GN=DCD PE=1 SV=2

102	HEXB_HUMAN	19	63527	1	1	1	1	0.06	Beta-hexosaminidase subunit beta OS=Homo sapiens GN=HEXB PE=1 SV=3
103	ALDOA_HUMAN	19	39851	1	1	1	1	0.09	Fructose-bisphosphate aldolase A OS=Homo sapiens GN=ALDOA PE=1 SV=2
104	CISY_HUMAN	16	51908	3	1	3	1	0.07	Citrate synthase, mitochondrial OS=Homo sapiens GN=CS PE=1 SV=2
105	DJB11_HUMAN	15	40774	1	1	1	1	0.09	DnaJ homolog subfamily B member 11 OS=Homo sapiens GN=DNAJB11 PE=1 SV=1
106	MPCP_HUMAN	15	40525	1	1	1	1	0.09	Phosphate carrier protein, mitochondrial OS=Homo sapiens GN=SLC25A3 PE=1 SV=2
107	ECHA_HUMAN	15	83688	1	1	1	1	0.04	Trifunctional enzyme subunit alpha, mitochondrial OS=Homo sapiens GN=HADHA PE=1 SV=2
108	LPPRC_HUMAN	15	159003	3	1	3	1	0.02	Leucine-rich PPR motif-containing protein, mitochondrial OS=Homo sapiens GN=LRPPRC PE=1 SV=3
109	ODP2_HUMAN	14	69466	1	1	1	1	0.05	Dihydrolipoyllysine-residue acetyltransferase component of pyruvate dehydrogenase complex, mitochondrial OS=Homo sapiens GN=DLAT PE=1 SV=3
110	ETHE1_HUMAN	14	28368	4	2	3	2	0.28	Persulfide dioxygenase ETHE1, mitochondrial OS=Homo sapiens GN=ETHE1 PE=1 SV=2
111	HM13_HUMAN	13	41747	1	1	1	1	0.09	Minor histocompatibility antigen H13 OS=Homo sapiens GN=HM13 PE=1 SV=1