

**Online Supporting Information S2. Benchmark dataset used for studying the Ubiquitination.** The negative Ubiquitination data is divided into 11 subsets where, except  $S^-(11)$  containing 606 negative samples, all the other 10 negative subsets each contain 659 samples. See the text for further explanation.

**$S^-(1)$ : List of 659 negative Ubiquitination sites and sequence**

Sample #	Protein ID	Site	Sequences
1	Q8NE71	26	STSPSDKVVKKGK
2	Q8NE71	102	ELMERLKKLSVPT
3	P50544	52	TQAVLDKPETLSS
4	P50544	65	DASTREKPARAES
5	P50544	138	DTLQGLKELGAFG
6	P50544	269	FAKTPIKDAATGA
7	P93821	8	VVKNSIKFNSQSE
8	Q9UKV3	213	SSISEEKGDSDE
9	Q9UKV3	220	GDSDEKPRKGER
10	Q9UKV3	268	RADRNLKTEEEEE
11	Q07622	339	YLPIKNKNIVIKN
12	Q99KI0	305	YNHRMKKYLSKTG
13	P52910	145	LKSWG VKKGDTVA
14	P52910	146	KSWG VKKGDTVAI
15	P52910	187	FSAGSLKDRVDA
16	O43707	176	LLWCQRKTAPYKN
17	O43707	193	NFHISWKDGLAFN
18	Q16186	83	PDDCEFKRVPQCP
19	Q16186	386	AMQNNAKPEQKEG
20	Q84VQ0	63	FGVKFNKPSGYFF
21	Q84VQ0	86	GRPVEAKGIGRKI
22	Q84VQ0	107	QSDLGAKYFAYDG
23	P38080	70	TASVPLKIGDVAC
24	P38080	340	GAYNFSKYTQFQN
25	Q9SLK6	205	DGETNLKVKRCLD
26	P54115	33	GLFINNKFMAQD
27	P54115	95	RGRLLSKLADLE
28	P54115	182	IMMLAWKIAPALA
29	P54115	267	SSESNLKKITLLE
30	P54115	327	ELLAAFKAYLETE
31	P10275	220	GAPTSSKDNYLGG
32	P10275	618	PSCRLRKCYEAGM
33	Q9Y2G4	32	VVQLINKGARVAV
34	Q9Y2G4	299	DEVAQSKGSVSAG
35	Q69ZU8	129	SAKLLVKAGANVL
36	P36404	8	GLLTILKKMKQKE
37	Q06408	33	FGEYIFKRLLSID
38	Q06408	41	LLSIDTKSVFGVP

39	Q9NR48	41	REVELEKNTKEEE
40	Q9NR48	144	SKRDPSKLYKKAD
41	Q8NBU5	144	GKTLIAKATAKEA
42	P35193	165	CLDNFMKQLLKLE
43	P35193	182	KLELEQKVTNKEP
44	P35193	290	VLAGNCKLKFTDA
45	Q12691	114	GLVQEYKATKTMN
46	Q12691	137	HVIRNGKSETINS
47	Q12691	188	ESLPVSKDANLVF
48	Q12691	253	ISRDPSSWLQNT
49	Q12691	265	TWISTKKVTGAFL
50	Q8WXE1	32	TGHPPSKRARGFS
51	Q8WXE1	86	DVSSDHKVRLLD
52	Q8WXE1	109	RETVPIKDNFELE
53	Q99728	127	SDLKEDKPRKSLF
54	Q99728	171	TQPAIKKDASAQQ
55	Q99728	196	DVSERAKKASARS
56	Q9UIF8	315	PKADGQKATEKAQ
57	P55061	15	NFDALLKFSHITP
58	P55061	29	TQQHLKKVYASFA
59	Q10589	112	KAQGQKKVEELEG
60	O43684	222	KKKYAFKCHRLKE
61	A2RUR9	25	AVYATRKTSPVGS
62	A2RUR9	114	DKRDRKKSIQQLV
63	A2RUR9	159	QRSKNLKVDDKCP
64	Q9Y4F5	124	QLQVSVKGLAPKR
65	Q9Y4F5	313	MVSAETKVADWL
66	Q96514	26	ILSKRLKPSKWKL
67	Q96514	173	SPVNLKKTFLT
68	Q9UKL3	176	HLDDCSKTDHRAK
69	O22203	90	LKEHDQKLADRHR
70	O22203	355	YLQCVVKESFRLH
71	P62157	78	MMAKMKDSE
72	Q96M89	7	MEPRVVKPPGQDL
73	Q96M89	120	YRVSTSKITKQSF
74	Q96M89	228	HENALSKIKGVEE
75	Q8IX12	176	FQLSAVKGKTPQV
76	Q12834	136	ILRLSGKPQNAPE
77	P25694	174	MRQVEFKVVDVEP
78	P25694	287	GPEVMSKMAGESE
79	P06493	33	GQVVAMKKIRLES
80	P06493	274	LIYDPAKRISGKM
81	Q5TB80	41	SKKEMKKKDTVPW
82	Q5TB80	42	KKEMKKKDTVPWW
83	Q02224	92	GQTASGKTYTMMG
84	Q02224	180	TSEMALKWITKGE
85	P13569	14	KASVVSKLFFSWT
86	P13569	52	ADNLSEKLEREWD

87	P13569	64	DRELASKKNPKLI
88	P13569	65	RELASKKNPKLIN
89	P32657	117	PKSQSEKQSTVKI
90	Q9UNE7	7	MKGKEEKEGGARL
91	Q9UNE7	145	LRIAKKKRWNSIE
92	O14757	145	DERDNLKISDFGL
93	O14757	267	KDRWYNKPLKKGA
94	O14757	271	YNKPLKKGAKRPR
95	O14757	292	SPSGFSKHIQSNL
96	Q9Y3E7	106	VAGSLQKSTVMK
97	Q9Y3E7	112	KSTVMKAMQSLV
98	P29465	160	SIKPLRKETNDTL
99	P29465	347	WNCHTSKEDRDAF
100	P08679	27	SQEKTLKERFSEI
101	Q9D5U8	105	KSWTAKKKRKLYQ
102	Q01955	29	AAPAASKGCVCKD
103	Q01955	215	MGPRGPKGHMGER
104	Q01955	298	DPGLQGKPGKDGV
105	P0CX12	7	MKENELKNEKSVD
106	P0CX12	24	KQLESQKIVLPQD
107	P0CX12	172	KKDKAAKVKSFKD
108	P32798	61	WAVNVAKNRNPDS
109	P32798	74	TYTYGWKRAEILG
110	P97784	228	ERHLERKAWVANF
111	P97784	268	CRLFYFKLTDLYK
112	Q9R194	183	RMELPKKPAVAVS
113	Q9ZQB9	119	KQNHTKKSKLFYS
114	Q9ZQB9	147	EIAAYFKGWSFGT
115	Q9ZQB9	164	LQFIFNKGFFDWV
116	Q12734	15	IASNGNKRDRVQN
117	Q12734	221	VFLPTTKSDETEY
118	Q12734	370	TTLSDIKVELTSN
119	Q12734	451	RRSFSNKAVLREN
120	Q12734	559	ETYNNDKNSTGKI
121	Q12734	573	FPSSWLKSAKGRL
122	P89105	239	DSKMAIKSWQRAL
123	P57076	82	KDEWGEKCVPSGG
124	P57076	107	GQAPNEKMKQVLK
125	P57076	140	VTMEMVKDALDQL
126	P57076	219	KTKIIAKIQQRGQ
127	Q08412	90	PLPARRKSEEEPS
128	Q08412	232	WSQFVEKDLPELT
129	Q13616	13	QNPGLKQIGLDQ
130	Q13616	74	PPSKSKKGQTPGG
131	Q13619	265	YLNHVSKRLEEEG
132	P40087	268	IHQAVQKIETQYI
133	Q39017	17	FPSWTSKNPIDTV
134	Q39017	67	AIARSKKNPKARH

135	Q39017	327	NGKLEKKPSVKRT
136	Q39017	339	TGSFGQKEYHALR
137	P07262	179	EGVLTGKGLNWGG
138	P07262	291	STFSENKVQYIAG
139	O60610	214	SYDSRNKHEIIRC
140	Q9NSV4	39	SKMPRRKGPQHPP
141	Q9NSV4	85	RIPGSKKERPPLP
142	Q9NSV4	240	IQEKVVKKNQHKV
143	Q9NSV4	245	VKKNQHKVIQCLK
144	P39976	63	NQDWMKKYRGQSN
145	P39976	266	VQKLFVKAKESELS
146	P39976	268	KLFVKAKESELSEI
147	P38823	215	YHPVVFkskvisr
148	P53924	321	YHPVVFkskvvsr
149	P18858	151	DREAKRKKEEEEE
150	P18858	173	AEVATEKEGEDGD
151	P06746	72	GTKIAEKIDEFILA
152	P06746	127	TLEDLRKNEDKLN
153	P01903	151	TWLRNGKPVTTGV
154	F4IBE4	171	GLEANVKKLVGYL
155	F4IBE4	245	KPKEEEKKIMEMT
156	Q03001	184	TCWRDGLFNAI I
157	Q03001	328	PPKETESKIKRL
158	P38167	483	TKAINRKGFYRQD
159	P0DH99	79	IDIALWKFETTKY
160	P00533	294	GATCVKKCPRNYV
161	Q9LD55	67	KRGRFAKDGLIQY
162	Q9LD55	139	VSGEKGKDRSDRE
163	Q9LD55	152	LVTWFKFLWETY
164	Q9LD55	266	LMCMVKKTPKSSL
165	Q13347	30	LLFTVAKDPIVNV
166	Q02908	12	KGPKTNKKLAPE
167	Q02908	61	SKKYKLKQQPRLT
168	Q02908	223	SQQSLTKCVGITI
169	P14351	97	SRIQWNKDIQVLG
170	P14351	136	MQHPVPKYVEVNM
171	P14351	278	IWDYYIKVESIRP
172	P14351	356	GTSVLKKRALPKD
173	P32476	125	VKDGNKDVLEDST
174	P32353	19	LDDLYAKVLPASL
175	P54781	23	TLHQLAKDQPSVG
176	P54781	77	IAGPKFKFWPIIG
177	P38748	33	SIPKKLKA SIGE
178	P38748	229	PFTVKKKKELVKV
179	Q0WPQ2	145	PLLLKVKVREFML
180	Q0WPQ2	169	GLILIKKETGFHV
181	Q0WPQ2	358	RALQMAKRDALRA
182	Q0WPQ2	497	SLVKPRKRQEGSS

183	Q92817	25	PAKGSPKGSPSRH
184	Q92817	120	EIEKDIKQLHERV
185	Q92817	161	VLEQKQKQVCAGQ
186	Q92817	187	EHNILQKEIDAYG
187	P38261	14	KARNNWKHVKKSA
188	P38261	262	VLDQCTKIAEKRL
189	Q5HYJ3	11	ALYACTKCTQRYP
190	Q5HYJ3	141	YKRVLQKTKEQRK
191	Q5HYJ3	143	RVLQKTKEQRKSL
192	Q9BXW9	165	EYFFENKNSDEIN
193	Q9NVI1	39	LQNQAVKGKVAGA
194	Q9NVI1	52	LLRAIFKGSPCSE
195	Q9NVI1	67	GTLRRRKIYTCCI
196	Q9NVI1	83	ESGDLQKEIASEI
197	Q9NVI1	197	VEFVVEKALSMFS
198	P38631	292	DFRWKAKMNQLSP
199	P38631	594	LFTSYMKKSTRRY
200	P40989	459	VFFKTYKETRSWL
201	P38297	132	ANDEREKLHVLQL
202	P38297	141	VLQLNIKLDGQYN
203	P19145	16	NNPDNLKHNGITI
204	P31644	13	SGFIMIKNLLLC
205	P31644	39	MPTSSVKDETNDN
206	P31644	254	TAHFHLKRKIGYF
207	P31644	363	LEAAKIKKKREVI
208	P31644	372	REVILNKSTNAFT
209	P47870	463	ERHVAQKKSRLRR
210	P10071	471	GDKDESKQEPEVI
211	P10071	564	SRLENLKTHLRSH
212	P37303	131	LTLEDIKSHYVPD
213	P37303	231	GNLKFVKKATHFR
214	P37303	352	EAFDYAKEHPFDC
215	P63092	8	GCLGNSKTEDQRN
216	P48813	109	TTPISTKDSSSQL
217	Q3T8J9	253	KKGTRKRDRGRGQ
218	Q3T8J9	282	TLEDGAKQHNLTA
219	Q5T848	312	VDINLQKVIDIDQC
220	P08539	35	QSLQLEKQRDKNE
221	P08539	112	DDPINNKDLFACK
222	Q8N442	57	SAEFKEKLDMSRF
223	Q8N442	195	VIPVINKIDLKNA
224	P40531	140	LNVALSKVALNSS
225	P40531	209	KADKCRKDVHSMR
226	P26569	104	LPPTFRKLLLVNL
227	P26569	123	EKLVKVKASFVIP
228	P16403	21	AEKAPVKKKAACK
229	P16403	34	AGGTTPRKASGPPV
230	P16403	110	SFKLNKKAASGEA

231	P16403	117	AASGEAKPKVKKA
232	Q16777	96	NDEELNKLLGKVT
233	O75367	8	SSRGGKKKSTKTS
234	P0C0S5	75	LAGNASKDLKVKR
235	Q96A08	32	KEGKKRKRTRKES
236	Q96A08	48	YIYKVLKQVHPDT
237	P33778	13	SAPAPKKGSKKAI
238	P62807	21	SKKAVTKAQKKDG
239	Q9LQQ4	28	ENKAAEKAPAEEK
240	A3AGM4	7	MAPKAEKKPAEEK
241	P04913	11	EKKPASKAPAGKA
242	P02293	18	KAPAEKKPAAKKT
243	P62805	45	ARRGGVKRISGLI
244	P51610	148	FSLVGNKCYLFGG
245	P51610	211	AVVYTEKDNKKSK
246	Q9Y2N7	16	STTELRKEKSRDA
247	P00347	362	SPVVTPKKAPDNC
248	P09429	65	KFEDMAKADKARY
249	P09429	76	RYEREMKTYIPPK
250	P09429	88	KGETKKKFKDPNA
251	P09429	114	EYRPKIKGEHPGL
252	P09429	127	SIGDVAKKLGEMW
253	P41235	359	EQIQFIKLFGBAK
254	O60506	66	RAIEALKEFNEDG
255	O60506	91	LSHVQNKSAFLCG
256	O60506	284	QPDDKKKNRGFCF
257	P31539	94	PSYALGKVLQDAA
258	P31539	169	PLEYLSKYAIDMT
259	P31539	276	KEIEESKTLIVLF
260	P10591	69	NTVFDARLIGRN
261	P10591	248	FKRKNKKDLSTNQ
262	O65719	91	SVQSDIKLWPFTL
263	O65719	318	NIDLFRKCMPEVE
264	P40325	105	CGNTGYKLKNGRS
265	P09629	106	CPGDSAKAAGAKE
266	P09629	197	KWKKENKTAGPGT
267	P32467	118	GTYYLSKVRTGLI
268	P32467	274	YLVEVGKIEEAKR
269	P32467	423	RLWPNGKKNGSSK
270	P32467	424	LWPNGKKNGSSKG
271	P38695	302	SLARANKTTEDSP
272	O14602	29	KRELVFKEGQY
273	P08069	145	GAIRIEKNADLCY
274	P25963	47	EYEQMVKELQEIR
275	Q9Z1E3	132	IAEALLKAGCDPE
276	O14920	18	CGAWEMKERLGTG
277	O14920	275	LAERLEKWLQLML
278	O14920	301	GPNGCFKALDDIL

279	Q14974	92	NARREVKNYVLQT
280	Q14974	316	TSKFYAKGALQYL
281	Q14974	332	LTQTLTKQDENDD
282	Q6PI98	101	GAVAGKKNRTWKN
283	Q6PI98	109	RTWKNLQILASE
284	Q13568	116	MPPQPYKIYEVCS
285	Q13568	309	EDIPSDKQRFYTN
286	P56477	179	LPKEDTKWPPALQ
287	P30605	553	KDGFNIKASKALA
288	P36035	201	FGLWTDKSSRKWP
289	P36035	230	WCDTYEKFLGVRW
290	P36035	296	FRDDGWKILFWFS
291	Q8NCM2	282	EVISDPKLIRMNY
292	Q8NCM2	324	SLFSSLKVVRLLR
293	Q15058	126	TLQRRAKTDSA EK
294	Q15058	142	AEIDSVKMTLNVG
295	Q15058	197	MADKKYKETFSAP
296	Q15058	247	QSKLDIKVLGTGN
297	Q7M6Z4	239	HRHIVSKFHFVDL
298	Q38997	57	GSFGRVKIAEHAL
299	O43474	232	MGKFVLKASLSAP
300	Q15349	91	GQLYAMKVLKKAT
301	Q15349	94	YAMKVLKKATLKV
302	Q15349	207	TDFGLSKEAIDHD
303	Q86UP2	119	ERKKKEKKQKPVL
304	Q86UP2	137	KESDASKIPGKKV
305	Q01650	25	KEEAREKMLA AKS
306	Q01650	221	GFVQIGKGDVSNL
307	Q01650	481	GVWWKNKPKWLLQ
308	Q12502	151	TLSLVQKIHFKP
309	Q12502	156	QKIHFKPFV PNI
310	Q12502	174	CMNCKTKITNMKS
311	Q12502	248	GHSTPRKEGSSSK
312	Q5VZK9	17	ELIESIKDVI GRK
313	Q5VZK9	226	F TKLSSKDLKLST
314	Q5VZK9	229	LSSKDLKLSTDVC
315	O75581	162	DWGEVPKIERAGM
316	O75581	579	PDLMGLKATNVHR
317	Q9HCC9	183	SAMVPVKSPREYY
318	Q9HCC9	323	EGPLSAKAKDPDA
319	Q9HCC9	633	KAPTS DKCLPHTS
320	Q9HCC9	715	PQATREKIRSRFH
321	O22042	313	LMKCLHKEPSLRL
322	Q3KQU3	134	TKQEVKKAGERHK
323	Q07820	302	DVLVRTKRDLVK
324	P93819	151	APSIPEKNISCLT
325	P93819	200	PDVNHAKVQTSSG
326	Q9S JL6	144	QAMSSVKNSKRML

327	Q9SJL6	206	RVDTWIKYAGMIA
328	O50008	183	LLSLLPKILPIYK
329	O50008	189	KILPIYKEVITEL
330	O50008	253	IPAEAYKTLTSLK
331	O50008	319	LEGIVGKDKLVVS
332	P19358	63	FGEITTKARLDYQ
333	Q03164	213	GDKIKKKDSKSIE
334	P53045	38	QLNFMKEYWAAWY
335	P53045	103	EQLYCLKSVLLSH
336	P53045	170	HYGVFYKYIHKQH
337	O75081	219	IEEFHSKLQEATN
338	O75081	237	FVIPFLKANLPLL
339	O75081	292	EVNENGKRRTPD
340	O75081	300	RTPDRTKENGSDR
341	O75081	386	EEVIDHKLTEREW
342	O75081	446	DAEDTKKGPAPAA
343	Q9Y623	22	FLRKSEKERIEAQ
344	Q91Z83	18	AAPFLRKSEKERL
345	Q91Z83	21	FLRKSEKERLEAQ
346	Q9LR74	97	WRSNDGKKEIKDG
347	Q9LR74	129	CRIRYKKEANVNE
348	Q9LR74	252	VTQEQEKKDDVMVL
349	P16603	78	AEDYAKKFSELV
350	P16603	208	SILEVLKDELHLD
351	Q39161	60	DGFFILKEKFRKG
352	Q39161	134	KFMMRLKLPNGVT
353	P30415	191	FEKKRKKPTCSEG
354	Q01705	126	LTLTEYKCRCPPG
355	Q01705	1069	CDSAPCKNGGRCW
356	Q01705	1128	CVDEGDKHYCHCQ
357	Q923B3	68	VISQLEKAEDCWP
358	Q923B3	102	MNSFPSKSPLMKI
359	Q923B3	160	TEASRQKFRHFQY
360	Q923B3	257	EATDQLKEKRKGV
361	P53370	299	YTGLFYKLYHKEL
362	P53370	310	ELPENYKTMKGID
363	Q02218	348	EGSGDVKYHLGMY
364	Q02218	532	MYKQIRKQKPVLQ
365	Q38799	238	KIEREGKDVITVT
366	P04637	101	SSVPSQKTYQGSY
367	P04637	320	SSPQPKKKPLDGE
368	P04637	351	NEALELKDAQAGK
369	P04637	370	AHSSHLKSKKGQS
370	P12004	117	VSDYEMKLMDLDV
371	P12004	181	LGNGNIKLSQTSN
372	P12004	190	QTSNVDKEEEAVT
373	Q9UHG3	181	AFSSVEKLLHALG
374	Q9UHG3	284	EEKTKTKYTGNPT



375	Q9UHG3	349	IVTTLVKGELNTS
376	Q02785	366	IYELFDKTTVLYN
377	P38075	47	KWFNEAKEDPRET
378	P38075	158	RQSDVIKNREELD
379	P35056	213	QFEKLEKEVSEN
380	P35056	385	KNLEAMKTLAISY
381	P15259	113	HGEEQVKIWRRSF
382	P15259	138	YNSISKERRYAG
383	P15259	225	ELNKELKPTKPMQ
384	P25297	283	QLDVNAKLELAAA
385	P25297	332	PPKASFKDFCRHF
386	P25360	180	YKRMEAKFYERFD
387	Q99755	86	TTSSALKGAIQLG
388	Q99755	199	IKTVQHKEAEFLQ
389	Q99755	237	CVQAGGKNIRIVV
390	Q99569	563	FGDNKVKMEVCRL
391	Q99569	774	LDDLKGESPSKD
392	Q99569	789	PSCWGKKKKKKR
393	O23522	124	SEERSPKSKLGSK
394	O23522	436	ELRVDMKMSPYLK
395	O82274	397	LNGDRSKKKQEEE
396	P53350	146	ELHKRRKALTEPE
397	P53350	225	APEVLSKKGHSFE
398	P53350	226	PEVLSKKGHSFEV
399	P13797	126	SYSEEEKYAFVNW
400	P05030	99	VLKRRKKYGLNQM
401	P05030	356	AAYLAKKQAIVQK
402	P29590	226	SSHSELKCDISAE
403	P29590	497	MESEEGKEARLAR
404	Q9Y253	394	TRYDAHKMSHDAF
405	Q6S8J3	23	PFGLRSKMGKWCC
406	Q6S8J3	116	RGSGKSKVGAWGD
407	Q6S8J3	169	DTDVNKKDKQKRT
408	O23404	73	GLHRETKARAILS
409	O23404	268	LSAADLKELVEQY
410	O23404	275	ELVEQYKSVYLEA
411	P62937	31	FADKVPKTAENFR
412	P62937	82	KSIYGEKFEDENF
413	Q5JSZ5	50	GLQSLGKVAAARR
414	Q5JSZ5	67	ANLPSLKSENKGN
415	Q5JSZ5	290	AFMCSPKSSNQG
416	P06401	464	LECILYKAEGAPP
417	P06401	531	YQAAVLKEGLPQV
418	P62191	41	KKKKKTKGPDAAS
419	P23638	231	VYQKIFKPQEIKD
420	P60900	104	AANWKYKYGYEIP
421	P60900	153	QGPQVYKCDPAGY
422	P60900	226	VTVENPKFRILTE

423	P51665	8	PELAVQKVVVHPL
424	P51665	129	IIDVKPKDLGLPT
425	P60484	254	PVCGDIKVEFFHK
426	P34222	104	LGMTKGKIAAQCC
427	Q05911	292	SSAMAYKRNP MRC
428	Q9SQ57	218	QDGFLSKEAIRRC
429	P59271	89	KTYTKPKKIKH TH
430	P59271	97	IKH THKKVKLAVL
431	P15919	24	IQHPQIKFSEWKF
432	P15919	99	DGKSSDKAVHQAR
433	P62826	159	SNYNFEKPFLWLA
434	Q09028	251	SVADDQKLMIWDT
435	Q16576	101	SHCDSKGEFGGF
436	P49756	75	KDHPGLKAKENDE
437	P49756	77	HPGLKAKENDENC
438	P49756	166	KVDAKTKAQLDEW
439	Q9P2N5	75	FESLYTKNYLPLL
440	P54725	47	FPVAGQKLIYAGK
441	P40043	154	MVFVDYKTHPVGA
442	Q7Z5B4	25	LSLLLPKAFLSRG
443	Q7Z5B4	43	PPTPEGKLGRFPP
444	Q7Z5B4	211	DRFSPEKEAEEAP
445	Q7Z5B4	335	EQEETTKEEWSQD
446	O15034	60	LSRDLEKFRQHAG
447	P57078	203	SRLFDTKHDVYSF
448	P57078	220	WGVLTQKKPFADE
449	P57078	235	ILHIMVKVVKGHR
450	P57078	409	RSSSESKLPSSGS
451	P27635	19	KNKPYPKSRFCRG
452	P27635	156	EALRRAKFKFPGR
453	P27635	164	KFPGRQKIHISKK
454	P47914	103	AYIAHPKLGKRAR
455	P47914	122	LRLCRPKAKAKAK
456	P0CH06	93	SKYNCEKQICRKC
457	P0CH06	114	TNCRKKKCGHTNQ
458	P63048	93	QKYNCDKMICRKC
459	P0C224	83	IIEPSLKALASKF
460	Q9SJQ6	158	SKTPKRKYVRKKV
461	P04050	132	LAIKDSKKRFAAI
462	P04844	69	AQVPDAKKACTYI
463	P04844	385	DLSTVDKDQSIAP
464	P04844	392	DQSIAPKTTRVTY
465	P60866	51	EKNLKVKG PVRMP
466	P60866	86	FQMRIHKRLIDLH
467	P38701	32	LTSTKVKQLE NVS
468	P38701	64	LPTKVLKISTRKT
469	Q9SIP7	10	QISKKRKFVADGV
470	P05750	108	AESMKFKLLNGLA

471	P0CX35	22	HHWLLDKLSGCTA
472	P0CX35	37	PSAGPHKLRESLP
473	P39743	47	ELEQETKKLSEES
474	P39743	79	SMEEIFKPISGKM
475	P39743	202	YYNDLLKTQLPIL
476	Q9LK36	152	LIHEGVKAEEIFA
477	Q9LK36	190	GLQVDPKKYHKMK
478	Q9LK36	235	VNDSVTKSKFDNL
479	Q9LK36	372	VKRITIKPQTDWR
480	Q9Y467	271	SGAETPKQAFFHL
481	Q9Y467	349	ASPGLLKPKNGSG
482	Q9Y467	380	KCRFCAKVFGSDS
483	O94979	436	SQVVTEKEFLSRS
484	O94979	488	EDDSRGKYLELLG
485	Q8RXK2	11	LATAEKKLLVDLV
486	Q8RXK2	97	KQETPDKETPEQR
487	Q5TEA6	116	LFKMGIKVLQQSK
488	Q15047	211	LGKKRTKTWHKGT
489	Q01105	39	LPKKGEKEQQEAI
490	Q01105	174	STEIKWKSGLDLT
491	Q6AI14	184	YLICQVKAFLGLD
492	Q92581	321	LVTKF TKLREFQL
493	Q13485	51	KKLKEKKDELDL
494	O15105	161	LPLLLCKVFRWPD
495	O15105	185	CCESYGKINPELV
496	Q9HCE7	55	HSTD TVKNTLDPK
497	Q9HCE7	61	KNTLDPKWNQHYD
498	Q9HCE7	85	SVWNHKKIHKKQG
499	Q9HCE7	88	NHKKIHKKQGAGF
500	Q9HCE7	516	FTVPFYKQLLGKP
501	O95863	235	THSDVKKYQCQAC
502	P31109	75	VSAQGFKRGANRV
503	Q9Y5W7	13	TMGQKLKQRLRLD
504	Q9Y5W7	108	AVCGKVCKRHRP
505	Q9Y5W7	110	CGKVKCKRHRPSL
506	Q9Y5W7	207	HIEVIVKARQKVK
507	Q9Y5W7	259	PYILPPKATDCRS
508	Q9C093	26	SPKSFAKAFSSGY
509	Q9C093	106	LYIALQKKKKSGL
510	Q8N0X7	80	ARQMQQMKETLQ
511	Q8N0X7	97	RLEILEKGLATSL
512	Q8N0X7	384	DVRHKGKRGKRAK
513	Q8N0X7	412	EPVPEEKPKELPE
514	P51571	58	EISLTCKNRVQNM
515	P12866	7	MNFLSFKTTKHYH
516	Q3TBT3	275	AMSQDAKAGFSRE
517	Q9WUM5	105	PVFNTVKEAKEKT
518	Q9WUM5	271	NAAAFLEHNSGP

519	Q9WUM5	338	LGTTIYKEFEKRR
520	Q9FFC7	76	KEDYQSKDVSGDS
521	Q9FFC7	153	DLENVGKTARHHT
522	Q9FFC7	385	IRRAVRKGKSLGI
523	Q15431	115	LYKEAEKIKKWKV
524	Q15431	187	HLCNLLKETCARS
525	Q15431	198	RSAEKTKKYEYER
526	P41544	128	VFLYTRKFPSFSW
527	P41544	197	QSPIQLKDLESQI
528	P26639	36	GGKKKNKEGSGDG
529	P26639	121	DNTVIAKVNNVW
530	P26639	213	KKIIKEKQAFERL
531	P26639	231	TLLAMFKYNKFKC
532	Q9Y228	78	ELEEKGKAQHPQA
533	Q9Y228	276	LEMEDQKNSYEQK
534	Q9BVV6	188	QSDLEAKVNSVTE
535	Q9BVV6	280	SSRAVEKYSVKPE
536	P38085	31	THSEKQKRDFIT
537	P38085	64	ILQRKCKEFFDSF
538	P38085	200	TAAMTVKYWTSVN
539	P38085	371	VASHGVKVVPFHI
540	P69697	29	TNCYCKKCCFHCQ
541	P69697	50	GISYGRKKRRQRR
542	P10636	44	DTDAGLKESPLQT
543	P10636	383	RMVSKSKDGTGSD
544	P68363	166	DYGKKSLEFSIY
545	P07437	122	VLDVVRKEAESC
546	P07437	362	IPPRGLKMAVTFI
547	Q9UHD2	61	EFEVLKKLNHNKI
548	Q15560	21	LDKMVTKKSAEGA
549	Q15560	70	EVIALAKSLIKSW
550	Q15560	86	LDASDAKARERGR
551	P50990	16	GFAQMLKEGAKHF
552	P50990	20	MLKEGAKHFSGLE
553	P50990	138	YEIACRKAHEILP
554	P50990	171	RTSIMSKQYGNEV
555	P50990	254	GMITETKGTVLIK
556	P47079	278	EMLDFSKGEEKQI
557	P10827	114	QLCRFKKCIAVGM
558	P10827	136	KRVAKRKLIEQNR
559	P10827	235	VVDFAKKLPMFSE
560	A2ASS6	472	ARKEAEKTAVTKV
561	P53322	54	NRSHDKKSELATE
562	P53322	380	VWSDRIKLRSPI
563	O15417	272	LAESKTKNAALQP
564	O15417	467	PAKELLKPEADPR
565	O15417	492	AAQQAALFGLEP
566	O15417	590	AMQSLIKYSGSFA

567	O15417	652	GGGRQLKRDPERP
568	P58771	7	MDAIKKKMQLKL
569	P58771	15	QMLKLDKENALDR
570	P40238	73	YAYPREKPRACPL
571	P29144	123	GYDFYPKALKERI
572	P29144	168	GSSQANKLIKEEL
573	P29144	187	LNSFEKKYSDPGP
574	P29144	295	AQILSIKIGDTRL
575	Q13077	318	NGDGTGKRTHLSL
576	Q13077	392	LFFPLSKLQSPKH
577	Q12933	357	DGVFIWKISDFAR
578	Q9Y4K3	32	SCSAVTKDDSVGG
579	Q9Y4K3	104	IRDAGHKCPVDNE
580	Q9H8W5	37	LCLGLFKAPRLLP
581	Q9H3M7	96	IMRPGNKYEYKFG
582	Q08960	102	SSKGGKKGGCCSS
583	Q08960	135	TATEVEKAVNYPV
584	Q07307	138	TRFHIYKTPYYIG
585	Q07307	294	FGAPIMKSCSVVI
586	P63279	48	ECAIPGKKGTPWE
587	Q9NPD8	28	ITCWQDKDQMDDL
588	Q9NPD8	48	ANTPYEKGVFKLE
589	Q9NPD8	191	QLVGIEKKFHPDV
590	Q9UHP3	166	DRKRQDKAPVGLK
591	Q9UHP3	238	LVGTRKRYVDPSR
592	Q9UHP3	312	VGVLGKKKFENTE
593	Q93009	254	EGDDSSKSVPLAL
594	Q07963	238	TDDIMEKHECEPL
595	Q07963	365	LYSLCFKAATSLQ
596	O94888	84	RAPIPQKQEILVE
597	O94888	158	GSFETAKECGQM
598	O94888	238	DPRTGQKLVEWHQ
599	O94888	412	IDVNGPKAQLMLR
600	Q96T88	329	GRQDPDKQLMCDE
601	Q96T88	382	RLRESKKKAKMAS
602	Q96T88	490	RDLSGNKRTAEQS
603	P39547	212	LEAYLIKAAEIHK
604	P28274	169	LRQFQFKVGKENF
605	P28274	191	VIHGEQKTKPTQA
606	P28274	193	HGEQKTKPTQAAI
607	P28274	280	SLTEEEKQRGLEL
608	P28274	305	ESMETVKIALVGK
609	P98155	69	DEKNCVKKTCAES
610	P98155	90	CVPSRWKCDGDPD
611	P98155	254	SGECIHKKWRCDG
612	P98155	439	VCKAVGKEPSLIF
613	Q709C8	113	LQDVKQKELSRIE
614	Q709C8	157	RKRKKHKKHFKKP

615	Q9Y4B6	386	SLLLHNKFATEFV
616	P04275	157	SDRYFNKTCGLCG
617	P04275	219	SSGEMQKGLWEQC
618	P98170	19	VPADINKEEEFVE
619	P98170	31	EEFNRLKTFANFP
620	P98170	281	WIYSVNKEQLARA
621	P98170	419	DLVNAQKDSMQDE
622	P98170	448	RRLQEEKLCKICM
623	P39548	151	YYFYSGKKCHEFF
624	P67809	81	INRNDTKEDVFBH
625	P35723	44	YNQLTAKQIKTI
626	P35723	145	EKQKLNKPSSNSK
627	P43590	43	QPEYKDKYYYSKE
628	P43590	91	LLNRNPKLSKIST
629	P43590	249	ACQISDKSHLAVM
630	P38809	87	APYPKEKKRSSGS
631	P38809	128	TKVKPPKNVDTID
632	P36134	230	HRYHKSQVTKLFQ
633	P36134	233	HKSQVTKLFQAIN
634	P34231	320	TQSSSAKKAFAAL
635	Q06689	202	TTEEKTKLSPVFE
636	Q06689	214	ELFASSKNITATC
637	Q06689	509	DALNIGKDDLHLD
638	Q03559	184	QTEEKQKKKKKGL
639	Q03559	186	EEKQKKKKKGLFG
640	Q03559	188	KQKKKKKGLFGRM
641	P38079	304	DSDSSIKEKLKLK
642	P38079	306	DSSIKEKLKLKKK
643	Q60821	39	VDFKAHKAVLAAC
644	Q60821	166	GPGRELKEERGGQ
645	Q60821	290	GDRTESKAYGSII
646	Q60821	323	RIHTGEKPFSCRE
647	Q60821	351	KTHSPLKPYGCEE
648	Q8BID6	198	GGSSYGKEDQEPK
649	Q8BID6	384	NSLLSLKADVLGD
650	Q08245	91	SAAVSEKKETKKE
651	P31629	11	DTALGQKATSRSG
652	Q6NZP1	218	TWIEYAKRYCNAH
653	Q6NZP1	230	HVRYFGKRRQWDC
654	Q6NZP1	327	AKAGAVKDYIKML
655	P22227	184	KKKLRGKTALRKH
656	P22227	236	TFEGCGKRFSLDF
657	Q6NZP1	100	WIEELEKWIPELE
658	Q6NZP1	171	RTAARSKILLPMV
659	Q6NZP1	294	SFEEWQKLMRAPN

**S<sup>(2)</sup>: List of 659 negative Ubiquitination sites and sequence**

Sample #	Protein ID	Site	Sequences
1	P08195	145	EKNGLVKIKVAED
2	P08195	217	RELPAQKWWHTGA
3	P08195	266	VLGPIHKNQKDDV
4	P08195	287	DPNFGSKEDFDSL
5	P08195	354	RDIENTLKDASSFL
6	P08908	252	PAPQPKKSVNGES
7	P08908	270	RLGVESKAGGALC
8	P08908	332	ERNAEAKRKMALA
9	P08908	342	ALARERKTVKTLG
10	Q8NE71	35	KKGKKDKKIKKTF
11	P93821	37	PDALDDKKPTSDF
12	P93821	38	DALDDKKPTSDFFA
13	Q99KI0	86	QEIERGKTYLRLR
14	Q99KI0	138	AQVGGEKDLRRAK
15	Q99KI0	250	PKDVILKVAGILT
16	P52910	60	FFDKMAKEYLHWD
17	O43707	214	ELIEYDKLRKDDP
18	Q16186	390	NAKPEQKEGDTKD
19	P48962	94	NFAFKDKYKQIFL
20	P48962	107	GGVDRHKQFWRYF
21	P48962	163	LGDCCLKIFKSDG
22	P48962	199	GVYDTAKGMLPDP
23	P48962	263	CWRKIAKDEGANA
24	Q84VQ0	225	FFHNDVKNFVPIG
25	Q84VQ0	294	KARRVLKNLRVQI
26	O95831	89	YAYKTMKEDEKRY
27	O95831	109	GLTPEQKQKKAAL
28	O95831	127	EEVPQDKAPSHVP
29	P38080	53	AQIYVVKFLEYLN
30	Q9SLK6	12	IRSRIKSHFYTF
31	Q9SLK6	24	FRCLRPKTLDDQG
32	Q9SLK6	77	LLTFLPKCLYEQF
33	Q9SLK6	107	PLSPFNKWSMIAP
34	Q9SLK6	218	ATLALEKDESFQN
35	Q9SLK6	330	GFAVMTKLLMAEW
36	P10275	239	NAKELCKAVSVSM
37	P10275	289	APLAECKGSLDD
38	P10275	299	LDDSAGKSTEDTA
39	P10275	520	PSPTCVKSEMGPW
40	P10275	584	SCKVFFKRAAEGK
41	Q12955	56	RAGHLEKALDYIK
42	Q12955	105	NVDAATKKGNTAL
43	Q12955	124	GQAEVVKVLVTNG
44	Q12955	157	NHLEVVKFLLDNG
45	Q12955	216	ARKDDTKAAAALLL
46	Q12955	293	LLDRGAKIDAKTR

47	Q9Y2G4	261	VALLLTKAPQVLR
48	Q69ZU8	139	NVLARNKAGNTAL
49	Q69ZU8	224	NHKKVVKVLLLEAG
50	Q69ZU8	261	VALLLTKAPQILR
51	Q69ZU8	276	RGRSLRKRRERLK
52	Q69ZU8	282	KRRERLKEERRAQ
53	Q69ZU8	339	KDERRRKS SRPEVS
54	P36404	13	LKKMKQKERELRL
55	P36404	35	KTTILKKFNGEDI
56	Q06408	197	VIRDIYKYSKPGY
57	Q06408	246	LSDIINKITSWIY
58	Q06408	276	VSNFLNKLICKTG
59	Q06408	292	FSTVMGKSVIDES
60	Q9NR48	88	EGNLKLKIGLQAK
61	Q9NR48	121	TIKHPRKALKSGK
62	O55143	31	SLEQVKKLKERWG
63	O55143	128	YEPENMGVYRQDR
64	O55143	135	VYRQDRKSVQRIK
65	Q8NBU5	60	QAEKLMKQIGVKN
66	P35193	65	FWQPNDKSNVRIL
67	P35193	176	LEESLNKLELEQK
68	Q12691	155	GDICLVKVGDTIP
69	Q12691	217	SSSAVVKGRAKGI
70	Q8WXE1	183	KEKEFSKKLQSLQ
71	Q8WXE1	205	MNELRTKLQTSER
72	Q99728	130	KEDKPRKSLFNDA
73	Q9UIF8	237	DKKPRKKAMESSS
74	Q9UIF8	385	GLVSNVKPLSLVN
75	Q8NFC6	110	WSPHLNKNQLRNN
76	Q8NFC6	315	QESSEQKNKSTDK
77	O43684	218	PEVQKKKYAFKCH
78	O43684	267	WDPFNKKRLCQFH
79	A2RUR9	17	GAEGSPKPAVYAT
80	A2RUR9	274	VLPHVQKSEEMWI
81	A2RUR9	288	QGKLEWKNQLKLV
82	Q9Y4F5	77	MRIPDQKYVTLKL
83	Q9Y4F5	111	VP EEALKEKYTS
84	Q9Y4F5	300	QRRPPGKEATPGE
85	Q96514	31	LKPSKWKLP PGPK
86	Q96514	238	RISGQNKT LN NVF
87	Q9UKL3	23	FSASPLKNND EGS
88	Q9UKL3	160	RTFDTVKT KD LKS
89	Q9UKL3	203	NLEKEGKPHSDKR
90	O22203	34	PPGPSPKPIVGNL
91	O22203	44	GNLYDIKPVRFRC
92	O22203	324	NPRVQQKVQEEFD
93	P62157	76	LTMMARKMKD TDS
94	Q96M89	72	KYSDESKH CRTPL



95	Q96M89	169	KSKASDKRSLLP
96	Q8IX12	431	EVESELEKNMAILD
97	Q8IX12	594	TLSRGYKQQLVEK
98	P25322	72	EVCEEQKCEEEVF
99	P25322	112	CMFVASKMKETIP
100	P25322	149	LLVNKLKWNLAAM
101	Q12834	97	ASFLLSKENQPEN
102	Q12834	412	LWSPHYKELISGH
103	Q12834	429	NQLVIWKYPTMAK
104	Q12834	435	KYPTMAKVAELKG
105	P25694	73	VLVKGKKRKDTVL
106	P25694	261	GPPGTGKTLMARA
107	P25694	396	VLRIHTKNMKLAD
108	P06493	200	FAELATKKPLFHG
109	P06493	243	YKNTFPKWKPGSL
110	P06493	254	SLASHVKNLDENG
111	Q5TB80	228	EKISVPKQEEET
112	Q02224	253	AAGVRLKEGCNIN
113	Q02224	301	SLGGNAKTRI ICT
114	Q02224	346	TDEALLKRYRKEI
115	P13569	114	SYDPDNKEERSIA
116	P13569	298	ELKLTRKAAAYVRY
117	P13569	335	KGIILRKIFTTIS
118	P32657	100	QNRSKPKSRTKSK
119	P32657	110	KSKSKSKPKSQSE
120	O14757	132	ITHRDIKPENLLL
121	O14757	225	SDWKEKKTYLNPW
122	Q9Y3E7	25	WSLKIRKEMRVVD
123	Q9Y3E7	72	EMIRSRKAVSKLY
124	Q9Y3E7	92	SVLMGMKNQLAVL
125	Q9Y3E7	119	AMQSLVKIPEIQA
126	P29465	93	SGSLRSKGSVRSK
127	P29465	330	NQDGSSKPNFTVE
128	P29465	357	DAFYGLKSKADVY
129	P08679	100	IQKDLPAKAGSSQ
130	Q9D5U8	32	ISSTDTKDGGTAR
131	Q9D5U8	97	KLSWSQKIKSWTA
132	Q9D5U8	99	SWSQKIKSWTAKK
133	Q9D5U8	155	FSFWDKKKQGRIS
134	Q01955	48	DGAKGEKGEKGFP
135	Q01955	156	AGLKGQKGAPAKE
136	P0CX12	96	ICGLSRKRSLSKQ
137	P0CX12	196	YFTEVEKQWKLFN
138	P0CX12	216	VGLEDAKLPEAY
139	P0CX12	231	KLTWFLKRISNIF
140	P32798	362	QFTDLAKIVRSKL
141	P32798	367	AKIVRSKLRHYGI
142	P97784	89	VFPRLFKEWNITK

143	P97784	177	TSDVIGKCMTPLS
144	P97784	277	DLYKKVKKNSSPP
145	P97784	308	NNPRFDKMEGNPI
146	P97784	379	SWEEGMKVFEELL
147	Q9R194	295	DLYKKVKRNSTPP
148	Q9R194	453	IRRYLPKLKGFPS
149	Q12734	470	ASNSTNKLNAGVY
150	Q12734	508	SLRLATKCLKDEHT
151	P89105	24	SLDIPLKASEELV
152	P89105	180	RSGRQSKPNCLFL
153	P89105	204	NYMASLKIFQELL
154	P57076	40	VYNGRLKVQRLCS
155	P57076	93	GGAVFKKDDIGRR
156	Q08412	115	FPNLEEKYIKAVI
157	Q08412	347	QLPTRTKSGESTG
158	Q13616	39	TRQSMASRYMEL
159	Q13619	8	ADEAPRKGFSFSAL
160	P40087	234	MSTRLAKKTGLSR
161	P40087	235	STRLAKKTGLSRM
162	P40087	244	LSRMIDKRFIDGEA
163	Q39017	228	LCPLYVKELTRNP
164	P07262	169	GAYRSYKNSWEGV
165	P07262	333	LVAQGVKFIAEGS
166	O60610	35	AGGDGGKSKKFTL
167	O60610	38	DGGKSKKFTLKRL
168	O60610	133	QYLYTSKAGMSQK
169	O60610	222	EIIRCLKAFMNNK
170	O60610	228	KAFMNNKFGIKTM
171	O60610	232	NNKFGIKTMLETE
172	P39976	85	KVSKIMKYCNDKK
173	P38823	29	TSHDHTKFNNPIR
174	P38823	106	PAVNTTKSIRHFI
175	P53924	253	VDEVTLKQRKDKH
176	P18858	40	PPKAALKEWNGVV
177	P18858	120	SPSGIPKRRRTARK
178	P06746	48	AASVIAKYPHKIK
179	P06746	68	LPGVGTKIAEKID
180	P01903	27	QESWAIKEEHVII
181	P01903	92	ANIAVDKANLEIM
182	Q03001	51	INQHLMKVRKHVN
183	Q03001	154	SEDMSAKERLLW
184	P38167	37	QPSPTKKLGSMQQ
185	P38167	210	RGLLGPKTVLSNE
186	P0DH99	100	GHRDFIKNMITGT
187	P0DH99	243	PLQDVYKIGGIGT
188	Q9LD55	37	HDLITSKRYRAWQ
189	Q9LD55	52	LEKIMFKYLDLCV
190	Q13347	208	MFVTASKDNTAKL

191	Q13347	298	AFHPDGKSYSSGG
192	P14753	412	PSDLASKPRPEGT
193	P32476	179	NCIEILKDEKNEV
194	P38748	198	CHVISVKEIVFQK
195	Q0WPQ2	411	IVDTMVKTGNVMS
196	Q92817	62	DILETQKRLQQDR
197	P38261	147	NDSSYNKVPARSA
198	P38261	202	SAITIDKFTSNLT
199	Q5HYJ3	39	IAHPIVKCTYCRS
200	Q5HYJ3	58	KTNTICKKCAQNV
201	Q5HYJ3	96	CTNSEKKYGPPQT
202	Q5HYJ3	121	KEEGRRKVDGKLL
203	Q5HYJ3	170	KDQHHPKHHHHHH
204	Q9BXW9	22	LTEDASKTRKQPL
205	Q9BXW9	77	DQIAFQKKLFQTL
206	Q9NVI1	223	LLVLSSKGSRKSV
207	P38631	379	VDGRFVKRERDHN
208	P38631	386	RERDHNKIVGYDD
209	P40989	193	FIDLTKNKFQFQRD
210	P40989	261	IGFRNMKLGLSLR
211	P40989	309	AADFRWKSMMNQL
212	P40989	398	VDGRYVKSEKDHN
213	P01100	128	SIGRRGKVEQLSP
214	P38297	151	QYNTKEKNGFNIE
215	P38297	189	VDDVSSKVFITGD
216	P38297	271	YEIHTLKELPDLV
217	P19145	60	DFKDSFKRVKPIE
218	P19145	91	PLKHHLKNRHLQM
219	P31644	105	FFRQSWKDERLRF
220	P31644	361	KALEAAKIKKKRE
221	P47870	216	FSIVDYKLITKKV
222	P47870	221	YKLITKKVVFSTG
223	P47870	298	LRETLPKIPYVKA
224	P47870	366	IFYKDIKQNGTQY
225	P10071	511	HIHGEKKEFVCRW
226	P10071	544	RRHTGEKPHKCTF
227	P32288	107	NDGTPNKFNRHE
228	P32288	273	IEQAIEKLSKRHA
229	P63092	32	IEKQLQKDKQVYR
230	P63092	305	EKVLGKSKIEDY
231	P48813	381	IPSAAKKMIYRIL
232	Q3T8J9	170	VKEEGGKPMNSE
233	Q3T8J9	247	EKRRKKKKGTRKR
234	Q3T8J9	251	KKKKGTRKRDGR
235	Q5T848	260	DGLGGDKSHFKWS
236	Q5T848	508	KLHRVLKVFLSRT
237	P08539	256	NNDKGIKQCFARS
238	Q8N442	97	LTGTIDKTKNNKQ

239	Q8N442	119	ERGITVKAQTASL
240	P40531	132	GPIKEPKTLNYAL
241	P26569	46	TAKATKKPVKAAA
242	P26569	77	DAIVTLKERTGSS
243	P26569	121	ASEKLVKVKASFK
244	P16403	119	SGEAKPKVKKAGG
245	P16403	121	EAKPKVKKAGGTK
246	Q96QV6	75	NASRDNKKTRIIP
247	P16104	128	SATVGPKAPSGGK
248	O75367	137	PPAKKAKSPSQKK
249	O75367	153	KKAGGKKGARKSK
250	P0C0S5	16	SGKAKTKAVSRSQ
251	Q96A08	17	ISKKGFKKAVVKT
252	Q96A08	22	FKKAVVKTQKKEG
253	Q96A08	87	RLAHYSKRSTISS
254	Q96A08	110	LPGELAKHAVSEG
255	P33778	29	QKKDGKKRKRSRK
256	Q9LQQ4	39	KKPKAGKKLPPKE
257	Q9LQQ4	62	KNVETYKIYIFKV
258	P04913	31	ADKKRGKNRKETY
259	P02293	35	DGKKRSKARKETY
260	P51610	126	WKRLKAKTPKNGP
261	P51610	129	LKAKTPKNGPPPC
262	P51610	215	TEKDNKKSCLVIY
263	P51610	291	THEKEWKCTNTLA
264	P51610	354	NNQVCKDLWYLE
265	P51610	399	YLLQLQKYDIPAT
266	P51610	488	GVPAVLKVTGPQA
267	O15379	194	MTVSFHKYGNFF
268	Q9Y2N7	115	LENSVSKHLGLSQ
269	P00347	396	GVSQDRKVEVIKP
270	P09429	50	KCSERWKTMSAKE
271	P09429	87	PKGETKKKFKDPN
272	P41235	119	RYCRLKKCFRAGM
273	O60506	38	DAGLPQKVAEKLD
274	O60506	117	KVADSSKGPDEAK
275	P31539	66	YDYDLFKKVVRN
276	P31539	107	KIQKQKDSFIAQ
277	P31539	302	DAANILKPALSRG
278	P10591	185	IAYGLDKKGKEEH
279	P10591	247	EFKRKNKKDLSTN
280	O65719	130	SSMILIKMREIAE
281	O65719	192	AYGLDKKATSVGE
282	O65719	252	HFVQEFKRKNKKD
283	P57058	87	HVLTGEKVAIKVI
284	P57058	155	MHKIYEKKRLEES
285	P57058	238	PELLARKKYGPKI
286	P32467	63	YVEIPKKPASAYV

287	P32467	429	KKNGSSKGAGNCM
288	P38695	585	DPRPFYKRMFTKE
289	P39003	102	IRRFGMKHKDGTN
290	P39003	198	ISEVSPKHLRGTL
291	P08069	47	NDYQQLKRLNCT
292	Q9Z1E3	47	EYEQMVKELREIR
293	O14920	147	IIHRDLKPENIVL
294	O14920	428	AFFQLRKVWQVW
295	Q6PI98	79	PVEKAAKPLPFKD
296	Q6PI98	84	AKPLPFKDPNFVH
297	Q13568	368	QREVKTCLFSLEH
298	P56477	450	ISNPDLKDHMVEQ
299	P29994	249	FHAEQEKFLTCDE
300	P29994	279	TSATSSKALWEVE
301	P30605	276	PRYYVMKGD LARA
302	P30605	326	KVWNTIKELHTVP
303	P30605	547	EVQTILKDGFNK
304	P36035	175	LYDRPTKDITWGL
305	Q8NCM2	135	KDITLKFQPIEDD
306	Q8NCM2	201	YKQEAPKTPPHII
307	Q8NCM2	214	LHYCAFKTTWDWV
308	Q8NCM2	241	NVSFKTKQNNIAW
309	Q15058	269	IAKTSNKFGSLEK
310	Q7M6Z4	132	SIDFKIKVSYIEV
311	Q7M6Z4	140	SYIEVYKEDLRDL
312	Q38997	167	VVHRDLKPENLLL
313	Q38997	251	IPNLFKKIKGGIY
314	O43474	52	EELSHMKRLPPVL
315	O43474	470	WDGCGWKFARSDE
316	Q15349	7	MDLSMKKFVRRF
317	Q15349	25	RRKSRKSSSLSR
318	Q86UP2	64	EKKKNKKKEIQNG
319	Q86UP2	65	KKKKNKKKEIQNGN
320	Q86UP2	122	KKEKKQKPVLEEQ
321	Q86UP2	141	ASKIPGKKVEPVP
322	Q01650	112	LGTTISKSGGDYA
323	Q5VZK9	30	IKISVKKKVKLEV
324	Q5VZK9	63	TARIPTKLELTFS
325	Q5VZK9	265	RTDFAQKLASALA
326	O75581	195	LDYEEQKLYWADA
327	P53281	85	KIQVLEKISPDWY
328	P53281	98	RGKSNNKIGIFPA
329	Q9HCC9	454	SLPASEKEEDLSN
330	Q9HCC9	754	DLRSILKTLFEVM
331	O22042	126	EEVQLLKNLSHPN
332	O22042	219	ADFGASKKVVELA
333	O22042	393	SIIYPQKSNNSGF
334	Q3KQU3	203	EERQRQKLEKNKE

335	Q3KQU3	260	SAVNLPKHVDSII
336	Q07820	244	KNEDDVKSLSRVM
337	Q07820	276	FGAFVAKHLKTIN
338	Q7L590	201	ASPPDPKSSSSRM
339	Q7L590	268	STEMNKKMTGRKL
340	P93819	105	RKDVMSKNVSIYK
341	P93819	126	HAAPNCKVLVVAN
342	P93819	180	VPVSDVKNVIIWG
343	Q9SJL6	147	SSVKNSKRMLEES
344	Q9SJL6	177	LKSAQRKALDVLN
345	O50008	142	KAVNEYKEAKALG
346	P19358	170	WLRPDTKTQVTVE
347	P19358	187	NGRWVPKRIDTVV
348	P19358	213	LRTQLQKDIVEKV
349	P53045	247	FPWSLNKIMPFWA
350	P53045	297	SREERMKKRAENN
351	O75081	120	RFHGCLKWSMVCL
352	O75081	489	PEDIWRKAEEAVN
353	O75081	498	EAVNEVKRQAMSE
354	Q9Y623	49	PKESYVKAIVQSR
355	Q9Y623	59	QSREGGKVTAKTE
356	Q9Y623	185	GESGAGKTVNTRK
357	Q02566	67	AETENGKTVTIKE
358	Q9LR74	98	RSNDGKKEIKDGH
359	Q9LR74	107	KDGHMQKGDGLRA
360	P16603	169	AAKKAEEKHLSAAG
361	P16603	200	EDYMAWKDSILEV
362	P15531	49	ASEDLLKEHYVDL
363	Q00653	112	AHSLVGKQCSELG
364	Q00653	153	MGTMIQKLQRQRL
365	Q00653	283	SPTDVHKQYAIWF
366	Q39161	123	GLFHRRKHQYGKF
367	Q39161	154	LASVIRKYGEDGC
368	P30415	95	IYGGYFKDENFIL
369	P30415	190	VFEKKRKKPTCSE
370	P30415	231	RHKRRPKVRHAKK
371	P53253	81	IILFLSKKPSRHI
372	Q01705	69	CLSTPCKNAGTCH
373	Q01705	738	DGLNGYKCDCAPG
374	Q01705	1044	DSYGTYKCTCPQG
375	Q923B3	149	PAQQPSKRLTDTE
376	Q923B3	195	PNTRSKKQILELL
377	Q02218	74	NPKSVHKSWDIFF
378	Q02218	184	DESDLDKVFHLPT
379	Q02218	499	WRSTFHKDVVVDL
380	P04637	132	YSPALNKMFCQLA
381	Q15004	95	SGLGKAKRKACPL
382	Q56WK6	21	APVVKEKPITDKE

383	Q56WK6	83	TVVVAEKVVVLTA
384	Q56WK6	95	AEEVQKKALEEFK
385	Q56WK6	121	APVTPVKEEKTEE
386	P12004	217	YLNFFTKATPLSS
387	P12004	254	KYYLAPKIEDEEG
388	P15873	77	DLTSLSKILRCGN
389	P15873	146	PSSEFSKIVRDLS
390	P15873	217	YLLDI IKGSSLSD
391	Q9UHG3	291	YTGNTPKMYEVVY
392	Q02785	250	TIDFALKCKTPRV
393	Q02785	260	PRVRIDKMTRKQY
394	P33302	177	NTFQILKPMDGCL
395	O43933	95	GGQVFLKPCSHVV
396	O43933	260	SFQSEKKQETSWG
397	P35056	193	QQSGRSKEGVNEQ
398	P35056	244	KPETVEKEEGVYG
399	P35056	343	EAAVKEKPDHVDA
400	P35056	406	AFTMLDKWAETKY
401	P15259	33	DAELSEKGTEEAK
402	P25297	243	CDARCQKACDQMW
403	P25297	345	GQWKYKGILLGTA
404	P25297	492	ISAASGKVGAI IA
405	P25360	130	KTTSFNKNFIRKK
406	Q99755	257	SVKMHIKYDLKGS
407	Q99569	588	RVLEVQKNACGAL
408	Q99569	625	LLRLLRKSIDAEV
409	Q99569	683	DDDHKIKFQTSLV
410	Q99569	790	SCWGKKKKKKKRT
411	O23522	75	RQEKTTKNTSTSS
412	O23522	188	LPDGSFKVTKSLY
413	O82274	110	SREAWNKESNWLG
414	O82274	127	ATDEGKKLLGRRG
415	O82274	204	QVQEELKRLLLEY
416	O82274	312	LQINTLKSEYLKR
417	P53350	61	RGRFLGKGGFAKC
418	P53350	257	FETSCLKETYLR I
419	P13797	187	RAINKKKLTPFII
420	P13797	297	NFSADIKDSKAYF
421	P05030	355	GAAYLAKKQAI VQ
422	P05030	362	KQAI VQKLSAIES
423	Q8WZA1	190	HLKDTAKALLRSL
424	Q8WZA1	227	FGEKHSKSPALSS
425	Q8WZA1	459	LRRSLYKEELEPK
426	Q8WZA1	465	KEELEPKWPTPEK
427	P29590	183	FLDGTRKTNNIFC
428	Q9Y253	43	VQYKSWKGGGIIA
429	Q9Y253	254	SQMPIRKIRSLGG
430	Q6S8J3	142	RGEDLDK LHRAAW

431	O23404	91	AASIAQKRVFTFG
432	O23404	246	HAKFEEKLERMKE
433	O23404	254	ERMKERKGVKNDT
434	Q5JSZ5	142	SVPGGPKSWAQLN
435	P06401	7	MTELKAKGPRAPH
436	P06401	386	FQPPALKIKEEEE
437	P06401	565	FESLPQKICLICG
438	P07737	70	LTLGGQKCSVIRD
439	P07737	105	FNVTVTKTDKTLV
440	P62191	15	HGPGGGKKDDKDK
441	P25786	62	LAHQKKILHVDN
442	P25786	243	EERPQRKAQPAQP
443	P23638	195	AIELALKTLSKTT
444	P60900	45	SVAVRGKDCAVIV
445	P60900	71	TVTHLFKITENIG
446	P51665	214	IRSYLEKVATGKL
447	P60484	62	FLDSKHKNHYKIY
448	P60484	164	VRTRDKKGVTTIPS
449	P34222	161	MDELYAKAISLGV
450	P34222	195	GLGPAPKAVLDQI
451	Q06991	129	SVVLPEKLKSKMT
452	Q05911	147	KFAMEYKDLPLVLG
453	Q05911	167	QLTTLGKRATLWI
454	Q9SQ57	140	YNIHKAKHGSDSG
455	P03962	20	PSPVAAKLNFNIMH
456	P03962	83	LKALSAKYNFLLF
457	Q9CQ69	71	QEFEQSKRKNPAM
458	P59271	90	TYTKPKKIKHCHK
459	P63000	166	LTQRGLKTVFDEA
460	P62826	28	GKTTTFVKRHLTGE
461	P62826	130	VDIKDRKVKAKSI
462	Q09028	114	FGSVSGKIEIEIK
463	Q09028	178	RLRGHQKEGYGLS
464	Q09028	220	GKVVDAKTIFTGH
465	Q16576	142	PHIIATKTPSSDV
466	P49756	69	KHLGARKDHPGLK
467	P49756	236	DSHPRKKKKKEKKE
468	Q9P2N5	85	PLLEPVKPEPKPL
469	Q9P2N5	117	RDGRKKKYPSPQK
470	Q9P2N5	142	KKREDGKWRDYDR
471	P54725	78	VVVMVTKTKAGQG
472	P40043	90	LHQHIEKHLLKDI
473	P40043	110	ELKFHEKSKEETF
474	P40043	118	KEETFDKITWHYG
475	Q7Z5B4	117	ILYILFKLSKGKT
476	Q7Z5B4	120	ILFKLSKGKTTAE
477	O15034	34	EIDLLQSKSVREL
478	O15034	302	IVPYPRKITLIKQ



479	O15034	453	NMAYKVKVLAKPH
480	P57078	45	VRHVHWKTWLAIK
481	P27635	13	RCYRYCKNKPYPK
482	P27635	15	YRYCKNKPYPKSR
483	P27635	121	MARGAFGKPQGTVA
484	P27635	158	LRRAKFKFPGRQK
485	P27635	170	KIHISKKWGFTKF
486	P47914	87	VKPKIPKGVSRKL
487	P0CH06	88	LKALASKYNCEKQ
488	P0C224	88	LKALASKFNCDKM
489	Q9SJQ6	23	IPQTPMKPFSPIC
490	Q9SJQ6	121	EKPKRKKHRPKVR
491	P04050	15	APLRTVKEVQFGL
492	P04050	176	TQPTIRKDGLKLV
493	P04844	469	LDTSERKIEFDSA
494	P60866	34	NVKSLEKVCADLI
495	P38701	21	QQQQI IKIRITLT
496	P38701	53	QHNLVKKGPVRLP
497	Q9SIP7	153	AKSMKFKDGYMVS
498	Q9SIP7	197	DWDPTGKSGPKTP
499	P23396	151	QRAKSMKFVDGLM
500	P23396	185	QGVLGIVKIMLP
501	P23396	197	PWDPTGKIGPKKP
502	P23396	201	TGKIGPKKPLPDH
503	P05750	148	LRAARAKAMKFAD
504	P0CX35	174	KITDFIKFDAGKL
505	P39743	169	YNKHEKKKEPTAK
506	P39743	175	KKEPTAKDEERLY
507	Q9LK36	263	DVMIAGKVAVICG
508	Q9LK36	328	CTTTGNKDIIMVD
509	Q9Y467	417	TTRGNLKVHFHRH
510	Q9Y467	510	GLPAFNK FVLMKA
511	Q9Y467	568	LLTNHFKSTGSFP
512	O94979	281	LLLSCGKDAKILC
513	O94979	344	TDGLRQKQVDKLS
514	O94979	460	FINYCQKKIDASQ
515	Q5TEA6	72	NLLEKKKNQRKIR
516	Q5TEA6	97	NKNHLQKQAEKNF
517	Q5TEA6	144	ADMGNLKAMEKMA
518	Q5TEA6	148	NLKAMEKMADALL
519	Q01105	35	ASAGLPKKGEKEQ
520	Q01105	68	ASEEILKVEQKYN
521	Q6AI14	377	GVSTVGKNHEWNW
522	Q6AI14	419	TFPFSIKDQCIIF
523	Q13485	122	QYAFDLKCDSVCV
524	Q13485	385	ARLHIGKGVQLEC
525	O15105	93	GAEADLKALTHSV
526	O15105	104	SVLKKLKERQLEL

527	O15105	359	RTLLVHKVFPGF
528	O15105	367	FPGFSIKAFDYEK
529	P14359	19	MSYSINKDDLLM
530	P31109	49	MRDNINKVAERGE
531	Q9Y5W7	83	NIFFTIKYKPKQL
532	Q9Y5W7	87	TIKYKPKQLGLQE
533	Q9Y5W7	307	DDSPPEKATEPAS
534	Q9C093	183	KLERFQKLKEEQR
535	Q9C093	233	KALEAQKMMKKKK
536	Q8N0X7	287	DRSPVLKCTAGAY
537	P12866	204	IHVYSEKENSETS
538	Q86WV6	20	RGHGAQKAALVLL
539	Q9WUM5	108	NTVKEAKEKTGAT
540	Q9WUM5	182	INPGECKIGIMPG
541	P61956	21	NDHINLKVAGQDG
542	P61956	35	VVQFKIKRHTPLS
543	Q9FFC7	400	DMNGNLKGAFLLPA
544	Q15431	52	FEFPFAKTNL SKN
545	Q15431	111	VYSKLYKEAEKIK
546	P41544	21	KPSQIFKQDSLSP
547	P26639	75	DSILAEKAEKDSK
548	P26639	143	CTLELLKFEDEEA
549	Q9Y228	157	PQDTPIKKPPKHH
550	Q9BVV6	98	EENNKQKANDIFI
551	Q9BVV6	112	QYTMGQKDALRTV
552	P69697	28	CTNCYCKKCCFHC
553	P10636	394	SDDKKAKTSTRSS
554	Q9UHD2	344	LVYKQTKIISNQ
555	Q9UHD2	401	EKISLPKVHPRYD
556	P50990	7	MALHVPKAPGFAQ
557	P50990	54	GPNGMNMVINHL
558	P50990	181	NEVFLAKLIAQAC
559	P47079	136	GYNMARKFTLKEL
560	P47079	262	IANTETKGTVLLH
561	P10827	49	IPSYLDKDEQCVV
562	A2ASS6	72	MIPAVTKANSGRY
563	A2ASS6	136	IPTPVVKFYRDGA
564	A2ASS6	202	EEVVPKKTIV
565	A2ASS6	205	VPAKKTIVSTA
566	P53322	152	IGTNLLKIMGPPL
567	P53322	178	LGTAWVKNYAQLI
568	P53322	286	FFNKEEKEYISER
569	P53322	440	NTGNYFKRATALG
570	O15417	270	PFLAESKTKNAAL
571	O15417	620	GGLGTMKPEPAPT
572	P58771	49	LVSLQKKLKGTEDE
573	P58771	51	SLQKKLKGTEDE
574	P58771	136	IESRAQKDEEKME

575	P40238	140	APPSIIKAMGGSQ
576	P29144	19	HGLLPKKETGAAS
577	P29144	61	QVTTDGKPKIVDI
578	Q13077	402	PKHAYVKDDTMFL
579	Q12933	211	HVKTCGKCRVPCR
580	Q12933	231	ETVEGEKQQEHEV
581	Q9Y4K3	96	CKACIIKSIRDAG
582	Q9Y4K3	133	ILSLMVKCPNEGC
583	Q9Y4K3	365	NFGMHLKCQEEEEK
584	Q9H8W5	243	SVWELLKGTQPHV
585	Q9H3M7	26	VYGSGEKVAGRVI
586	Q9H3M7	64	QGSQQCKQTSEYL
587	Q9H3M7	286	VSVPGSKKVILDL
588	Q08960	61	DLNKQQKKPCCSD
589	Q08960	90	KKNGGGKGGGCCS
590	Q07307	21	IPNSNPKKTVRQR
591	Q9UHP3	201	RLVLNYKPPSNAQ
592	Q9UHP3	290	EETDEEKPKNPMV
593	Q93009	113	PDRPHQKSVGFFL
594	Q93009	208	GVAWDSKKHTGYV
595	Q07963	23	ELPKLAKCEYSET
596	Q07963	43	TLNLRLKHSDNDI
597	Q07963	67	EAWENEKYRDILN
598	O94888	349	NLAKSRKSPHKDL
599	O94888	353	SRKSPHKDLGHRK
600	Q96T88	297	DNPMRRKSGPSCK
601	Q96T88	303	KSGPSCKHCKDDV
602	Q96T88	408	ACVGRTKECTIVP
603	P39547	49	NEIARCKPLMIMF
604	P39547	72	TFFHDIKGILVFL
605	P39547	159	RCHKFFKSLIKQT
606	P28274	92	HNITTGKIYSHVI
607	P28274	289	GLELLSKWKATTG
608	P28274	291	ELLSKWKATTGNF
609	Q96JH7	141	ARYGMDKQTGRAK
610	Q96JH7	331	GLIPAECTGKDG
611	Q96JH7	390	LIKKYIKLEEDGG
612	P98155	313	SDEVNCKNVNQCL
613	P98155	459	KIGLERKEYIQLV
614	Q709C8	28	LNKSQLKLGIWGG
615	Q709C8	56	ELDVPFKVKAGQI
616	Q709C8	72	TLKIPWKNLYGEA
617	Q709C8	155	PGRKRKKHKKHFK
618	Q9Y4B6	268	GGLKKNKSAKQGD
619	Q9Y4B6	284	FRKAKQKLGFSSS
620	Q9Y4B6	376	LTFEALKHLASLL
621	P04275	252	FVALCEKTLCECA
622	P04275	477	VQLPLLKGDLRIQ

623	P04275	704	RGDCVPKAQCPCY
624	Q96S55	137	SSSPGRKGSCKRP
625	Q96S55	244	DYFGQSKAVGQDT
626	Q96S55	274	GPPGCGKTTLAHI
627	P39548	118	VEVIARKPAGKEW
628	P67809	52	APAGGDKKVIATK
629	P67809	53	PAGGDKKVIATKV
630	P67809	58	KKVIATKVLGTVK
631	P67809	296	RRPENPKPQDGKE
632	P35723	161	NEADSTKLQEELR
633	P35723	185	QVKNLEKYFDEKN
634	P43590	22	FFFGLVKYFKRGE
635	P43590	187	YISDLGKKFKELQ
636	P38809	85	QQAPYPKEKKRSS
637	P34231	64	KHINVSKVIPQIG
638	P34231	150	EINGLLKYSDNAT
639	P34231	410	GASTDPKTTFSSL
640	P34231	607	VMIAIIKSGTADD
641	Q06689	141	ELLTTSKNTTELL
642	Q06689	593	VILNMMKSGSKKD
643	P38079	310	KEKLKLLKKHKKD
644	Q60821	57	MLFVDQKDVVHLD
645	Q8BID6	401	LFEYLPKGAHSL
646	Q9NUD5	254	RSKSSLKTLFILF
647	Q9NUD5	330	RGYSWYKGQPKTC
648	Q08245	70	DGVEQKKTEAANK
649	Q08245	82	KVEETKKQASAAV
650	P31629	237	NLYKHKRSHAHAI
651	P22227	20	AKTSGQKGPGGRA
652	Q6NZP1	65	DEMGLGKTIQAIA
653	Q6NZP1	283	LPPAAVKELNASF
654	Q6NZP1	331	AVKDYIKMLLQND
655	Q08245	56	PEAEQVKKEEQNI
656	P31629	244	SHAHAIKAGLVPF
657	P31629	257	TESAVSKLDLEAG
658	P22227	11	KMNEQMKKTAKTS
659	P22227	94	EEDFLFKSFESLE

### S<sup>-</sup>(3): List of 659 negative Ubiquitination sites and sequence

Sample #	Protein ID	Site	Sequences
1	P20039	227	SESAQSKMLSGVG
2	P08195	269	PIHKNQKDDVAQT
3	P08195	329	VDTVATKVKDALE
4	P08908	345	RERKTVKTLGIIM
5	P08908	405	IYAYFNKDFQNAF
6	Q8NE71	50	ELAVEDKQAGEEE

7	Q8NE71	57	QAGEEEKVLKEKE
8	P50544	265	IFTVFAKTPIKDA
9	P50544	300	HGLPEKKMGIKAS
10	P50544	359	MKSLIAKAVDHAT
11	P93821	114	FSLDLTKTFIYHN
12	P93821	306	TVYGPIKELLSEE
13	Q9UKV3	103	ALVKRLKGALMLE
14	Q9UKV3	138	SQNSFIKQYLEKQ
15	Q9UKV3	143	IKQYLEKQQELLR
16	Q9UKV3	223	DDEKPRKGERRSS
17	Q9UKV3	349	SQEEARKSHLARQ
18	Q07622	284	YNINAEKLKRSRK
19	Q07622	307	ILEHSFKVLTKLI
20	Q07622	311	SFKVLTKLITLKW
21	Q99KI0	68	PLTLSEKIVYGHL
22	Q99KI0	258	AGILTVKGGTGAI
23	P52910	286	GSTGSPKGVVHTT
24	O43707	125	IASKGVKLVSIGA
25	O43707	233	AFEVAEKYLDIPK
26	P48962	52	SAEKQYKGIIDCV
27	P48962	96	AFKDKYKQIFLGG
28	P48962	147	LAADVKGKSSQRE
29	Q84VQ0	115	FAYDGEKTLFTVG
30	Q84VQ0	174	EISYAAKIPMQAI
31	O95831	15	AGALKQKLVLVR
32	O95831	93	TMKEDEKRYNERI
33	O95831	232	AVLTGKKVVQLDV
34	O95831	244	VRDNMVKLNDGSQ
35	P38080	137	MELCPNKSLLDYM
36	P38080	150	NQRLSTKLTEAEI
37	Q9SLK6	124	VGLSMGKEALEDW
38	Q9SLK6	143	VEVNSRKASVHKG
39	Q9SLK6	159	FGRRTWKIRVGD
40	Q9SLK6	295	STKSPSKRSRIEK
41	P54115	13	DTAEPVKITLPNG
42	P54115	268	SESNLKKITLLELG
43	P54115	367	YIDIGKKEGAKIL
44	P10275	17	YPRPPSKTYRGAF
45	P10275	180	SCSADLKDILSEA
46	P10275	609	IDKFRRKNCPSCR
47	Q12955	10	AASQLKKNRDLEI
48	Q9Y2G4	224	NHKKVAKILLEAG
49	Q9Y2G4	277	GRSLRKKRERLKE
50	Q69ZU8	371	HSHHHPKKKSRHR
51	Q06408	161	FKGPNHKVYHDMV
52	Q06408	349	TYKPNAKIIQFHP
53	Q06408	372	GNEQMFKGINFAP
54	Q9NR48	86	FSEGNLKLKIGLQ

55	Q9NR48	94	KIGLQAKRTKKPP
56	Q9NR48	139	NEHCPSKRDPSKL
57	Q8NBU5	112	TVILPIKKKHLFE
58	Q8NBU5	148	IAKATAKEAGCRF
59	P35193	26	VYDECNKFQLIVP
60	P35193	56	NDSNGCKHLFWQP
61	P35193	101	GEGTLKKYNLTIS
62	Q12691	285	LHRKLSKLAVLLF
63	Q8WXE1	138	EEEVLIKNGEIKI
64	Q8WXE1	170	FLLEQEKQTALSD
65	Q8WXE1	244	CSPQFGKTSFPTK
66	Q99728	153	FSPRSKKVRYVVS
67	Q99728	160	VRYVVS KASVQTQ
68	Q99728	170	QTQPAIKKDASAQ
69	Q9UIF8	167	NRNGPEKGVNGSI
70	Q9UIF8	211	SGGGNRKCNQEQS
71	Q9UIF8	370	KEESVNKHTSVIQ
72	Q9UIF8	400	KKETYMKLIVPSP
73	Q8NFC6	235	TSERASKKLPSQP
74	Q8NFC6	236	SERASKKLPSQPT
75	Q8NFC6	291	CPVEEIKNYTKEH
76	Q8NFC6	324	STDKGEKKPDSNE
77	P55061	195	TQLIIIEKAEHGDQ
78	P38356	238	SKVGKNKSLNRME
79	P38356	298	GLFITLKSIIYDYI
80	O43684	52	ANSMRLKYQHTGA
81	A2RUR9	126	VPEYKEKQTPESL
82	A2RUR9	156	ETCQRSKNLKVDD
83	A2RUR9	284	MWIEQGKLEWKNQ
84	Q9Y4F5	41	QSRSDVKQHAVIN
85	Q9Y4F5	58	RDEHWVKDLGSLN
86	Q96514	62	FRNLSQKFGPVML
87	Q96514	113	MISYNFKDIGFAP
88	Q96514	158	NDLLIKKLTESAL
89	Q96514	165	LTESALKKSPVNL
90	Q9UKL3	46	VSDSASKSCVPSR
91	Q9UKL3	208	GKPHSDKRSTSHL
92	Q9UKL3	220	LPTSVEKHCTNGV
93	Q9UKL3	248	DSRRGRKDIRHSQ
94	O22203	85	LAKEVLKEHDQKL
95	O22203	121	YGPYVVKVRKVCT
96	O22203	124	HYVKVRKVCTLEL
97	O22203	134	LELFTPKRLESLR
98	O22203	166	LPENRAKGLQLRK
99	O22203	206	EQGLEFKAIVSNG
100	P62157	116	MTNLGEKLTDEEV
101	Q96M89	41	SNFYQSKYKRRTL
102	Q96M89	123	STSKITKQSFKEI

103	Q96M89	131	SFKEIEKVALPTN
104	Q8IX12	275	LQQPQQKAGLLQP
105	Q8IX12	558	RPEETHKGRTPVA
106	P25322	33	VLRAMLKTEETCA
107	P25322	50	YFKCVQKEIVPSM
108	P25322	58	IVPSMRKIVATWM
109	P25322	114	FVASKMKETIPLT
110	P25322	194	LCATDVKFISNPP
111	Q12834	33	RWQRKAKEAAGPA
112	Q12834	110	SQTPTKKEHQKAW
113	P25694	305	AFEEAEKNAPAI
114	P06493	34	QVVAMKKIRLESE
115	P06493	201	AELATKKPLFHGD
116	Q02224	116	IHDIFQKIKKFPD
117	Q02224	119	IFQKIKKFPDREF
118	Q02224	150	CGTQKMKPLIIRE
119	P13569	283	WEEAMEKMIENLR
120	P32657	133	FSNRQNKTVNYNI
121	P32657	208	PDLNNCKENYEFL
122	P32657	216	NYEFLIKWTDESH
123	P32657	240	GQVRGLKRLDNYC
124	P32657	336	LAPEQVKHFQNRE
125	Q9UNE7	72	RALCYLKMQQHEQ
126	Q9UNE7	203	QACIEAKHDKYMA
127	O14757	53	DCPENIKKEICIN
128	O14757	222	QEYSDWKEKKTYL
129	P29465	123	DKKASVKISDEGV
130	P29465	156	PINKSIKPLRKET
131	P08679	173	ALESESKFAKAYA
132	P08679	208	LPVIAAKIYRNVF
133	P08679	218	NVFKDGMGEVDP
134	P08679	239	VNLIGSKDEDFVD
135	Q01955	63	PGSPGQKGFTGPE
136	Q01955	161	QKGAPAKEEDIEL
137	P32798	113	PVIENPKFVLYVG
138	P32798	411	PLSLRPKTYGTGI
139	Q9R194	86	LDTSLRKLNSRLF
140	Q9R194	559	SGPASPKRKLEAA
141	Q9ZQB9	18	NNNNTRKGTPVVV
142	Q9ZQB9	113	GVGSLQKQNHTKK
143	Q9ZQB9	118	QKQNHTKKSKLFY
144	Q12734	564	DKNSTGKIAFPSS
145	P89105	232	LCFWQLKDSKMAI
146	P57076	92	SGGAVFKKDDIGR
147	P57076	114	MKQVLKKTIEEAK
148	P57076	196	QLWWAAKELRRTK
149	P57076	203	ELRRTKKLSDYVG
150	P57076	215	GKNEKTKIIAKIQ

151	Q08412	56	TPKVEEKVNKSSG
152	Q08412	145	SDPESGKDIELPT
153	Q13616	97	RLKEFLKNYLTNL
154	Q13616	221	EDDAFAKGPTLTV
155	Q13616	337	DGLGELKKLLETH
156	Q13619	186	THIISDKMVQSKT
157	Q13619	228	SDLQVYKDSFELK
158	Q13619	234	KDSFELKFLEETN
159	P40087	40	ADCGFDKTKHDLY
160	Q39017	262	SIRIQSKKYKQTN
161	Q39017	369	LVFINKKSGAQRG
162	P07262	74	SAKGPYKGGLRFH
163	P07262	404	RVDQELKRIMINC
164	O60610	18	RGTRDKKKGRSPD
165	Q9NSV4	56	PEEPGEKRPKFHL
166	Q9NSV4	164	YINTASKTGSLKR
167	Q9NSV4	228	LLDILEKLISGKI
168	P39976	294	CTIEYLKDLPFPL
169	P18858	16	HPKKEGKAKKPEK
170	P18858	18	KKEGKAKKPEKEA
171	P06746	60	KSGAEAKKLPGVG
172	P06746	84	ATGKLRKLEKIRQ
173	P06746	87	KLKLEKIRQDDT
174	Q03001	307	NNPVELKALYNQY
175	P38167	95	AQLLGKKQNKQPP
176	P38167	219	LSNEYLKISISTS
177	P38167	424	LYLDKTKTKASLL
178	P0DH99	180	VSSYLKKVGYNPD
179	P0DH99	187	VGYNPDKIPFVPI
180	P00533	129	SNYDANKTGLKEL
181	Q9LD55	48	WQKPLEKIMFKYL
182	Q9LD55	137	SIVSGEKGKDRSD
183	Q9LD55	211	HLANLNKYRDQRD
184	Q9LD55	269	MVKKTPKSSLLMV
185	Q13347	141	NNEPYMKIPCND
186	Q13347	264	TSTRIGKFEARFF
187	Q02908	57	ITKYSKKYKLKQQ
188	Q02908	188	TFMSLPKEYREDF
189	P14351	244	VKYKEPKPWPKEG
190	P14351	248	EPKPWPKEGLIAD
191	P14351	361	KKRALPKDWSSQG
192	P14753	34	PSLPDPKFESKAA
193	P32353	180	ENHGVRKLIIEYF
194	P54781	99	FEEYKAKWASGPL
195	P54781	235	TEDQVRKIADDYY
196	P38748	35	PKKLKAKSIGEES
197	P38748	66	DMITDFKNQTSKE
198	Q0WPQ2	510	LMFKVLKERGSLD



199	P38261	8	VEFSLKKARNNWK
200	P38261	48	NPYSDLKDPATSY
201	Q5HYJ3	125	RRKVDGKLLCWLC
202	Q9BXW9	50	NDSIFVKLLKISG
203	Q9BXW9	190	DRVVDGKDLTTKI
204	Q9NVI1	157	LSGEECKKQLINT
205	P38631	255	KARKAKKKNNKKAM
206	P38631	405	YPEGIAKIVLEDG
207	P38631	492	QPLAAYKWASCAL
208	P01100	265	ISSMELKTEPFDD
209	P38297	282	LVPQNGKYALLKI
210	P38297	287	GKYALLKIYIKDD
211	P19145	9	NTSSYEKNNPDNL
212	P19145	347	LVPYNDKSLIGAS
213	P19145	372	IKTHGIKGLPSVV
214	P31644	364	EAAKIKKKREVIL
215	P31644	406	TTSVSVKPSEEKT
216	P47870	94	QQAWRDKRLSYNV
217	P47870	136	VHGVTVKNRMIRL
218	P47870	303	PKIPYVKAIDMYL
219	P47870	339	RGPQRQKKA AEKA
220	P47870	359	MRLDVNKIFYKDI
221	P32288	8	AEASIEKTQILQK
222	P32288	232	AEEFGIKISFHPK
223	P37303	62	VARMAGKEAGLFC
224	P37303	178	CMENGLKLHCDGA
225	P37303	283	AEYCEAKGIPLES
226	P37303	316	LVKKGLKYNVKLM
227	P37303	341	DTLEKVKLAISEA
228	P63092	274	EALNLFKSIWNNR
229	P48813	324	DGYIGSKYWRDPG
230	P48813	342	TPIQRFKGVVATF
231	Q3T8J9	120	LNIIHIGKGLHAT
232	Q3T8J9	190	SGSQSAKPVSQPR
233	Q5T848	278	CENGSYKPGWLVT
234	Q5T848	554	VCQNLEKQISLIG
235	P08539	43	RDKNEIKLLLLGA
236	P08539	118	KDLFACKRILLKA
237	P08539	246	DIAKAIKQLWNNND
238	P40531	67	DKVDTIKLIYNHF
239	P26569	56	AAAPTKKKTSSH
240	P16403	52	KAVAASKERSGVVS
241	P16403	90	LKSLVSKGTLVQT
242	P16403	106	GASGSFKLNKKAA
243	P16403	127	KKAGGTPKPKPVG
244	O75367	38	IKKGHPKYRIGVG
245	O75367	134	ITPPPAKKAKSPS
246	O75367	135	TPPPAKKAKSPSQ

247	Q96A08	13	KGATISKKGFKKA
248	Q96A08	29	TQKKEGKKRKTR
249	Q9LQQ4	51	EAGDKKKRSKKN
250	Q9LQQ4	70	YIFKVLKQVHPDI
251	A3AGM4	12	EKKPAEKKPAAGE
252	A3AGM4	41	KRLPASKASSKEG
253	A3AGM4	100	INDIFEKLAQEAA
254	A3AGM4	113	RLARYNKKPTITS
255	P62805	9	GRGKGGKGLGKGG
256	P62805	32	NIQGITKPAIRRL
257	P51610	20	LLQPRWKRVVGWS
258	P51610	282	LVMDDVKVATHEK
259	O15379	138	GLHHAKKFEASGF
260	Q9Y2N7	288	DSDAVSKSIHTLL
261	Q9Y2N7	296	IHTLLSKGQAVTG
262	P09429	82	KTYIPPKGETKKK
263	P41235	70	GDRATGKHYGASS
264	P41235	81	SSCDGCKGFFRRS
265	P41235	118	CRYCRLKKCFRAG
266	P41235	127	FRAGMKKEAVQNE
267	O60506	256	IPKSKTKEQILEE
268	P31539	20	ILTLAQKLASDHQ
269	P31539	67	DYDLFKKVVNRNL
270	P31539	266	DFEERFKGVLKEI
271	P10591	110	EFKGETKNFTPEQ
272	O65719	351	GSTRIPKVQQLLV
273	P57058	188	VVHRDLKIENLLL
274	P57058	243	RKKYGPKIDVWSI
275	P57058	354	VLHMTKLGKNS
276	P38695	294	GKIEEAKRSLARA
277	P38695	557	ENVLPWKSTKWIP
278	P39003	33	LSTPSNKAERDEI
279	O14602	67	IRGKLRRKKVWINT
280	P08069	66	HILLISKAEDYRS
281	P08069	336	KVCEEEKTKTID
282	Q9Z1E3	87	AI IHEEKPLTMEV
283	O14920	234	PVQWHSKVRQKSE
284	O14920	467	NNSCLSKMKNSMA
285	O14920	469	SCLSKMKNSMASM
286	Q14974	312	PPEHTSKFYAKGA
287	Q14974	372	HVLPFIKEHIKNP
288	Q14974	403	PEPSQLKPLVIQA
289	Q6PI98	100	GGAVAGKKNRTWK
290	Q13568	18	PRRVRLKPWLVAQ
291	Q13568	96	LRCALNKSDFRL
292	P29994	127	IQLLHLKSNKYLT
293	P29994	230	MKWSDNKDDILKG
294	P29994	258	TCDEHRKKQHVFL

295	P36035	55	YNPDHEKLYHNPS
296	P36035	133	PIPELRKMTWQNW
297	Q7M6Z4	90	GQTGSGKTYTIGG
298	Q7M6Z4	262	NTGERFKESIQIN
299	Q38997	77	KILNRRKIKNMEM
300	Q38997	86	NMEMEEKVRREIK
301	Q38997	176	NLLLDKSCNVKIA
302	O43474	278	RTCPKIKQEAVSS
303	O43474	414	CMPEEPKPKRGRR
304	O43474	425	RRSWPRKRTATHT
305	O43474	439	DYAGCGKTYTKSS
306	O43474	443	CGKTYTKSSHLKA
307	Q15349	95	AMKVLKKATLKVR
308	Q15349	99	LKKATLKVRDRVR
309	Q86UP2	55	PTKTDKKAEEKK
310	Q01650	158	FATYLLKPLFPTC
311	Q12502	72	YSSAEDKSLKNT
312	Q12502	86	NVSTTSKSLKRKS
313	Q12502	89	TTSKSLKRKSTFG
314	Q12502	335	EETTRVKAHACPV
315	Q5VZK9	44	GDKVENKVLVLTS
316	O75581	108	CDWLGEKLYWTD
317	O75581	303	CLMSPVKPFYQCA
318	O75581	513	GDAKTDKIEVMNT
319	Q9HCC9	249	PLNLDKVEDMSE
320	O22042	333	HPFVTGKRQEPYP
321	Q3KQU3	163	KAVWLEKEEKAKA
322	Q3KQU3	173	AKALREKQLQERR
323	Q3KQU3	206	QRQKLEKNKERYE
324	Q7L590	71	GETRDEKENLATL
325	Q7L590	302	TFGVILKKVTPQS
326	Q7L590	340	LFGEVHKALWKTE
327	P93819	237	RGAAIIKARKLSS
328	O50008	28	ESFWDGKSTAEDL
329	O50008	36	TAEDLQKVSADLR
330	O50008	145	NEYKEAKALGVDT
331	O50008	196	EVITELKAAGATW
332	O50008	259	KTLTSLKGVTAFG
333	P19358	114	QGLHYEKSLEDLG
334	P19358	254	AGLTGRKIIVDAY
335	P19358	292	AARWVAKSLVAAG
336	Q03164	211	KSGDKIKKKDSKS
337	P53045	86	PYFRRWKLQPTKI
338	P53045	289	ESGPEAKASREER
339	Q9Y623	63	GGKVTAKTEAGAT
340	Q02566	48	DKEEYVKAKVVS
341	Q02566	50	EEYVKAKVVSREG
342	Q02566	58	VSREGGKVTAETE

343	Q91Z83	35	RPFDLKKDVFVPD
344	Q91Z83	106	AVLYNLKERYASW
345	Q9LR74	25	RLYLRNKVERNQS
346	Q9LR74	170	QEDREQKEEADLT
347	P16603	25	AVLLYVKRNSIKE
348	P16603	181	GAIRLGKLGEADD
349	P16603	275	YIAPIVKSRELFS
350	P16603	300	LSGSNIKYSTGDH
351	P16603	317	PSNPLEKVEQFLS
352	P15531	85	EGLNVVKTGRVML
353	P15531	128	SVESAEKEIGLWF
354	O88522	102	KFQEARKLVERLS
355	O88522	129	KELEQLKKCQQQM
356	O88522	249	SHIKSSKGMQLED
357	Q00653	143	GVLHVTKKNMMGT
358	Q00653	210	SFSLPLKPVISQP
359	P25208	80	QTGKIAKDAKECV
360	Q39161	184	DVPEILKGLASVG
361	Q39161	291	GGFFSPKRCEEAI
362	P30415	47	CLCSGEKGLGKTT
363	P30415	55	LGKTTGKKLCYKG
364	P30415	179	CGVLATKLTKDVF
365	P53253	82	ILFLSKKPSRHIG
366	P53253	139	LFAMLLKIYGGDY
367	Q01705	428	PCEHAGKCLNTLG
368	Q01705	631	YLCLCLKGTTGPN
369	Q01705	845	KNSGVCKESEDYE
370	Q923B3	142	LNPGNLKPAQQPS
371	Q923B3	261	QLKEKRKG VATLP
372	P53370	303	FYKLYHKELPENY
373	Q02218	296	LKTIIDKSSENG
374	Q02218	336	FCQFDSKLEAADE
375	Q38799	74	GAYKITKGLLEKY
376	P04637	305	LPPGSTKRALPNN
377	P04637	382	STSRHKKLMFKTE
378	Q15004	63	PTPKWQKGIGEFF
379	Q56WK6	19	AAAPVVKEKPITD
380	Q56WK6	94	TAEVQKKALEEF
381	P15873	31	LVNFQCKEDGIIA
382	P15873	117	IAEYSLKLM DIDA
383	P15873	210	DLTFGAKYLLDII
384	Q9UHG3	100	PLNLHMKRFVKDL
385	Q02785	117	DSGIAFKNLTAVG
386	Q02785	151	PAHLISKFTKKSD
387	Q02785	238	LDFHFPKITVKET
388	P33302	65	TQSAPNKSDAQSI
389	P33302	109	SSAAWVKNMAHLS
390	P38075	113	AIVFFWKDLQRQV

391	P38075	215	RFVYRRKTENDPW
392	O43933	185	PKTRRAKENTFSK
393	O43933	334	FTVTYGKLVKLLS
394	P35056	289	LGEDYLKYLGGRV
395	P35056	328	LMENGAKLSEAAL
396	P15259	222	IVYELNKELKPTK
397	P25297	108	PSQTLLKVSTSVG
398	P25297	385	GSKNVYKKLYDTA
399	P25297	419	VDIIGRKPIQLAG
400	P25297	515	NCARDGKPTNCWL
401	P25360	84	THKLKRKLFGSKT
402	Q99755	140	YNDFRFKTYAPVA
403	Q99755	194	DDEFIIKTVQHKE
404	Q99755	253	LLPRSVKMHIKYD
405	Q99755	357	RRPAPQKALYSTA
406	Q99569	42	TILASVKEQELQF
407	Q99569	709	AGEEARKQMRSC
408	O23522	31	STLIPTKPLSVSP
409	O23522	203	SSVRLPKWIDDVA
410	P53350	38	AAAPPAKEIPEVL
411	P53350	143	SLLELHKRRKALT
412	P53350	272	NEYSIPKHINPVA
413	P13797	68	LDGDRNKDGKISF
414	P13797	185	DERAINKKKLT
415	Q8WZA1	28	YLTWKYKLTNQRA
416	Q8WZA1	216	WAFVGRKGGPVFG
417	Q8WZA1	224	GPVFGEKHSKSPA
418	Q8WZA1	298	DPLPDNKVLNVPV
419	P29590	150	EQLLCAKCFEAHQ
420	P29590	616	LVFFDLKIDNETQ
421	Q9Y253	168	QKEGMRKQGLFQW
422	Q9Y253	376	IRVQGDRLSSLR
423	Q6S8J3	15	PAASSVKKPFGLR
424	Q6S8J3	40	CYRESGKSNVGTS
425	Q6S8J3	151	RAAWWGKVPKDL
426	O23404	98	RVFTFGKGRSEGN
427	O23404	147	QYQIAGKKLPEGL
428	Q5JSZ5	263	PAQPVRKGASQFM
429	P06401	270	GVALVPKEDSRFS
430	P06401	638	MVLGGRKFKKFNK
431	P07737	91	SMDLRTKSTGGAP
432	P07737	108	TVTKTDKTLVLLM
433	P62191	19	GGKKDDKDKKKKY
434	P62191	38	RVGKKKKKTKGPD
435	P25786	41	TVGLKSKTHAVLV
436	P23638	218	EFATIRKGANDGE
437	P23638	247	KTGITKKDEDEEA
438	P60900	182	TSFLEKKVKKKFD

439	P60900	185	LEKKVKKKFDWTF
440	P51665	84	MYGMFKKVNARER
441	P60484	66	KHKNHYKIYNLCA
442	P60484	221	FVVCQLKVKIYSS
443	Q06991	133	PEKLSKMTYYNN
444	Q05911	243	GQTYSRKIDIDVL
445	Q05911	273	RLLANLKEVEEPF
446	Q05911	456	APQQVEKFVQKDV
447	Q9SQ57	41	LETSIPKPYMARG
448	P03962	7	MSKATYKERAATH
449	P03962	134	GIVSGLKQAAEEV
450	P03962	142	AAEEVTKEPRGLL
451	P59271	83	AKKRKKKTYTKPK
452	P59271	92	TKPKKIKHTHKKV
453	P59271	96	KIKHTHKKVKLAV
454	P63000	153	KEIGAVKYLECSA
455	P63000	183	LCPPPVKRKRKC
456	P62826	99	TSRVITYKNVPNWH
457	P62826	167	FLWLARKLIGDPN
458	Q09028	25	EEYKIWKKNTPFL
459	Q09028	307	WDLRNLKCLKHSF
460	Q09028	317	HSFESHKDEIFQV
461	Q16576	119	KIECEIKINHEGE
462	Q16576	159	YTKHPAKPDPSGE
463	Q16576	211	DINAGPKEGKIVD
464	Q16576	219	GKIVDAKAIFTGH
465	P49756	125	VQGASGKLQAFGF
466	Q9P2N5	59	LDVFLQKETSGFV
467	Q9P2N5	137	RRTREKKREDGKW
468	P54725	8	AVTITLKTLOQQT
469	P54725	31	VKVLKEKIEAEGK
470	P54725	69	DYRIDEKNFVVVM
471	P40043	23	EDGETVKVFEDLQ
472	P40043	102	IKQAVRKPELKFH
473	P40043	112	KFHEKSKEETFDK
474	O14924	127	KPKLDSKALGINR
475	Q7Z5B4	80	EAFKAKGSGGGA
476	O15034	433	EEFDIVKAARYKY
477	Q9CQJ4	93	CPTCRKKLVSKRS
478	Q9CQJ4	97	RKKLVSKRSLRPD
479	Q9CQJ4	320	VSEKYWKVNKPME
480	P57078	221	GVLTOKKPFADK
481	P27635	141	IMSIRTKLQKNEH
482	P47914	22	WHRNGIKKPRSQR
483	P47914	63	MQANNAKAMSARA
484	P47914	106	AHPKLGKRARARI
485	P0CH06	98	EKQICRKCYARLP
486	P63048	112	RAVNCRKKKCGHT

487	Q9SJQ6	116	ILKTPEKPKRKKH
488	Q9SJQ6	156	QESKTPKRKYVRK
489	P04050	34	RAISVAKIRFPET
490	P04050	101	FIAKIKKVCEVCV
491	P04050	112	VCMHCGKLLLDEH
492	P04050	129	RQALAIKDSKKRF
493	P04050	145	WTLCKTKMVCETD
494	P04844	229	GTEPSIKEDQVIQ
495	P04844	340	LNFMNVKFSSGYY
496	P04844	442	URLHNQKTGQEVV
497	P04844	456	VAEPDNKNVYKFE
498	P04844	460	DNKNVYKFELDTS
499	P60866	30	LTSRNVKSLEKVC
500	P60866	44	DLIRGAKEKNLKV
501	P23396	132	IMESGAKGCEVVV
502	P05750	78	LVQKRFKYAPGTI
503	P05750	106	AQAESMKFKLLNG
504	P05750	151	ARAKAMKFADGFL
505	P05750	194	IMRDPAKSRTGPK
506	P0CX35	75	HVKVDGKVRTDIT
507	P0CX35	127	YKLGKVKKVQLGK
508	P0CX35	128	KLGVKKVQLGKK
509	P0CX35	133	KKVQLGKKGVPIV
510	P39743	118	ELQETLKPDLALV
511	P39743	152	ATKRNHKKLDLDR
512	P39743	170	NKHEKKKEPTAKD
513	P39743	217	LEAEFVKPLFVSF
514	Q9LK36	237	DSVTKSKFDNLYG
515	Q9Y467	38	HPQVCAKCCAQFT
516	Q9Y467	246	PLFSPIKPVQTSK
517	Q9Y467	374	KPGGRHKCRFCAK
518	O94979	105	ILYDPSKIIAGDK
519	O94979	388	PLKKPPKWIRRPV
520	Q8RXK2	10	KLATAEKKLLVDL
521	Q8RXK2	42	LNVDYDKKLGSLS
522	Q5TEA6	28	KAEEHNKRQKERN
523	Q5TEA6	70	RENLLEKKKNQRK
524	Q5TEA6	112	EGDQLFKMGIKVL
525	Q15047	102	VKDFYSKLGQLYR
526	Q15047	194	MSGELSKDGLIV
527	Q15047	229	TVGPGKKYKVKFD
528	Q15047	233	GKKYKVKFDNKGK
529	Q15047	239	KFDNKGKSLLSGN
530	Q01105	83	RQPFFQKRSELIA
531	Q6AI14	336	ACAVTMKKYVEEN
532	Q6AI14	450	SLFPRKKMFVTAT
533	Q6AI14	523	VRDKFKKFDHRYL
534	Q13485	88	LQVAGRKGFPHVI

535	Q13485	110	LHKNELKHKVYCQ
536	Q13485	159	PSSMMVKDEYVHD
537	Q9HCE7	425	MRPKDLKKRLMVK
538	Q9HCE7	426	RPKDLKKRLMVKF
539	Q9HCE7	521	YKQLLGKPIQLSD
540	O95863	152	KDLQARKAFNCKY
541	Q9Y5W7	106	SCAVCGKVKCKRH
542	Q9C093	209	QNEIMAKIQAAII
543	Q9C093	219	AI IQIPKPASNRT
544	Q8N0X7	120	YPEFPPKDMCEKL
545	Q8N0X7	382	NKDVRHKGKRGKR
546	P12866	10	LSFKTTKHYHIFR
547	P12866	342	KRNPLNKTVAHQF
548	Q86WV6	224	NIRFLDKLPQQTG
549	Q86WV6	338	HLRQEEKEEVTVG
550	Q3TBT3	235	IDRAGIKNRVYSN
551	Q9FFC7	128	KPIFLGKVPREVP
552	Q9FFC7	347	KAKTSLKVIADHM
553	Q15431	70	SDPALQKVNFLPV
554	Q15431	117	KEAEKIKKWKVST
555	P26639	18	KMGGEKPIGAGE
556	Q9Y228	245	EDKLGKGLRSLEN
557	Q9BVV6	36	PALSANKRLPVG
558	Q9BVV6	79	SESDFSKDVAVQV
559	Q9BVV6	120	ALRTVLKQKAQSM
560	Q9BVV6	230	HCHDHEKQMNVFM
561	P38085	29	ERTHSEKQKRDF
562	P38085	549	FAYFGHKIYFKSW
563	P10636	274	PVDFLSKVSTEIP
564	P10636	293	PSVGRAKGQDAPL
565	P10636	375	SRVPQLKARMVSK
566	P07437	154	GTLLISKIREEYP
567	P07437	216	ICFRTLKLTPTTY
568	Q15560	232	MASDELKEIRKAM
569	P50990	62	VINHLEKLFVTND
570	P50990	270	ELMNFSKGEENLM
571	P50990	326	DLRRLCKTVGATA
572	P47079	53	GPCGRNKIIVNHL
573	P47079	156	ITDKNDKNELLKM
574	P47079	211	DSIRVVKIMGGSL
575	P47079	246	SEDKKHKVAVFTC
576	P10827	27	SPDGKRKRKNGQC
577	P10827	59	CVVCGDKATGYHY
578	A2ASS6	477	EKTAVTKVVVAAD
579	P58771	29	EQAEADKKAEDR
580	P58771	30	QAEADKKAEDRS
581	P58771	37	AAEDRSKQLEDEL
582	P58771	48	ELVSLQKKLKGTE



583	P58771	65	KYSEALKDAQEKL
584	P58771	161	AEDADRYEEVAR
585	P58771	168	YEEVARKLVIIES
586	P29144	131	LKERIQKERKEKI
587	P29144	186	LLNSFEKKYSDPG
588	P29144	321	IEVINHKCDLVNY
589	P29144	401	EYSLREKL PANQY
590	Q13077	124	LLLGFMKQWKARL
591	Q12933	176	CCGADVKAHHEVC
592	Q12933	196	DGCGKKKIPREKF
593	Q9Y4K3	201	SMAFEDKEIHDQN
594	Q9Y4K3	388	TGKPGYKLCMRLH
595	Q9H8W5	166	QAHRRQKTTYHT
596	Q9H8W5	233	TSNVIHKHGD SVW
597	Q9H3M7	53	LACGVAKVLWMQG
598	Q9H3M7	126	CVDYWVKAFLDRP
599	Q9H3M7	253	CASWRGKSLRVQK
600	Q08960	53	SQDSQEKLDLNKQ
601	Q08960	69	PCCSDKKIADGGK
602	Q08960	121	GCCSSKKNIGDNE
603	Q08960	155	FRKPTKKRSSTPK
604	Q07307	456	SVMGGMKTFLFAS
605	P0CH28	82	GMQIFVKTTLTGKT
606	Q9NPD8	52	YEKGVFKLEVIIP
607	Q9NPD8	95	VLKLPPKGAWRPS
608	Q9NPD8	154	EKHARQKQKADEE
609	Q9UHP3	281	EDAFQMKAEEETD
610	O94888	434	TLPEQAKLLALVK
611	Q96T88	381	ERLRESKKKAKMA
612	P28274	38	LKVTSIKIDPYMN
613	Q96JH7	38	ASGGLLKRRDRRI
614	Q96JH7	128	LSNYHCKLLSPIL
615	Q96JH7	182	NTVGYGKDRSGSL
616	P98155	255	GECIHKKWRCDGD
617	P98155	323	QCLGPGKFKCRSG
618	P98155	325	LGPFGKFKCRSGEC
619	P98155	453	NRRDIRKIGLERK
620	Q709C8	158	KRKKHKKHFKKPF
621	Q9Y4B6	265	PEDGGLKKNKSAK
622	Q9Y4B6	282	ENFRKAKQKL GFS
623	Q9Y4B6	363	MFYIDLKQTNDVL
624	P04275	457	LHNSLVKLKHGAG
625	P04275	843	APGETVKIGCNTC
626	Q96S55	62	RAGERAKGPSPPG
627	Q96S55	287	IASNSKKHSIRFV
628	P98170	334	KYLLEQKGQEYIN
629	P39548	49	YEIAHCKPIMFMI
630	P35723	169	QEELRKKQISLEG

631	P43590	145	FNCSTDKLTFLFP
632	P38809	244	QFDSKMKTELVHG
633	P36134	84	CQEKKKKRKGVT
634	P36134	223	IRWHPDKHRYHKS
635	P34231	58	IGEADIKHINVSK
636	P34231	614	SGTADDKYGVVFK
637	Q06689	244	SLFSSLKTSLAEG
638	Q06689	439	ITPEQLKEMTPSI
639	Q03559	187	EKQKKKKKGLFGR
640	P38079	9	DYVELLLKRGNEA
641	P38079	315	LKKKHKKDKKKAK
642	Q60821	112	TACHTLKSLEAPS
643	Q60821	141	KRAKDEKAAATML
644	Q60821	345	ACKAHEKTHSPLK
645	Q8BID6	276	RKNRKNKETVRHI
646	Q8BID6	377	RAALMSKNSLLSL
647	Q9NUD5	113	EAVDPRKKKGAAE
648	Q08245	29	KESLQNKGGQEVKE
649	Q08245	103	EGGFLKKLNRKIA
650	P31629	82	VQQVAEKQYPPHR
651	P31629	188	KPKKPGKYICPYC
652	P31629	234	TKSNLYKHRKSHA
653	P22227	266	PFDGCEKSFQSN
654	Q6NZP1	77	AIAYFYKEEWPLL
655	Q60821	341	SDPAACKAHEKTH
656	Q60821	360	GCEECGKSYRLIS
657	Q9NUD5	114	AVDPRKKKGAAEA
658	Q9NUD5	233	LRVYEEKREQEDC
659	Q9NUD5	275	DIVTWLKRHCDVL

**S<sup>(4)</sup>: List of 659 negative Ubiquitination sites and sequence**

Sample #	Protein ID	Site	Sequences
1	P20039	168	RNGQEEKTGTVST
2	P08195	122	NELEPEKQPMNAA
3	P08195	245	GNLAGLKGRLDYL
4	P08195	255	DYLSSLKVKGLVL
5	P08908	228	ARFRIRKTVKKVE
6	P08908	231	RIRKTVKKVEKTG
7	P08908	302	HRVGNSKEHLPLP
8	Q8NE71	30	SDKVVKKGKKDKK
9	Q8NE71	75	QQQQQKKKRDTRK
10	P50544	104	EQAQFLKELVGPV
11	P50544	122	EVNDPAKNDALEK
12	P50544	240	IPSPCGKYYTLNG
13	P50544	304	EKKMGIKASNTSE
14	P93821	55	DFAGVHKSREAVV

15	P93821	332	SKGYIEKGLDGTS
16	Q9UKV3	41	FEGRWRKLPKMPE
17	Q9UKV3	91	EQRGLAKSGQKSA
18	Q07622	286	INAEKLRSLKPE
19	Q99KI0	117	ISSGLPKVAVPST
20	Q99KI0	233	PKVIGVKLTGSLS
21	Q99KI0	309	MKKYLSKTGRTDI
22	Q99KI0	370	VGTVAEKEGWPLD
23	P52910	53	SINEPEKFFDKMA
24	P52910	57	PEKFFDKMAKEYL
25	P52910	89	AWFLNGKLNASYN
26	Q16186	21	SRGASNKYLVFR
27	Q16186	44	VTPDKRKGLVYIQ
28	P48962	49	KQISAEKQYKGII
29	P48962	171	FKSDGLKGLYQGF
30	Q84VQ0	31	EVEPVKKNILLPM
31	Q84VQ0	95	GRKILDKVQETYQ
32	O95831	86	AGAYAYKTMKEDE
33	O95831	177	MRPPLSKELWFSD
34	O95831	295	DFRSLEKISREVK
35	P38080	287	YEFVKNKYSSKLI
36	P54115	244	NDPRIRKLAFTGS
37	P10275	630	MTLGARKLKKLGN
38	Q12955	285	GNANMVKLLLDRG
39	Q9Y2G4	139	NVLAKNKAGNTAL
40	Q9Y2G4	203	FCSVHEKNQAGDT
41	Q9Y2G4	334	SPEPRAKDDRRRK
42	Q69ZU8	32	VVQLINKGAKVAV
43	P36404	29	GLDNAGKTTILKK
44	Q9NR48	34	TGTLVSKREVELE
45	Q9NR48	44	ELEKNTKEEEDLR
46	Q9NR48	124	HPRKALKSGKMTD
47	Q9NR48	176	ENNPLSKKLSPVH
48	O55143	47	LPAEEGKTLLELV
49	O55143	297	GAIYYFKIAVALA
50	O55143	329	TRMAKKNAIVRS
51	O55143	352	SVICSDKTGTLT
52	Q8NBU5	48	DPTRKQKVEAQKQ
53	Q8NBU5	104	DVITDLKDTVILP
54	Q8NBU5	183	VFSLAIKLQPSII
55	Q8NBU5	263	INQPALKQREAIL
56	P35193	186	EQKVTNKEPNHRI
57	Q12691	7	MSEGTVKENNNEE
58	Q12691	123	KTMNSLKNLSSPN
59	Q12691	221	VVKGRAKGIVIKT
60	Q12691	238	EIGKIAKSLQGDS
61	Q99728	205	SARSGKKQKKKTL
62	Q99728	207	RSGKKQKKKTLAE

63	Q9UIF8	31	VASVVSKGGLSTG
64	Q8NFC6	178	TAPDDEKPDTSLI
65	Q8NFC6	325	TDKGEKKPDSNEK
66	Q8NFC6	331	KPDSNEKGGERKKE
67	Q10589	111	EKAQGQKKVEELE
68	Q10589	152	VRIADKKYYPSSQ
69	O43684	179	RRESSLKYQTRCI
70	O43684	266	IWDPFNKKRLCQF
71	O43684	322	VTDAETKPKSPCT
72	A2RUR9	109	GDTGVDKRD RKKS
73	A2RUR9	124	QLVPEYKEKQTPE
74	A2RUR9	191	NLTEREKMDTG VV
75	A2RUR9	217	SQLPENKESKEAE
76	A2RUR9	247	ENKQPQKTSQEPE
77	Q9Y4F5	114	EALKHEKYTSQLQ
78	Q9Y4F5	129	VKGLAPKRSEALP
79	Q9Y4F5	196	PYPERPKGPVQQD
80	Q9Y4F5	339	DDRHSTKSDLPVH
81	Q9Y4F5	391	RLQRQIKRDPQEL
82	Q96514	90	GAEEALKTQDLEC
83	Q96514	166	TESALKKSPVNLK
84	Q96514	260	VLDDHIKPGRQVS
85	Q9UKL3	95	ELMKKFKEIQTON
86	Q9UKL3	113	ENQSLKKNISALI
87	Q9UKL3	200	SLPNLEKEGKPHS
88	Q96M89	157	AGDSPLKPVSCPK
89	Q8IX12	178	LSAVKGKTPQVGD
90	Q8IX12	494	LVGMKGKDEAMAI
91	Q8IX12	515	DGPDPEKDPSVLI
92	Q8IX12	522	DPSVLIKTAIRCC
93	Q8IX12	529	TAIRCKALTGID
94	P25322	175	PEADENKQTIRKH
95	P25322	180	NKQTIRKHAQTFV
96	Q12834	129	FDVEEAKILRLSG
97	Q12834	163	TPGSSRKTCRYIP
98	Q12834	359	QHQGAVKAWWCP
99	P25694	30	TAILRRKKKDNML
100	P25694	32	ILRRKKKDNMLLV
101	P25694	58	NSNTMDKLELFRG
102	P06493	24	VYKGRHKTTGQVV
103	Q5TB80	30	SFENS DKTARQSK
104	Q5TB80	36	KTARQSKKEMKKK
105	Q5TB80	37	TARQSKKEMKKKD
106	Q5TB80	91	EKIQFLKSSGTSL
107	Q5TB80	185	EHENESKHEELAE
108	Q5TB80	233	PKQEEKGTGMLAN
109	Q02224	271	LGQVIKKLSDGQV
110	P13569	26	TRPILRKGYRQRL

111	P13569	329	LPYALIKGIILRK
112	P32657	51	IKQSRKRMTTIE
113	P32657	104	KPKSRTKSKSKSK
114	P32657	195	TSLEEGKVLEKTV
115	Q9UNE7	30	PSAQELKEQGNRL
116	Q9WUD1	73	RALCYLKMQQPEQ
117	O14757	224	YSDWKEKKTYLNP
118	O14757	244	PLALLHKILVENP
119	Q9Y3E7	10	FGKTQEKPPKELV
120	Q9Y3E7	53	SVKDAAKKGQKDV
121	P29465	119	MNTTDKKASVKIS
122	P29465	193	FCGMPKKERQMAW
123	P08679	46	DVRQFVKEHGKTK
124	P08679	367	PDYELFKLVSSIY
125	Q9D5U8	17	SSTSHVKFDLGKS
126	Q9D5U8	124	MMNRVCKMFRQGL
127	Q01955	36	GCVCKDKGQCFC
128	Q01955	129	PGCSGSKGEQGFP
129	Q01955	153	PGAAGLKGQKGAP
130	Q01955	264	KGEKGDKGAMGEP
131	P0CX12	10	NELKNEKSVDVLS
132	P43542	64	PLSVWWKLSNNWI
133	P43542	101	RKRSLSKQLTQFC
134	P43542	196	YFREVEKQWKLFN
135	P32798	273	KTDYSWKYYTDPL
136	Q9R194	107	VFPRLFKEWGVTR
137	P89105	71	AYCNHGKTNEGK
138	P89105	128	QAELNLKDAIGFD
139	P89105	156	QRGHYDKALETSD
140	P89105	197	KLLYQKKNYMASL
141	Q08412	15	DSSLLEKSNVPES
142	Q08412	97	SEEEPSKENPILQ
143	Q13619	41	GGAGGSKKLVIKN
144	P40087	172	DDPDNKKRIAELL
145	P40087	304	LACVDLKENVLR
146	P07262	70	VQYNSAKGPYKGG
147	P07262	271	ADISSAKVNFKSL
148	P07262	275	SAKVNFKSLEQIV
149	P07262	306	PWTHVQKVDIALP
150	O60610	261	MMIDAAKLLSALC
151	P39976	19	EAYPKVKRNP NFK
152	P39976	243	SIVAAAKPKALNA
153	P38823	227	RTHGCFKVDDQGN
154	P53924	441	ICLCKIKPCQAIF
155	P18858	13	SFFHPKKEGKAKK
156	P06746	148	YFGDFEKRIPREE
157	P06746	206	FTSESTKQPKLLH
158	F4IBE4	35	DQVTELKRDLNML

159	F4IBE4	52	KDANAKKHTSAVV
160	F4IBE4	87	LEQNLGKTSGIKK
161	F4IBE4	93	KTSGIKKSIRRLA
162	F4IBE4	147	KQPQGDQREMRQ
163	F4IBE4	210	FNHEDVKHQFDGL
164	F4IBE4	241	LRDLKPKEEEKKI
165	Q03001	192	FNAIIHKYRPDLI
166	P38167	94	DAQLLGKKQNKQP
167	P0DH99	36	KLGGIDKRVIERF
168	P0DH99	51	EAAEMNKRSEFKYA
169	P0DH99	146	AFTLGVKQMISCC
170	P00533	189	HLGSCQKCDPSCP
171	P00533	212	NCQKLTKIICAQQ
172	P00533	399	DILKTVKEITGFL
173	Q9LD55	181	YAMTAHKAQFQCK
174	Q02908	19	KKLAPEKERFIQC
175	Q02908	78	SIPDQYKKYLLPK
176	Q02908	79	IPDQYKKYLLPKL
177	Q02908	104	VVAVMCKPHRCPH
178	Q02908	165	GRVEQLKQLGHSI
179	P14351	241	CYLVKYKEPKPWP
180	P14753	88	LEGESRKSCSLHQ
181	P14753	372	TYLVLDKWLPRPT
182	P32476	120	KLKDLVKDGNQKV
183	P32476	240	MSLFNAKNPAPMH
184	P32476	361	VVLLIKKIGDLDF
185	P32353	214	VYRALHKPHHKWL
186	P32353	218	LHKPHHKWLCTP
187	P54781	92	LESIDPKFEEYKA
188	P54781	97	PKFEEYKAKWASG
189	P54781	135	QSSKFVKPCVVDV
190	P54781	144	VVDVAVKILRPCN
191	P54781	172	LNGLFTKQALAQY
192	P38748	230	FTVKKKKELVKVE
193	Q0WPQ2	120	MAFTVFKMLTALV
194	Q0WPQ2	152	VREFMLKKKAHEL
195	Q0WPQ2	507	GSSLMFKVLKERG
196	Q92817	88	ETGRSLKEAEVLL
197	Q92817	95	EAEVLLKDLFLDV
198	P38261	7	MVEFSLKKARNNW
199	P38261	40	KPKQKTKKNPYSD
200	Q5HYJ3	164	SSSLTEKDQHHPK
201	Q9BXW9	156	IKTLFEKLPEYFF
202	Q9BXW9	181	LIVSQLKWLDREV
203	Q9NVI1	204	ALSMFSKMNLQEI
204	Q9NVI1	331	QVLDLLKTSVVKSS
205	P38631	245	RNMSLGKLSRKAR
206	P38631	256	ARKAKKKNNKAME

207	P40989	277	KAKKKNKKAMQEA
208	P40989	511	QPLAAYKWATAAL
209	P01100	192	LLKEKEKLEFILA
210	P01100	250	LNDPEPKPSVEPV
211	P38297	9	EGKQQFKDSNKP
212	P38297	158	NGFNIEKKALSKL
213	P38297	251	NIAPTLKEAIDMY
214	P31644	365	AAKIKKKREVILN
215	P47870	37	SNMSLVKETVDRL
216	P47870	220	DYKLITKKVVFST
217	P47870	443	SSIQYRKAGLPRH
218	P10071	15	TTTEKKKKVENSIV
219	P10071	32	RTDVSEKAVASST
220	P10071	525	DCSREQKPFKAQY
221	P10071	547	TGEKPHKCTFEGC
222	P37303	312	DPDVLVKKGLKYN
223	P63092	88	SNSDGEKATKVQD
224	P63092	181	AQYFLDKIDVIKQ
225	P63092	211	SGIFETKFQVDKV
226	P63092	216	TKFQVDKVNFMF
227	P48813	122	DNELNRKSSYITV
228	P48813	150	NLKKSIKPRHTVM
229	P48813	417	AAGSATKASPYVI
230	Q3T8J9	246	SEKRRKKKKGTKR
231	Q5T848	443	VVYHFRKAKSIRA
232	P08539	59	GKSTVLKQLKLLH
233	P08539	62	TVLKQLKLLHQGG
234	P08539	123	CKRILLKAKALDY
235	P08539	209	NLQDICKDLNQEG
236	P08539	253	QLWNNDKGIKQCF
237	P08539	280	YFDNIEKFASPNY
238	Q8N442	247	ERIPPPKVHRKNP
239	P40531	273	NFSEDLKELAKAQ
240	P16403	85	RIKLGLKSLVSKG
241	Q96QV6	10	RGKQGGKARAKSK
242	Q8IUE6	119	QAVLLPKKTESHK
243	Q16777	100	LNKLLGKVTIAQG
244	P16104	10	RGKTGGKARAKAK
245	O75367	7	MSSRGGKKKSTKT
246	O75367	34	MLRYIKKGHPKYR
247	O75367	147	QKKPVSKKAGGKK
248	P0C0S5	14	KDSGKAKTKAVSR
249	P33778	12	KSAPAPKKGSKKA
250	P33778	25	ITKAQKKDGKKRK
251	Q9LQQ4	24	RPVEENKAAEKAP
252	P04913	86	LAAYNKKSTISSR
253	P02293	38	KRSKARKETYSSY
254	P51610	121	ASRWEWKRLKAKT

255	O15379	422	GDHDNDKESDVEI
256	Q9Y2N7	155	QTLRRKVEAPTE
257	Q9Y2N7	250	RHSLDMKFTYCDD
258	P41235	309	SDPGKIKRLRSQV
259	O60506	213	FVTFCTKEAAQEA
260	O60506	252	FVGSIPKSKTKEQ
261	O60506	254	GSIPKSKTKEQIL
262	P31539	104	DAAKIQKQKDSF
263	P31539	256	ALTAGAKYKGDFE
264	P31539	327	YRSIVEKDGAFER
265	P10591	54	LIGDAAKNQAAMN
266	P10591	126	MVLGKMKETAESY
267	P10591	243	HFIQEFKRKNKGD
268	P10591	268	TACERAKRTLSSS
269	P10592	86	EVQGDMKHFPFKL
270	O65719	163	SQRQATKDAGVIA
271	O65719	226	EGIFEVKATAGDT
272	P57058	95	AIKVIDKKRAKGD
273	P57058	99	IDKKRAKKDITYVT
274	P57058	201	DEDNNIKLIDFGL
275	P38695	28	SNSYNEKSGNSTA
276	P38695	73	LQKEVDKQLEKKS
277	P38695	164	GDMYGRKIGLMTV
278	P38695	248	CTNFGTKNYSNSV
279	P38695	444	QDQPSSKGAGNCM
280	P39003	273	GKIEEAKRSIAVS
281	O14602	114	ELPEHAKINETDT
282	P08069	330	CEGPCPKVCEEK
283	P08069	469	EEVTGKGRQSKG
284	O14920	337	ESLQSLKARIQQD
285	O14920	365	LALIPDKPATQCI
286	O14920	375	QCISDGKLNIGHT
287	Q14974	23	ELEAAQKFLERAA
288	Q14974	147	NSTEHMKESTLEA
289	Q14974	346	DDWNPCKAAGVCL
290	Q6PI98	43	YGASKKKKASASS
291	Q6PI98	137	DAPPSFKPAKKYS
292	O80560	290	SEGGVIKIWTWES
293	O80560	299	TWESMEKSLSLRL
294	O80560	350	ADNVRSKVWAAQL
295	O80560	401	EDEMKAIASTSK
296	Q13568	69	IFKAWAKETGKYT
297	Q13568	87	ADPAKWKANLRCA
298	P29994	77	QFWKAAKPGANST
299	P29994	109	NETENRKLLGTVI
300	P29994	181	SVVIGDKVVLNPV
301	P30605	38	EHDSPSKRGKITL
302	P30605	41	SPSKRGKITLHSH



303	P30605	287	RATEVLKRSYTD
304	P30605	301	EEIIERKVEELVT
305	P30605	396	AFFSIDKIGRRTI
306	P30605	556	FNIKASKALAKKR
307	P36035	205	TDKSSRKWPYITC
308	P36035	260	IEDAPVKARSFLS
309	P36035	330	KVLKARKLILSDA
310	P36035	456	FMLRSEKAILGAG
311	Q8NCM2	76	GELTDKKTIEKVR
312	Q15058	238	SGHLTTKPTQSKL
313	Q7M6Z4	130	NPSIDFKIKVSYI
314	Q7M6Z4	297	IPYRDAKITRLLK
315	Q38997	67	HALTGHKVAIKIL
316	Q38997	92	KVRREIKILRLFM
317	Q38997	134	FDYIVEKGRLQED
318	Q38997	253	NLFKKIKGGIYTL
319	O43474	494	RPFQCQKCDRAFS
320	Q15349	63	SQFELLKVLGQGS
321	Q15349	123	NHPFIVKLHYAFQ
322	Q15349	214	EAIDHDKRAYSFC
323	Q86UP2	60	KKKAEEKKNKKKE
324	Q01650	483	WWKNKPKWLLQGI
325	Q12502	75	AEDKSLKNTESNV
326	Q12502	222	TAETQVKYELIAV
327	Q5VZK9	25	VIGRKIKISVKKK
328	Q5VZK9	29	KIKISVKKKVKLE
329	Q5VZK9	33	SVKKKVKLEVKGD
330	O75581	40	VDATNGKENATIV
331	O75581	82	KRTEFNKTESVQN
332	O75581	208	KLNFIIHKSNDGT
333	O75581	470	DWGEIPKIERAAL
334	Q9HCC9	627	SNGREPKAPTSKD
335	O22042	35	LSGFVGKINSSIR
336	Q3KQU3	151	RREERAKYLAACK
337	Q3KQU3	166	WLEKEEKAKALRE
338	Q07820	234	FQGMLRKLDIKNE
339	P93819	94	VGGFPRKEGMERK
340	P93819	240	AI IKARKLSSALS
341	P93819	321	LTAEELKEEKDLA
342	Q9S JL6	25	AKRILLKARDGIE
343	O50008	55	MSAAGTKFIPSNT
344	P19358	218	QKDIVEKVIPKDM
345	P19358	339	EIIEI IKKNFDLR
346	O75081	176	GARQLSKLKRFLT
347	Q9Y623	44	VFVVPKESYVKA
348	Q9Y623	146	VTAYRGKKRQEAP
349	Q9Y623	205	IAVTGEKKKKEEPA
350	Q02566	43	CFVPDDKEEYVKA

351	Q02566	86	NPPKFDKIEDMAM
352	Q91Z83	67	AETENGKTVTVKE
353	Q91Z83	72	GKTVTVKEDQVMQ
354	Q9LR74	79	ILSVHRKVAARGG
355	Q9LR74	119	ASDDLQKVVLCRI
356	P16603	86	SKELVAKFNLNVM
357	Q9Y6K9	7	MNRHLWKSQLCM
358	O88522	90	VSQREEKEFLMCK
359	Q00653	81	KTYPTVKICNYEG
360	Q00653	179	ELEQEAKELKKVM
361	Q00653	255	LCDKVQKDDIEVR
362	Q00653	298	PPYHKMKIERPVT
363	P25208	83	KIAKDAKECVQEC
364	Q39161	74	NPQEKVKIEREPM
365	Q39161	81	IEREPMKLFMENG
366	Q39161	114	DIDVRLKWLGLFH
367	Q39161	274	AYMPANKDGRFGF
368	P30415	237	KVRHAKKRRKEMS
369	P53253	32	PTEFAKKHRFKDT
370	P53253	108	NGSSNRKSNSRFF
371	P53253	118	RFFGNSKNSFVIP
372	P53253	274	RQTAENKPLKKGF
373	Q01705	395	TNPVNGKAICTCP
374	Q01705	658	SGTCLDKIDGYEC
375	Q01705	875	DINECVKSPCRHG
376	Q923B3	241	NMTSVSKDDASLA
377	Q923B3	385	VGNLQEKGHPQKK
378	P53370	199	FEETGIKSEFRSV
379	Q38799	176	ASVPGLKVLAPYS
380	Q38799	232	LPIGKAKIEREGK
381	P04637	164	RAMAIYKQSQHMT
382	Q15004	42	TSVSSRKAENKYA
383	Q15004	46	SRKAENKYAGGNP
384	Q56WK6	59	KEVTPEKEAPAAE
385	Q56WK6	110	VREALNKREFTAP
386	P12004	80	SMSKILKCAGNED
387	P15873	107	LLFEDTKKDRIAE
388	Q9UHG3	56	AYYLRQKFGKDVK
389	Q02785	192	GCSTFLKCLSGET
390	Q02785	383	YFGPADKAVGYFQ
391	P33302	168	RKFQRSKETNTFQ
392	P33302	232	YSGDDIKKHFRGE
393	P33302	379	AYDLFNKVCVLDD
394	P38075	41	PIDLFTKWFNEAK
395	O43933	83	NRQVGQKLGLSNG
396	O43933	274	TEINAFKNMQSKV
397	P35056	375	ALEECLKLDPKNL
398	P35056	379	CLKLDPKNLEAMK

399	P25297	64	FGWQQVKTISIAG
400	P25297	546	LLIPETKRKRTLEE
401	P25360	284	FNIKSQKKSLLKQ
402	Q06449	36	VYDQINKSLPAKW
403	Q99569	601	RNLVFGKSTDENK
404	O23522	108	MSPKNLKRLLQRL
405	O23522	270	VSMPEPKPDQSDP
406	O82274	390	SDDGTWKLNGDRS
407	P53350	208	EYDGERKKTLCGT
408	P53350	248	YTLLVGKPPFETS
409	P13797	18	DELDELKEAFAKV
410	P13797	59	VREIIQKLMLDGD
411	P13797	71	DRNKDGKISFDEF
412	P13797	85	YIFQEVKSSDIAK
413	P05030	25	HQPTQEKPAKTYD
414	P05030	174	IVDELKKTLANA
415	P05030	424	GLDAIDKAFLKSL
416	P05030	428	IDKAFLKSLKQYP
417	P05030	431	AFLKSLKQYPAK
418	Q8WZA1	11	KPSPLIKPFGARK
419	Q8WZA1	18	PFGARKKRSWYLT
420	Q8WZA1	364	HTPISIKNARVSQ
421	P29590	160	AHQWFLKHEARPL
422	P29590	209	YCRGCSKPLCCSC
423	Q9Y253	70	WADDAKKLCPDLL
424	Q9Y253	311	IEHDPVKPRQLPK
425	Q6S8J3	92	HDDSAMKTLRNKM
426	Q6S8J3	100	LRNKMKGWCCHCF
427	O23404	21	TTPELFGNGVFR
428	O23404	257	KERKGVKNDTDLS
429	P62937	125	TEWLDGKHVVFVK
430	Q5JSZ5	251	ACTSDSKDPSLRP
431	P06401	626	PACRLRKCCQAGM
432	P07737	38	WAAVPGKTFVNIT
433	P62191	21	KKDDKDKKKKYEP
434	P62191	23	DDKDKKKKYEPV
435	P62191	48	GPDAASKLPLVTP
436	P62191	155	SVLLNHKVHAVIG
437	P23638	119	RRLSDIKQGYTQH
438	P23638	181	LLQMDYKDDMKVD
439	P60900	164	GYYCGFKATAAGV
440	P51665	33	GKVGNGQKRVVGV
441	P51665	83	NMYGMFKKVNARE
442	P51665	100	WYHTGPKLHKNDI
443	P51665	103	TGPKLHKNDIAIN
444	P51665	113	AINELMKRYCPNS
445	P34222	54	KEMKEGKLHNDTD
446	P34222	144	LNAGQAKITLKCP

447	P34222	148	QAKITLKCPDKFT
448	Q05911	35	RFSTWRKLWLNLA
449	Q05911	412	QAAAVVKEEGGEN
450	Q9CQ69	73	FEQSKRKNPAMYE
451	P59271	81	GGAKKRKKKTYTK
452	P59271	99	HTHKVKLAVLQF
453	P59271	107	AVLQFYKVDGSGK
454	P59271	118	GKVQRLKKECPSV
455	P63000	96	FENVRAKWYPEVR
456	P15919	29	IKFSEWKFKLFRV
457	P15919	47	APEEAQKEKDSSE
458	P15919	85	ALKLHPKFSKKFH
459	P15919	89	HPKFSKKFHADGK
460	P15919	185	WSIMHRKFSSSH
461	P15919	198	QVYFPRKVTVEWH
462	P62826	12	EPQVQFKLVLVGD
463	P62826	123	IVLCGNKVDIKDR
464	P62826	142	IVFHRKKNLQYYD
465	Q09028	120	KIEIEIKINHEGE
466	Q09028	143	PCIIATKTPSSDV
467	Q09028	309	LRNLKLKLHSFES
468	P49756	117	GLVLSWKRVQGAS
469	P49756	156	LQIGEKLLVKVD
470	P49756	235	SDSHPRKKKKEKK
471	Q9P2N5	40	ALVKKDKPEKELK
472	Q9P2N5	67	TSGFVDKLFESLY
473	Q9P2N5	89	PVKPEPKPLVQEK
474	P54725	29	ETVKVLKEKIEAE
475	P54725	328	EAIERLKGALGFPE
476	P54725	346	AYFACEKNENLAA
477	P40043	135	YHGRPFKIDVQVV
478	O14924	86	VVKLIGKCSGVLH
479	O14924	123	KGWLKPKLDSKAL
480	O14924	267	RLRAEQKIHSLVT
481	O14924	275	HSLVTMKIMHDCV
482	O14924	287	VQLSTDKAGVVAE
483	O14924	298	AEYPAEKLAFAV
484	O14924	500	RFWDLNKHLPAS
485	Q7Z5B4	122	FKLSKGKTTAEDG
486	Q7Z5B4	185	VTSDQEKRLHQL
487	Q7Z5B4	240	DLSDCIKRRQETI
488	O15034	36	DLLQKSKVRELEE
489	O15034	102	LATSLGKGQESAI
490	O15034	338	YNVLVDKETRMNL
491	O15034	351	TLGSRTKALIEKL
492	Q9CQJ4	133	VLARINKHNNQQA
493	P57078	77	KKMEMAKFRYILP
494	P57078	106	ETGSLEKLLASEP

495	P57078	158	DAHYHVKISDFGL
496	P57078	166	SDFGLAKCNGLSH
497	P57078	337	TEDLCEKPDDEVK
498	P27635	78	ANKYMVKSCGKDG
499	P47914	15	THNQSRKWHRNGI
500	P47914	48	NMRFAKKHNKKGL
501	P47914	52	AKKHNNKKGLKKMQ
502	P63048	113	AVNCRKKKCGHTN
503	Q9NTX7	62	FCYLCVKGASWLG
504	Q9NTX7	133	DAFSKGKKNTTML
505	Q9NTX7	134	AFSGKGKKNTMLI
506	P04050	49	ETQTRAKIGGLND
507	P04050	98	HVGFIKIKKVCE
508	P04050	100	GFIKIKKVCECV
509	P04844	70	QVPDAKKACTYIR
510	P04844	243	MNAIFSKKNFESL
511	P60866	46	IRGAKEKNLKVKG
512	P60866	67	LRITTRKTPCGEG
513	P38701	77	PNGEGSKTWETYE
514	P38701	88	YEMRIHKRYIDLE
515	Q9SIP7	148	LRAARAKSMKFKD
516	P23396	75	LTAVVQKRFGFPE
517	P05750	7	MVALISKRRKLVA
518	P05750	223	ILAPSVKDYRPAE
519	P0CX35	10	GPKKHLKRLAAPH
520	P0CX35	53	FLRNRLKYALNGR
521	P0CX35	62	LNGREVKAILMQR
522	P0CX35	106	RLVYDVKGGRFAVH
523	Q31125	295	EVGGLRKRRGGNT
524	Q9LK36	211	ETTTGVKRLYQMQ
525	Q9Y467	515	NKFVLMKAVERPKN
526	O94979	71	SSHRYHKLIWGPY
527	O94979	164	PMTPGAQTQPPED
528	O94979	385	IVLPLKKPPKWIR
529	Q8RXK2	22	LVKLVQKRGLEGE
530	Q8RXK2	66	AFLLTFFKKKEDLQ
531	Q8RXK2	135	VTELGKKKSKVIK
532	Q5TEA6	89	QNKDILKRNNKHL
533	Q15047	208	MRILGKKRTKTWH
534	Q6AI14	120	IFGTDHKSPPVMD
535	Q6AI14	522	QVRDKFKKFDHRY
536	Q92581	168	YAGYSLKRRHFFR
537	Q92581	318	VTALVTKFTKLRE
538	Q92581	379	ESQHRTKQLFELL
539	O15105	175	RHSSEVKRLCCCE
540	O15105	312	KSQLVQKVRISKIG
541	Q9HCE7	27	CAKNLAKKDDFFRL
542	P14359	40	VAVWKRKGMFNRD

543	Q9Y5W7	128	QPWLDLKISSKVD
544	Q9C093	162	TYRFQEKYKHVKE
545	Q8N0X7	112	DLQEVPKLYPEFP
546	Q8N0X7	125	PKDMCEKLPPEPQS
547	P12866	237	TQRLERKKFKKEII
548	P12866	238	QRLERKKFKKEIIL
549	P12866	393	FTFIVGKSGSGKS
550	P12866	398	GKSGSGKSTLSNL
551	Q3TBT3	127	GLLVLYKSLSMLL
552	Q9WUM5	312	GGKGGAKEKISAL
553	Q9WUM5	314	KGGAKEKISALQS
554	P61956	42	RHTPLSKLMKAYC
555	P61956	45	PLSKLMKAYCERQ
556	Q9FFC7	70	PVSEDAKEDYQSK
557	P26639	33	QKEGGKKKNKEGS
558	P26639	84	KDSKPIKVTLPDG
559	Q9Y228	234	ASDSSWKGQLNED
560	P38085	479	FRDAMAKQGRSMN
561	P68363	304	PANQMVKCDPRHG
562	P68363	352	WCPTGFKVGINYQ
563	P07437	379	AIQELFKRISEQF
564	Q9UHD2	30	FRGRHKKTGDLFA
565	Q9UHD2	231	EGPRRNKEVMYKI
566	Q9UHD2	323	QQMTAHKIYIHSY
567	Q15560	200	SNLKDAKNPDLRR
568	Q15560	236	ELKEIRKAMTKEA
569	Q15560	263	DLFTCGKCRKKNC
570	Q15560	266	TCGKCRKKNCTYT
571	P50990	318	LVRLNSKWDLRRL
572	P47079	83	IVHPAVKVLVMAT
573	P47079	116	LLNVSEKLISMGL
574	P47079	164	ELLKMIKPVISSK
575	P47079	237	EPEGHVKSLSEDK
576	P47079	244	SLSEDKKHKVAVF
577	P10827	7	MEQKPSKVECGSD
578	P10827	101	SCCVIDKITRNQC
579	P10827	130	LVLDDSKRVAKRK
580	A2ASS6	203	EVVPAKKTKTIVS
581	A2ASS6	273	PPSIAAKAQLARQ
582	P53322	294	YISERYKTMNTFD
583	O15417	222	PPPLFGKKDPRAR
584	P58771	76	KLELAEEKKATDAE
585	P58771	118	KLEEAEEKAADSE
586	P40238	223	PWQDGPQKQTSPSR
587	P40238	339	NCEEEEEKTNPGLQ
588	P40238	436	EGHQDWKVLPPPL
589	P29144	63	TTDGKPKIVDIID
590	P29144	85	ATEVEPKDGEIVG

591	P29144	115	KYHIGIKNGYDFY
592	P29144	136	QKERKEKIWDPVH
593	Q13077	397	SKLQSPKHAYVKD
594	Q12933	119	TWKGTLKEYESCH
595	Q12933	207	KFQDHVKTCGKCR
596	Q9H8W5	177	HTMVDLKDLDKGYS
597	Q9H8W5	187	GYSRIGKPILCPV
598	Q9H8W5	286	FSEGYIKAIEEHR
599	Q9H3M7	167	SAKKEKKVSCMFI
600	Q07307	22	PNSNPKKTVRQRV
601	Q07307	59	PELPFMKKDPRAP
602	Q07307	439	VAGIFAKFAAAIV
603	P63279	76	SSPPKCKFEPPLF
604	Q9NPD8	180	VHNSTQKRKASQL
605	Q9UHP3	172	KAPVGLKNVGNCT
606	Q9UHP3	313	GVLEGKKFENTEM
607	Q93009	188	GFIDDDKVTFEVF
608	Q93009	272	ELQHSDKPVGTTK
609	Q93009	278	KPVGTTKLTKSFG
610	Q07963	36	TSYLLWKTLLNRL
611	Q07963	208	DVTVSYKEEAIAH
612	O94888	151	PIDLMHKGFSFETA
613	O94888	346	EVENLAKSRKSPH
614	Q96T88	162	VVRVTRKAPSRDE
615	Q96T88	306	PSCKHCKDDVNRL
616	Q96T88	399	SQRDWGKGMACVG
617	P39547	123	KPAVGGKEWRIIA
618	P39547	163	FFKSLIKQTRSNA
619	Q96JH7	118	KNTELVKVMGLSN
620	P98155	51	CITLLWKCDGDED
621	P98155	418	NLKGGYKCECSR
622	Q9Y4B6	194	ALRQENKRPSPRK
623	Q9Y4B6	518	ASRQTGKHTCMAL
624	P04275	564	DCQDLQKQHSDDC
625	P04275	790	EGLECTKTCCQNYD
626	P04275	834	PCFHQKGKEYAPGE
627	Q96S55	320	NEKSFFKRKTILF
628	Q96S55	427	AMFIEDKAVDTLA
629	Q96S55	589	YFARAPKSIEVYS
630	P98170	85	AVGRHRKVSPNCR
631	P98170	297	ALGEGDKVKCFHC
632	P39548	122	ARKPAGKEWGTVA
633	P67809	64	KVLGTVKWFNVRN
634	P35723	140	LINEQEKQKLNKP
635	P43590	82	EHNLRVKDLLLN
636	P43590	310	SEDIKGKHSILID
637	P36134	39	DYVATSKDNIHHH
638	P36134	228	DKHRYHKSQVTKL

639	P34231	95	DIFGAMKNIADTP
640	P34231	463	NILEYLIKIPYYR
641	Q06689	47	GDADISKINVTKV
642	Q06689	83	TIFGALKAIASTE
643	Q03559	36	DDKARLKMRTASV
644	P38079	194	TTFNLVKARGKDV
645	P38079	321	KDKKKAKKAKKAK
646	Q60821	228	EVEPASKGEDGQE
647	Q8BID6	43	VEGKVFKAHKNVL
648	Q8BID6	65	LYCQVQKTSQAT
649	Q9NUD5	50	VKNLAEKKGEFRE
650	Q9NUD5	51	KNLAEKKGEFRE
651	Q9NUD5	250	VVLGRSKSSLKTL
652	Q9NUD5	334	WYKGQPKTCFKCG
653	Q9NUD5	369	LSPYCRKGIVCNL
654	P31629	229	GFSFKTKSNLYKH
655	P34231	620	KYGVVFKAGPAYT
656	Q06689	269	LVPSSLKPAVQAV
657	P38079	198	LVKARGKDVSNVF
658	P38079	295	PSPASFKSSDS
659	P38079	312	KLKLKKKHKDKK

### S<sup>-</sup>(5): List of 659 negative Ubiquitination sites and sequence

Sample #	Protein ID	Site	Sequences
1	P20039	134	VTVYPSKTQPLQH
2	P08908	235	TVKKVEKTGADTR
3	P08908	412	DFQNAFKKIICK
4	Q8NE71	33	VVKKGKKDKKIKK
5	Q8NE71	39	KDKKIKKTFFFEEL
6	Q8NE71	103	LMERLKKLSVPTS
7	P50544	201	TKAQREKYLPRVA
8	P50544	277	AATGAVKEKITAF
9	P50544	354	TLAGTMKSLIAKA
10	P93821	188	LNSDTLKSMSGCMK
11	Q9UKV3	302	REAPILKEFKKEEG
12	Q07622	216	PPTGSAKTDDNGS
13	Q07622	228	SSGGEDKLSSYSP
14	Q99KI0	225	GIPWELKCPKVIG
15	Q99KI0	401	RSAAVAKQALAHG
16	P52910	19	HNVKALKAPQH FY
17	P52910	31	YNSQPGKGYVTDM
18	P52910	107	AFANPDKPALIYE
19	P52910	209	EGKRGGKTINTKK
20	O43707	283	AANRICKVLAVNQ
21	Q16186	62	LIHFCWKDR TSGN
22	Q16186	99	VYVLKFKAGSKRL



23	Q16186	113	FWMQEPKTDQDEE
24	Q16186	123	DEEHCRKVNEYLN
25	Q16186	379	DVEAFAMQNNNA
26	P48962	166	CLTKIFKSDGLKG
27	Q84VQ0	46	PRGSGSKGQKIPL
28	Q84VQ0	49	SGSKGQKIPLLTN
29	Q84VQ0	164	RPNQTKKFMVEIS
30	Q84VQ0	278	LLANQNKKDPYGM
31	Q84VQ0	279	LANQNKKDPYGM
32	O95831	13	LAAGALKQKLVPL
33	O95831	111	TPEQKQKKAALSA
34	O95831	337	IQLFPEKGNMGKI
35	P38080	192	NVLVDKNNFKLA
36	Q9SLK6	55	HLHLATKLIRYRS
37	Q9SLK6	284	FTGHDTKVMQNST
38	Q9SLK6	440	NQMDFLKCSIAGT
39	P10275	235	TISDNAKELCKAV
40	P10275	386	HPHARIKLENPLD
41	P10275	592	AAEGKQKYLCASR
42	Q12955	27	EPEKKRKHRRSR
43	Q12955	37	RSRDRKKKSDANA
44	Q9Y2G4	125	GFSQSASLLIKAG
45	Q9Y2G4	137	GANVLAKNKAGNT
46	Q9Y2G4	220	AAALNHKKVAKIL
47	Q9Y2G4	276	RGRSLRKKRERLK
48	Q69ZU8	220	AAALNHKKVVKVL
49	P36404	11	TILKKMKQKEREL
50	Q06408	92	YSRYSNKIGCLIT
51	Q06408	200	DIYKYSKPGYIFV
52	Q06408	255	SWIYSSKTPAILG
53	Q06408	280	LNKLICKTGIWNF
54	Q06408	309	MGQYNGKEGLKQV
55	Q9NR48	97	LQAKRTKKPPKNL
56	Q9NR48	98	QAKRTKKPPKNLE
57	Q9NR48	113	VCRPAIKTTIKHP
58	Q9NR48	127	KALKSGKMTDEKN
59	Q8NBU5	127	RLLQPPKGVLLYG
60	Q8NBU5	274	ILKLILKNENVDR
61	P35193	82	DYGHLEFKYLQCQR
62	P35193	100	IGEGTLKKYNLTI
63	P35193	299	FTDAGDKPTTQII
64	P35193	315	PHEIGIKEYKEYR
65	Q12691	59	TLGDDTKIDYKAM
66	Q9D3D9	56	FDSANVKQVDVPT
67	Q8WXE1	127	YKELKEKMKVMEE
68	Q8WXE1	195	QSELQFKDAEMNE
69	Q8WXE1	214	TSERANKLAAPSV
70	Q8WXE1	227	SHVSPRKNPSVVI

71	Q8WXE1	250	KTSFPTKESFSAN
72	Q9UIF8	159	HSRTSGKSNRNGP
73	Q9UIF8	236	KDKKPRKKAMESS
74	Q8NFC6	81	LADVDTKPAYQNL
75	Q8NFC6	165	LATLNHKEEGSGN
76	Q8NFC6	261	DMADKEKSTADSG
77	Q8NFC6	317	SSEQKNKSTDKGE
78	Q10589	106	ASLDAEKAQGQKK
79	O43684	21	DGISSVKFSPNTS
80	O43684	227	FKCHRLKENNIEQ
81	A2RUR9	163	NLKVDDKCPSPVSP
82	Q96514	37	KLPPGPKTLPIIG
83	Q96514	139	MELLNTKKFQSFR
84	Q9UKL3	112	NENQSLKKNISAL
85	O22203	81	SSAELAKEVLKEH
86	Q96M89	200	ETAAQQKFAEELQ
87	Q8IX12	486	HPARLVKFLVGMK
88	Q8IX12	600	KQQLVEKLQGERK
89	P25322	96	SLEPLKKSRLQLL
90	P25322	147	ELLLVNKLKWNLA
91	P25322	238	FLSRVIKCDPDCL
92	O14618	262	GRPIAGKGRKESA
93	P25694	72	TVLVKGKKRKDTV
94	Q5TB80	55	ITEDDFKDDGLLG
95	Q5TB80	153	DYSRLNKELDSND
96	Q02224	32	TAQVYWKTDNNVI
97	Q02224	350	LLKRYRKEIMDLK
98	P13569	68	ASKKNPKLINALR
99	P32657	112	KSKSKPKSQSEKQ
100	P32657	247	RLDNYCKQFIIED
101	Q9UNE7	143	SALRIAKKKRWNS
102	Q9UNE7	224	VDEKRKKRDIPDY
103	O14757	38	EEAVAVKIVDMKR
104	Q9Y3E7	22	VNEWSLKIRKEMR
105	P29465	202	QMAWREKVALISV
106	P29465	225	LTFGFTKTVCSSS
107	Q9D5U8	22	VKFDLGKSVDISS
108	Q9D5U8	145	IEPVHKKHPDFSF
109	Q9D5U8	185	ISITQKKPSWRTH
110	Q01955	45	CFCDGAKGEKGEK
111	Q01955	78	PGPQGPKGFPGLP
112	P0CX12	101	RKRSLSKQLIQFC
113	P43542	96	IFRLSRKRSLSKQ
114	P97784	151	QPPLTYKRFQTLV
115	Q9R194	182	SRMELPKKPAVAV
116	Q9R194	293	LWDLYKKVKRNST
117	Q9ZQB9	68	TWVLLLLKAHRAAG
118	Q9ZQB9	217	CFWIRFKKIKPVP

119	Q9ZQB9	224	KIKPVPKPDISIS
120	Q12734	362	LIFSLNKSTTLSD
121	Q12734	419	FIPQGAKSPLDIV
122	Q12734	531	SISSPQKLRSYSC
123	P89105	250	ALQLNPKNTSASI
124	P57076	74	DQIEELKLKDEWG
125	P57076	171	RMEFENKEDLSGT
126	P57076	213	YVGKNEKTKIIAK
127	Q08412	47	DNDTSAKDGT PKV
128	Q08412	59	VEEKV NKSSGIDE
129	Q08412	118	LEEKYIKAVIIAS
130	Q08412	371	PDTETKKKWQPLP
131	Q13616	338	GLGELKKLLETHI
132	Q13619	345	HWSEYIKTFGTAI
133	Q13619	359	INPEKDKDMVQDL
134	Q39017	138	SAPKDCKCVSMVG
135	P07262	212	DYATNGKESFEGK
136	P07262	250	VSLSDSKGCIISE
137	P07262	419	ECIDYAKKYTKDG
138	O60610	59	TSMRIKKEKEKPN
139	P39976	82	STDKVSKIMKYCN
140	P39976	212	NINALRKDNTGYD
141	P38823	333	CSICLNKIKPCQA
142	P53924	323	PVVFKSKVVSRTH
143	P18858	22	KAKKPEKEASNSS
144	P06746	113	GPSAARKFVDEGI
145	P06746	220	VVEQLQKVHFITD
146	F4IBE4	141	IVDGGYKQPQGDK
147	Q03001	30	DVLERYKDERDKV
148	Q03001	35	YKDERDKVQKKTf
149	Q03001	104	IALDYLKRRQVKL
150	Q03001	256	LYDAFPKVPEGGE
151	Q03001	330	KETEKSKIKRLYK
152	P38167	11	TSRPVAKNSSSHSL
153	P38167	36	FQPSPTKKLGSMQ
154	P38167	98	LGKKQNKQPPNA
155	P38167	410	RQMRLFKNIPTEE
156	P0DH99	44	VIERFEKEAAEMN
157	P0DH99	161	MDATTPKYSKARY
158	P0DH99	164	TTPKYSKARYDEI
159	P0DH99	212	TNLDWYKGPTLLE
160	P00533	346	IGIGEFKDSLSIN
161	P00533	396	QELDILKTVKEIT
162	Q9LD55	23	LINVGQKQDALQA
163	Q13347	148	IPCND SKITS AVW
164	Q02908	88	LPKLKAKPVRTAS
165	P32476	111	YKADIPKVEKDKD
166	P32476	201	RGKVEFKAHLTFI

167	P32476	297	VQPFIPKSLRPSF
168	P32353	132	NHPRYLKNQMAME
169	P32353	253	LILPLHKVSYLIL
170	P54781	68	VAYQIKKGSIAGP
171	P38748	71	FKNQTSKEEESDL
172	Q0WPQ2	468	FLVDAEKSLPDNV
173	Q92817	312	AHQEALKMEWQNF
174	Q92817	351	VSQTLAKLNSNLD
175	P38261	36	PSPAKPKQKTKKN
176	Q5HYJ3	52	EFQQESKTNLTICK
177	Q5HYJ3	188	HSSSHHKISNLSP
178	Q9BXW9	9	SKRRLSKSEDKES
179	Q9BXW9	25	DASKTRKQPLSKK
180	Q9NVI1	12	LSLAAEKTADKLQ
181	Q9NVI1	141	TALATKKENLAYG
182	Q9NVI1	158	SGEECKKQLINTL
183	Q9NVI1	291	LGRELVKHLKVGQ
184	P38631	249	LGKLSRKARKAKK
185	P38631	330	CLCFIYKCALDYL
186	P40989	278	AKKKNKKAMQEAS
187	P40989	349	CLCFIYKCASDYL
188	P01100	153	NKMAAAKCRNRRR
189	P38297	180	NHLNALKKRVDDV
190	P19145	87	TAQTPLKHHLKNR
191	P19145	224	INMFGVKGYGEAE
192	P19145	444	FVAASKKEGEVFN
193	P31644	127	NNLLASKIWTPDT
194	P47870	237	RLSLSFKLKRNI
195	P47870	363	VNKIFYKDIKQNG
196	P10071	291	SARPSRKRTLIS
197	P10071	528	REQKPFKAQYMLV
198	P32288	14	KTQILQKYLELDQ
199	P32288	46	KGRTLKKRITSID
200	P32288	122	KLFAAHKDEEIVF
201	P37303	320	GLKYNVKLMGGRV
202	P63092	24	AQREANKKIEKQL
203	P63092	28	ANKKIEKQLQKDK
204	P63092	100	DIKNNLKEAIEI
205	P63092	186	DKIDVIKQADYVP
206	P48813	57	EVEYFEKTVEKTI
207	P48813	61	FEKTVEKTIENTE
208	Q3T8J9	242	DNEESEKRRKKKK
209	Q5T848	73	GTILAQKLAEFVP
210	Q5T848	144	VMLQSNKSREQNL
211	Q5T848	383	HISGSTKDVSEEA
212	P08539	39	LEKQRDKNEIKLL
213	P08539	125	RILLKAKALDYIN
214	P08539	295	TDEDILKGRIKTT

215	Q8N442	99	GTIDKTKNNKQVL
216	Q8N442	351	EPLPGFKSAKPMV
217	P40531	89	GSYDYPKYINESV
218	P40531	173	FSDVQAKIAQARI
219	P40531	230	NLANNKKPEKEAS
220	P40531	277	DLKELAKAQAEYF
221	P26569	22	AADTTVKSPKPKP
222	P26569	26	TVKSPEKKPAAKG
223	P26569	27	VKSPEKKPAAKGG
224	P26569	94	QKFIEEKHKSLPP
225	P26569	118	RLVASEKLVKVKA
226	P04908	96	NDEELNKKLLGRVT
227	P16104	134	KAPSGGKKATQAS
228	O75367	123	KRGSKGKLEAIIT
229	P0C0S5	116	VIPHIHKSLIGKK
230	P33778	28	AQKKDGKKRKRSR
231	P62807	13	SAPAPKKGSKKAV
232	P62807	44	YSVYVYKVLKQVH
233	Q9LQQ4	12	EKKPAEKKTAER
234	Q9LQQ4	44	GKKLPPKEAGDKK
235	Q9LQQ4	52	AGDKKKKRSKKNV
236	Q9LQQ4	55	KKKKRSKKNVETY
237	A3AGM4	13	KKPAEKKPAAGEE
238	A3AGM4	32	PAGKKPKAEKRLP
239	A3AGM4	57	DKKGRKKAKKSVE
240	A3AGM4	60	GRKKAKKSVETYK
241	A3AGM4	85	DIGISSKAMSIMN
242	P04913	28	MKSADKKRGKNRK
243	P04913	79	IATEASKLAAYNK
244	P02293	22	EKKPAAKKTSTST
245	Q5QNW6	16	APKKGSKKAVTKV
246	Q5QNW6	24	AVTKVQKKDGKKR
247	P51610	266	ATTIGNKMYVFGG
248	P51610	426	VPANPPKSPAPAA
249	O15379	25	GAGHPMKPHRLAL
250	O15379	49	KKMIVFKPYQASQ
251	O15379	83	NMQGFTKSLNAFN
252	Q9Y2N7	53	VSAHLDKASIMRL
253	Q9Y2N7	91	LDACYLKALEGFV
254	P00347	142	RASALAKFALSSN
255	P00347	288	STTEHSKVSLGLD
256	P00347	473	IQLVNAKHIPAYK
257	P00347	479	KHIPAYKLETLME
258	P00347	501	RQLLSTKLPEPSS
259	P09429	8	GKGDPKKPRGKMS
260	P09429	55	WKTMSAKEKGKFE
261	P09429	59	SAKEKGKGFEDMAK
262	P41235	108	CVVDKDKRNQCRY

263	P41235	203	VLVEWAKYIPAF
264	O60506	232	HEIRSGKHIGVCI
265	O60506	283	HQPDDKKKNRGFC
266	P31539	131	SIQQIFKEAQVDI
267	P31539	270	RFKGVLEIEESK
268	P10591	106	QIQVEFKGETKNF
269	O65719	59	LIGDAAKNQVAMN
270	O65719	104	KSGPAEKPMIVVN
271	O65719	144	YLGTTIKNAVTV
272	O65719	277	TACERAKRTLSST
273	P40325	113	KNGRSCKSCWRRF
274	P57058	280	YQKMVDKEMNPLP
275	P09629	13	ANTLFSKYPASSS
276	P09629	111	AKAAGAKEQRDSD
277	P32467	38	LSTPSNKAERDDM
278	P32467	287	SIALSNKVSADDP
279	P38695	78	DKQLEKKSKSDLL
280	O14602	23	NENESEKRELVFK
281	O14602	40	EYAQVIKMLGNR
282	P08069	110	TVIRGWKLFYNIA
283	P08069	189	PGTMEEKPMCEKT
284	P08069	453	YFAFNPKLCVSEI
285	O14920	44	GEQIAIKQCRQEL
286	O14920	482	SQQLKAKLDFFKT
287	Q14974	169	PEQLQDKSNEILT
288	Q14974	243	ALQNLVKIMSLYY
289	Q6PI98	44	GASKKKKASASSF
290	Q6PI98	63	EAMSENKMVPSEF
291	O80560	31	SVPPPRKIHSYSH
292	O80560	340	ISSSEVKCLLADN
293	O80560	408	IASTSKKEKPHGF
294	Q13568	73	WAKETGKYTEGVD
295	Q13568	85	DEADPAKWKANLR
296	Q13568	459	RMVEQFKELHHIW
297	P56477	41	WVNGEKKLFYIPW
298	P56477	175	APYSLPKEDTKWP
299	P56477	458	HMVEQFKELHHLW
300	P29994	259	CDEHRKKQHVFRL
301	P30605	128	VLTYGEKEIVTAA
302	P30605	315	NQSIPGKNVPEKV
303	P30605	560	ASKALAKKRKQQV
304	P36035	95	EDEEDKPNLSAA
305	P36035	327	YFTKVLKARKLIL
306	P36035	347	GGEPLPKANFKQK
307	Q8NCM2	80	DKKTIEKVRQTFD
308	Q8NCM2	99	FEVLLYKKNRTPV
309	Q15058	41	RLKLHLKSDMSEC
310	Q15058	59	LLRSAGKVRDINR

311	Q15058	132	KTDSA EKWKTA EI
312	Q15058	213	NENVALKYSSNRP
313	Q15058	261	YHR SIGKEI AKTS
314	Q38997	197	RDGHFLKTSCGSP
315	Q38997	214	PEVISGKLYAGPE
316	Q38997	281	LVVDPMKRVTIPE
317	Q38997	413	QYPVERKWALGLQ
318	Q38997	443	DLNVCWKKIGHYN
319	Q15349	21	SVYLRRKSRSKSS
320	Q15349	48	DISHHVKEGF EKA
321	Q15349	80	FLVRKVKGSDAGQ
322	Q86UP2	30	FFWLFMKETLYDE
323	Q86UP2	46	KQKREQKLIPTKT
324	Q86UP2	51	QKLIPTKTDDKKA
325	Q86UP2	117	VRERKKKEKKQKP
326	Q01650	7	MAGAGPKRRALAA
327	Q01650	237	FSFEGTKLDVGNI
328	Q12502	254	KEGSSSKRLLQL
329	Q12502	300	PNVVYPKSTFPLE
330	Q5VZK9	128	SPVRIMKKVSMEP
331	O75581	130	LDGSLRKVLFWQE
332	O75581	560	SIERVHKRSAERE
333	P53281	11	LVNRSLKNIRNEL
334	P53281	118	TRSASPKSAEAAS
335	Q9HCC9	44	DSL DGRKDPQRCT
336	O22042	97	GELLA IKQVLIAP
337	O22042	178	VIIMYTKQLLLGL
338	Q3KQU3	56	DTPPAMKNATSSK
339	Q3KQU3	157	KYLA AKKAVWLEK
340	Q3KQU3	168	EKEEKAKALREKQ
341	Q07820	208	SGATSRKALET LR
342	Q07820	279	FVAKHLKTINQES
343	Q7L590	161	SPRPPLKERRVQR
344	Q7L590	288	EKMAREKLEEIDW
345	Q7L590	344	VHKALWKTEQGT V
346	P93819	311	IDEVSRKKMDLTA
347	Q9S JL6	108	MSRNQRKM LEAKE
348	Q9S JL6	172	EQRDRLKSAQRKA
349	O50008	218	MDLEGQKLQAFTG
350	O50008	273	DLVRG TKTLDLVK
351	O50008	279	KTLDLVKAGFPEG
352	P19358	42	EQDPFSKVACETA
353	P19358	230	MLDENTKYFIQPS
354	Q03164	272	QATKIKKL RAGKL
355	O75081	178	RQLSKLKRFLTTL
356	Q9Y623	30	RIEAQNKPFDAKT
357	Q9Y623	84	FSMNPPKYDKIED
358	Q9Y623	107	AVLYNLKERYAAW

359	Q9Y623	190	GKTVNTRKRVIQYF
360	Q9Y623	207	VTGEKKKEEPASG
361	Q02566	18	AAQYLRKSEKERL
362	Q02566	145	VAAYRGKKRSEAP
363	Q9LR74	72	LTERGGKILSVHR
364	P16603	81	YAKKFSKELVAKF
365	P16603	165	FFNGAAKKA EKHL
366	P15531	12	RTFIAIKPDGVQR
367	Q9Y6K9	96	KEFLMCKFQEARC
368	Q9Y6K9	129	REVEHLKRCQQQM
369	O88522	123	QREQALKELEQLK
370	P25208	69	NVARIMKNAIPQT
371	P25208	149	EAMKGEKGIGGAV
372	Q39161	21	SSSTKPKRSVLVA
373	Q39161	65	LKEKFRKGINPQE
374	P30415	51	GEKGLGKTTGKKL
375	P30415	157	EQIENLKTDAASR
376	P30415	227	IRRRRHKRRPKVR
377	P53253	148	GGDYFVKPIKNLA
378	Q01705	508	NGHCMDKINEFQC
379	Q01705	542	PCKNGAKCLDGPN
380	Q01705	814	DDVAGYKCNCPPLP
381	Q01705	1107	CEVAAQKRGIDVT
382	Q923B3	174	ESAGPQKAMSQLR
383	Q923B3	194	QPNTRSKKQILEL
384	Q923B3	369	ILEDGVKEMHSIE
385	P53370	220	NPGAFGKSDMYII
386	Q02218	122	AQPNVDKLVEDHL
387	P04637	120	LHSGTAKSVTCTY
388	P04637	139	MFCQLAKTCPVQL
389	P04637	319	SSSPQPKKKPLDG
390	P04637	373	SHLKSCKGQSTSR
391	Q56WK6	26	EKPITDKEVTIPT
392	Q56WK6	53	EKAVPEKEVTPEK
393	P12004	248	ADMGHLKYYLAPK
394	Q9UHG3	282	YIEEKTTKKYTGN
395	Q9UHG3	406	DGTYYVWKIFSQET
396	Q02785	74	ARVISHKTKKEMD
397	Q02785	221	QSEMMSKYKGYVI
398	Q02785	223	EMMSKYKGYVIYC
399	Q02785	395	QRMGWVKPNRMTS
400	P33302	123	ADPDFYKPYSLGC
401	P33302	132	SLGCAWKNLASAG
402	P33302	272	TPQNRIKGVDRS
403	P33302	398	GPADKAKKYFEDM
404	P38075	96	NWGTSRKAHDIAI
405	O43933	197	KADA EYKKLHSYG
406	O43933	337	TYGKLVKLLSPKQ



407	P35056	317	NNPNAYKIGCLLM
408	P15259	43	EAKRGAKAIKDAK
409	P15259	61	CYTSVLKRAIRTL
410	P15259	157	PTCESLKDTIARA
411	P15259	176	EIVPQIKAGKRVL
412	P15259	241	DEETVRKAMEAVA
413	P25297	18	AERSLHKEHLTEG
414	P25297	225	ILVAAYKGELEYA
415	P25297	297	QEQDGEKKIHDTS
416	P25297	386	SKNVYKKLYDTAV
417	P25297	442	IGFAYHKLGDHGL
418	P25360	135	NKNFIRKKFFESR
419	P25360	194	LINDLEKEGIVTR
420	Q99755	34	SAASGIKRPMASE
421	Q99569	86	STSSTEKSFPWRS
422	Q99569	788	EPSCWGKKKKKKK
423	O23522	105	VDEMSPKNLKRLQ
424	O82274	54	NSDRRSKYVGDSC
425	P53350	200	DFGLATKVEYDGE
426	P13797	91	KSSDIAKTFRKAI
427	P13797	236	LLWQIIKIGLFAD
428	P05030	95	TSDEVLKRRKKYG
429	P05030	109	NQMADEKESLVVK
430	P05030	252	FSSSTVKRGEFGM
431	P05030	379	EILCSDKTGTLTk
432	P05030	387	GTLTKNKLSTLHEP
433	Q8WZA1	109	VYSSRSKVYVAVD
434	P29590	478	TTAQKRKCSQTQC
435	Q9Y253	86	VRESRGKANLTKY
436	Q9Y253	261	IRSLGGKLGASVI
437	Q9Y253	328	SKNFPGKTALATR
438	Q6S8J3	63	LRSKMGKWCHHCF
439	Q6S8J3	155	WGKVPRKDLIVML
440	O23404	65	QRLSIAKTGLHRE
441	O23404	242	MGIPHAKFEEKLE
442	P62937	155	NGKTSKKITIADC
443	P06401	106	SSSPPEKDSGLLD
444	P06401	240	GPLLKGKPRALGG
445	P07737	26	AAIVGYKDSPSVW
446	P07737	127	GGLINKKCYEMAS
447	P62191	64	CRLKLLKLERIKD
448	P62191	91	MKPLEEKQEEERS
449	P23638	228	DGEVYQKIFKPQE
450	P23638	241	IKDILVKTGITKK
451	P51665	46	LGSWQKKVLDVSN
452	P51665	153	DGTPTSSTFEHVT
453	P60484	80	RHYDTAKFNCRVA
454	P60484	125	VAAIHCKAGKGRT

455	P60484	183	YYSYLLKNHLDYR
456	P60484	197	VALLFHKMMFETI
457	P60484	266	KQNKMLKKDKMFH
458	P60484	267	QNKMLKKDKMFHF
459	Q06991	37	NYSPINKIYCAEL
460	Q06991	203	GTYSYIKYILKHN
461	Q05911	45	NLAIAEKELGLTV
462	Q05911	62	AIEQMRKHVEITD
463	P03962	28	FNIMHEKQTNLCA
464	P63000	130	DTIEKLKEKKLTP
465	P15919	40	RVRSFEKAPEEAQ
466	P15919	81	LTQRALKLHPKFS
467	P15919	95	KFHADGKSSDKAV
468	P15919	145	LFRKKEKRVTSWP
469	P62826	127	GNKVDIKDRKVK
470	Q16576	155	LVFDYTKHPAKPD
471	Q16576	308	LRNLKLKLHTFES
472	P49756	237	SHPRKKKKEKKED
473	Q9P2N5	10	EDVDALKSWLAKL
474	Q9P2N5	37	YVVALVKKDKPEK
475	Q9P2N5	38	VVALVKKDKPEKE
476	Q9P2N5	159	NELYREKYDWRRG
477	P54725	26	EPDETVKVLKEKI
478	P54725	80	VMVTKTKAGQGTS
479	P54725	321	QVTPQEKEAIERL
480	P40043	7	MTKKDKKEVKVQT
481	O14924	117	GGLYEGKGWLKPK
482	O14924	434	NFHQEEKSNRVLV
483	O15034	438	VKAARYKYQFFNL
484	Q9CQJ4	149	SIEEGLKIQAMNR
485	Q9CQJ4	275	LEELRSKGESNQM
486	P57078	27	EFTGWEKVGSGGF
487	P57078	196	PERIREKSRLFDT
488	P27635	30	RGVPDAKIRIFDL
489	P27635	42	LGRKKAKVDEFPL
490	P27635	82	MVKSCGKDGFHIR
491	P27635	175	KKWGFTKFNADF
492	P47914	38	LKGVDPKFLRNMR
493	P47914	47	RNMRFKKHNNKKG
494	P47914	114	ARARIAKGLRLCR
495	P0C224	98	DKMICRKCYARLP
496	Q9SJQ6	118	KTPEKPKRKKHRP
497	Q9SJQ6	168	KKVEVSKDQDATP
498	Q9SJQ6	233	SGNQELKDCLLSA
499	P04050	143	AIWTLCKTKMVCE
500	P04050	271	KLADILKANISLE
501	P04050	317	QPQALQKSGRPVK
502	P04844	38	HDVERLKASLDRP

503	P04844	401	RVTYPAKAKGTFI
504	P04844	491	IGDATLKNPILWN
505	P60866	49	AKEKNLKVKGpVR
506	P60866	75	PCGEGSKTWDRFQ
507	Q9SIP7	201	TGKSGPKTPLPDV
508	P23396	18	VADGIFKAELNEF
509	P23396	227	TPISEQKGGKPEP
510	P23396	230	SEQKGGKPEPPAM
511	P05750	141	EVVVSgKLRAARA
512	P0CX35	240	PYISLPKGKGiKL
513	P39743	127	LALVEEKIVTPCQ
514	P39743	144	IITYIRKMATKRN
515	Q31125	279	RHECSSKEKpSTE
516	Q9LK36	7	MALLVEKTSSGRE
517	Q9LK36	191	LQVDPKKYHKMKE
518	Q9LK36	282	GCAAAMKTAGARV
519	Q9Y467	236	GTASSTKPLlPLF
520	Q9Y467	426	FHRHREKYpHVQM
521	Q9Y467	475	GGGVERKPLVAST
522	O94979	403	SFSFGgKLVTfEN
523	Q8RXK2	136	TELGKKKSKVIKS
524	Q8RXK2	178	LKVVLdKFVKpDK
525	Q5TEA6	22	VTIKTIKAEEHNK
526	Q5TEA6	31	EHNKRQKERNVTT
527	Q5TEA6	136	AYLLFAKAADMGN
528	Q15047	50	IDEELEKMDCVQQ
529	Q15047	159	AMAALRKSAQDVQ
530	Q15047	215	RTKTWHKgTLIAI
531	Q01105	150	NPYFENKVLsKEF
532	Q01105	172	SKSTEIKWKSgKD
533	Q6AI14	449	LSLFPRKKMFVTA
534	Q92581	290	DVTAMFKSIGIFL
535	Q92581	547	FDHNYLKPLlTHS
536	Q13485	48	SLVKKLKEKKDEL
537	Q13485	436	YPSAYIKVFDLRQ
538	O15105	401	VQISFVKGWGQCY
539	Q9HCE7	431	KKRLMVKFRGEEG
540	P31109	93	YKDLKMKMCLALV
541	P33328	27	NPNSQNKTAAALRQ
542	P33328	87	RKQMWWKDLKMRM
543	Q9C093	164	RFQEKYKHVKEDL
544	Q8N0X7	21	IIREAYKKAFLFV
545	Q8N0X7	370	ASGTDVKQLDQGN
546	P12866	240	LERKKfKEIILNC
547	P12866	326	GGVAMEKIMTLLK
548	P12866	451	FNDTLRKNILLGS
549	Q9WUM5	66	CQGFTGKQGTfHS
550	Q9WUM5	192	MPGHIHKKGRIGI

551	Q9WUM5	308	AI IAGGKGGAKEK
552	Q9FFC7	174	SFGDYFKKEAIKW
553	Q9FFC7	293	LEPLKQKNIDTGL
554	Q9FFC7	410	LPVAEAKVIELST
555	Q15431	36	GDSTFFKSFNKCT
556	Q15431	133	LRQKESKLQENRK
557	Q15431	139	KLQENRKII EAQR
558	Q15431	146	II EAQRKAIQELQ
559	P41544	63	GYDLNIKEWLFSW
560	P26639	78	LAEKAEKDSKPIK
561	Q9Y228	202	QLSDYLKEALQRE
562	Q9Y228	214	ELVLKQKMVILQD
563	Q9Y228	241	GQLNEDKLKGKLR
564	Q9BVV6	133	PVFKEVKVHLLLED
565	P38085	10	SVSFIAKEASPAQ
566	P38085	95	NLTKSIIKSRHLM
567	P69697	12	PRLEPWKHPGSQP
568	P69697	41	QVCFITKALGISY
569	P10636	67	SETSDAKSTPTAE
570	P10636	209	LKGAGGKERPGSK
571	P10636	366	AAAPRGKPVSRVP
572	P10636	381	KARMVSKSKDGTG
573	P10636	402	STRSSAKTLKNRP
574	P68363	164	SVDYGGKSKLEFS
575	P68363	430	DMAALEKDYEEVG
576	Q9UHD2	38	GDLFAIKVFNNIS
577	Q9UHD2	196	LRKDHQKKYGATV
578	Q15560	141	CDAVRNKCREFLT
579	P50990	152	LVCCSAKNLRDID
580	P50990	307	ALHYANKYNIMLV
581	P47079	93	MATEQQKIDMGDG
582	P47079	243	KSLSEDKKHKVAV
583	P10827	134	DSKRVAKRKLIEQ
584	P10827	186	AQGSWWKQRRKFL
585	A2ASS6	223	RQTRIEKKIEAHF
586	A2ASS6	261	RIPPKPKSRSPTP
587	A2ASS6	345	EVPPPWKQEGYVA
588	P53322	247	KISGSLKDWQYIY
589	O15417	51	GPLPPGKYMAGLN
590	P58771	152	IQLKEAKHIAEDA
591	P29144	109	WTNPSGKYHIGIK
592	P29144	171	QANKLIKEELQSQ
593	Q13077	183	ALQHFMKEKLLAE
594	Q13077	304	TAKYGYKLCLRLY
595	Q13077	409	DDTMFLKCIVETS
596	Q12933	255	SSVLEAKPLLGDQ
597	Q12933	320	IEALSSKVQQLER
598	Q9Y4K3	331	MYVSELKRTIRTL

599	Q9H3M7	141	PTQETKKNFVVD
600	Q9H3M7	166	VSAKKEKKVSCMF
601	Q9H3M7	187	SARIDRKGFCEGD
602	Q07307	240	LIGTGFKDWAGGS
603	P63279	65	KLRMLFKDDYPSS
604	Q9NPD8	149	ARQWTEKHARQKQ
605	Q9UHP3	41	ILQQALKDSNGNL
606	Q9UHP3	141	ASIAENKACLKRT
607	Q9UHP3	145	ENKACLKRTPTTEV
608	Q9UHP3	214	DLPRNQKEHRNLP
609	Q93009	209	VAWDSKKHTGYVG
610	Q93009	310	LDNVENKMKGTCV
611	Q93009	335	VSYIQCKEVDYRS
612	Q07963	129	CELCFDKEKHVNH
613	O94888	14	AASSALKGLIQQF
614	O94888	440	KLLALVKHVQSKG
615	P39547	156	CEHRCHKFFKSLI
616	P28274	130	WIERVAKIPVDDT
617	P28274	200	PTQAAIKGLRSLG
618	P28274	227	DKPTIDKIAMFCH
619	Q96JH7	53	GSCDPKQCQARLF
620	Q96JH7	112	VTGAPKKNTLVK
621	Q96JH7	376	PMNLLPKAWGVPQ
622	Q96JH7	424	EEVFMDKHGIHPS
623	P98155	372	GCSHICKDLVIGY
624	Q709C8	105	DAVKEEKSLQDVK
625	Q9Y4B6	134	IVENLFWKWAREAD
626	Q9Y4B6	248	HLDSGHKTSSRVN
627	P04275	511	RGRLLVKLSPVYA
628	P04275	519	SPVYAGKTCGLCG
629	Q96S55	508	CISALHKSMRGSD
630	P98170	10	NSFEGSKTCVPAD
631	P98170	168	SEEARLKSFQNWP
632	P98170	311	GGLTDWKPSDPW
633	P39548	99	AAFTFGKAITEQE
634	P39548	188	SPVSAGKTSNGLN
635	P67809	92	VHQTAIKKNNPRK
636	P35723	126	TVMSIVKRLVKYQ
637	P35723	130	IVKRLVKYQGLIN
638	P38809	123	KSKSRTKVKPPKN
639	P34231	12	HRTPLSKGIIWTI
640	P34231	190	LVLDLLKDSNDPQ
641	P34231	736	HPDVTPKDSNGPV
642	Q06689	422	TFMPMLKILNSAV
643	Q03559	182	HVQTEEKQKKKKK
644	Q03559	185	TEEKQKKKKKGLF
645	P38079	57	VPLMFRKPVKDRF
646	P38079	60	MFRKPVKDRFVYY

647	P38079	317	KKHKDKKKAKKA
648	Q60821	298	YGSIIHKCEDCGK
649	Q8BID6	40	CVVVEGKVFKAHK
650	Q8BID6	274	GRRKNRKNKETVR
651	Q08245	107	LKKLNRKIASIFN
652	P31629	200	CSRACAKPSVLKK
653	P22227	129	YMTKGTKQEKTEV
654	P22227	157	AGGPAEKPEGGVY
655	P22227	225	LVHTGEKPYQCTF
656	P36134	120	SERDRLKRSHESE
657	P34231	45	GSTANYKPLTNIY
658	P34231	321	QSSSAKKAFAALT
659	P34231	530	DLYLEGKLLHREH

### S<sup>-</sup>(6): List of 659 negative Ubiquitination sites and sequence

Sample #	Protein ID	Site	Sequences
1	P08195	160	EAAAAAKFTGLSK
2	P08195	298	SLLQSAKKKSIRV
3	P08195	300	LQSAKKKSIRVIL
4	P08908	101	LYQVLNKWTLGQV
5	P50544	188	HQSIGFKGILLYG
6	P50544	196	ILLYGTKAQREKY
7	P50544	279	TGAVKEKITAFVV
8	P93821	65	AVVEKIKAAAENW
9	P93821	217	QTLGTSKHSDNTF
10	P93821	327	TIPEYSKGYIEKG
11	Q9UKV3	58	DPSTSRKMAELEE
12	Q9UKV3	315	EEIPRVKPEEMMD
13	Q07622	141	FNFSSTKESLGSP
14	Q07622	344	NKNIVIKNDEKAL
15	Q99KI0	50	RYDLLEKNINIVR
16	Q99KI0	57	NINIVRKRLNRPL
17	Q99KI0	323	NLAEEFKDHLVPD
18	O43707	300	LMEDYEKLASDLL
19	Q16186	30	VEFRAGKMSLKGT
20	P48962	23	IAAAVSKTAVAPI
21	Q84VQ0	30	PEVEPVKKNILLP
22	Q84VQ0	163	RRPNQTKKFMVEI
23	Q84VQ0	288	YGMDWNKARRVLK
24	Q84VQ0	308	LSNREYKISGLSE
25	Q84VQ0	318	LSEHSCKDQLFTW
26	O95831	231	VAVLTGKKVVQLD
27	O95831	301	KISREVKSITIIG
28	P38080	100	EVEVMKKLKGAPN
29	P38080	280	FAILHSKYEFPVN
30	Q9SLK6	171	DIVRVEKDEFFPA

31	P54115	335	YLETEIKVGNPFD
32	P10275	311	AEYSPFKGGYTKG
33	P10275	316	FKGGYTKGLEGES
34	P10275	633	GARKLKKLGNLKL
35	Q12955	198	LLENDTKGKVRLP
36	Q9Y2G4	20	LLVAAYKGQTENV
37	Q9Y2G4	106	ALDRQDKDGNTAL
38	Q9Y2G4	221	AALNHKKVAKILL
39	Q69ZU8	125	GFSQSAKLLVKAG
40	Q06408	381	NFAPILKELYKRI
41	Q9NR48	148	PSKLYKKADDVAA
42	O55143	158	EIAVGDKVPADIR
43	Q8NBU5	300	FSGSDLKEMCRDA
44	P35193	122	LTPSEEKESLCRE
45	P35193	248	ASDHSSKKTIEV
46	Q12691	170	LRLIETKNFDTDE
47	Q12691	282	GTPLHRKLSKLAV
48	Q8WXE1	101	SKNPSGKNRETVP
49	Q8WXE1	125	AQYKELKEKMKVM
50	Q8WXE1	179	ALSDKEKEFSKKL
51	Q99728	152	WFSPRSKKVRYVV
52	Q99728	197	VSERAKKASARSG
53	Q99728	208	SGKKQKKKTAEI
54	Q9UIF8	218	CNQEQSKNQPLDA
55	Q9UIF8	296	ESEAQHKSNQVL
56	Q9UIF8	364	FQSSQAKEESVVK
57	Q8NFC6	259	SEDMADKEKSTAD
58	P38356	84	AARHIGKIGRHFN
59	P38356	98	LDRLFKKRTQQSS
60	P38356	207	HTSHAAKQGSRFG
61	Q10589	21	DGDKRCLLLLGIG
62	Q10589	79	ELTEAQKGFQDVE
63	Q10589	126	ITTLNHKLQDASA
64	Q10589	151	SVRIADKKYYPSS
65	O43684	191	IRAFPNKQGYVLS
66	O43684	217	SPEVQKKKYAFKC
67	A2RUR9	63	SVGSESKHGEAL
68	A2RUR9	220	PENKESKEAEQDS
69	A2RUR9	238	EEQERLKGECENKQ
70	A2RUR9	243	LKGCENKQPQKTS
71	Q9Y4F5	280	DDCSPGKMKIKDH
72	Q9Y4F5	368	SEDPLAKAASAAG
73	Q96514	140	ELLNTKKFQSFRY
74	Q9UKL3	151	HFRNNHKTARTFD
75	Q9UKL3	182	KTDHRAKSDVSKD
76	O22203	18	AAVVSYKLIQRLR
77	P62157	14	EQIAEFKEAFSLF
78	Q96M89	66	KVGSSLKYSDESK

79	Q8IX12	315	DQVPNRKDDRSRE
80	P25322	167	IEHFLSKMPEADE
81	Q12834	66	PGKSSSKVQTTPS
82	Q12834	259	WDVQQQKRLRNMT
83	P25694	146	LFDVFLKPYFVEA
84	P25694	322	IDSIAPKRDKTNG
85	P06493	143	DDKGTIKLADFGL
86	P06493	238	ESLQDYKNTFPKW
87	P06493	279	AKRISGKMALNHP
88	Q5TB80	140	FFARLEKGLTSSI
89	Q5TB80	164	NDSTHFKALHSNQ
90	Q5TB80	216	DEEMPSKENSSE
91	Q5TB80	223	ENSKSEKISVPKQ
92	Q02224	148	LLCGTQKMKPLII
93	P13569	95	YLGEVTKAVQPLL
94	P13569	370	SLGAINKIQDFLQ
95	P32657	93	YYGSPKQNRSKP
96	P32657	345	QNRENSKILPQYS
97	Q9UNE7	223	QVDEKRKKRDIPD
98	Q9Y3E7	57	AAKKGQKDVCIVL
99	Q9Y3E7	132	TMRELSKEMMKAG
100	P29465	301	HNLITPKSNSSIP
101	P08679	50	FVKEHGKTKISDV
102	P08679	52	KEHGKTKISDVLL
103	P08679	322	SKDTIEKYLWDTL
104	Q9D5U8	53	SDTTESKSESGSD
105	Q9D5U8	76	ASIKEIKAETPQP
106	Q9D5U8	106	SWTAKKKRKLYQL
107	Q01955	170	DIELDAKGDPGLP
108	P0CX12	45	FCYEIYKSLAFRI
109	P0CX12	219	EDAKLPKEAYRFK
110	P97784	322	VQIPWDKNPEALA
111	Q9R194	561	PASPKRKLEAAEE
112	Q9ZQB9	10	KFEWWAKGNNT
113	Q9ZQB9	56	HEKSRNKNARQLT
114	Q9ZQB9	253	IPMCNEKEVYQQS
115	Q9ZQB9	272	LDWPKGKILIQIL
116	P89105	274	TNSTNDKTFKEAF
117	P89105	311	QTYYYFKGDYQTV
118	P57076	7	MVLLHVKRGDESQ
119	P57076	109	APNEKMKQVLKKT
120	P57076	113	KMKQVLKKTIEEA
121	P57076	120	KTIEEAKAIISKK
122	Q08412	8	EEKEGIKDSSLLE
123	Q08412	106	PILQELKDAFPNL
124	Q13616	262	PVTEYMKKAEARL
125	Q13619	42	GAGGSKKLVIKNF
126	Q13619	65	TQDTWRKLHEAVR



127	Q13619	104	VSPMLYKQLRQAC
128	Q13619	371	LLDFKDKVDHVIE
129	P40087	42	CGFDKTKHDLYYN
130	P40087	216	INNYPVKAFVDTG
131	Q39017	135	CSSSAPKDCKCVS
132	Q39017	331	EKKPSVKRTGSFG
133	P07262	110	LDMGGGKGGLCVD
134	O60610	17	GRGTRDKKKGRSP
135	O60610	58	FTSMRIKKEKEKP
136	O60610	121	EKDIIKREMVVSQ
137	O60610	196	SLLDILKRLHDEK
138	Q9NSV4	59	PGEKRPKFHLNIR
139	Q9NSV4	237	SGKIQEKVVKKNQ
140	Q9NSV4	241	QEKVVKKNQHKVI
141	P39976	79	LPNSTDKVSKIMK
142	P39976	317	ETSGSNKRHDDEK
143	P38823	295	MKIELNKSOWLKA
144	P38823	335	ICLNKIKPCQAIF
145	P18858	130	ARKQLPKRTIQEV
146	P18858	161	EEEETPKESLSEA
147	P06746	131	LRKNEDKLNHHQR
148	P06746	141	HQRIGLKYFGDFE
149	P01903	136	LICFIDKFTPPVV
150	F4IBE4	157	MRQKFSKDDDSDF
151	F4IBE4	233	RMNVWQKILRDLK
152	Q03001	317	NQYLQFKETEIPP
153	P38167	74	VLNNTTKGGNNNG
154	P0DH99	179	EVSSYLKKVGYNP
155	P0DH99	227	DQINEPKRPSDKP
156	P00533	28	SRALEEKKVCQGT
157	P00533	29	RALEEKKVCQGTS
158	P00533	133	ANKTGLKELPMRN
159	P00533	261	RDEATCKDTCPL
160	P00533	284	DVNPEGKYSFGAT
161	P00533	293	FGATCVKKCPRNY
162	Q9LD55	265	GLMCMVKKTPKSS
163	Q13347	185	EVLNVNKEHSRQI
164	Q02908	84	KKYLLPKLKAKPV
165	P14351	189	NLTQEVKKLLTEM
166	P14351	239	ANCYLVKYKEPKP
167	P32476	360	DVVLLIKKIGDLD
168	P32353	122	YVFVFDKSIFNHP
169	P54781	126	TRDLARKILQSSK
170	P38748	31	FKSIPKKLKAKSI
171	P38748	141	GDDIVNKQVSNFR
172	P38748	228	DPFTVKKKKELVK
173	Q92817	272	REYEHFKQHELLS
174	Q92817	359	NSNLDAKYSPAPG

175	Q5HYJ3	136	LCTLSYKRVLQKT
176	Q9BXW9	13	LSKSEDKESLTED
177	Q9BXW9	30	RKQPLSKKTKKSH
178	Q9BXW9	78	QIAFQKKLFQTLR
179	Q9BXW9	261	DPNFLLLKVRQLVM
180	Q9NVI1	140	LTALATKKENLAY
181	Q9NVI1	242	FFSALDKQHNEEQ
182	P38631	223	DTANYKKWYFAAQ
183	P38631	275	TEETLNKIEGDN
184	P38631	437	WDDVFFKTYKETR
185	P38631	554	FVFAYDKDTVYST
186	P40989	275	ARKAKKKNKAMQ
187	P40989	424	YPEGIAKIVMEDG
188	P40989	444	AEERYLKLGEIPW
189	P01100	188	EIANLLKEKEKLE
190	P19145	51	ETGSGSKWQDFKD
191	P19145	281	GDTPGAKFKGVCS
192	P31644	112	DERLRFKGPQMRL
193	P31644	139	TFFHNGKKSIAHN
194	P31644	313	ARNSLPKVAYATA
195	P31644	346	TVNYFTKRGWAWD
196	P31644	354	GWAWDGKKALEAA
197	P31644	381	NAFTTGKMSHPPN
198	P31644	390	HPPNIPKEQTPAG
199	P47870	340	GPQRQKKAAEKAA
200	P10071	462	EGTTLVKEEGDKD
201	P32288	276	AIEKLSKRHAEHI
202	P37303	198	QSGVPLKQYGEIF
203	P37303	238	KATHFRKQQGGGI
204	P63092	53	GAGESGKSTIVKQ
205	P63092	96	TKVQDIKNNLKEA
206	P63092	307	VLGKSKIEDYFP
207	P48813	147	KQENLKKSIKPRH
208	P48813	380	AIPSAKKMIYRI
209	Q3T8J9	210	CASPQEKPLRTL
210	Q3T8J9	245	ESEKRRKKKGTK
211	Q5T848	445	YHFRKAKSIRASG
212	P08539	54	GAGESGKSTVLKQ
213	P08539	98	LIIQARKLGIQLD
214	P08539	243	IHEDIAKAIKQLW
215	Q8N442	251	PPKVHRKNPLRAL
216	Q8N442	282	FDGVVSKGDKIVS
217	Q8N442	285	VVSKGDKIVSAHT
218	Q8N442	312	NEQPTHKLYAGQV
219	P40531	191	IQTKFNKNLRERL
220	P26569	34	PAAKGGKSKKTTT
221	P26569	36	AKGGKSKKTTTAK
222	P26569	96	FIEEKHKSLPPTF

223	P16403	27	KKKAAKKAGGTPR
224	P16403	63	VSLAALKKALAAA
225	P16403	81	KNNSRIKLGLKSL
226	Q96QV6	96	NDEELNKLGGVT
227	P04908	10	RGKQGGKARAKAK
228	P04908	76	AARDNKKTRIIPR
229	P16104	37	VHRLLRKGHYAER
230	O75367	73	AARDNKKGRVTPR
231	O75367	143	KSPSQKKPVSKKA
232	P0C0S5	80	SKDLKVKRITPRH
233	P0C0S5	102	ELDSLKATIAGG
234	P33778	17	PKKGSKKAITKAQ
235	P33778	86	RLAHYNKRSTITS
236	Q9LQQ4	50	KEAGDKKKKRSKK
237	Q9LQQ4	56	KKKRSKKNVETYK
238	A3AGM4	56	GDKKGRKKAKKSV
239	P04913	27	TMKSADKKRGKNR
240	P04913	108	LPGELAKHAVTEG
241	P02293	50	YIYKVLKQTHPDT
242	P02293	89	KLAAYNKKSTISA
243	Q5QNW6	28	VQKKDGKKRKRSR
244	Q8N257	28	AQKKDGKKRKRGR
245	Q8N257	29	QKKDGKKRKRGRK
246	P62805	80	TEHAKRKTVTAMD
247	P51610	42	HRAVAIKELIVVF
248	P51610	288	KVATHEKEWKCTN
249	Q9Y2N7	182	GRTLNLKAATWKV
250	P00347	116	VIHFLDKELTGLN
251	P00347	314	WQFYLSKMISMDI
252	P00347	401	RKVEVIKPLVVET
253	P09429	86	PPKGETKKKFKDP
254	P41235	90	FRRSVRKNHMYSC
255	P41235	126	CFRAGMKKEAVQN
256	P41235	192	DVCESMKEQLLVL
257	P41235	365	KLFGMAKIDNLLQ
258	O60506	168	TEIFVGKIPRDLF
259	O60506	221	AAQEAVKLYNNHE
260	P10591	86	EVQADMKHFPFKL
261	P10591	98	LIDVDGKPPQIQVE
262	P10591	245	IQEFKRKNKKDLS
263	O65719	74	NTVFDKRLIGRR
264	O65719	199	ATSVGEKNVLIFD
265	O65719	256	EFKRKNKKDISGN
266	O65719	331	KCLRDAKMDKNSI
267	P57058	91	GEKVAIKVIDKKR
268	P57058	239	ELLARKKYGPKID
269	P57058	307	LEPDPVKRPNIQQ
270	P57058	327	NENYTGKVPNCVT

271	P09629	138	SSGTDRKRGRQTY
272	P32467	204	ISEVSPKHIRGTL
273	P32467	310	ATVEAEKLAGNAS
274	P32467	469	PLRVKSKCMAIAQ
275	P32467	542	EGVLPWKSPSWVP
276	P38695	48	DNLAQAKPVSSYI
277	P39003	320	LFSSSKTKVLQRLI
278	O14602	94	KADVILKYNADEA
279	P08069	221	CPSTCGKRACTEN
280	P08069	389	VVTGYVKIRHSHA
281	P25963	238	LVSLLLKCGADVN
282	Q9Z1E3	98	EVIGQVKGDLAFL
283	O14920	106	QGGDLRKYLNQFE
284	O14920	418	CILQEPKRNLAFF
285	Q14974	73	SKDPDIKAQYQQR
286	Q14974	183	IIQGMRKKEEPSNN
287	Q6PI98	42	GYGASKKKKASAS
288	Q6PI98	186	GYLALRKATSIVP
289	O15503	180	INHASAKLDFANN
290	P56477	406	EEWPDVKPREKKL
291	P29994	52	LNNPPKKFRDCLF
292	P29994	100	HAADLEKKQNETE
293	P29994	219	NCNTSWKIVLFMK
294	P30605	563	ALAKKRKQQVARV
295	P36035	401	AQLGLSKDAVTVI
296	Q8NCM2	129	LFLCTFKDITLFK
297	Q15058	171	RIVNNAKNSFVAS
298	Q15058	195	EMMADKKYKETFS
299	Q7M6Z4	154	ELETSMKDLHIRE
300	Q7M6Z4	333	ESLNSLKYANRAR
301	Q38997	315	TVQQAKKIDEEIL
302	O43474	448	TKSSHLKAHLRTH
303	Q15349	199	DEEGHIKITDFGL
304	Q86UP2	56	TKTDKKKAEEKKN
305	Q86UP2	115	SSVRERKKKEKKQ
306	Q86UP2	120	RKKKEKKQKPVLE
307	Q86UP2	131	LEEQVIKESDASK
308	Q12502	179	TKITNMKSWEIQS
309	Q12502	323	RRWRMRKLSWRIE
310	O75581	252	SILACNKYTGEGL
311	P53281	214	GASSAFKSFGSKL
312	Q9HCC9	156	LNTYTEKMRREALR
313	Q9HCC9	266	FHTLLRKIRDLLQ
314	O22042	70	PSIRWRKGELIGC
315	Q3KQU3	92	SPSSEAKSRGPTP
316	Q3KQU3	220	AIQRSVKKTWAEI
317	Q3KQU3	221	IQRSVKKTWAEIR
318	Q07820	238	LRKLDIKNEDDVK

319	Q7L590	154	QKSPVEKSPRPPL
320	Q7L590	283	LSQIKEKMAREKL
321	O50008	321	GIVGKDKLVVSTS
322	Q03164	174	VKTSPRKPRGRPR
323	Q03164	255	KEDSLKKIKRTPS
324	P53045	174	FYKYIHKQHHRYA
325	O75081	47	APRGPRKGGPAPV
326	O75081	515	VSDAERKAHELIT
327	Q9Y623	260	HFGATGKLASADI
328	Q02566	21	YLRKSEKERLEAQ
329	Q02566	271	ETYLLEKSRVIFQ
330	Q91Z83	48	DKEEFVKAKIVSR
331	P16603	59	VVTENNKNYLVLY
332	P16603	357	TIGAAIKHYLEIT
333	P16603	386	NADVKEKLTLLSK
334	Q9Y6K9	35	EESPLGKPAMLHL
335	Q9Y6K9	90	ASQREEKEFLMCK
336	Q9Y6K9	118	LDLKRQKEQALRE
337	Q00653	221	QPIHDSKSPGASN
338	Q00653	296	RTPPYHKMKIERP
339	Q39161	94	IEELAKKSMEELD
340	Q39161	106	DSEKSSKDDIDVR
341	Q39161	128	RKHQYGKFMMRLK
342	P30415	34	FSDICPKTCKNFL
343	P30415	56	GKTTGKKLCYKGS
344	P30415	102	DENFILKHDR AFL
345	P30415	128	QFFITTKPAPHLD
346	P30415	236	PKVRHAKRRKEM
347	P53253	21	QSLMNTKRSEQPT
348	P53253	277	AENKPLKKGFNST
349	Q01705	518	FQCQCPKGFNGHL
350	Q01705	769	VNGGTCKDMTSGY
351	Q923B3	36	QLDFQQKCLYREI
352	Q923B3	227	QHPEDCKAVVALL
353	Q923B3	340	SPIPVVKPIHDPN
354	Q02218	237	CQWIRQKFETPGI
355	Q02218	271	EEFLQRKWSSEKR
356	Q38799	55	EMSADPKVFVMGE
357	Q38799	108	AAYAGLKPVVEFM
358	Q38799	356	DIVRASKRACYRS
359	P04637	357	KDAQAGKEPGGSR
360	P04637	386	HKKLMFKTEGPDS
361	Q56WK6	37	PTPVAEKEEVAAP
362	Q56WK6	68	PAAEAESVSVKE
363	P12004	20	KVLEALKDLINEA
364	P12004	168	CAKDGVKFSASGE
365	P15873	20	RIIDGFKDCVQLV
366	Q9UHG3	62	KFGKDVKIDLFER

367	Q9UHG3	320	ATPLNRKMSNITF
368	Q9UHG3	364	SSRPIDKFGLNTV
369	Q9UHG3	415	SQETLTKAQILKL
370	Q9UHG3	420	TKAQILKLFLSYD
371	P33302	94	APGYDPKLDPNSE
372	P33302	163	LKSGLRKFKORSKE
373	P33302	328	VSICGSKFQCWDN
374	P38075	169	LDELTQKNTERFK
375	P38075	175	KNTERFKDAEDIP
376	O43933	198	ADAEYKKLHSYGR
377	O43933	259	FSFQSEKKQETSW
378	O43933	291	NIFRVCKSQPPSI
379	P35056	46	PLQGTNKP GISEA
380	P35056	142	DTGNSEKAWQRGS
381	P35056	210	WTDQFEKLEKEVS
382	P15259	49	KAIKDAKMEFDIC
383	P25297	193	SEFATTKWRGAIM
384	P25360	26	LDYNELKNLIYTL
385	P25360	74	GEPSSSKRRFTHK
386	P25360	82	RFTHKLKRKLFGS
387	P25360	89	RKLFGSKTPSGSK
388	P25360	124	ELSPQGKTTSFNK
389	P25360	167	TNLSDEKLVDDF
390	P25360	175	KVDDFYKRMEAKF
391	Q99755	261	HIKYDLKGSTYKR
392	Q99755	266	LKGSTYKRRASQK
393	Q99755	276	SQKEREKPLPTFK
394	Q99569	518	SIDSIQKDPREFA
395	O23522	372	ADRLDSKGVKVL R
396	O82274	17	ELSGSSKWKDLLD
397	O82274	84	FRYEVTKYIYGTS
398	O82274	192	PRSRFDKTSAQEQ
399	O82274	243	LHNEWPKITPSLQ
400	P53350	86	AGKIVPKSLLLKP
401	P53350	209	YDGERKKTL CGTP
402	P13797	23	LKEAFAKVDLNSN
403	P13797	100	RKAINRKEGICAL
404	P13797	135	FVNWINKALENDP
405	P13797	158	NTDDL FKA VGDGI
406	P13797	266	TLEELMKLSPEEL
407	P05030	415	CLAASRKKKGLDA
408	Q8WZA1	178	VLICTVKDEGSFH
409	Q8WZA1	271	RRRFCSKVEGYGS
410	Q8WZA1	387	NLFPEAKFAVVLE
411	P29590	133	AVCTRCKESADFW
412	P29590	394	SCITQGKDAAVSK
413	P29590	515	PRPSTSKAVSPPH
414	Q9Y253	69	MWADDAKKLC PDL

415	Q9Y253	231	LACGLNKPNRQTL
416	Q6S8J3	190	GNSEVVKLLLDRL
417	O23404	214	VVGLAAKSGERFA
418	P62937	118	FFICTAKTEWLDG
419	P62937	131	KHVVFVGKVKEGMN
420	P62937	151	FGSRNGKTSKKIT
421	Q5JSZ5	90	GTGWANKQDQQDP
422	P06401	73	QDPSDEKTQDQQS
423	P62191	36	PTRVGKKKKKTKG
424	P62191	141	ILSFVDKDLLEPG
425	P25786	50	AVLVALKRAQSEL
426	P23638	100	HAQNYLKTYNEDI
427	P23638	161	GNYTGWKAISVGA
428	P23638	236	FKPQEIKDILVKT
429	P60900	186	EKKVKKKFDWTFE
430	P60900	211	VLSIDFKPSEIEV
431	P51665	199	NQVHGLKGLNSKL
432	P60484	147	HRGKFLKAQEALD
433	P60484	263	FFHKQNKMLKKDK
434	P34222	38	SNASSTKKSSATL
435	P34222	48	ATLLRSKEMKEGK
436	Q05911	73	TDDEIAKASAEQA
437	Q05911	371	VIERRIKGELPFM
438	Q05911	425	DLIERVKRDEFFK
439	Q9SQ57	138	YLYNIHKAKHGSD
440	Q9SQ57	199	FGWIASKMEWTLL
441	P03962	78	GTVKPLKALSAKY
442	P03962	102	DIGNTVKLQYSAG
443	P59271	87	KKKTYTKPKKIKH
444	P59271	113	KVDGSGKVQRLKK
445	P63000	16	GDGAVGKTCLLIS
446	P63000	116	IILVGTKLDLRDD
447	P15919	135	HGPVDAKTQSLFR
448	P15919	221	TAHRGLKRKRHQP
449	P62826	141	SIVFHRKKNLQYY
450	Q09028	22	VINEEYKIWKKNT
451	Q09028	212	DISAVPKEGKVVD
452	Q16576	58	VTKPEGKDYALHW
453	P49756	135	FGFCEYKEPESTL
454	P54725	36	EKIEAEKGRDAFP
455	P54725	53	KLIYAGKILSDDV
456	P40043	94	IEKHLLKDIKQAV
457	P40043	97	HLLKDIKQAVRKP
458	P40043	106	VRKPELKFHEKSK
459	O14924	196	NPNMLSKEEISKV
460	O14924	201	SKEEISKVIHDDS
461	O14924	599	PPLNAPKREWSRK
462	Q7Z5B4	343	EWSQDFKDEGLGI

463	O15034	87	ISTAPSKPFPQFM
464	O15034	134	PEPLSAKPTFLSR
465	O15034	311	LIKQLAKSVIVGW
466	Q9CQJ4	65	KNTMTTKECLHRF
467	P57078	352	AHDLDVKSPPEPR
468	P27635	145	RTKLQNKHEHVIEA
469	P27635	208	NRGPLDKWRALHS
470	P47914	79	KALVKPKVKPKI
471	P47914	84	PKEVKPKIPKGV
472	P63048	88	LRQLAQKYNCDKM
473	P0C224	112	RATNCRKRKCGHT
474	Q9NTX7	167	GRRRKIKRDIIDI
475	Q9NTX7	175	DIIDIPKKGVAGL
476	Q9SJQ6	153	TDGQESKTPKRKY
477	Q9SJQ6	246	PSTPKRKRKSGKR
478	P04844	31	PTHYLTKHVDVERL
479	P04844	217	FVAATYKLMDHVG
480	P38701	30	ITLTSTKVKQLEN
481	Q9SIP7	78	LVQKRKFPVDSV
482	P23396	148	LRGQRAKSMKFVD
483	P05750	45	VRVTPTKTEVIIR
484	P05750	75	LTLLVQKRFKYAP
485	P05750	132	VMESGAKGCEVVV
486	P0CX35	125	ASYKLGKVKVQQL
487	P39743	22	SFRQKFKMGEQTE
488	P39743	72	HQIGFAKSMEEIF
489	P39743	165	HLNTYNKHEKKKE
490	Q31125	134	AGAPGIKHHLDTV
491	Q31125	384	VQSGCSKKQAMRL
492	Q9LK36	159	AEEIFAKNGTFPD
493	Q9LK36	340	DHMRKMKNNAIVC
494	Q9LK36	367	ETYPGVKRITIKP
495	Q9Y467	351	PGLLKPKNGSGEL
496	Q9Y467	402	TGERPYKCNVCGN
497	O94979	206	KNEPIIKVSDHSN
498	Q8RXK2	91	ELIEKFKQETPDK
499	Q8RXK2	141	KKSKVIKSTRMLS
500	Q8RXK2	213	SVADIQKKLRRFL
501	Q5TEA6	71	ENLLEKKKNQRKI
502	Q5TEA6	76	KKKNQRKIRIKGI
503	Q15047	71	ETWVIQKESEVAH
504	Q15047	173	FMDAVNKKSSSQD
505	Q01105	36	SAGLPKKGEKEQQ
506	Q01105	72	ILKVEQKYNKLRQ
507	Q01105	75	VEQKYNKLRQPFF
508	Q01105	222	ELGEVIKDDIWP
509	Q6AI14	536	RKILIRKNLPKSS
510	Q92581	61	EEIVSEKQAEESH



511	Q92581	528	NERRTTKAESAWL
512	Q13485	340	QVGETFKVPSSCP
513	Q13485	392	GVQLECKGEGDVW
514	Q9HCE7	39	LPDPFAKIVVDGS
515	Q9HCE7	109	NAISRLKDTGYQR
516	O95863	253	RMSLLHKKHQESGC
517	P33328	82	GANRVRKQMWWD
518	P33328	90	MWWKDLKMRMCLF
519	Q9Y5W7	85	FFTIKYKPKQLGL
520	Q9Y5W7	132	DLKISSKVDASLS
521	Q9C093	59	SRVSSAKLNNFSR
522	Q8N0X7	14	GEPAEIKIIREAY
523	Q8N0X7	390	KRGKRAKDTSSSE
524	P12866	129	WYDNNEKLLGDFT
525	Q86WV6	137	NILLGLKGLAPAE
526	Q9WUM5	54	KHIYIDKNTKIIC
527	Q9WUM5	81	ALEYGTKLVGGTT
528	Q9WUM5	278	EHNSGPKAKPVVS
529	P61956	7	MADEKPKEGVKTE
530	Q9FFC7	56	SPQIIAKSSSVSV
531	Q9FFC7	97	FASRGHKVLPSSS
532	Q9FFC7	175	FGDYFKKEAIKWA
533	Q9FFC7	291	GLLEPLKQKNIDT
534	Q15431	118	EAEKIKKWKVSTE
535	P41544	54	LFYCWAKLAGYDL
536	P26639	26	IGAGEEKQKEGGK
537	P26639	28	AGEEKQKEGGKKK
538	Q9Y228	22	AESYEAKCERRQE
539	Q9Y228	158	QDTPIKKPPKHHR
540	Q9Y228	161	PIKKPPKHHRGTQ
541	Q9Y228	176	AEGPTIKNDASQQ
542	Q9Y228	282	KNSYEQKAKESLQ
543	Q9Y228	284	SYEQKAKESLQKV
544	Q9BVV6	96	KIEENNKQKANDI
545	Q9BVV6	122	RTVLKQKAQSMPV
546	Q9BVV6	198	VTELLSKLQETDK
547	Q9BVV6	222	IQRKQEKHLCHDH
548	Q9BVV6	284	VEKYSVKPEHPNL
549	P38085	71	EFFDSFKRQLPPD
550	P38085	87	ELESQEKNNLTKS
551	P10636	215	KERPGSKEEVDED
552	P10636	347	SLGEDTKEADLPE
553	P10636	391	GTGSDDKKAKTST
554	P68363	336	AAIATIKTKRSIQ
555	P68363	338	IATIKTKRSIQFV
556	Q9UHD2	197	RKDHQKKYGATVD
557	Q9UHD2	341	FHELVYKQTKIIS
558	Q15560	22	DKMVTKKSAEGAM

559	Q15560	77	SLIKSWKKLLDAS
560	Q15560	184	VGNTDMKYKNRVR
561	P50990	84	VQHPAAKMIVMAS
562	P50990	296	VVVTGGKVADMAL
563	P47079	153	VEITDKNDKNEL
564	P47079	171	PVISSKKYGSEDI
565	P47079	282	FSKGEEKQIDAMM
566	P10827	83	FRRTIQKNLHPTY
567	P10827	92	HPTYSCKYDSCCV
568	P10827	209	SMPDGDKVDLEAF
569	P10827	220	AFSEFTKIITPAI
570	P53322	11	FTMESPKHLVDDV
571	P53322	304	TFDPDEKFEWFQV
572	P53322	468	IFVAKDKPRYIKG
573	O15417	207	SRDGPAKERAGRG
574	O15417	306	AGRGGAKEAARQD
575	O15417	548	VAASSSKKAYLDP
576	P58771	189	AELSEGKCAELEE
577	P40238	39	SDSEPLKCFSRTF
578	Q13077	31	TVCQDPKEPRALC
579	Q13077	344	PWPFRNKVTFMLL
580	Q12933	148	LVRLGEKERHLEH
581	Q12933	195	CDGCGKKKIPREK
582	Q9Y4K3	356	NGIYIWKIGNFGM
583	Q9H8W5	109	LPMGGVKALTIDH
584	Q9H8W5	145	NDREVEKRCQTCK
585	Q9H8W5	167	AHRRQKKTTYHTM
586	Q9H8W5	356	VVERLRKLNKVQY
587	Q9H3M7	19	VFNDPEKVYGSGE
588	Q9H3M7	42	CEVTRVKAVRILA
589	Q9H3M7	100	GNKYEYKFGFELP
590	Q9H3M7	140	QPTQETKKNFEVV
591	Q9H3M7	228	LANGQTKVLTQKL
592	Q9H3M7	233	TKVLTQKLSSVRG
593	Q08960	154	VFRKPTKKRSSTP
594	Q08960	161	KRSSTPKVFSKNS
595	Q07307	212	LAFVPPKVIQKIF
596	P63279	59	WEGGLFKLRMLFK
597	Q9UHP3	356	HSENSGKSGQEHW
598	Q93009	355	DIQLSIKGGKNIF
599	Q07963	304	YAISITKALEDSE
600	Q07963	350	DDIFKRKLTDDEL
601	Q07963	373	ATSLQNKYALRIS
602	O94888	273	LSSSPPKKCARSE
603	O94888	423	LRYPDGKREQITL
604	Q96T88	383	LRESKKKAKMASA
605	P39547	108	NKGFIIKLLVEVI
606	P28274	172	FQFKVGKENFALI

607	P28274	222	CSETLDKPTIDKI
608	P28274	259	LLLLLEQKMIDYLH
609	Q96JH7	203	DIKRANKSQECLI
610	Q96JH7	362	IPLVGIGGAALPK
611	Q96JH7	408	DRSLQDKYLLRLV
612	Q9Y4B6	11	VVHVDSKAELTTL
613	Q9Y4B6	266	EDGGLKKNKSAKQ
614	Q9Y4B6	399	AHGGVQKLLLEIPR
615	P04275	116	SMPYASKGLYLET
616	P04275	355	PCVHSGKRYPPGT
617	Q96S55	286	IIASNSKKHSIRF
618	P98170	116	IQNGQYKVENYLG
619	P35723	48	TAKQQIKTIIFIT
620	P43590	41	ILQPEYKDKYYYS
621	P43590	48	DKYYYSKEKGEEM
622	P43590	116	KYCDTNKDFRQNR
623	P43590	188	ISDLGKKFKELQD
624	P43590	242	EIESIRKACQISD
625	P38809	125	KSRTKVKPPKNVD
626	P38809	135	NVDTIDKMDVTGL
627	P38809	286	AQESRRKNSIARK
628	P36134	83	KCQEKKKKRKGVG
629	Q06689	52	SKINVTKVMPQVG
630	Q06689	307	TQSSSAKAAMGAL
631	Q06689	530	MYVPAVKAALAMN
632	Q06689	597	MMKSGSKKDNVDV
633	P38079	287	GPVAEKKMPSPAS
634	Q60821	138	GGDKRAKDEKAAA
635	Q60821	332	SCRECSKAFSDPA
636	Q8BID6	84	VTAQGFKAIDFM
637	Q8BID6	271	QPTGRRKNRKNKE
638	Q8BID6	417	FTVIRKKFKCPYC
639	Q8BID6	419	VIRKKFKCPYCSF
640	Q8BID6	434	MHQCILKRHMRSR
641	Q8BID6	453	PCEICGKKFTRRE
642	Q9NUD5	12	GAEEERKRGRPQL
643	Q9NUD5	98	AGRGPDKGRRRDP
644	Q9NUD5	299	IWTGEYKCEIELR
645	Q08245	18	AQDVQQKLEETKE
646	Q08245	34	NKGQEVKEQAEAS
647	Q08245	102	KEGGFLKKLNRKI
648	P31629	168	YSQYSQKSIEQAE
649	P31629	179	AEEAHKKEHKPKK
650	P31629	227	PCGFSFKTKSNLY
651	P22227	33	LDRLTLKQDEARP
652	P22227	132	KGTKQEKTEVTQE
653	Q6NZP1	163	DESHYMKSRTAAR
654	Q6NZP1	316	LITRMFKQTAIK

655	P38809	119	KDKQKSKSRTKVK
656	P38809	292	KNSIARKKSLPSR
657	P36134	27	RPIFVRKRRREED
658	P36134	52	PCDWSAKPSQRQN
659	P36134	77	VAMNTPKCQEKKK

**S(7): List of 659 negative Ubiquitination sites and sequence**

Sample #	Protein ID	Site	Sequences
1	P08195	368	EWQNITKGFSEDR
2	P08908	416	AFKKI IKCKFCRQ
3	Q8NE71	85	TRKGRRKKDVDDD
4	Q8NE71	119	DEVPAPKPRGGKK
5	P50544	80	FAVGMFKGQLTID
6	P50544	299	THGLPEKKMGIIKA
7	P50544	317	VYFDGVKVPSENV
8	Q9UKV3	294	GDDEGQKSREAPI
9	Q07622	244	AFYQVYKKTITDS
10	Q99KI0	13	LVTRLQKALGVRQ
11	Q99KI0	228	WELKCPKVIGVKL
12	Q99KI0	304	PYNHRMKKYLSKT
13	P52910	16	YEAHNVKALKAPQ
14	P52910	121	DDESDNKIITFGE
15	P52910	205	ITCDEGKRGGKTI
16	O43707	66	CNSHLRKAGTQIE
17	O43707	239	KYLDIPKMLDAED
18	O43707	255	TARPDEKAIMTYV
19	Q16186	397	EGDTKDKKDEEED
20	P48962	92	ALNFAFKDKYKQI
21	P48962	260	TLDCWRKIAKDEG
22	P38080	78	GDVACLKRVLVQD
23	P38080	196	DAKNNFKLADFGS
24	P38080	368	KIMQNNKLSDSEE
25	Q9SLK6	265	ILLRDSKLRNTAY
26	P54115	142	AAAYADKVNGRTI
27	P54115	255	GSTEVGKSVAVDS
28	P54115	366	NYIDIGKKEGAKI
29	P10275	347	STLSLYKSGALDE
30	P10275	605	NDCTIDKFRRKNC
31	Q12955	24	AEEEEPEKKRKHKK
32	Q12955	106	VDAATKKGN TALH
33	Q12955	277	PLHVASKRGNANM
34	Q9Y2G4	170	GSRADLKNNAGDT
35	Q9Y2G4	282	KKRERLKEERRAQ
36	Q69ZU8	52	LHLAANKGHLSVV
37	P36404	34	GKTTILKKFNGED
38	Q06408	156	LHDSNFKGPNHKV

39	Q9NR48	21	SEGF SRKSPSAIS
40	Q9NR48	132	GKMTDEKNEHCPS
41	O55143	33	EQVKK LKERWGSN
42	O55143	169	IRLTSIKSTTLRV
43	Q8NBU5	57	AQKQAEKLMKQIG
44	Q8NBU5	270	QREAILKLILKNE
45	Q8WXE1	122	VLQ AQYKELKEKM
46	Q8WXE1	184	EKEFSKKLQSLQS
47	Q9UIF8	230	ARVDKIKDKKPRK
48	Q9UIF8	232	VDKIKDKKPRKKA
49	Q9UIF8	233	DKIKDKKPRKKAM
50	Q9UIF8	323	TEKAQEKRIHQPL
51	Q9UIF8	394	SLVNQAKKETYMK
52	Q8NFC6	142	SQVVDPKINHTFR
53	Q8NFC6	249	TDTSTDKERTSED
54	Q8NFC6	276	GLETAPKSEEFSD
55	P55061	83	SHETE QKRLGLLA
56	P38356	265	QSTTQDKFESHLN
57	P38356	308	DYIQVKKLEKKYL
58	P38356	311	QVKKLEKKYLNQS
59	Q10589	47	LIIFTIKANSEAC
60	O43684	121	SWDQTVKLWDPRT
61	O43684	139	TFSQPEKVYTL SV
62	A2RUR9	8	ASWGGEKRGGAEG
63	A2RUR9	113	VDKRD RKKS IQQL
64	Q9Y4F5	82	QKYVTLKLNDVIR
65	Q9Y4F5	282	CSPGKMKIKDHIT
66	Q9Y4F5	350	VHTRTLKGHKHED
67	Q96514	125	PYGEEWKALRKL V
68	Q96514	172	KSPVNLKKT LFTL
69	Q9UKL3	187	AKSDVSKDVHHST
70	O22203	237	MFPAD EKAFAEHG
71	O22203	263	HTLARQKSSGAKQ
72	P62157	95	AFRVFDKDGNGYI
73	Q96M89	165	VSCP KSKASDKRS
74	Q96M89	190	LFQIHLKLQCETA
75	Q96M89	230	NALSKIKGV EEEV
76	Q96M89	244	TRFQI I KEQHDAE
77	Q8IX12	156	FTGVVTKLHD TFG
78	Q8IX12	337	ERSPQRKRSRERS
79	Q8IX12	368	YTVQFSKFSLDCP
80	O14618	31	CVDAVRKSLQGVA
81	P25694	31	AILRRKKKDNMLL
82	P25694	221	DIGGCRKQMAQIR
83	P06493	245	NTFPKWKPGSLAS
84	Q02224	187	WITKGEKSRHYGE
85	Q02224	287	INYRDSKLTRILQ
86	Q02224	330	STAKYMKNTPYVN

87	P13569	163	FSLIYKKTCLKLSS
88	P13569	174	SSRVLDKISIGQL
89	P13569	294	LRQTELKLTRKAA
90	Q9UNE7	41	RLFVGRKYPEAAA
91	Q9UNE7	95	LDGQSVKAHFFLG
92	O14757	166	RERLLNKMCGTLP
93	O14757	261	TIPDIKKDRWYNK
94	O14757	274	PLKKGAKRPRVTS
95	O14757	313	SSEENVKYSSSQP
96	Q9Y3E7	45	REEEKVKRSVKDA
97	Q9Y3E7	65	VCIVLAKEMIRSR
98	Q9Y3E7	76	SRKAVSKLYASKA
99	Q9Y3E7	136	LSKEMMKAGIEE
100	P29465	118	DMNTTDDKKASVKI
101	P29465	192	AFCGMPKKERQMA
102	P29465	236	SSKLRLKNNEVST
103	P08679	24	SNSSQEKTLKERF
104	P08679	201	SLDLLGKLPVIAA
105	P08679	215	IYRNVFKDGMGE
106	P08679	344	GHAVLRKTDPRYM
107	Q9D5U8	66	SRSEEDKESPASI
108	Q9D5U8	144	IIEPVHKKHPDFS
109	Q01955	51	KGEKGEKGFPGPP
110	Q01955	90	PGLTGSKGVRGIS
111	Q01955	226	ERVIGHKGERGVK
112	Q01955	261	TDLKGEKGDKGAM
113	P32798	322	VEGDLLKIPGIIA
114	P97784	95	KEWNITKLSIEYD
115	P97784	274	KLTDLYKKVKKNS
116	Q9R194	133	RDAAIMKMAKEAG
117	Q9R194	163	IELNGQKPPLYK
118	Q9ZQB9	25	GTPVVVKMENPNN
119	Q9ZQB9	52	LVRTHEKSRNKNA
120	Q9ZQB9	218	FWIRFKKIKPVPK
121	Q12734	510	RLATKCLKDEHTQL
122	P89105	77	KTNEGIKLIEMAL
123	Q13616	71	AGVPPSKSKKGQT
124	Q13616	117	MDESVLKFYTQQW
125	Q13616	189	VLKLIEKERNGET
126	Q13616	298	EQVLIEKHLEIFH
127	P40087	413	AVVKALKQTNGNA
128	Q39017	70	RSKKNPKARHKVP
129	Q39017	263	IRIQSKKYKQTNE
130	Q39017	323	DSDSNGKLEKKPS
131	P07262	89	VNLSILKFLGFEG
132	P07262	118	GLCVDLKGSRNNE
133	P07262	235	AQYAALKVIELGG
134	P07262	420	CIDYAKKYTKDGK

135	O60610	61	MRIKKEKEKPNSA
136	Q9NSV4	84	IRIPGSKKERPPL
137	Q9NSV4	140	NLNEDKKAPLREK
138	P39976	220	NTGYDLKQLFIGA
139	P38823	298	ELNKS WK LKANAF
140	P53924	516	VLNETSKDVDSHP
141	P18858	54	ESDSPVKRPGRKA
142	P18858	59	VKRPGRKAARVLG
143	P18858	186	QPTTPPKPLKTSK
144	P06746	54	KYPHKIKSGAEAK
145	P06746	209	ESTKQPKLLHQVV
146	P01903	64	HVDMAKKETVWRL
147	P01903	201	LDEPLLKHWEFDA
148	F4IBE4	154	QREMRQKFSKDDD
149	Q03001	324	ETEIPPKETEKSK
150	P38167	191	RLANSKKFNEQFL
151	P38167	333	AVIVSVKKPTRFT
152	P38167	361	TGVPPTKTFNEEF
153	P0DH99	64	WVLDKLKAERERG
154	P0DH99	172	RYDEI I KEVSSYL
155	P00533	209	GEENCQKLTKIIC
156	Q9LD55	12	KPENALKRADELI
157	Q9LD55	170	ILRNNSKLEALYA
158	Q13347	65	DADWDTKHVLTGS
159	Q13347	224	TTLEHQKTFRTER
160	Q02908	53	LNGLITKYSKKYK
161	P14351	292	NWTTKSKYGQARL
162	P14753	38	DPKFESKAALLAS
163	P32476	43	LARKGKKVLIVER
164	P32476	106	DIPYPYKADIPKV
165	P32476	114	DIPKVEKLKDLVK
166	P32353	170	HSKLYMKIDYENH
167	P32353	329	PKLRDAKETWDAQ
168	P54781	67	QVAYQIKKGSIAQ
169	P54781	75	GSIAGPKFKFWPI
170	P54781	157	WVFLDGKAHTDYR
171	P54781	265	TKTWYGKKTADMA
172	P38748	26	SAYQIFKSIPKKL
173	P38748	103	NNTLNEKEILTIP
174	P38748	173	RNALDAKNFKKEEF
175	Q0WPQ2	153	REFMLKKKAHELQ
176	Q0WPQ2	168	VGLILIKKETGFH
177	Q0WPQ2	201	TLVELSKTLGLQN
178	Q92817	16	QGKGSPKGSAPKG
179	P38261	34	TPPSPAKPKQKTK
180	P38261	38	PAKPKQKTKKNPY
181	Q9BXW9	33	PLSKKTKKSHIAN
182	Q9BXW9	53	IFVKLLKISGIIL

183	Q9BXW9	133	MGASYSKSLIKLL
184	Q9NVI1	16	AEKTADKLQEFLLQ
185	P38631	222	GDTANYKKWYFAA
186	P38631	258	KAKKKNNKKAMEEA
187	P38631	440	VFFKTYKETRTWL
188	P01100	139	SPEEEKRRIRRE
189	P01100	257	PSVEPVKSISSE
190	P38297	79	LRSSNSKAHLISS
191	P38297	149	DGQYNTKEKNGFN
192	P38297	181	HLNALKKRVDDVS
193	P19145	237	FVFSFIKVITVVG
194	P19145	283	TPGAKFKGVCSVF
195	P19145	318	PRKSVPKAAKQVF
196	P19145	321	SVPKAAKQVFWRI
197	P19145	420	FSYVDRKGRPLVG
198	P31644	151	NMTTPNKLRLLED
199	P47870	239	SLSFKLKRNIQYF
200	P47870	412	LSTLEIKNEMATS
201	P10071	467	VKEEGDKDESKQE
202	P32288	77	DSDIYLPVAYYP
203	P32288	238	KISFHPKPLKGDW
204	P32288	265	RQPGGMKYIEQAI
205	P32288	363	DNADMTKEFERES
206	P37303	9	EFELPPKYITAAN
207	P37303	169	EELVRIKAWCMEN
208	P37303	213	ISICLSKSMGAPI
209	P63092	58	GKSTIVKQMRILH
210	P63092	91	DGEKATKVQDIKN
211	P63092	151	EFYEHAKALWEDE
212	P48813	173	LLVGNSKVLNNAG
213	Q3T8J9	122	IHIGKGKLHATGS
214	Q3T8J9	129	LHATGSKRGKKMT
215	Q3T8J9	153	CDHLTLKEPFSGE
216	Q5T848	43	ERTPKGKPHAQQP
217	Q8N442	107	NKQVLDKLQVERE
218	Q8N442	341	DTLCLHKQPVEPL
219	P40531	12	FASSLSKKLQEIS
220	P40531	13	ASSLSKKLQEIST
221	P40531	62	YTELEDKVDTIKL
222	P40531	203	LSFEIGKADKCRK
223	P16403	109	GSFKLNKKAASGE
224	Q8CGP7	119	QAVLLPKKTETHH
225	P16104	119	QAVLLPKKTSATV
226	O75367	9	SRGGKKKSTKTSR
227	O75367	152	SKKAGGKKGARKS
228	P0C0S5	8	AGGKAGKDSGKAK
229	P0C0S5	38	RIHRHLKSRTTSH
230	P0C0S5	121	HKSLIGKKGQQKT



231	P02264	119	QAVLLPKKTEKAV
232	Q96A08	7	MPEVSSKGATISK
233	P62807	16	APKKGSKKAVTKA
234	Q9LQQ4	96	INDIFEKLAQESS
235	P04913	34	KRGKNRKETYSSY
236	P04913	116	AVTEGTSVTKYS
237	P02293	61	DTGISQKSMSILN
238	Q5QNW6	17	PKKGSKKAVTKVQ
239	Q5QNW6	25	VTKVQKKDGKKRK
240	P62805	21	GAKRHRKVLRDNI
241	P62805	78	TYTEHAKRKTVTA
242	P51610	345	GRDGYRKAWNNOV
243	Q9Y2N7	169	CFSLRMKSTLTSR
244	P00347	381	LVRSEKLSVVEE
245	P00347	548	PLCLDGKEYQVPM
246	O60506	111	REKQGTKVADSSK
247	O60506	125	PDEAKIKALLERT
248	O60506	282	YHQPDDKKKNRGF
249	P31539	205	VLARRIKSNPCLI
250	O65719	112	MIVVNYKGEDKEF
251	O65719	116	NYKGEDKEFSAEE
252	O65719	325	CMEPVEKCLLDAK
253	P57058	106	KDTYVTKNLRREG
254	P09629	182	LTERQIKIWFQNR
255	P32467	62	NYVEIPKKPASAY
256	P32467	141	GGIILAKLGDMYG
257	P38695	219	ISEVSPKQLRGTL
258	P39003	112	GTNYLSKVRTGLI
259	P39003	281	SIAVSNKVAVDDP
260	P39003	304	AGVEAEKLAGNAS
261	P39003	463	PLRVKSKAMSIAT
262	P39003	517	LVVPETKGLTLEE
263	O14602	104	DEARSLKAYGELP
264	P08069	213	TTNRCQKMCPSTC
265	P08069	337	VCEEEKKTKTIDS
266	P08069	442	HRNLTIKAGKMYF
267	P25963	67	RGSEPWKQQLTED
268	O14920	238	HSKVRQKSEVDIV
269	O14920	310	DDILNLKLVHILN
270	O14920	394	FLFDNSKITSETQ
271	Q14974	269	ITIEAMKSDIDEV
272	Q14974	376	FIKEHIKNPDWRY
273	Q14974	509	FELIVQKLLETTD
274	O80560	527	HNNAVIKMAAADG
275	Q13568	41	WVNGEKKLFCIPW
276	Q13568	65	GDNTIFKAWAKET
277	Q13568	164	SLTEDVKWPPTLQ
278	Q13568	253	LTDLEIKFQYRGR

279	Q13568	451	ISNPDLKDRMVEQ
280	P29994	59	FRDCLFKLCPMNR
281	P29994	136	KYLTVNKRLPALL
282	P29994	144	LPALLEKNAMRVT
283	P29994	235	NKDDILKGGDVVR
284	P30605	320	GKNVPEKVVNTIK
285	P36035	353	KANFKQKMVSMKR
286	P36035	363	MKRTVQKYWLLFA
287	Q8NCM2	75	YGELTDKKTIEKV
288	Q8NCM2	337	LGRVARKLDHYLE
289	Q15058	37	THSSRLKLHLKSD
290	Q15058	113	LEDTTEKTAETRL
291	Q15058	280	EKRTPTKCTTEHK
292	Q7M6Z4	7	MEEIPIKVAVRIR
293	Q7M6Z4	66	VYNTCIKPLVLSL
294	Q7M6Z4	107	SVVEGQKGIIPRA
295	Q7M6Z4	220	SVCQVEKNAEAAE
296	Q7M6Z4	253	GSERVTKTGNTGE
297	Q7M6Z4	344	ARNIRNKPALNIS
298	Q7M6Z4	426	AFLVDLKDAVKLN
299	Q38997	433	IMTEVLKALQDLN
300	O43474	252	SVISVSKGSPDGS
301	Q15349	53	VKEGFEEKADPSQF
302	Q15349	107	RDRVRSKMERDIL
303	Q15349	262	SLPFQGKDRKETM
304	Q01650	479	FFGVWWNKPKWL
305	Q12502	91	SKSLKRKSTFGSA
306	Q5VZK9	96	KCSISMKMASPED
307	O75581	76	VSEEAIKRTEFNK
308	P53281	108	FPANYVKPAFTRS
309	Q9HCC9	11	FRKWLYKPKRSDP
310	Q9HCC9	129	AMRPLAKELTRSL
311	Q9HCC9	325	PLSAKAKDPDAEL
312	Q9HCC9	436	WADPQEKQGGPG
313	Q9HCC9	522	TVIFNPKSPTSLD
314	O22042	164	ISSLLEKFGSFPE
315	O22042	207	NILVDNKGCIRLA
316	Q3KQU3	133	PTKQEVKKAGERH
317	Q07820	308	KRDWLVKQRGWDG
318	Q7L590	139	LKVTTIKQTASPA
319	Q7L590	149	SPARLQKSPVEKS
320	Q7L590	267	SSTEMNKKMTGRK
321	P93819	55	EALNGVKMELIDA
322	P93819	208	QTSSGEKPVRELV
323	P93819	215	PVRELVKDDAWLD
324	P93819	312	DEVSRKKMDLTAE
325	P19358	21	GEGHPDKICDQVS
326	P19358	50	ACETAAKTGMIMV

327	P19358	91	AKGFDYKTCNVLV
328	P19358	301	VAAGLCKRVQVQF
329	Q03164	239	IKITHGKDISELP
330	Q03164	249	ELPKGNKEDSLKK
331	O75081	397	EWAEWKHLNLL
332	Q9Y623	130	VTVNPYKWLVPYN
333	Q02566	83	MQQNPPKFDKIED
334	Q91Z83	43	VFVPDDKEEFVKA
335	Q91Z83	206	AIGDRSKKDQTPG
336	P16603	77	TAEDYAKKFSKEL
337	P16603	394	TLLSKDKDQFAVE
338	Q00653	229	PGASNLKISRMDK
339	P30415	84	FSEGNKGGESIY
340	P53253	219	LFTVFRKYSQFFK
341	Q923B3	59	VEHHFSKPNVISQ
342	Q923B3	181	AMSQLRKLCHQWL
343	Q923B3	302	LLGPTQKTEYHDV
344	P53370	157	FDESTRKILVVQD
345	P53370	168	QDRNKLKNMWKFP
346	Q02218	70	AWLENPKSVHKS
347	Q02218	402	GDTEGKKVMSILL
348	Q38799	288	INASVRKTSRLVT
349	P04637	24	TFSDLWKLLEN
350	Q15004	60	CVRPTPKWQKGIG
351	Q56WK6	128	EEKTEKKTEET
352	Q56WK6	129	EKTEKKTEETK
353	P12004	77	NLTSMKILKCAG
354	P12004	110	EAPNQEKVSDYEM
355	P12004	240	PLVVEYKIADMGH
356	P15873	127	IDADFLKIEELQY
357	P15873	196	HPETSIKLEMDQP
358	Q9UHG3	205	LLETLQKAGFSEK
359	Q9UHG3	211	KAGFSEKFLNEMI
360	Q02785	76	VISHKTKKEMDSF
361	Q02785	77	ISHKTKKEMDSFE
362	Q02785	154	LISKFTKKSDVPL
363	Q02785	155	ISKFTKKSDVPLR
364	P33302	158	IPYKILKSGLRKF
365	P38075	138	TSERYFKTRPRGS
366	P38075	145	TRPRGSKIGAWAS
367	O43933	207	SYGRDQKGMMKEL
368	P35056	31	SLQFNQKNNGRLN
369	P35056	266	VWDSIHKDAEEVL
370	P15259	39	KGTEEAKRGAKAI
371	P25297	328	LDNHPPKASFKDF
372	P25360	8	RFSHFLKYNAVPE
373	P25360	169	LSDEKLKVDDFYK
374	P25360	281	YSQFNISQKKSL

375	Q99755	63	SGMPIKKIGHRSV
376	Q99755	206	EAEFLQKLLPGYY
377	Q99755	272	KRRASQKEREKPL
378	Q06449	109	FPANYVKPAFSGS
379	Q06449	128	PPPPQYKAQELQQ
380	Q99569	607	KSTDENKIAMKNV
381	O23522	72	VTSRQEKTTKNTS
382	O23522	116	LQRLLSKSSEERS
383	O23522	217	DLRWMTKQTSWVG
384	O82274	10	DIATRWKELSGSS
385	O82274	126	VATDEGKKLLGRR
386	P53350	178	VIHRDLKLGNLFL
387	P13797	52	MPLPGYKVVREIIQ
388	P13797	288	ENSGWQKINNFS
389	P05030	28	TQEKPAKTYDDAA
390	P05030	115	KESLVVKFVMMFFV
391	P05030	239	ESLAVDKHYGDQT
392	P05030	278	AAALVNKAAGGQG
393	P29590	68	AEAKCPKLLPCLH
394	P29590	490	CPRKVIKMESEEG
395	Q9Y253	40	CAVVQYKSWKGGG
396	Q9Y253	131	VQERLQKLQGGPI
397	Q9Y253	293	QSHFGEKNGSWLY
398	Q6S8J3	77	CCRGSGKSNVGAS
399	Q6S8J3	168	RDTDVNKKDKQKR
400	O23404	7	MLYIRKKMTSMIV
401	O23404	282	SVYLEAKGQEFPS
402	Q5JSZ5	150	WAQLNGKPVGHEG
403	P06401	481	FAPPPCKAPGASG
404	P06401	592	SCKVFFKRAMEGQ
405	P06401	617	VDKIRRKNCPACR
406	P06401	641	GGRKFKKFNKVRV
407	P62191	37	TRVGKKKKKTKGP
408	P62191	175	PLVTVMKVEKAPQ
409	P25786	39	SATVGLKSKTHAV
410	P23638	72	LYKLNDKIAVAVA
411	P60900	54	AVIVTQKKVPDKL
412	P51665	45	LLGSWQKKVLDVS
413	P51665	127	LVIIDVKPKDLGL
414	P51665	279	HNLINNKIANDRA
415	P60484	102	PQLELIKPFCEDL
416	P60484	237	PTRREDKFMYFEF
417	P34222	51	LSKEMKEGKLHN
418	Q05911	389	IMAMVEKNASRQE
419	Q05911	431	KRDEFFKPIWEEL
420	P03962	42	LDVRTTKELLELV
421	P03962	156	LAELSCKGSLATG
422	P03962	173	GTVDIKSDKDFV

423	P15919	142	TQSLFRKKKEKRV
424	P62826	23	GDGGTGKTTFVKR
425	P62826	37	LTGEFEKKYVATL
426	P62826	60	TNRGPIKFNVWDT
427	P62826	134	DRKVKAKSIVFHR
428	P62826	152	YYDISAKSNYNFE
429	Q09028	59	VTRPEGKDFS IHR
430	Q09028	215	AVPKEGKVVD AKT
431	Q09028	264	RSNNTSKPSHSVD
432	Q16576	54	WLPEVTKPEGKDY
433	Q16576	263	RSNTTSKPSHLVD
434	P49756	155	DLQIGEKLLVKV
435	P49756	173	AQLDEWKAKKKAS
436	P49756	208	RRDQMIKGAIEVL
437	Q9P2N5	116	ERDGRKKKYPSPQ
438	Q9P2N5	123	KYPSPQKTRSESS
439	O14924	74	NEINVKKASHEDV
440	O14924	82	SHEDVVKLIGKCS
441	Q7Z5B4	32	AFLSRGKRQEPPP
442	Q7Z5B4	78	LAEAFAKAKGSGG
443	Q7Z5B4	129	TTAEDGKCYTAMP
444	Q7Z5B4	153	LAQLQEKLKETE A
445	Q7Z5B4	155	QLQEKLKETEAM
446	Q7Z5B4	199	EITRVMKEGKFID
447	Q9CQJ4	92	ECPTCRKKLVSKR
448	P57078	38	GFGQVYKVRHVHW
449	P57078	238	IMVKVVKGHRPEL
450	P57078	367	VVPARLKRASAPT
451	P27635	101	HVIRINKMLSCAG
452	P47914	23	HRNGIKKPRSQRY
453	P0CH06	83	IIEPSLKALASKY
454	P0C224	93	SKFNCDKMICRKC
455	Q9NTX7	20	MLPTNRKANESCS
456	Q9NTX7	53	PVSLPCKHVFCYL
457	Q9NTX7	165	EHGRRRKIKRDI I
458	Q9SJQ6	163	RKYVRKKVEVSKD
459	Q9SJQ6	188	ETSTRPKRLCRRV
460	Q9SJQ6	223	ESALQEKQLDSGN
461	P04050	88	GHIDLAKPVFHV G
462	P04844	322	RATVLQKTSF TPV
463	P04844	403	TYPAKAKGTFIAD
464	P38701	61	PVRLPTKVLKIST
465	P38701	69	LKISTRKTPNGEG
466	P23396	7	MAVQISKKRKFVA
467	P23396	8	AVQISKKRKFVAD
468	P05750	187	VLGIKVKIMRDP A
469	P05750	200	KSRTGPKALPDAV
470	P0CX35	7	MARGPKKHLKRLA

471	P0CX35	198	IGTIVHKERHDGG
472	P39743	20	PQSFRQKFKMGEQ
473	P39743	84	FKPISGKMSPNA
474	P39743	182	DEERLYKAQAQVE
475	Q31125	288	PSTEEKEVGGGLR
476	Q9LK36	53	GPSQPLKGARITG
477	Q9Y467	368	VMGPLEKPGGRHK
478	Q9Y467	460	MSVPPEKAEFEAA
479	Q9Y467	520	MKAVEPKNKADEN
480	Q9Y467	522	AVEPKNKADENTP
481	Q9Y467	552	TRMQLSKLVTSLP
482	O94979	284	SCGKDAKILCSNP
483	O94979	461	INYCQKKIDASQT
484	Q8RXK2	41	FLNVYDKKLGSSL
485	Q8RXK2	67	FLLTFKKKEDLQL
486	Q5TEA6	80	QRKIRIKGIQNKD
487	Q5TEA6	127	SKSQKQKEEAYLL
488	Q15047	58	DCVQQRKKQLAEL
489	Q15047	59	CVQQRKKQLAELE
490	Q15047	207	SMRILGKKRTKTW
491	Q15047	228	QTVGPGKKYKVKF
492	Q15047	231	GPGKKYKVKFDNK
493	Q15047	237	KVKFDNKGKSLLS
494	Q01105	177	IKWKSGKDLTKRS
495	Q6AI14	251	MLIAFTKMHKFED
496	Q6AI14	337	CAVTMKKYVEENV
497	Q6AI14	502	RLMDHLKAGIEDV
498	Q6AI14	520	HYQVRDKFKKFDH
499	Q6AI14	540	IRKNLPKSSIVSL
500	Q13485	37	ESETFAKRAIESL
501	O15105	343	SYPIFIKSATLDN
502	Q9HCE7	72	YDLYVGKTDSTITI
503	Q9HCE7	89	HKKIHKKQGAGFL
504	Q9HCE7	120	QRDLCKLNPSDT
505	Q9HCE7	418	SYRQIMKMRPKDL
506	O95863	16	PSDPNRKPNYSEL
507	O95863	161	NCKYCNKEYLSLG
508	O95863	170	LSLGALKMHIRSH
509	Q9Y5W7	200	LLKAAMKHIEVIV
510	Q9Y5W7	211	IVKARQKVKNTEF
511	Q9Y5W7	213	KARQKVKNTEFLQ
512	Q9Y5W7	246	ELHYLRKLTELLF
513	Q9Y5W7	329	AEPRNKKPSVLKL
514	Q9C093	22	SRTVSPKSFACAF
515	Q9C093	167	EKYKHVKEDLAHL
516	Q8N0X7	39	TDELGQKEEAKNY
517	P12866	119	EAYLEEKPMEWYD
518	P12866	252	CNTFFIKSCFFVA

519	P12866	285	GSAMIKKGKLNIN
520	Q3TBT3	37	MILWVAKDPPNHT
521	Q3TBT3	45	PPNHTLKYLAHL
522	Q3TBT3	83	YQGSYWKAVRACL
523	Q3TBT3	151	AVCEEKKLNVAHG
524	Q3TBT3	337	HIRQEEKEEVTMN
525	Q9WUM5	48	SYTASRKHIYIDK
526	Q9WUM5	94	PGKGGQKHLGLPV
527	Q9FFC7	223	VSVERIKRMGEAD
528	Q9FFC7	281	VFMQYNKTEDGLL
529	Q9FFC7	387	RAVRKGKSLGING
530	Q15431	196	CARSAEKTKKYEY
531	P26639	32	KQKEGGKKKNKEG
532	P26639	34	KEGGKKKNKEGSG
533	P26639	211	LCKKIIKEKQAFE
534	P26639	223	ERLEVKKETLLAM
535	Q9Y228	100	GQVTVLKEPLSCA
536	Q9Y228	192	GVAVLDKEIIQLS
537	Q9Y228	266	YSPWGMKKVLEEM
538	Q9BVV6	22	DHLVLLKDELPCV
539	Q9BVV6	304	YNTFASKQAPLKE
540	P38085	56	PRRTDSKSILQRK
541	P38085	92	EKNNLTKSIKSRH
542	P10636	189	HAPELLKHQLLGD
543	P68363	96	EQLITGKEDAANN
544	P68363	311	CDPRHGKYMCCCL
545	P07437	174	SVVPSPKVSOTVV
546	Q9UHD2	137	IVHRDIKPGNIMR
547	Q9UHD2	154	DGQSVYKLTDGFA
548	Q9UHD2	241	YKIITGKPSGAIS
549	Q9UHD2	251	AISGVQKAENGPI
550	Q9UHD2	291	LEADQEKCWGFDQ
551	Q9UHD2	396	IGLIYEKISLPKV
552	P50990	37	RNIQACKELAQTT
553	P50990	281	LMDAQVKAIAADTG
554	P47079	61	IVNHLGKIIITND
555	P10827	29	DGKRKRKNGQCSL
556	P10827	234	RVVDFAKKLPMFS
557	A2ASS6	224	QTRIEKKIEAHFD
558	A2ASS6	416	TGTKEVKQETDKS
559	A2ASS6	484	VVVAADKAKEQEL
560	P53322	82	PSHPMEKRVLRKM
561	P53322	241	IAYGCSKISGSLK
562	O15417	197	SSGAPAKGSSSRD
563	O15417	343	PPPAPPKGPPAPP
564	P58771	128	ESERGMKVIESRA
565	P29144	98	LSGRVLKIPASWT
566	P29144	152	LAEACRKQEEFDV

567	Q13077	98	GVGCSFKGSPQSV
568	Q13077	252	KDQALGKLEQSLR
569	Q12933	115	SDGCTWKGTKEY
570	Q12933	140	TECPACKGLVRLG
571	Q12933	184	HHEVCPKFPLTCD
572	Q12933	194	TCDGCGKKKIPRE
573	Q9Y4K3	91	CGHRFCKACIIS
574	Q9Y4K3	142	NEGCLHKMELRHL
575	Q9Y4K3	171	CQRPQKFHINIH
576	Q9Y4K3	252	TFGCHEKMQRNHL
577	Q9Y4K3	319	IRELTAKMETQSM
578	Q9H8W5	26	ALGNSGKTHCPLC
579	Q9H8W5	180	VDLKDLDKGYSRIG
580	Q9H8W5	297	HRDKLLKQLEDIR
581	Q9H8W5	306	EDIRAQKENSLLQ
582	Q9H8W5	347	LEILITKRVVVER
583	Q9H3M7	115	PLGTSFKGKYGCV
584	Q9H3M7	259	KSLRVQKIRPSIL
585	Q08960	58	EKLDLNLKQKKPC
586	Q08960	62	LNKQKKPCCSDK
587	Q08960	68	KPCCSDKKIADGG
588	Q07307	216	PPKVIQKIFPPIV
589	P63279	30	FVAVPTKNPDGTM
590	P63279	49	CAIPGKKGTPWEG
591	P63279	110	RPAITIKQILLGI
592	Q9NPD8	8	QRASRLKRELHML
593	Q9UHP3	331	LQVNGFKDLHECL
594	Q93009	322	VEGTIPKLFRGKM
595	Q07963	219	AHSSERKASSLMH
596	Q07963	329	EIDQIAKEFQKEN
597	O94888	194	WSNEAVKNIIREH
598	O94888	221	RYIQFYKLGDFPY
599	Q96T88	136	TELGLYKVNEYVD
600	Q96T88	246	DAEISRKRETRTA
601	Q96T88	279	FVDEVFKIERPGE
602	P39547	103	VSETLNLKGFIIKL
603	P39547	188	QSNTPAKEVSNEH
604	P39547	227	EFYWRKQYPEVD
605	P28274	33	MKTLGLKVTSIKI
606	Q96JH7	341	KDGHNLNKPICIAW
607	Q96JH7	387	PQDLIKKYIKLEE
608	Q96JH7	458	EVTAAAKKAVMDN
609	P98155	30	ATGTGRKAKCEPS
610	P98155	65	VDGSDEKNCVKKT
611	P98155	336	ECIDISKVCNQEQ
612	Q709C8	24	YVENLNKSQLKLG
613	Q709C8	44	LDNLQIKENALSE
614	Q9Y4B6	80	LLRILFKNDDFMN



615	Q9Y4B6	200	KRPSPRKLSSSEPL
616	P04275	80	GDFQNGKRVSLSV
617	P04275	459	NSLVKLKHGAGVA
618	P04275	654	CELNCPKGQVYLQ
619	P04275	773	CRPPMVKLVC PAD
620	P98170	208	CCGGKLNWEP CD
621	P98170	387	RMGFSFKDIKKIM
622	P67809	170	NSESGEKNESSES
623	P35723	142	NEQEKQKLNKPSS
624	P35723	151	KPSSNSKKDSNEA
625	P35723	152	PSSNSKKDSNEAD
626	P43590	25	GLVKYFKRGERQR
627	P43590	94	RNPKLSKISTAFF
628	P43590	110	EELEGNKYCDTNK
629	P43590	308	KNSEDIKGKHSIL
630	P38809	186	VGGRTSKKSTLDE
631	P38809	293	NSIARKKSLPSRR
632	P36134	81	TPKCQEKKKKRKG
633	P34231	441	DILADAKSVQPIS
634	Q06689	381	NNTVLLKYVPYLF
635	Q06689	408	SLVNITKWAETNA
636	Q03559	7	MMHFRKKSSISNT
637	P38079	308	SIKEKLKLKKKHK
638	P38079	314	KLKKKHKKDKKKA
639	P38079	319	HKKDKKKAKKAKK
640	Q60821	198	PPPVELKPDPTSS
641	Q60821	244	AGPATVKEEGMHL
642	Q60821	304	KCEDCGKEFTHTG
643	Q8BID6	229	YGSLRIKEEQISP
644	Q8BID6	357	PPLTPEKEEALHQ
645	Q8BID6	416	EFTVIRKKFKCPY
646	Q9NUD5	163	AAAGPGKGRFLVR
647	Q9NUD5	222	SFRSAEKLALFLR
648	Q08245	7	MSEIQNKAETAAQ
649	P31629	21	RSGETDKASGRWR
650	P31629	153	SGGYPRKKISSLN
651	P31629	182	AHKKEHKPKKPGK
652	P31629	205	AKPSVLKKHIRSH
653	P22227	180	QAGCKKKLRGKTA
654	Q6NZP1	209	EALFPQKFGTWIE
655	P39548	226	QSEYWRKQYPDAD
656	P67809	118	DVVEGEKGAEAAAN
657	P35723	178	SLEGLQKQVKNLE
658	P43590	66	VNEIPVKIRNHKY
659	P43590	71	VKIRNHKYPAKEH

**S<sup>-</sup>(8): List of 659 negative Ubiquitination sites and sequence**

Sample #	Protein ID	Site	Sequences
1	P08195	94	PPALASKNAEVTG
2	P08195	257	LSSLKVKGLVLGP
3	P08908	147	PIDYVNRKTPRRA
4	P08908	191	DACTISKDHGYTI
5	P08908	251	SPAPQPKKSVNGE
6	P50544	128	KNDAL EKVEDDTL
7	P93821	63	REAVVEKIKAAAE
8	P93821	268	QLMTNDKFISVDH
9	Q9UKV3	70	EVTLDGKPLQALR
10	Q9UKV3	95	LAKSGQKSALVKR
11	Q9UKV3	305	PILKEFKKEEGEEI
12	Q07622	112	MDIFNSKPTGEIG
13	Q07622	252	TITDSSKFTPEIQ
14	Q07622	290	KLKRSLKPEEMLK
15	Q07622	299	EMLKNQKVILEHS
16	Q99KI0	160	LATAGAKYGVGF
17	Q99KI0	409	ALAHGLKCKSQFT
18	P52910	7	MTIKEHKVVYEAH
19	P52910	71	WDAPYTKVQSGSL
20	O43707	54	WEKQQRKTFTAWC
21	O43707	98	SGERLPKPERGKM
22	O43707	122	LDFIASKGVKLVS
23	O43707	166	VEETSAKEGLLLW
24	O43707	273	AFSGAQKAETAAN
25	Q16186	395	QKEGDTKDKKDEE
26	O95831	189	DDPNVTKTLRFKQ
27	O95831	194	TKTLRFKQWNGKE
28	O95831	278	RAGAEVKSRTTLF
29	O95831	322	ACALGRKARALGT
30	P38080	34	VCVGTHKVEVVNY
31	P38080	99	NEVEVMKKLKGAP
32	P38080	158	TEAEIVKIMYDVA
33	P38080	330	EVPIEDKYAEGAY
34	P38080	361	MYQLQKKIMQNN
35	Q9SLK6	343	WYLRPDKPESLTN
36	Q9SLK6	427	DTILSDKTGTLTC
37	P54115	41	MKAQDGKTYPVED
38	P54115	342	VGNPFDKANFQGA
39	P10275	141	AAVAASKGLPQQ
40	P10275	557	YYFPPQKTCLICG
41	P10275	632	LGARKLKKLGNLK
42	Q12955	25	EEEEPEKKRKHRR
43	Q12955	30	KKRKHRRKSRDRK
44	Q9Y2G4	52	LHLAANKGHLPVV
45	Q9Y2G4	129	SAKLLIKAGANVL
46	Q69ZU8	221	AALNHKKVVKVLL

47	P36404	9	LLTILKKMKQKER
48	P36404	53	TLGFNIKTLEHRG
49	Q06408	385	ILKELYKRIDVSK
50	Q06408	391	KRIDVSKLSLQYD
51	Q9NR48	117	AIKTTIKHPRKAL
52	O55143	30	LSLEQVKKLKERW
53	O55143	120	NAIEALKEYEPFM
54	O55143	141	KSVQRIKAKDIVP
55	O55143	189	ESVSVIKHTDPVP
56	O55143	234	VNTEIGKIRDEMV
57	O55143	262	FGEQLSKVISLIC
58	O55143	328	GTRMAKKNAIVR
59	O55143	371	RMFILDKVEGDTC
60	Q8NBU5	65	MKQIGVKNVKLSE
61	Q8NBU5	172	WYGESQKLAAAVF
62	Q8WXE1	234	NPSVVIKPEACSP
63	Q99728	139	FNDAGNKKNSIKM
64	Q9UIF8	201	SSMGQTKSTSSGG
65	Q9UIF8	345	SFQSQQKQPQVLS
66	Q8NFC6	153	FRPQVEKAVHEFL
67	P38356	122	FSNLSAKPDTTET
68	P38356	278	HGLDEEKQNIPWL
69	A2RUR9	55	FPYSWWKNSVGSE
70	Q9Y4F5	284	PGKMKIKDHITKF
71	Q96514	23	SLSILSKRLKPSK
72	Q96514	157	ENDLLIKKLTESA
73	Q96514	209	VADLVNKFEMLVA
74	Q96514	280	VMLDLMKKQEKDG
75	Q9UKL3	120	NISALIKTARVEI
76	Q9UKL3	162	FDTVKTDLKSRS
77	Q9UKL3	165	VKTKDLKSRSPhL
78	O22203	26	IQRLRYKFPPGPS
79	Q96M89	60	DIYSGDKVGSSLK
80	Q96M89	83	PLGSLFKHVNVC
81	Q96M89	102	SFHDLKKQETEEE
82	Q96M89	127	ITKQSFKEIEKVA
83	Q8IX12	8	AQFGGQKNPPWAT
84	Q8IX12	146	QQTQPQKQRVFTG
85	Q8IX12	199	NPNMPFKWNAQRI
86	Q8IX12	221	QTQPLKTPPAVL
87	O14618	265	IAGKGRKESAQPP
88	Q12834	31	PARWQRKAKEAAG
89	Q12834	149	GYQNRLKVLYSQK
90	Q12834	440	AKVAELKGHTSRV
91	P25694	21	DPREEDKTATAIL
92	P25694	119	HPCPDIKYATRIS
93	P25694	298	SESNLKAFEEAE
94	P25694	325	IAPKRDKTNGEVE

95	P06493	9	DYTKIEKIGEGTY
96	P06493	139	NLLIDDKGTIKLA
97	P06493	266	GLDLLSKMLIYDP
98	Q5TB80	40	QSKKEMKKKDTVP
99	Q5TB80	71	SYLKTKKTSQPVM
100	Q02224	195	RHYGETKMNQRSS
101	P13569	8	QRSPLEKASVVSK
102	P13569	246	LGRMMMKYRDQRA
103	P13569	254	RDQRAGKISERLV
104	P32657	98	IKQNRSKPKSRTK
105	Q9UNE7	206	IEAKHDKYMADMD
106	Q9UNE7	234	PDYLCGKISFELM
107	O14757	54	CPENIKKEICINK
108	O14757	233	YLNPWKKIDSAPL
109	Q9Y3E7	13	TQEKPPKELVNEW
110	Q9Y3E7	183	LGKAPSKVTDALP
111	P29465	250	FVIVINGKAYELDT
112	P08679	153	LLDNLPKDLHPMA
113	P08679	317	VNDDYSKDTIEKY
114	Q9D5U8	184	AISITQKKPSWRT
115	P0CX12	64	PLSVWWKLSNNCI
116	P0CX12	108	QLIQFCKEITENT
117	P0CX12	169	FSLKKDKAAKVKS
118	P0CX12	225	KEAYRFLKTWFLK
119	P43542	108	QLTQFCKEITKST
120	P43542	167	EPFSLKKDEAAKV
121	P43542	172	KKDEAAKVKSFKD
122	P32798	234	NYTEHNKRKRSLN
123	P97784	22	HDNPALKECIQGA
124	P97784	137	TLYDLDKIIELNG
125	P97784	275	LTDLYKKVKKNSS
126	P97784	442	LRGFPAKYIYDPW
127	Q9R194	29	SVHWFRKGLRLHD
128	Q9R194	169	KPPLTYKRFQALI
129	Q9R194	246	DKHLERKAWVANY
130	Q9R194	292	RLWDLYKKVKRNS
131	Q9R194	455	RYLPKCLKGFPSRY
132	Q9ZQB9	220	IRFKKIKVPKPD
133	Q9ZQB9	291	ITQSLIKEEVHKW
134	Q9ZQB9	299	EVHKWQKLGARIV
135	Q12734	435	SNNRKLKVLQKLS
136	Q12734	439	KLKVLQKLSMRKR
137	P89105	46	DDPTDLKTLLVEE
138	P89105	107	AHLNLAGQSLSV
139	P89105	116	SLSVETKEHELTQ
140	P89105	166	TSDLFVKSIHAED
141	P89105	235	WQLKDSKMAIKSW
142	P57076	125	AKAII SKKQVEAG

143	Q08412	251	LQDTANKVSNWIS
144	Q08412	354	SGESTGKVVAETT
145	Q13616	93	ELYKRLKEFLKNY
146	Q13616	105	YLTNLLKDGEDLM
147	Q13616	131	DYRFSSKVLNGIC
148	Q13616	177	LFRPLNKQVTVNAV
149	Q13616	185	VTNAVLKKLIEKER
150	Q13616	263	VTEYMKKAEARLL
151	Q13616	315	NLLDADKNEDLGR
152	Q13619	46	SKKLVIKNFRDRP
153	Q13619	357	IVINPEKDKDMVQ
154	P43023	17	SMASAAKGDHGGGA
155	P40087	66	LKELGLKTDDLLL
156	P40087	343	VTTSSDKPLTPTK
157	P40087	410	PRDAVVKALKQTN
158	Q39017	91	DPIARAKNLNCCV
159	Q39017	326	SNGKLEKKPSVKR
160	P07262	218	KESFEGKRVTISG
161	O60610	37	GDGGKSKKFTLKR
162	O60610	116	QQPLREKDIIIKR
163	O60610	202	KRLHDEKEETAGS
164	Q9NSV4	34	RGCRESKMPRRKG
165	Q9NSV4	151	EKDFSIIKKEMVMQ
166	Q9NSV4	169	SKTGSLKRSRQIS
167	Q9NSV4	184	EFIHELKMGSADE
168	Q9NSV4	233	EKLISGKIQEKVV
169	P39976	62	FNQDWMKKYRGQS
170	P38823	288	EIYRCVKMKIELN
171	P18858	12	MSFFHPKKEGKAK
172	P18858	208	EPEVATKQELQEE
173	P06746	27	ELANFEKNVSQAI
174	P06746	167	IVLNEVKKVDSEY
175	P06746	168	VLNEVKKVDSEYI
176	P01903	172	EDHLFRKFHYLPF
177	F4IBE4	92	GKTSGIKKSIRRL
178	F4IBE4	201	GKTTLAKQVFNHE
179	Q03001	54	HLMKVRKHAVNDLY
180	Q03001	124	ITDGNPKLTLGLI
181	P38167	26	TDLNQSKGQPFQP
182	P38167	422	ERLYLDKTKTKAS
183	P38167	437	NAIDVKNKTHLYQP
184	P0DH99	20	GHVDSGKSTTTGH
185	P0DH99	62	YAWVLDKLKAERE
186	P0DH99	129	FEAGISKDGQTRE
187	P00533	80	YDLSFLKTIQEVA
188	P00533	226	SGRCRGKSPSDCC
189	P00533	253	DCLVCRKFRDEAT
190	Q9LD55	90	SLEEVIKHFLHLA

191	Q9LD55	124	DLEADRKPEDLQL
192	Q9LD55	279	LMVYYSKLTEIFW
193	Q13347	91	KQLALLKTN SAVR
194	Q02908	56	LITKYSKKYK LKQ
195	Q02908	197	REDFIVKLHNALS
196	P14351	227	EQYIHRKCYQEFA
197	P14351	325	SDQLYSKWYNIEN
198	P14351	343	ERFLLNKLNNLTS
199	P14351	355	SGTSVLKKRALPK
200	P32476	189	NEVVGAKVDIDGR
201	P32476	197	DIDGRGKVEFKAH
202	P32353	60	NSKNAVKECRRFY
203	P54781	132	KILQSSKFVKPCV
204	P38748	165	NFTVLIKFRNALD
205	P38748	205	EIVFQKKLFQ RPA
206	Q0WPQ2	321	QEIEIVKV VADQV
207	Q0WPQ2	494	IVGSLVKPRKRQE
208	Q92817	21	PKGSPAKGSPKGS
209	Q92817	103	LFLDVKARRLKH
210	Q92817	108	DKARRLKHPQAEE
211	Q92817	458	GPGGETKRAPAAC
212	P38261	18	NWKHVKKSASSPA
213	P38261	175	NSTSLRKMLANPH
214	P38261	244	VAMLELKRVRANI
215	Q5HYJ3	71	KQFGTPKPCQYCN
216	Q5HYJ3	95	RCTNSEKKYGPPQ
217	Q9BXW9	151	LQPAI IKTLFEKL
218	Q9NVI1	125	GSLVNGKSLELLP
219	Q9NVI1	148	ENLAYGKGVLSGE
220	Q9NVI1	182	QLTSMFKDVPLTA
221	Q9NVI1	336	LKTSVVKSFKDLQ
222	P38631	254	RKARKAKKKNKKA
223	P40989	405	SEKDHNVIGYDD
224	P38297	159	GFNIEKKALSKLF
225	P38297	163	EKKALSKLFHSQI
226	P10071	13	SSTTTEKKKVEN S
227	P10071	70	NVQGLSKVSEEPS
228	P32288	241	FHPKPLKGDWNGA
229	P32288	256	HTNVSTKEMRQPG
230	P32288	283	RHAEHIKLYGSDN
231	P37303	339	TRDTLEKVKLAIS
232	P63092	34	KQLQKDKQVYRAT
233	P48813	146	QKQENLKKS I KPR
234	P48813	283	INVFGAKGYAEAD
235	P48813	465	ILMSLAKQGNAPK
236	P48813	471	KQGNAPKCFDYID
237	Q3T8J9	33	DLESAVKPESDQV
238	Q3T8J9	40	PESDQVKDLSSVS

239	Q3T8J9	165	EPSEEVKEEGGKP
240	Q5T848	41	PRERTPKGKPHAQ
241	Q5T848	253	GHSWRRKDGLGGD
242	Q5T848	264	GDKSHFKWSPPYL
243	Q5T848	329	WFSGTHKCHLNNS
244	Q5T848	414	CFVQEDKYLRRLAI
245	P08539	90	DAIQSMKILIIQA
246	Q8N442	55	YSSAEFKKELDMS
247	Q8N442	132	FYNCEGKQYLLNL
248	Q8N442	326	YLIAGMKDVTEAQ
249	P40531	129	VAPGPIKEPKTLN
250	P40531	151	SSECLNKMFPTEE
251	P40531	206	EIGKADKCRKDVH
252	P40531	233	NNKKPEKEASLRV
253	P26569	57	AAPTKKKTTSSHP
254	P16403	22	EKAPVKKKAACKA
255	P16403	26	VKKKAACKAGGTP
256	P16403	122	AKPKVKKAGGTP
257	O75367	33	RMLRYIKKGHPKY
258	P0C0S5	78	NASKDLKVKRITP
259	Q96A08	14	GATISKKGFKKAV
260	Q96A08	25	AVVKTQKKEGKKR
261	Q96A08	26	VVKTQKKEGKKRK
262	P33778	31	KDGKKRKRSRKES
263	P33778	44	YSIYVYKVLKQVH
264	P33778	58	DTGISSKAMGIMN
265	P62807	25	VTKAQKKDGKKRK
266	Q9LQQ4	40	KPKAGKKLPPKEA
267	Q9LQQ4	81	DIGISSKAMGIMN
268	A3AGM4	66	KSVETYKIYIFKV
269	P04913	43	YSSYIYKVLKQVH
270	P02293	7	MSAKAEKKPASKA
271	P02293	12	EKKPASKAPAEKK
272	Q8N257	31	KDGKKRKRGRKES
273	P62805	13	GGKGLGKGGAKRH
274	P51610	124	WEWKRLKAKTPKN
275	O15379	137	GGLHHAKKFEASG
276	Q9Y2N7	18	TELRKEKSRDAAR
277	Q9Y2N7	199	GHMAYKPPAQTS
278	P00347	363	PVVTPKKAPDNCC
279	P00347	456	ILESAEKGAKFLS
280	P09429	28	TCREEHKKKHPDA
281	P09429	29	CREEHKKKHPDAS
282	P09429	96	KDPNAPKRPPSAF
283	P41235	106	RQCVVDKDKRNQC
284	P41235	447	SGSEPYKLLPGAV
285	O60506	42	PQKVAEKLDEIYV
286	O60506	265	ILEEFSKVTEGLT

287	P31539	311	LSRQQLKVIGATT
288	P10591	124	SSMVLGKMKETAE
289	P10591	186	AYGLDKKGKEEHV
290	P10591	322	KVLRDAKLDKSQV
291	P40325	98	PRFYCSKCGNTGY
292	P57058	75	GEGSFAKVREGLH
293	P57058	96	IKVIDKKRAKKDT
294	P57058	100	DKKRAKKDITYVT
295	P57058	156	HKIYEKKRLEESE
296	P32467	172	QIASINKWYQYFI
297	P32467	326	IFSTKTKVFQRLI
298	P32467	467	TFPLRVKSKCMAI
299	P32467	523	FFVPETKGLTLEE
300	P38695	339	GELVTGKPMFRR
301	P38695	560	LPWKSTKWIPPSR
302	P39003	56	PVVEIPKRPASAY
303	P39003	135	GGIILSKLGDMYG
304	P39003	352	YGTTFKAVGLSD
305	P39003	461	TFPLRVKSKAMSI
306	O14602	16	KNRRRGKNENESE
307	P08069	194	EKPMCEKTTINNE
308	P08069	339	EEEEKTKTIDSVT
309	O15503	33	AAGLAAKVGEMIN
310	O80560	131	GGVGMFKVPTRSP
311	O80560	154	LRPHPLKETQVGR
312	O80560	243	GKIRSWKMDYVLD
313	O80560	257	GDDSPFKEGLAWQ
314	O80560	367	LWDGRTKELLKVF
315	O80560	399	AAEDEMKAIAST
316	O80560	410	STSKKEKPHGFLQ
317	Q13568	40	QWVNGEKKLFCIP
318	P56477	367	QREVKTKLFSLEQ
319	P29994	51	DLNNPPKKFRDCL
320	P29994	91	DAVLLNKLHHAAD
321	P29994	101	AADLEKKQNETEN
322	P30605	64	EDRIQIKPVNDED
323	P36035	104	LSAASIKSYALTR
324	Q8NCM2	148	STKGWTKFARLTR
325	Q8NCM2	290	IRMNYLKTWFVID
326	Q8NCM2	415	WEGGPSKDSLYVS
327	Q15058	194	IEMMADKKYKETF
328	Q7M6Z4	163	HIREDEKGNVTIV
329	Q7M6Z4	287	LGDPRRKSSHIPY
330	Q38997	180	DSKCNVKIADFGL
331	O43474	458	RTHTGEKPYHCDW
332	Q15349	133	AFQTEGKLYLILD
333	Q15349	186	I IYRDLKPENILL
334	Q86UP2	116	SVRERKKKEKKQK



335	Q01650	132	SLPAFLKLWIELL
336	Q01650	172	VP EEAAKL VACL C
337	Q01650	391	LLYAFSKDIFS VI
338	Q12502	23	YSNSNKKGQSLPL
339	Q5VZK9	222	YNQWFTKLSSKDL
340	Q5VZK9	302	LSIQFAKL PKGLK
341	O75581	202	LYWADAKLNF I HK
342	O75581	321	KLLENGKTCKDGA
343	O75581	324	ENGKTCKDGATEL
344	O75581	531	RVLVEDKIPHIFG
345	P53281	21	NELEFLKESNVIS
346	Q9HCC9	7	MMNRFRKWLYKPK
347	O22042	50	RIGLFSKPPPGLP
348	O22042	270	IEMATGKPPWSEQ
349	Q3KQU3	268	VDSIINKRLSKSS
350	Q7L590	110	PAPPREKTNEELQ
351	Q7L590	222	QTISR NKPSG ITR
352	P93819	67	AAFPLLKGVVATT
353	P93819	111	KNVSIYKSQAAAL
354	Q9S JL6	74	WRSIPVKSQRDLW
355	Q9S JL6	83	RDLWRRKTEQVGE
356	P19358	274	GGAFSGKDYSKVD
357	Q03164	201	VFSPLNKSETKSG
358	Q03164	205	LNKSETKSGDKIK
359	Q03164	209	ETKSGDKIKKKDS
360	Q03164	212	SGDKIKKKDSKSI
361	Q03164	257	DSLKKIKRTPSAT
362	P53045	139	VPFPSLKTMALEI
363	P53045	298	REERMKKRAENNA
364	O75081	445	SDAEDTKKGPAPA
365	Q9Y623	35	NKPFDAKTSVFVV
366	Q9Y623	73	GATVTVKEDQVFS
367	Q9Y623	87	NPPKYDKIEDMAM
368	Q9Y623	147	TAYRGKKRQEAPP
369	Q02566	279	RVIFQLKAERNYH
370	Q00653	28	SSIVEPK EPAPET
371	Q00653	47	VIVEQPKQRGFRF
372	Q00653	90	NYEGPAKIEVDLV
373	Q00653	183	EAKELKKVMDLSI
374	Q39161	19	LPSSSTKPKRSVL
375	Q39161	72	GINPQEKVKIERE
376	Q39161	93	GIEELAKKSMEEL
377	P30415	37	ICPKTCKNFLCLC
378	P30415	187	TKDVFEKKRKKPT
379	Q01705	136	PPGWSGKSCQQAD
380	Q01705	1170	LGGFSCKCVAGYH
381	P53370	172	KLKNMWKFPGGLS
382	P53370	230	YIICRLKPYSFTI

383	Q02218	10	LRTCAAKLRPLTA
384	Q02218	324	LANVIRKELEQIF
385	Q38799	71	QYQGAYKITKGLL
386	Q38799	191	DARGLLKAAIRDP
387	Q38799	258	ALKAAEKLAEEGI
388	P04637	381	QSTSRHKKLMFKT
389	Q15004	74	FFRLSPKDSEKEN
390	Q56WK6	101	KALEEFKELVREA
391	Q56WK6	124	TPVKEEKTEEKKT
392	Q56WK6	139	ETKEEEKTEEKKE
393	Q56WK6	143	EEKTEEKKEETTT
394	Q56WK6	144	EKTEEKKEETTTE
395	P12004	138	EYSCVVKMPSGEF
396	P15873	168	ITKETIKFVADGD
397	Q9UHG3	59	LRQKFGKDVKIDL
398	Q9UHG3	255	AVEGGNKLVCSSL
399	Q9UHG3	392	VPSVREKEDPEPS
400	P33302	155	VVNIPYKILKSGL
401	P33302	204	GCTTLLKSISSNT
402	P33302	396	YYGPADKAKKYFE
403	O43933	342	VKLLSPKQQQSKT
404	O43933	347	PKQQQSKTKQNVL
405	O43933	357	NVLSPEKEKQMSE
406	P35056	227	INDEIEKEENVSE
407	P15259	100	GLTGLNKAETAAK
408	P25297	548	IPETKRKTLEEIN
409	Q99755	62	ASGMPIKKIGHRS
410	Q99755	319	LVLQSFKIMDYSL
411	Q99755	392	IPARNSKGERLLL
412	Q06449	21	TELDFLKGSNVIS
413	Q06449	41	NKSLPAKWDPANA
414	Q99569	171	NSQNVSKADNRQQ
415	Q99569	573	CRLGGIKHLVDLL
416	Q99569	737	TSDYDSKTVENCV
417	O23522	40	SVSPARKTNKEHL
418	O23522	126	ERSPKSKLGSKWR
419	O23522	375	LDSKGVKVLRVVN
420	O82274	211	RLLELYKNEDVTI
421	O82274	270	IGDRSFKRLVESL
422	P53350	9	AAVTAGKLARAPA
423	P53350	91	PKSLLLKPHQREK
424	P13797	42	ELHELKFKEANMPL
425	P13797	186	ERAINKKKLTPI
426	P05030	173	SIVDELKKTLANT
427	P05030	385	KTGTLTKNKLSLH
428	P05030	416	LAASRKKKGLDAI
429	Q8WZA1	56	TVIVNIKLILDTR
430	Q8WZA1	241	GDPVLLKTDVPLS

431	Q8WZA1	282	GSVCSCKDPTPIE
432	P29590	426	EEAERVKAQVQAL
433	Q9Y253	163	AEETVQKEGMRKQ
434	Q9Y253	224	HNKVLAKLACGLN
435	Q9Y253	354	LEERLTKDRNDND
436	Q6S8J3	26	LRSKMGKWCCRCF
437	Q6S8J3	60	MKTLRSKMGKWCH
438	Q6S8J3	114	CCRGSGKSKVGAW
439	Q6S8J3	173	NKKDKQKRTALHL
440	O23404	251	EKLERMKERKGVK
441	O23404	292	FPSDPKKQLELAI
442	P62937	76	HNGTGGKSIYGEK
443	P62937	91	DENFILKHTGPGI
444	P62937	133	VVFGKVKEGMNIV
445	Q5JSZ5	12	GQITKGKDGKSKY
446	Q5JSZ5	30	FDKYKGKSVDAIR
447	Q5JSZ5	188	DKAGKEKGVLDLS
448	P06401	613	NDCIVDKIRRKNC
449	P62191	35	VPTRVGKKKKKTK
450	P62191	39	VGKKKKKTKGPDA
451	P62191	61	HTQCRLKLLKLER
452	P23638	185	DYKDDMKVDDAIE
453	P60900	30	QVEYAFKAINQGG
454	P51665	287	ANRDAEKKEGQEK
455	P60484	260	KVEFFHKQNKMLK
456	Q06991	49	LDLSQMKVSTVLP
457	Q06991	131	VLPEKLSKMTYY
458	Q06991	142	YYNNLVKCMFITI
459	Q06991	207	YIKYILKHNYSDY
460	Q05911	18	SSRYASKEMSATF
461	Q05911	141	VINRLAKFAMEYK
462	P03962	240	GRGLFAKGRDAKV
463	P03962	245	AKGRDAKVEGERY
464	P59271	143	DRHYCGKCGTTYV
465	P63000	123	LDLRDDKDTIEKL
466	Q09028	102	SHYDSEKGEFGGF
467	Q09028	156	LVFDYTKHPSKPD
468	Q09028	349	NVWDLISKIGEEQS
469	P49756	63	TVSMVGKHLGARK
470	P49756	109	IRQLLAKCGLVLS
471	P49756	160	EKKLLVKVDAKTK
472	Q9P2N5	43	KKDKPEKELKAFC
473	Q9P2N5	46	KPEKELKAFCADQ
474	P54725	16	LQQQTFKIRMEPD
475	O14924	9	RAGEASKRPLPGP
476	O14924	523	SSVPPSKRGTVGA
477	O15034	25	LAVLSAKQQEIDL
478	O15034	162	RNSNTSKQRYSGK

479	Q9CQJ4	85	ALRSGNKECPTCR
480	Q9CQJ4	195	EAGPSNKRRTKTS
481	Q9CQJ4	198	PSNKRRTKTSDDSG
482	Q9CQJ4	249	AQTRYIKTSGNAT
483	Q9CQJ4	289	LDTASEKQYTIYI
484	Q9CQJ4	323	KYWKVNKPMELYY
485	P57078	71	ELLEEAKKMEMAK
486	P57078	72	LLEEAKKMEMAKF
487	P27635	40	FDLGRKKAKVDEF
488	P0CH06	112	RATNCRKKKCGHT
489	P0CH06	113	ATNCRKKKCGHTN
490	P0C224	114	TNCRKRKCGHTNQ
491	Q9NTX7	69	GASWLGKRCALCR
492	Q9SJQ6	51	RRFVGNKDMSGLD
493	Q9SJQ6	112	VAEQILKTPEKPK
494	Q9SJQ6	125	RKKHRPKVRREAK
495	Q9SJQ6	143	KPRAPRKS SVVTDG
496	P04050	66	SIDRNLKCQTCQE
497	P04844	306	LTQATVKLEHAKS
498	P04844	368	TVELRVKISTEVG
499	P60866	99	SPSEIVKQITSIS
500	P38701	52	EQHNLVKKGPVRL
501	Q9SIP7	7	MATQISKKRKFVA
502	Q9SIP7	8	ATQISKKRKFVAD
503	Q9SIP7	141	EVIVSGKLRAARA
504	Q9SIP7	165	SSGQPTKEYIDAA
505	Q9SIP7	185	QGVLGIVKIMLD
506	Q9SIP7	187	VLGIKVKIMLDWD
507	P23396	141	EVVVSGLRGQRA
508	P39743	137	PCQELLKIITYIR
509	P39743	153	TKRNHKKLDLDRH
510	P39743	168	TYNKHEKKKEPTA
511	Q31125	36	GHGDLHKDVEEDF
512	Q31125	309	PRDGPVKPQSPEE
513	Q31125	385	QSGCSKKQAMRLQ
514	Q9LK36	275	GYGDVGKGC AAAM
515	Q9LK36	338	MVDHMRKMKNNAI
516	Q9LK36	427	LELWNEKSSGKYE
517	Q9Y467	146	LILASPKLGATPL
518	O94979	384	SIVLPLKKPPKWI
519	Q8RXK2	134	YVTELGKKKSKVI
520	Q8RXK2	138	LGKKKSKVIKSTR
521	Q8RXK2	181	VLDKFKVPDKPVI
522	Q5TEA6	19	ILGVTIKTIKAAE
523	Q15047	97	NCESLVKDFYSKL
524	Q15047	146	AGSRTPKDQKLRE
525	Q01105	181	SGKDLTKRSSQTQ
526	Q01105	189	SSQTQNKASRKRO

527	Q6AI14	84	LLASLAKIGFHL
528	Q6AI14	485	DVKKTNNKESINE
529	Q92581	92	LTIWLFKHRRARF
530	Q13485	507	LRMSFVKGWGPDY
531	O15105	102	THSVLKKLKERQL
532	O15105	220	YPMDFLKPTADCP
533	O15105	373	KAFDYEKAYSLQR
534	Q9HCE7	28	AKNLAKKDFRRLP
535	O95863	157	RKAFNCKYCNKEY
536	O95863	206	RTHTGEKPFSCPH
537	O95863	234	QTHSDVKKYQCQA
538	P31109	91	MWYKDLKMKMCLA
539	Q9Y5W7	11	VRTMGQKLKQRLR
540	Q9Y5W7	192	IPSIITKKLLKAA
541	Q9Y5W7	193	PSIITKKLLKAAM
542	Q9C093	95	KPGVATKLLYQLY
543	Q9C093	132	LRLQNMKSDTFQE
544	Q9C093	177	AHLHFEKLERFQK
545	Q8N0X7	29	AFLFVNKGLNTDE
546	Q8N0X7	62	GISISSKESEHTG
547	P12866	336	LLKDGSKRNP LNK
548	P12866	376	PSEAVLKNVSLNF
549	Q3TBT3	61	ELGLLLKNNLCCLA
550	P61956	33	GSVVQFKIKRHTP
551	Q9FFC7	326	IYP IIAKISELAN
552	Q15431	92	HYQEGLKDSLEN
553	Q15431	130	EAELRQKESKLQE
554	P41544	105	VIVGRSKLAWDFA
555	P26639	208	LEALCKK I I KEKQ
556	Q9Y228	259	LYTCTQKYS PWGM
557	Q9BVV6	90	QVLPLDKIEENNK
558	Q9BVV6	130	QSMPVFKEVKVHL
559	Q9BVV6	219	QTSIQRKQEKLHC
560	P38085	62	KSILQRKCKE FFD
561	P38085	319	SIPNACKKV VYRI
562	P38085	490	MNEVG YKAQTGYW
563	P04610	19	HPGSQPKTACTTC
564	P04610	29	TTYCKKCCFHCQ
565	P10636	24	YGLGDRKDQGGYT
566	P10636	87	DEGAPGKQAAAQP
567	P10636	204	QEGPPLKGAGGKE
568	P68363	394	WARLDHKFDL MYA
569	P68363	401	FDL MYAKRAFVHW
570	P07437	103	AGNNWAKGHYTEG
571	P07437	297	QQVFD AKNMMAAC
572	Q9UHD2	236	NKEVMYK I ITGKP
573	Q15560	74	LAKSLIKSWKKLL
574	Q15560	197	SRISNLKDAKNPD

575	Q15560	267	CGKCRKKNCTYTO
576	P47079	30	ADGQIIKSIAAIR
577	P47079	161	DKNELLMIKPVI
578	P47079	224	SNSTVIKGMVFNR
579	P53322	53	HNRSHDKKSELAT
580	O15417	156	SIFDTQKGQGPQG
581	O15417	223	PPLFGKKDPRARG
582	O15417	463	RAYVPAKELLKPE
583	P58771	59	TEDELDKYSEALK
584	P58771	70	LKDAQEKLELAEK
585	P58771	112	LATALQKLEEA EK
586	P40238	112	PLHLWVKNVFLNQ
587	P29144	228	TVLRNYKEAQEYG
588	Q13077	206	IVAVLNKEVEASH
589	Q13077	272	DGTFLWKITNVTR
590	Q12933	201	KKIPREKFQDHVK
591	Q12933	341	MADLEQKVLEMEA
592	Q9Y4K3	469	TIPRNPKGFGYVT
593	Q9H8W5	151	KRCQTCKANLCHF
594	Q9H8W5	359	RLRKLNVQYSTR
595	Q9H3M7	8	VMFKKIKSFVVVF
596	Q9H3M7	117	GTSFKGKYGCVDY
597	Q9H3M7	163	MAPVSASSEKVS
598	Q08960	75	KIADGGKKTGGCC
599	Q08960	85	GCCSDKKNGGGKG
600	Q07307	332	ASFIIWVKTFPLSV
601	P63279	146	NRVEYEKRVRAQA
602	Q9NPD8	133	DISSEFKYNKPAF
603	Q9UHP3	15	QQSAAQKHQQTFL
604	Q9UHP3	292	TDEEKPKNPMVEL
605	Q93009	98	VRNLPWKIMVMPR
606	Q93009	217	TGYVGLKNQGATC
607	Q07963	390	WYSHFSKMRVSPT
608	O94888	274	SSSPKKCARSES
609	Q96T88	106	GQSESDKSSTHGE
610	Q96JH7	199	DTLEDIKRANKSQ
611	P98155	70	EKNVCVKKTCAESD
612	P98155	353	WSDEPLKECHINE
613	Q709C8	58	DVPFKVKAGQIDK
614	Q709C8	64	KAGQIDKLTLKIP
615	Q709C8	128	LQKAAEKGTHSGE
616	Q709C8	148	FVYKDIKPGRRK
617	Q709C8	154	KPGRKRKKHKKHF
618	Q709C8	161	KHKKHFKKPFKGL
619	Q9Y4B6	23	LLEQWEKEHSGSQ
620	P04275	67	LAGGCQKRSFSII
621	P04275	554	DFGNAWKLHGDCQ
622	Q96S55	70	PSPPGAKRRRLSE

623	P98170	299	GEGDKVKCFHCGG
624	P98170	390	FSFKDIKKIMEEK
625	P39548	109	EQEFMIKLLVEVI
626	P39548	138	NQYLFMKRLWYTP
627	P67809	98	KKNNPRKYLRSVG
628	P67809	304	QDGKETKAADPPA
629	P35723	168	LQEELRKKQISLE
630	P43590	75	NHKYPAKEHNLRV
631	P43590	232	DETRAIKDWYEIE
632	P38809	88	PYPKEKKRSSGSN
633	P38809	113	SHGHRDKDKQKSK
634	P38809	115	GHRDKDKQKSKSR
635	P38809	117	RDKDKQKSKSRTK
636	P36134	63	QNEENEQKSTIRLV
637	P36134	86	EKKKKRKGVTTS
638	P36134	166	QYWRMTKDEPATL
639	Q06689	337	ESLALSKEAASST
640	P38079	17	GGNEAIKINPPTG
641	Q60821	36	VDGVDFKAHKAVL
642	Q60821	185	GAEQTEKADAPRE
643	Q9NUD5	286	VLAVPVKVTDRFG
644	Q9NUD5	378	VCNLCGKRGHAF
645	Q08245	76	KTEAANKVEETKK
646	Q08245	92	AAVSEKKETKKEG
647	P31629	35	EQSAVIKMFSTFGS
648	P31629	68	QLFGSGKLASPSE
649	P31629	178	QAEEAHKKKEHKPK
650	P22227	15	QMKKTAKTSGQKG
651	P22227	206	VCAECGKAFTSS
652	Q6NZP1	8	PTAGSKKKAPTPQ
653	Q6NZP1	116	INVVMNKTDIGRI
654	Q6NZP1	268	LSQLPPKVRQRIP
655	P98170	391	SFKDIKKIMEEKI
656	P98170	396	KKIMEEKIQISGS
657	P39548	11	SENTDVKMDTLDE
658	P39548	152	YFYSGKKCHEFFT
659	P39548	211	LMAYVLKATQIEK

### S<sup>-</sup>(9): List of 659 negative Ubiquitination sites and sequence

Sample #	Protein ID	Site	Sequences
1	P08195	166	KFTGLSKEELLKV
2	P08195	331	TVATKVKDALEFW
3	Q8NE71	36	KGKKDKKIKKTFF
4	Q8NE71	62	EKVLKEKEQQQQQ
5	Q8NE71	124	PKPRGGKKTKGGN
6	P93821	163	AMIGYSKHVMSLG

7	Q9UKV3	44	RWRKLPKMPEAVG
8	Q9UKV3	205	SRHSPRKSSSISE
9	Q9UKV3	238	RQARAACLSEGSQ
10	Q07622	191	VYRTEEKAPIRPL
11	Q07622	245	FYQVYKKTITDSS
12	Q99KI0	31	VLCQRAKVAMSHF
13	P52910	140	QIAGVLKSWG VKK
14	P52910	215	KTINTKKIVDEGL
15	O43707	108	GKMRVHKINNVNK
16	P48962	33	APIERVKLLQLVQ
17	P48962	206	GMLPDPKNVHIIV
18	P48962	245	MMQSGRKGADIMY
19	Q84VQ0	60	TNHFGVKFNKPSG
20	Q84VQ0	91	AKGIGRKILDKVQ
21	Q84VQ0	154	TNDADRKRSRPN
22	O95831	63	SGASGGKIDNSVL
23	O95831	199	FKQWNGKERSIYF
24	O95831	286	RTTLFRKIGDFRS
25	Q9SLK6	207	ETNLKVKRCLDAT
26	Q9SLK6	301	KRSRIEKRM DYII
27	P54115	213	YFASLCKKVGIPA
28	P54115	276	TLELGKSAHLVF
29	P54115	288	FDDANIKKTLPNL
30	P54115	289	DDANIKKTLPNLV
31	P10275	580	LTCGSCKVFFKRA
32	Q12955	36	KRSRDRKKKSDAN
33	Q12955	233	NADVESKSGFTPL
34	P36404	61	LEHRGFKLNIWDV
35	P36404	126	LLIFANKQDLPGA
36	Q06408	120	SFAENVKVLHIVG
37	Q9NR48	101	RTKKPPKNLENYV
38	O55143	218	TNIAAGKAMGVVV
39	O55143	252	RTPLQQKLDEFGE
40	Q8NBU5	68	IGVKNVKLSEYEM
41	Q8NBU5	113	VILPIKKKHLFEN
42	Q8NBU5	139	GPPGCGKTLIAKA
43	Q8NBU5	213	EATAMMKAQFMSL
44	P35193	138	EDPVSPKAGSEEE
45	P35193	238	SQECDSKTEIASD
46	P35193	251	HSKKETKIEVEPP
47	Q12691	63	DTKIDYKAMVLHQ
48	Q12691	117	QEYKATKTMNSLK
49	Q12691	226	AKGIVIKTALNSE
50	Q12691	306	IVMASQKFDVDKR
51	Q9D3D9	96	EDGTTTKYFVSSG
52	Q99728	46	ALDRLEKLLRCSR
53	Q99728	96	AWIQDLKINRQLD
54	Q99728	209	GKKQKKKTLAEIN



55	Q99728	232	DGEFDSKEESKQK
56	Q9UIF8	310	HGISDPKADGQKA
57	Q9UIF8	319	GQKATEKAQEKRI
58	Q9UIF8	395	LVNQAKKETYMKL
59	Q8NFC6	228	TETSNAKTSEERAS
60	Q8NFC6	305	NLILLNKKDVQQES
61	P55061	230	ILAMNEKDKKKEK
62	P38356	233	PNDVTSKVGKNKS
63	O43684	8	TGSNEFKLNQPPE
64	O43684	80	GLDHQLKMHDLNT
65	A2RUR9	179	ENQSATKELGQMN
66	Q9Y4F5	250	AHEMPTKDAEAGG
67	O22203	317	AMAEMIKNPRVQQ
68	Q96M89	163	KPVSCPKSKASDK
69	Q96M89	207	FAEELQKRERFLL
70	P25322	46	PSVSYFKCVQKEI
71	P25322	95	LSLEPLKKSRLQL
72	P25694	70	GDTVLVKGKKRKD
73	P25694	158	AYRPVRKGDHFVV
74	P06493	20	TYGVVYKGRHKT
75	Q02224	45	YQVDGSKSFNFDR
76	Q02224	60	HGNETTKNVYEEI
77	P13569	190	LSNNLNKFDGLA
78	P13569	377	IQDFLQKQEKYKTL
79	P32657	188	VINHRLKTSLEEG
80	P32657	329	NATDIVKLAPEQV
81	Q9UNE7	144	ALRIAKKKRWNSI
82	O14757	43	VKIVDMKRAVDCP
83	O14757	232	TYLNPWKKIDSAP
84	O14757	260	ITIPDIKKDRWYN
85	Q9Y3E7	49	KVKRSVKDAAKKG
86	P29465	99	KGSVRSKFSGRET
87	P29465	153	STQPINKSIKPLR
88	P29465	232	TVCSSSKLRLKNN
89	P08679	230	PNADYAKNLVNLI
90	Q9D5U8	46	PLEPADKSDTTES
91	Q9D5U8	104	IKSWTAKKKRKLY
92	Q9D5U8	156	SFWDKKKQGRISF
93	Q01955	287	ESYGSEKGAPGDP
94	Q01955	301	LQGKPGKDGVPGF
95	P0CX12	166	LEPFSLKKDKAAK
96	P0CX12	167	EPFSLKKDKAAKV
97	P0CX12	174	DKAAKVKSFKDSV
98	P43542	166	LEPFSLKKDEAAK
99	P43542	199	EVEKQWKLFNSEK
100	P32798	212	TPENASKTPSYST
101	P32798	267	SAFFIWKTDYSWK
102	P32798	298	ALPLSCKASKILL

103	P97784	114	ERDAAIKKLATEA
104	P97784	115	RDAAIKKLATEAG
105	P97784	189	SDDHDEKYGVPSL
106	P97784	278	LYKKVKKNSSPPL
107	Q9R194	477	SVQKAAKCIIGVD
108	Q9ZQB9	121	NHTKKSCLKFYSC
109	Q9ZQB9	270	CNLDWPKGKILIQ
110	Q9ZQB9	296	IKKEEVHKWQKLGA
111	Q12734	49	TSLSPQKSSGFSG
112	Q12734	111	PSDVGTAKYNITG
113	Q12734	201	TPLYNKKSIVLEIS
114	Q12734	389	NGLPPTKNVNEEC
115	P89105	56	VEENSEKEHWLTI
116	P89105	282	FKEAFTKALSDLN
117	P89105	327	YHHRILKMSPMIA
118	P57076	126	KAIISKKQVEAGV
119	P57076	185	AGLNVIKEAEAQL
120	Q08412	28	INEDISKTTDIDL
121	Q08412	370	TPDTETKKKWQPL
122	Q13616	90	VGLELYKRLKEFL
123	Q13616	154	ECDEGRKGIYEIY
124	Q13619	284	LDHSTQKPLIACV
125	P40087	349	KPLTPTKTSSTLP
126	P40087	396	FPEQTIKQLMDLG
127	Q39017	74	NPKARHKVPVAPH
128	Q39017	100	NCCVCLKSMSPSQ
129	P07262	53	VTWENDKGEQEVA
130	O60610	139	KAGMSQKESKSA
131	P39976	91	KYCNDKKLAVVPQ
132	P39976	135	PVSGTFKCDAGVV
133	P39976	329	KLTAFLKDDTDSK
134	P53924	404	ELNRSWKLKANSF
135	P53924	439	CSICLCKIKPCQA
136	P18858	79	EALSPAKGQKPAL
137	P18858	149	DEDREAKRKKEEE
138	P18858	189	TPPKPLKTSKAET
139	P06746	35	VSQAIHKYNAYRK
140	P01903	63	FHVDMAKKETVWR
141	Q03001	39	RDKVQKKTFTKWI
142	Q03001	332	TEKSKIKRLYLKL
143	P38167	374	YNAASMKNLNDL
144	P38167	478	RLRLATKAINRKG
145	P0DH99	30	TGHLIYKLGIDK
146	P0DH99	55	MNKRSEFKYAWVLD
147	P0DH99	84	WKFETTKYYCTVI
148	P00533	327	DGVRKCKKCEGPC
149	P00533	328	GVRKCKKCEGPCR
150	Q9LD55	99	LHLATDKAEQARS

151	Q13347	17	RSITQIKYNREGD
152	Q13347	176	LNQYSAKSGEVLV
153	Q02908	13	GPKTNNKKLAPEK
154	Q02908	59	KYSKKYKLLKQQPR
155	Q02908	173	LGHSIDKVEYVLM
156	Q02908	284	ETFAVSKDAGYKV
157	Q02908	289	SKDAGYKVVSHMM
158	P14351	161	PEPIVVKERVLGL
159	P14351	190	LTQEYKLLITEMV
160	P32476	40	ATGLARKGKKVLI
161	P32476	42	GLARKGKKVLIVE
162	P32476	116	PKVEKLLKDLVKDG
163	P32353	32	AANIPVKWQKLLG
164	P32353	337	TWDAQVKEVEHFI
165	P54781	47	KSMSYLIKIFATLI
166	P54781	113	CVSIFHKFVVIAS
167	P54781	188	LEQIMDKYMDKFV
168	P38748	43	IGEESIKSNNQDW
169	Q0WPQ2	143	LIPLLLKVKVREF
170	Q0WPQ2	184	LTQEIRKSLDRHT
171	Q0WPQ2	346	SQLMREKLAEQNR
172	Q0WPQ2	403	KLSDQKMIQVDTM
173	Q92817	7	MFKGLSKGSQGKG
174	Q92817	12	SKGSQGKGSPPKGS
175	Q92817	139	YRALYEKMVLPPD
176	Q92817	383	QLEAEEKRLAVTE
177	Q92817	438	LQGERYKLVNDTD
178	P38261	25	SASSPAKQKTPPS
179	P38261	224	VKLNINKSYNEIM
180	Q5HYJ3	59	TNTICKKCAQNVK
181	Q5HYJ3	107	QTCEQCKQQCAFD
182	Q9BXW9	31	KQPLSKKTKKSHI
183	Q9BXW9	137	YSKSLIKLLLGID
184	Q9BXW9	229	QHADVKGKELSDLL
185	Q9NVI1	227	SSKGSRKSVLEGI
186	P38631	290	AADFRWKAKMNQL
187	P38631	413	VLEDGTKLIELPL
188	P40989	264	RNMKLGKLSRKAR
189	P01100	360	CAAHRKGSSSNE
190	P38297	100	NNRVLLKRSILKT
191	P38297	105	LKRSILKTQAFMD
192	P38297	200	GDVNTGKSALCNS
193	P19145	56	SKWQDFKDSFKRV
194	P19145	202	FWGTDPKYRDGFV
195	P19145	443	AFVAASKKEGEVF
196	P31644	140	FFHNGKKSIAHNM
197	P31644	190	AHACPLKFGSYAY
198	P47870	204	AVTGVTKIELPQF

199	P10071	22	VENSIVKCSTRTD
200	P32288	40	TGNLRSGRTLKK
201	P37303	232	NLK FVKKATHFRK
202	P37303	263	NINNDWKSQLLYS
203	P37303	301	FVF INLKAARM DP
204	P63092	293	VILFLNKQDLLAE
205	P48813	39	MKEIQPK EKQIGS
206	P48813	141	PQEQEQKQENLKK
207	P48813	255	TASMTIKYWTTSV
208	P48813	296	FFFNCCKILMIVG
209	P48813	373	EQSNPRKAIPSAA
210	Q3T8J9	132	TGSKRGKKMTLRP
211	Q3T8J9	197	PVSQPRKSTQPDV
212	Q3T8J9	268	TLAYDLKLDDMLD
213	Q3T8J9	309	HVVAMMKAAISET
214	Q5T848	305	EFRGVMKVDINLQ
215	Q5T848	502	YGTVT LKLHRVLK
216	Q5T848	563	SLIGQGKTS DHLI
217	P08539	223	DQMFVRKTSREIQ
218	Q8N442	81	AHVDH GKSTLADR
219	Q8N442	199	INKIDLKNADPER
220	Q8N442	212	VENQIEKVFDIPS
221	Q8N442	223	PSDECIKISAKLG
222	P40531	24	STSVSEKTQELPS
223	P40531	105	SRSVASKLTELTH
224	P40531	229	TNLANNKKPEKEA
225	P40531	291	TSAGLMKEFLSNS
226	P26569	37	KGGKSKKTTTAKA
227	P26569	45	TTAKATKKPVKAA
228	P26569	49	ATKKPVKAAAPTK
229	P26569	89	SQYAIQKFIEEKH
230	P16403	64	SLAALKKALAAAG
231	P16403	97	GTLVQTKGTGASG
232	Q96QV6	76	ASRDNKKTRIIPR
233	P04908	37	VHRLLRKGNYSER
234	P04908	75	NAARDNKKTRIIP
235	O75367	18	KTSRSAKAGVIFP
236	O75367	72	NAARDNKKGRVTP
237	O75367	96	ELNQLLKGVTIAS
238	O75367	121	AKKRGSKGKLEAI
239	O75367	142	AKSPSQKKPVSKK
240	P62807	24	AVTKAQKKDGKKR
241	Q9LQQ4	7	MAPRAEKKPAEKK
242	Q9LQQ4	34	KAPAEKKPKAGKK
243	Q9LQQ4	67	YKIYIFKVLKQVH
244	A3AGM4	20	PAAGEEKSAEKAP
245	A3AGM4	24	EEKSAEKAPAGKK
246	A3AGM4	29	EKAPAGKKPKAEK

247	A3AGM4	35	KKPKAEKRLPASK
248	A3AGM4	45	ASKASSKEGGAGD
249	A3AGM4	52	EGGAGDKKGRKKA
250	A3AGM4	59	KGRKKAKKSVETY
251	P04913	7	MSAAEKKPASKAP
252	P04913	23	APRDTMKSADKKR
253	P04913	85	KLAAYNKKSTISS
254	P02293	8	SAKAEKKPASKAP
255	P02293	23	KKPAAKKTSTSTD
256	P02293	32	TSTDGKKRSKARK
257	P02293	47	YSSYIYKVLKQTH
258	P02293	90	LAAYNKKSTISAR
259	P62805	17	LGKGGAKRHRKVL
260	P62805	60	ETRGVLKVFLENV
261	P51610	214	YTEKDNKKSKLVI
262	P51610	217	KDNKKSKLVIYGG
263	O15379	233	IDDQSYKHLFQPV
264	Q9Y2N7	187	LKAATWKVLNCSG
265	Q9Y2N7	372	RGAPSQKDTPNPG
266	Q9Y2N7	593	LGVRPPKRSPSPE
267	P00347	52	WNYECPKFEEVDL
268	P00347	299	LDEDVSKRIEPSV
269	P09429	44	FSEFSKKCSERWK
270	P09429	57	TMSAKEKGKFDLM
271	P41235	240	KRSMVFKDVLALLG
272	P41235	300	FFDPDAKGLSDPG
273	P41235	458	AVATIVKPLSAIP
274	O60506	107	TYRQREKQGTKVA
275	P31539	57	LQNLIEKGRYDYD
276	P31539	242	TILQGAKLFSLDL
277	P10591	157	SQRQATKDAGTIA
278	P10591	342	GSTRIPKVQKLVT
279	O65719	334	RDAMDKNSIDDV
280	P57058	358	TEKLGYNKNSDVIN
281	P09629	154	QTLELEKEFHYNR
282	P32467	233	CTNYGKTYTNSV
283	P32467	324	GEIFSTKTKVFQR
284	P39003	104	RFGMKHKDGTNYL
285	P39003	143	GDMYGRKVGLIVV
286	O14602	10	NKGKGGKNRRRGK
287	O14602	68	RGKLRKKVWINTS
288	P08069	176	VGNKPPKECGDLC
289	P08069	357	QGCTIFKGNLLIN
290	P08069	403	VSLSFLKNLRLIL
291	P25963	98	EVIRQVKGDLAFL
292	Q9Z1E3	67	LAAEPWKQQLTED
293	O14920	198	ELLEQQKYTVTVD
294	Q14974	9	LITILEKTVSPDR

295	Q14974	418	TLIELMKDPSVVV
296	Q6PI98	76	STGPVEKAAKPLP
297	Q6PI98	141	SFKPAKKYSDVSG
298	O80560	235	LVWSGHKDGKIRS
299	O80560	238	SGHKDGKIRSWKM
300	O80560	371	RTKELLKVFNSEG
301	Q13568	343	IRLCQCKVFWSGP
302	Q13568	384	ELILFQKGQTNP
303	P56477	40	QWVNGEKKLFYIP
304	P30605	210	ISEIAPKMIRGRL
305	P30605	427	FHFLGIKFDGAVA
306	P30605	561	SKALAKKRKQQVA
307	P36035	324	ETKYFTKVLKARK
308	P36035	351	LPKANFKQKMVSM
309	Q8NCM2	49	SNDGFCKLSGYHR
310	Q8NCM2	100	EVLLYKKNRTPVW
311	Q8NCM2	177	KTEVVHKHSRLAE
312	Q15058	158	ENNGVSKESRTNV
313	Q15058	265	IGKEIAKTSNKFG
314	Q7M6Z4	172	TVIVGAKECQVES
315	Q7M6Z4	311	SLGGSAKTVMITC
316	Q38997	71	GHKVAIKILNRRK
317	Q38997	79	LNRRKIKNMEMEE
318	Q38997	250	NIPNLFKKIKGGI
319	O43474	276	PPRTC PKIKQEAV
320	O43474	483	LTRHYRKHTGHRP
321	Q15349	152	LFTRL SKEVMFTE
322	Q86UP2	59	DKKKA EKKKNKKK
323	Q86UP2	63	AEKKKNKKKEIQN
324	Q01650	430	ELERP IKVNLALP
325	Q01650	453	IAVSFWKTPVECG
326	Q12502	138	IMAGYTKITITSV
327	Q5VZK9	23	KDVIGRKIKISVK
328	Q5VZK9	31	KISVKKVKLEVK
329	Q5VZK9	305	QFAKL PKGLKHLN
330	O75581	221	NRQAVVKGSLPHP
331	O75581	315	ACPTGVKLLENGK
332	P53281	219	FKSFGSKLGNAAI
333	Q9HCC9	512	HRTGGMKLSATVI
334	O22042	220	DFGASKKVVELAT
335	O22042	231	ATVNGAKSMKGTP
336	O22042	290	LHIGRTKAHPPIP
337	O22042	376	STCSGLKDVCELG
338	Q3KQU3	156	AKYLA AKKAVWLE
339	Q3KQU3	188	LEEQRLKAEQRRR
340	Q7L590	187	PALPRTKRVARTP
341	Q7L590	194	RVARTPKASPPDP
342	Q7L590	273	KKMTGRKLIRLSQ

343	Q7L590	313	QSVNSGKTFSIWK
344	P93819	100	KEGMERKDVMSKN
345	Q9SJL6	20	DVYSSAKRILLKA
346	Q9SJL6	51	DLASSVKRDITEV
347	Q9SJL6	100	LNLSLEKYMSRNQ
348	O50008	18	GPKRELKFALESF
349	O50008	166	SYLLLSKAAKGVD
350	P19358	222	VEKVIPKDMLDEN
351	P19358	278	SGKDYSKVDRSAA
352	Q03164	271	QQATKIKKLRAGK
353	P53045	126	FHPMCEKLGITVE
354	Q9Y623	19	AAPFLRKSEKERI
355	Q9Y623	214	EEPASGKMQGTLE
356	Q9Y623	249	NSSRFGKFIRIHF
357	Q91Z83	34	TRPFDLKKDVFVP
358	Q9LR74	128	LCRIRYKKEANVN
359	P16603	30	VKRNSIKELLMSD
360	P15531	26	LVGEI IKRFEQKG
361	P15531	31	IKRFEQKGFRIVG
362	Q9Y6K9	102	KFQEARKLVERLG
363	Q9Y6K9	165	RLEAATKECQALE
364	O88522	7	MNKHPWKNQLSEM
365	O88522	35	EESLGLKGPAMLHL
366	O88522	130	ELEQLKKCQQQMA
367	Q00653	19	IEYDDFKLNSSIV
368	Q00653	75	SSEKGRKTYPTVK
369	Q00653	182	QEAKELKKVMDLS
370	Q00653	235	KISRMDKTAGSVR
371	P25208	77	AIPQTGKIAKDAK
372	P25208	111	CHQEKRKTINGED
373	Q39161	313	DVLPLCKAVLEAY
374	P53253	31	QPTFAKKHRFKD
375	P53253	225	KYSQFFKKLFSLF
376	P53253	237	FLPMPFKMLGKHS
377	Q01705	581	CHYGSCKDGVATF
378	P53370	256	DLNDLAKTENTTP
379	Q02218	276	RKWSSEKRFGLG
380	Q02218	291	VLIPALKTIIDKS
381	Q38799	132	IINSAAKSNYMSA
382	Q38799	230	FCLPIGKAKIERE
383	P04637	372	SSHLKSKKGQSTS
384	Q15004	78	SPKDSEKENQIPE
385	Q15004	93	GSSGLGKAKRKAC
386	Q56WK6	48	APVSDEKAVPEKE
387	P12004	14	QGSILKKVLEALK
388	P15873	13	EEASLFKRIIDGF
389	P15873	183	SGSVI IKPFVDME
390	Q9UHG3	36	LRAPPDKIAIIGA

391	Q9UHG3	140	FIINVIKLVWRYG
392	Q9UHG3	266	GLLQASKSNLISG
393	Q02785	242	FPKITVKETIDFA
394	Q02785	252	DFALKCKTPRVRI
395	Q02785	420	NRTLDIKPGYEDK
396	P33302	233	SGDDIKKHFRGEV
397	P33302	265	VTVARLKTPQNRI
398	P33302	315	VSGGERKRVSIAE
399	O43933	211	DQKGMMKELQTKQ
400	O43933	216	MKELQTKQLQSNT
401	O43933	349	QQQSKTKQNVLSP
402	P35056	341	AFEAAVKEKPDHV
403	P35056	362	VQTQNEKELNGIS
404	P15259	46	RGAKAIKDAKMEF
405	P15259	106	KAETAAKHGEEQV
406	P15259	146	RRYAGLKPGELPT
407	P25297	132	ADIVGRKRIYGME
408	P25297	571	TLNFRNKNNDIES
409	P25360	285	NIKSQKKSLLKQT
410	Q99755	78	SGETTYKKTSSA
411	Q99755	282	KPLPTFKDLDFLQ
412	Q99755	306	MYNALCKTLQRDC
413	Q06449	188	SSSHLKSFGSKL
414	Q99569	102	PNTGVSKPRVSDA
415	O23522	96	RIWPQMKAADVDEM
416	O23522	130	KSKLGSKWRELHG
417	O23522	191	GSFKVTKSLYATS
418	O82274	63	GDSCYTKEELFAR
419	O82274	366	LDALDKYLVPGH
420	O82274	379	WWVLENKGMVQSD
421	P53350	66	GKGGFAKCFEISD
422	P53350	82	KEVFAGKIVPKSL
423	P53350	264	ETYLRIKKNEYSI
424	P53350	265	TYLRIKKNEYSIP
425	P13797	223	EDLRAGKPHLVLG
426	P05030	98	EVLKRRKKYGLNQ
427	Q8WZA1	17	KPFGARKKRSWYL
428	P29590	65	QCQAEAKCPKLLP
429	P29590	337	ALVQRMKCYASDQ
430	P29590	487	QTQCPRKVIKMES
431	P29590	623	IDNETQKISQLAA
432	Q9Y253	32	NPHLRNKPCAVVQ
433	Q9Y253	317	KPRQLPKTIGCSK
434	Q6S8J3	16	AASSVKKPFGLRS
435	Q6S8J3	97	MKTLRNKMGKWCC
436	O23404	108	EGNKGMKSLLGGK
437	O23404	148	YQIAGKKLPEGLW
438	O23404	291	EFPSDPKKQLELA



439	P62937	44	ALSTGEKGFYKG
440	Q5JSZ5	15	TKGKDGKSKYSTL
441	Q5JSZ5	28	SLFDKYKGKSVDA
442	Q5JSZ5	71	SLKSENKGNPN
443	Q5JSZ5	97	QDQQDPKSSSATA
444	Q5JSZ5	176	EEFPTLKAAGGQD
445	Q5JSZ5	183	AAGGQDKAGKEKG
446	P06401	171	MSRSGCKVGDSSG
447	P06401	238	SAGPLLKGKPRAL
448	P06401	640	LGGRKFKKFNKVR
449	P07737	126	HGGLINKKCYEMA
450	P62191	22	KDDKDKKKKYEPP
451	P62191	86	RNQEQMKPLEEKQ
452	P62191	98	QEEERSKVDDLRG
453	P25786	30	YAMEAVKQGSATV
454	P25786	189	NLNELVKHGLRAL
455	P23638	65	QDTSTEKLYKLND
456	P23638	246	VKTGITKKDEDEE
457	P60900	116	PVDMLCKRIADIS
458	P60900	171	ATAAGVKQTESTS
459	P60900	181	STSFLEKKVKKKF
460	P51665	204	LKGLNSKLLDIRS
461	P34222	39	NASSTKKSSATLL
462	P03962	54	VEALGPKICLLKT
463	P03962	59	PKICLLKTHVDIL
464	P59271	79	LRGGAKKRKKKTY
465	P59271	82	GAKKRKKKTYTKP
466	P59271	119	KVQRLKKECPSVS
467	P15919	31	FSEWKFKLFRVRS
468	P15919	55	KDSSEGKPYLEQS
469	P15919	223	HRGLKRKRHQPNV
470	Q09028	26	EYKIWKKNTPFLY
471	Q09028	376	HGGHTAKISDFSW
472	P49756	97	VGNISEKASDMLI
473	P49756	176	DEWKAKKKASNGN
474	P49756	177	EWKAKKKASNGNA
475	Q9P2N5	99	QEKEEIKEEVFQE
476	Q9P2N5	115	EERDGRKKKYPSP
477	Q9P2N5	168	WRRGRSKSRSKSR
478	P40043	50	FDHLHCKLNYYPP
479	O14924	73	VNEINVKKASHED
480	Q7Z5B4	254	VDYDPKPKELSAEE
481	Q7Z5B4	299	VTSCDPKPETCSC
482	Q7Z5B4	362	TGSMLRKRNPQGL
483	O15034	451	RPNMAYKVKVLAK
484	P27635	39	IFDLGRKKAKVDE
485	P47914	51	FAKKHNKKGLKMM
486	P47914	92	PKGVSRLDRLAY

487	Q9SJQ6	91	NTEVMQKGTEEEVE
488	Q9SJQ6	133	RREAKPKREPKPR
489	P04050	133	AIKDSKKRFAAIW
490	P04050	187	LVGSWKKDRATGD
491	P04050	217	FKHISVKDFTSLG
492	P04050	265	EDDLTFKFLADILK
493	P04050	323	KSGRPVKSIRARL
494	P38701	43	VSSNIVKNAEQHN
495	Q9SIP7	75	LTSLVQKRFKFPV
496	P23396	10	QISKKRKFVADGI
497	P23396	214	VSIVEPKDEILPT
498	P05750	8	VALISKKRKLVD
499	P0CX35	71	LMQRHVKVDGKVR
500	P0CX35	179	IKFDAGKLVYVTG
501	P39743	54	KLSEESKRYSTAV
502	P39743	148	IRKMATKRNHKKL
503	Q9LK36	17	GREYKVKDMSQAD
504	Q9LK36	110	AAVFAWKGETLQE
505	Q9Y467	252	KPVQTSKTLASSS
506	Q9Y467	297	GVGRSHKPTPAPS
507	O94979	58	DPSLDMKSCATFS
508	O94979	78	LIWGPYKMDSKGD
509	O94979	82	PYKMDSKGDVSGV
510	O94979	111	KIIAGDKDEVVIAQ
511	O94979	200	TVWDLRKNEPIIK
512	O94979	348	RQKQVDKLSSSFQ
513	Q8RXK2	33	GENGGWKEFLNVY
514	Q8RXK2	184	KFVKPDKPVIDYK
515	Q5TEA6	45	VSVNEIKQYLSHI
516	Q5TEA6	122	KVLQQSKSQKQKE
517	Q5TEA6	125	QQSKSQKQKEEAY
518	Q01105	13	SPLPPQKKKPRPP
519	Q01105	90	RSELIAKIPNFWV
520	Q6AI14	254	AFTKMHKFEDIET
521	Q6AI14	356	TIKYFMKMLSSVS
522	Q6AI14	482	RYLDVKKTNKKES
523	Q6AI14	486	VKKTNNKESINEE
524	O15105	270	VAYWEEKTRVGRL
525	Q9HCE7	84	ISVWNHKKIHKKQ
526	Q9HCE7	422	IMKMRPKDLKKRL
527	P14359	38	PPVAVWKRKGMFN
528	P31109	88	RKAMWYKDLKMKM
529	Q9Y5W7	183	LIRRIHKVDIPSI
530	Q9C093	107	YIALQKKKKSGLT
531	Q9C093	195	RCFDIEKQYLNRR
532	Q9C093	227	ASNRTLKALEAQK
533	Q8N0X7	22	IREAYKKAFLFVN
534	Q8N0X7	414	VPEEKPKELPEWS

535	P51571	95	SWSLDHKS AHAGT
536	P12866	429	IQTIDQKLLIENI
537	P12866	476	ENRHLIKDACQMA
538	Q9WUM5	57	YIDKNTKIICQGF
539	Q9WUM5	90	GGTTPGKGGQKHL
540	Q9WUM5	193	PGHIHKKGRIGIV
541	Q15431	40	FFKSFNKCTEDDF
542	Q15431	108	LSRVYSKLYKEAE
543	Q15431	120	EKIKKWKVSTEAE
544	Q15431	170	EGIQENKDLIKEN
545	P41544	29	DSLSPSKIGLQIV
546	P26639	91	VTLPDGKQVDAES
547	P26639	99	VDAESWKTTPTYQI
548	Q9BVV6	180	TAAPLIKVQSDLE
549	Q9BVV6	204	KLQETDKHLQRTV
550	Q9BVV6	263	FISAALKTSSFQP
551	P38085	312	EQENPTKSIPNAC
552	P10636	130	QEPESGKVVQEGF
553	P10636	313	ITPNVQKEQAHSE
554	P10636	357	LPEPSEKQPAAAP
555	P10636	405	SSAKTLKNRPCLS
556	P68363	60	SETGAGKHVPRAV
557	P07437	19	GNQIGAKFWEVIS
558	Q9UHD2	29	VFRGRHKKTGDLF
559	Q9UHD2	69	NHKNIVKLFAIEE
560	Q9UHD2	82	ETTTRHKVLIMEF
561	Q9UHD2	192	ERAVLRKDHQKKY
562	Q9UHD2	372	LAQHFPKTTEENP
563	Q15560	78	LIKSWKKLLDASD
564	Q15560	112	APDPSRKRPELPR
565	P50990	238	TSVKDAKIAVYSC
566	P47079	140	ARKFTLKELEDLV
567	P47079	170	KPVISSKKYGSER
568	P10827	113	CQLCRFKKCI AVG
569	P10827	252	DQIILLKGCCMEI
570	A2ASS6	328	SPLLIRKTQT TTM
571	P53322	30	NDGSEEKPT E VTF
572	P53322	466	GQIFVAKDKPRYI
573	O15417	509	PTGPEHKWKPFEL
574	O15417	549	AASSSKKAYLDPG
575	P58771	140	AQKDEEKMEIQEI
576	P40238	177	YGPRDPKNSTGPT
577	Q12933	21	LQPGFSKTL LGTK
578	Q12933	331	ERSIGLKDLAMAD
579	Q9Y4K3	67	DPPLESKYEC PIC
580	Q9Y4K3	371	KCQEEEEKPVVIHS
581	Q9Y4K3	384	PGFYTGKPGYKLC
582	Q9Y4K3	489	RQRTFIKDDTLLV

583	Q9H8W5	14	LLGFVSKLTSGTA
584	Q9H8W5	82	SIFQELKPRSLQS
585	Q9H8W5	268	INSALQKRVEAVA
586	Q9H3M7	164	APVSAKKEKKVSC
587	Q08960	76	IADGGKKTGGCCS
588	Q08960	84	GGCCSDKKNGGGK
589	Q07307	73	FFGLNEKIPVLLA
590	P63279	14	RLAQERKAWRKDH
591	P63279	74	YPSSPPKCKFEPP
592	Q9NPD8	136	SEFKYNKPAFLKN
593	Q9NPD8	156	HARQKQKADEEEM
594	Q9UHP3	57	VAFLTAKNAKTPQ
595	Q9UHP3	60	LTAKNAKTPQQEE
596	Q9UHP3	269	VSEFTHKLLDWLE
597	Q93009	11	QQQQQQKAGEQQ
598	Q93009	139	HAQAVLKIINYRD
599	Q93009	181	EVTDPKGFIDDD
600	Q93009	240	FTNQLRKAVYMP
601	Q93009	281	GTKKLTKSFGWET
602	Q93009	312	NVENKMKGTCVEG
603	Q93009	357	QLSIKGKKNIFES
604	O94888	32	ASESVGKHMLEAC
605	O94888	134	GGAIDKKLTTLAD
606	O94888	166	CGQMKNKWLMINI
607	O94888	398	LEMPPEKADGVVE
608	Q96T88	31	VEELRRKIQELFH
609	P39547	117	VEVITRKPAVGGK
610	P28274	28	STGMLMKTGLKV
611	P28274	109	KGDYLGKTVQIVP
612	P28274	269	YLHARLKLDEISL
613	Q96JH7	111	GVTGAPKKNTLV
614	Q96JH7	335	AEKCTGKDGHLNK
615	Q96JH7	368	KGAALPKLPMNLL
616	P98155	265	DGDPDCKDGSDEV
617	P98155	414	QICINLKGGYKCE
618	Q709C8	97	VPASIKYDAVKE
619	Q709C8	145	LENFVYKDIKPGR
620	Q96S55	379	RVIVLEKLPVEAM
621	P98170	405	ISGSNYKSLEVLV
622	P67809	93	HQTAIKKNNPRKY
623	P67809	264	DGNEEDKENQGDE
624	P67809	301	PKPQDGKETKAAD
625	P43590	302	GTLHYVKNSEDIK
626	P38809	161	CTPQRNKNKVAP
627	P38809	164	QRNKNKVAPVLA
628	P36134	82	PKCQEKKKRKGV
629	P36134	108	ESIAGYKCVTTES
630	Q06689	33	GSTSNYKPITNIY

631	Q06689	200	NMTTEKTKLSPV
632	Q06689	562	RSVVSQKLWLALG
633	P38079	94	WIPVRAKYNHVQT
634	P38079	311	EKLKLLKKKHKKDK
635	P38079	318	KHKKDKKKAKKAK
636	Q60821	135	AVEGGDKRAKDEK
637	Q60821	313	THTGNFKRHIRIH
638	Q8BID6	247	SELPSSKDTAIQN
639	Q9NUD5	115	VDPRKKKGAAEAG
640	Q9NUD5	338	QPKTCFKCGSRTH
641	Q08245	23	QKLEETKESLQNK
642	Q08245	81	NKVEETKKQASAA
643	Q08245	96	EKKETKKEGGFLK
644	P31629	154	GGYPRKKISSLNP
645	P31629	185	KEHKPKKPGKYIC
646	P31629	206	KPSVLKKHIRSHT
647	P22227	126	SLEYMTKGTKQEK
648	P22227	178	CPQAGCKKKLRGK
649	P22227	179	PQAGCKKKLRGKT
650	P22227	189	GKTALRKHMLVHG
651	Q6NZP1	9	TAGSKKKAPTPQI
652	Q6NZP1	36	PDKLRTKLLPFQK
653	Q6NZP1	42	KLLPFQKDGIVFA
654	Q6NZP1	258	IMIRRLKSEVLSQ
655	P04275	128	TEAGYYKLSGEAY
656	P04275	229	EQCQLLKSTSVFA
657	Q96S55	464	RKMFCCKSGQSYS
658	P98170	206	CFCCGGKLNWEP
659	P98170	358	LVRTTEKTPSLTR

**S<sup>(10)</sup>: List of 659 negative Ubiquitination sites and sequence**

Sample #	Protein ID	Site	Sequences
1	P20039	94	EYWNSQKDFLED R
2	P20039	127	QRRVHPKVTVYPS
3	P08195	111	DTEVDMKEVELNE
4	P08195	140	SLAGAEKNGLVKI
5	P08195	171	SKEELLKVAGSPG
6	P08195	396	SLLESNKDLLLTS
7	P08908	413	FQNAFKKIIKCKF
8	Q8NE71	38	KDKKKIKKTFEE
9	Q8NE71	81	KKRDTRKGRRKKD
10	P50544	72	PARAESKSFAVGM
11	P50544	248	YTLNGSKIWISNG
12	P93821	105	EDPEVKKSYFSLD
13	P93821	194	KSMGCMKGLHMIC
14	P93821	316	SEENPPKYRDFTI

15	Q9UKV3	100	QKSALVKRLKGAL
16	Q07622	206	NPVPPQKINQPPT
17	Q07622	316	TKLITLKWPPAMY
18	Q07622	337	QPYLPPIKNKNIVI
19	Q99KI0	346	INLNELKPHINGP
20	P52910	131	FGELLRKVSQIAG
21	O43707	83	DFRDGLKLMILLE
22	O43707	114	KINNVNKALDFIA
23	Q16186	42	TTVTPDKRKGLVY
24	Q16186	103	KFKAGSKRLFFWM
25	Q16186	398	GDTKDKKDEEEDM
26	P48962	43	QVQHASKQISAEK
27	Q84VQ0	187	ASALQGKETENLQ
28	O95831	112	PEQKQKKAALSAS
29	P38080	102	EVMKKLKGAPNIV
30	P38080	248	CLPINEKSDIWAL
31	P38080	260	LGVFLYKLLFFTT
32	P38080	347	YTQFQNKLQNVQL
33	P38080	362	YQLQQKKIMQNNK
34	Q9SLK6	148	RKASVHKGSGDFG
35	Q9SLK6	291	VMQNSTKSPSKRS
36	P54115	214	FASLCKKVGIPAG
37	P10275	590	KRAAEGKQKYLCA
38	Q12955	38	SRDRKKKSDANAS
39	Q12955	62	KALDYIKNGVDIN
40	Q9Y2G4	63	VVQILLKAGCDLD
41	Q9Y2G4	344	RRKSRPKVSAFSD
42	Q69ZU8	317	EQAVPQKEEARRD
43	Q06408	168	VYHDMVKDRVACS
44	Q06408	313	NGKEGLKQVYEHF
45	Q9NR48	51	EEEDLRKRNRERN
46	Q9NR48	62	RNIEAGKDDGLTD
47	Q8NBU5	53	QKVEAQKQAEKLM
48	Q8NBU5	114	ILPIKKKHLFENS
49	P35193	169	FMKQLLLKEESLN
50	P35193	247	IASDHKKETKIE
51	P35193	292	AGNCKLKFTDAGD
52	Q12691	235	LNSEIGKIAKSLQ
53	Q12691	264	NTWISTKKVTGAF
54	Q99728	144	NKKNSIKMWFSPR
55	Q99728	204	ASARSGKKQKKKT
56	Q99728	217	LAEINQKWNLEAE
57	Q99728	224	WNLEAEKEDGEFD
58	Q9UIF8	228	LDARVDKIKDKKP
59	Q8NFC6	62	MIVNHLKSQGLFD
60	Q8NFC6	123	IRQQVLKSGMLES
61	Q8NFC6	321	KNKSTDKGEKKPD
62	P38356	307	YDYIQVKKLEKKY

63	A2RUR9	256	QEPERMAKDCDRED
64	Q9Y4F5	231	YFEIPTKETPQPS
65	Q96514	194	FGVNIHKCEFVDE
66	Q9UKL3	69	TEEGTAKEATYND
67	P62157	31	DGTITTTKELGTVM
68	Q96M89	19	LVVESLKSRYGLG
69	Q96M89	101	DSFHDLKKQETEE
70	Q8IX12	448	DHLYSAKVMLMAS
71	Q8IX12	463	MEDLYHKSCALAE
72	P25322	123	IPLTAEKLCIYTD
73	Q12834	73	VQTTTPSKPGGDRY
74	Q12834	109	NSQTPTKKEHQKA
75	Q12834	114	TKKEHQKAWALNL
76	P25694	75	VKGKKRKDTVLIV
77	P25694	241	RHPQLFKAIGIKP
78	P06493	56	REISLLKELRHPN
79	P06493	106	MDSSLVKSYLYQI
80	Q5TB80	18	EFEQFMKELSDDS
81	Q5TB80	131	LEEQUEEKEQFFAR
82	Q5TB80	209	GAPLTTKDEEMPS
83	Q5TB80	220	PSKENSSEKISV
84	Q02224	184	ALKWITKGEKSRH
85	Q02224	216	ILESREKGEPSNC
86	Q02224	227	NCEGSVKVSHLNL
87	Q02224	270	ILGQVIKKLSDGQ
88	P13569	162	MFSLIYKKTLKLS
89	P13569	166	IYKKTLLKSSRVL
90	P32657	46	DDEDNIKQSRRKR
91	P32657	199	EGKVLEKTVPDLN
92	Q9UNE7	287	IPNLAMKEVIDAF
93	O14757	60	KEICINKMLNHEN
94	O14757	69	NHENVVKFYGHRR
95	O14757	180	VAPELLKRREFHA
96	O14757	270	WYNKPLKKGAKRP
97	Q9Y3E7	43	IQREEEKVKRSVK
98	Q9Y3E7	54	VKDAAKKGQKDVC
99	P29465	281	PWSDAGKDASFLF
100	P29465	321	AWYFPCKLKNQDG
101	P08679	96	TIADIQKDLPKAK
102	P08679	308	EWL FALKEEVNDD
103	Q9D5U8	108	TAKKKRKLYQLVI
104	Q9D5U8	154	DFSFWDKKKQGRI
105	Q01955	232	KGERGVKGLTGPP
106	Q01955	258	DNRTDLKGEKGDK
107	Q01955	314	PGSEGVKGNRGFP
108	P0CX12	142	NNVWNTKYFFFNA
109	P0CX12	177	AKVKSFKDSVPYI
110	P0CX12	288	IMSMEHKMQFLST

111	P43542	112	FCKEITKSTPSSD
112	P43542	137	SYLYENKAWNIRY
113	P32798	9	LGSQVKIISLLL
114	Q9R194	352	AKWAEGKTGF PWI
115	Q9ZQB9	128	LFYSCLKVFLWLS
116	Q9ZQB9	155	WSFGTSKLQLQFI
117	Q12734	154	SDPVAAKQISSNN
118	Q12734	444	QKLSMRKRRSFSN
119	P89105	191	FLLLRAKLLYQKK
120	P57076	202	KELRRTKKLSDYV
121	Q08412	39	DLNSDGKKDNDTS
122	Q08412	40	LNSDGKKDNDTSA
123	Q08412	156	PTQPVRKNPEAPA
124	Q08412	295	DLSQGGKNSRPQQ
125	Q13619	292	LIACVEKQLLGEH
126	P40087	61	NRTQSLKELGLKT
127	P40087	76	LLLIRGKISNSIQ
128	Q39017	60	INLSWTKAIARSK
129	Q39017	66	KAIARSKKNPKAR
130	Q39017	409	GLFLFRKVP HFRV
131	P07262	31	QHPEYRKVLP IVS
132	O60610	63	IKKEKEKPNSAHR
133	O60610	109	MNLNEEKQQPLRE
134	O60610	143	SQKESKKSAMMYI
135	Q9NSV4	74	TDDMLDKFASIRI
136	Q9NSV4	94	PPLPNLKTAFASS
137	Q9NSV4	146	KAPLREKDFS IKK
138	P39976	123	SLRNMNKVRDFDP
139	P39976	262	NFDTVQKLFVKAK
140	P39976	335	KDTTDSKLISEGM
141	P38823	290	YRCVKMKIELNKS
142	P18858	36	ETEPPPKAALK EW
143	P18858	82	SPAKGQKPALDCS
144	P18858	152	REAKRKKEEEEEEE
145	P06746	120	FVDEGIKTLEDLR
146	P01903	100	NLEIMTKRSNYTP
147	F4IBE4	46	MLSSFLKDANAKK
148	F4IBE4	66	NCVEEIKEI IYDG
149	F4IBE4	172	LEANVKKL VG YLV
150	F4IBE4	239	KILRDLKPKEEEK
151	Q03001	38	ERDKVQKKTFTKW
152	Q03001	43	QKKTFTKW INQHL
153	Q03001	85	DTLPREKGRMRFH
154	Q03001	221	AFYVAEKIGVIRL
155	Q03001	241	VSSPDEKSVITYV
156	Q03001	272	ANDVEVKWIEYQN
157	P38167	426	LDKTKTKASLLNA
158	P0DH99	154	MICCCNKMDATTP



159	P0DH99	232	PKRPSDKPLRLPL
160	P00533	335	CEGPCRKVCNGIG
161	Q9LD55	44	RYRAWQKPLEKIM
162	Q9LD55	187	KAFQFCKQYKRTT
163	Q9LD55	190	QFCKQYKRTTEFR
164	Q13347	114	IMFSTDKQMGYQC
165	Q13347	213	SKDNTAKLFDSTT
166	Q02908	9	RHGKGPKTNKKKL
167	Q02908	86	YLLPKLKAKPVRT
168	Q02908	246	HLDDMLKYGCTRL
169	P32476	217	IFSRFRKELHPDH
170	P32476	278	CAYNSPKVPADIK
171	P32353	35	IPVKWQKLLGLNS
172	P32353	56	QETLNSKNAVKEC
173	P54781	41	SILDTLKSMSYLK
174	P38748	30	IFKSIPKKLKAKS
175	P38748	92	GIIRLFLKLSNANN
176	P38748	182	KEEFNGKSFSRMD
177	P38748	204	KEIVFQKKLFQRP
178	P38748	227	TDPFTVKKKKELV
179	Q0WPQ2	81	CSNVPFKWVLFEF
180	Q0WPQ2	373	ARNAFQKTMSEGM
181	Q92817	117	QAEEIEKDIKQLH
182	Q92817	216	QYRDLLKAASWRG
183	P38261	41	PKQKTKKNPYSDL
184	P38261	185	NPHFNAKDFVHDK
185	P38261	191	KDFVHDKLGNASA
186	P38261	266	CTKIAEKRLQLQD
187	Q5HYJ3	29	QGQQLCKECRIAH
188	Q5HYJ3	86	AAFIGTKCQRCTN
189	Q5HYJ3	115	QCAFDRKEEGRRK
190	Q5HYJ3	147	KTKEQRKSLGSSH
191	Q5HYJ3	206	LWKQSHKSSATIQ
192	Q9BXW9	195	GKDLTTKIMQLIS
193	Q9NVI1	294	ELVKHLKVGQQGD
194	P38631	259	AKKKNKKAMEEAN
195	P38631	521	WSFVPRKWAGAQH
196	P40989	401	RYVKSEKDHNVKI
197	P01100	148	IRRERNKMAAAKC
198	P01100	176	DQLEDEKSALQTE
199	P01100	205	AHRPACKIPDDLQ
200	P38297	209	LCNSLLKQRLLE
201	P19145	63	DSFKRVKPIEVDP
202	P19145	265	GGYIGGKYWHDPG
203	P19145	314	ESVEPRKSVPKAA
204	P19145	367	PFVIAIKTHGIKG
205	P31644	256	HFHLKRKIGYFVI
206	P47870	344	QKKAAEKAASANN

207	P47870	352	ASANNEKMRLDVN
208	P10071	87	ERASLIKKEIHGS
209	P10071	416	SESSQNKPTSESA
210	P10071	438	NKRSKIKPDEDLP
211	P32288	45	SKGRTLKKRITSI
212	P32288	116	HRHEAAKLFAAHK
213	P32288	148	DVYGWPKGGYPAP
214	P37303	313	PDVLVKKGLKYNV
215	P63092	25	QREANKKIEKQLQ
216	Q3T8J9	18	TESLQHKGNQEEN
217	Q5T848	111	LAGLP GKWPALAS
218	P08539	178	GNISNVKSDTDRD
219	Q8N442	227	CIKISAKLGTNVE
220	Q8N442	354	PGFKSAKPMVFAG
221	P40531	188	DTLIQTKFNKNLR
222	P26569	55	KAAAPTKKKTTSS
223	P26569	70	TYEEMIKDAIVTL
224	P16403	46	VSELITKAVAASK
225	Q96QV6	119	QAVLLPKKTESH
226	Q93077	37	VHRLLRKGNYAER
227	P16104	135	APSGGKKATQASQ
228	O75367	148	KKPVSKKAGGKKG
229	Q96A08	59	DTGISSKAMSIMN
230	Q96A08	118	AVSEGTKAVTKYT
231	P33778	16	APKKGSKKAITKA
232	P33778	24	AITKAQKKDGKKR
233	P62807	17	PKKGSKKAVTKAQ
234	Q9LQQ4	8	APRAEKKPAEKKT
235	Q9LQQ4	13	KKPAEKKTAAERP
236	Q9LQQ4	33	EKAPAEKKPKAGK
237	Q9LQQ4	36	PAEKKPKAGKKLP
238	Q9LQQ4	49	PKEAGDKKKKRSK
239	Q9LQQ4	103	LAQESSKLARYNK
240	P02293	31	STSTDGKKRSKAR
241	O15379	121	ATQLNNKICDIAI
242	O15379	284	ECVEYVKSFNIP
243	P00347	42	MFTGNKICGWNY
244	P00347	257	PVTQVRKMMISLG
245	P00347	335	AFLAVKYIFFEQ
246	P00347	351	ESTLSLKNPITSP
247	P00347	459	SAEKGAKFLSDAE
248	P00347	605	CDSAEVKAWLETP
249	P09429	7	MGKGDPPKPRGKM
250	P09429	12	PKKPRGKMSSYAF
251	P41235	179	NGDIRAKKIASIA
252	P41235	180	GDIRAKKIASIAD
253	O60506	100	FLCGVMKTYRQRE
254	O60506	143	VTTGQRKYGGPPP

255	P31539	101	VLQDAAKIQQQK
256	P31539	218	GEPGIGKTAIEG
257	P31539	258	TAGAKYKGDFEER
258	P31539	294	MLMGNGKDDAANI
259	P10591	91	MKHFPFKLIDVDG
260	P10591	316	TLDPVEKVLRLDAK
261	O65719	254	VQEFKRKNKKDIS
262	O65719	257	FKRKNKKDISGNP
263	P40325	107	NTGYKLKNGRSCK
264	P57058	56	RDFQHHKRVGNYL
265	P57058	151	GGNLMHKIYEKKR
266	P57058	276	LRALYQKMVDKEM
267	P32467	108	IRRFGMKHHDGTY
268	P38695	69	ELEELQKEVDKQL
269	P38695	77	VDKQLEKKSKSDL
270	P38695	187	QIASIDKWYQYFI
271	O14602	7	MPKNKGKGGKNRR
272	O14602	64	LCHIRGKLRKKVW
273	P08069	77	RSYRFPKLTIVITE
274	P08069	173	NYIVGNKPPKECG
275	P25963	38	SGLDSMKDEEYEQ
276	P25963	87	AIIEEEKALTM EV
277	O14920	171	IDLGYAKELDQGS
278	O14920	441	HSIQTLKEDCNRL
279	O14920	480	SMSQQLKAKLDFF
280	Q14974	191	EPSNNVKLAATNA
281	Q6PI98	106	KKNRTWKNLQIL
282	Q6PI98	140	PSFKPAKKYSDVS
283	O80560	45	LRATGQKGHHRQR
284	O80560	266	LAWQAHKGPNVSV
285	O80560	308	SLRLEEKHMAALL
286	O80560	407	KIASTSKKEKPHG
287	P29994	130	LHLKSNKYLTVNK
288	P29994	225	KIVLFMKWSDNKD
289	P30605	11	IPYLTSKTSQSNV
290	P30605	370	FETVGFKNSSAVS
291	P36035	21	QQPAGRKLYYNTS
292	P36035	320	LLWPETKYFTKVL
293	P36035	358	QKMVSMKRTVQKY
294	Q8NCM2	61	RADV MQKSSTCSF
295	Q8NCM2	120	IRNEHEKVVLFLC
296	Q8NCM2	196	DILPQYKQEAPKT
297	Q8NCM2	239	PYNVSFKTKQNNI
298	Q15058	74	VISASRKTADMPL
299	Q7M6Z4	53	FDFVFGKNSTQDE
300	Q7M6Z4	303	KITRLLKDSL GGS
301	Q38997	21	IDHRIFKSRMDGS
302	Q38997	314	DTVQQAKKIDEEI

303	O43474	416	PEEPKPKRGRRSW
304	Q15349	39	EEEGVVKEIDISH
305	Q15349	162	FTEEDVKFYLAEL
306	Q86UP2	42	EVLAKQKREQKLI
307	Q86UP2	85	SVPRDFKLSDALA
308	Q01650	498	TTVLCQKLMQVVP
309	Q12502	22	GYSNSNKKGQSLP
310	Q12502	172	QTCMNCKTKITNM
311	Q5VZK9	40	LEVKGDKVENKVL
312	Q5VZK9	129	PVRIMKKVSMEPS
313	Q5VZK9	308	KLPKGLKHLNLSK
314	O75581	438	LNGTMRKILISED
315	O75581	503	LDYDEGKIYWGDA
316	O75581	625	ELISDMKTCIVPE
317	P53281	37	FELINSKLPEKWD
318	P53281	94	PDWYRGKSNNKIG
319	Q9HCC9	13	KWLYKPKRSDPQL
320	Q9HCC9	551	MDGGPHKLSTGAT
321	Q9HCC9	584	VERLREKCSPPGV
322	Q9HCC9	695	GSCSSDKMGPEAA
323	O22042	309	AKDFLMKCLHKEP
324	Q3KQU3	140	KAGERHKLAKERR
325	Q3KQU3	208	QKLEKNKERYEAA
326	Q3KQU3	245	HSSPGHKTSGSRC
327	Q7L590	127	NLQEQMKALQEQQL
328	Q7L590	281	IRLSQIKEKMARE
329	Q9S JL6	163	GVAILSKYAEQRD
330	O50008	14	YPRMGPKRELKFA
331	O50008	136	FSYASHKAVNEYK
332	O50008	169	LLSKAAKGVDKSF
333	O50008	173	AAKGVDKSFELLS
334	P19358	148	TILLAHKLN MAMA
335	P19358	329	TYGTATKSDDEII
336	Q03164	169	TRSPSVKTS PRKP
337	Q03164	232	PTFPGVKIKITHG
338	Q03164	277	KKLRAGKLSPLKS
339	Q03164	282	GKLSPLKSKFKTG
340	P53045	91	WKLQPTKIPSAKE
341	P53045	215	YVMYTGKLHLFTL
342	O75081	255	HCARLAKQTPAQY
343	O75081	316	HPEHLSKRPCTLN
344	O75081	412	IMDMVEKTRRS LT
345	Q9Y623	206	AVTGEKKKKEEPAS
346	Q02566	146	AA YRGKKRSEAPP
347	Q91Z83	50	EEFVKAKIVSREG
348	P16603	343	PLDPTVKVPFPTP
349	P16603	384	APNADVKEKLTLL
350	P16603	392	KLTL LSKDKDQFA

351	P15531	56	EHYVDLKDRPFFA
352	P15531	66	FFAGLVKYMHS GP
353	Q9Y6K9	115	LEKLDLKRQKEQA
354	Q9Y6K9	255	VVGSEKRGMQLE
355	O88522	165	RLEAATKDRQALE
356	Q00653	127	AVSVGPKDMTAQF
357	P25208	49	EDTNGSKESFREQ
358	P25208	109	ERCHQEKRKTING
359	Q39161	53	EPRVELKDGFFIL
360	Q39161	62	FFILKEKFRKGIN
361	Q39161	330	TRGNRQKTRMMWL
362	P30415	60	GKKLCYKGSTFHR
363	P30415	69	TFHRVVKNFMIQG
364	P30415	182	LATKLTKDVFEKK
365	P30415	188	KDVFEKKRKKPTC
366	P53253	9	EQFTNQKKVSHLQ
367	P53253	36	AKKHRFKDTLALF
368	P53253	67	IVATKCKDFLANC
369	P53253	212	GTGQSIKLFTVFR
370	Q01705	839	CATSPCKNSGVCK
371	Q923B3	107	SKSPLMKIEVVEV
372	Q923B3	118	EVLTLNKDVAGPR
373	Q923B3	213	LNALPEKFRVWVE
374	Q923B3	259	TDQLKEKRGVAT
375	P53370	281	YREGFDKIDLTVE
376	Q02218	21	TASQTVKTF SQNR
377	Q02218	387	DPVVMGKTKAEQF
378	Q02218	401	CGDTEGKKVMSIL
379	Q02218	528	TQPLMYKQIRKQK
380	Q15004	97	LGKAKRKACPLQP
381	Q56WK6	8	AQEEVQKSADVAA
382	Q56WK6	135	KTEEEETKEEEKTE
383	Q56WK6	152	ETTTEVKVEEEKP
384	P15873	108	LFEDTKKDRIA EY
385	Q9UHG3	280	VMYIEEKT KTKYT
386	Q02785	10	TDEHIEKDISSRS
387	Q02785	264	IDKMTRKQYVDNI
388	Q02785	287	RHTYATKVGND FV
389	P33302	300	SHTRNTKVGNDIV
390	P38075	10	QAEETQKPIIFAP
391	P38075	23	ETYQYDKFTLNEK
392	P38075	78	SRILLFKELDHRG
393	P38075	222	TENDPWKV VRLAP
394	O43933	140	IRIVFPKAI F PVW
395	O43933	174	RLETDTKLLIQPK
396	O43933	180	KLLIQPKTRRAKE
397	O43933	191	KENTFSKADAEYK
398	P15259	129	PPPMDEKHPYNS

399	P15259	228	KELKPTKPMQFLG
400	P25297	342	RHFGQWKYGKILL
401	P25297	381	IGYAGSKNVYKKL
402	P25360	80	KRRFTHKLKRKLF
403	Q99755	79	GETTYKKTSSAL
404	Q06449	76	DGDLGLKPGDKVQ
405	Q06449	86	KVQLLEKLSPEWY
406	Q06449	93	LSPEWYKGCSCNGR
407	Q99569	561	LCFGDNKVKMEVC
408	Q99569	681	SFDDDHKIKFQTS
409	Q99569	779	GKESPSKDSEPS
410	O23522	14	ADIFHAKRRRFTC
411	O23522	388	SQDVVTKVPGIFA
412	O82274	317	LKSEYLKRSLNLG
413	O82274	346	HNQGEFKLEINRD
414	O82274	358	DIALVKNGLDALE
415	P53350	191	NEDLEVKIGDFGL
416	P05030	417	AASRKKKGLDAID
417	Q8WZA1	26	SWYLTWKYKLTNQ
418	Q8WZA1	186	EGSFHLKDTAKAL
419	Q8WZA1	373	RVSQHYKASLTAT
420	Q9Y253	91	GKANLTKYREASV
421	Q9Y253	220	AGISHNKVLAKLA
422	Q9Y253	404	DAFTVIKNCNTSG
423	Q6S8J3	171	DVNKKDKQKRTAL
424	Q6S8J3	205	LNVLNKKRTALI
425	Q6S8J3	206	NVLNKKRTALIK
426	O23404	114	KSLLGKGKANLAE
427	O23404	177	SLADPSKPLLSV
428	P62937	154	RNGKTSKKITIAD
429	Q5JSZ5	10	RLGQITKGKDGKS
430	Q5JSZ5	26	TLSLFDKYKGKSV
431	Q5JSZ5	186	GQDKAGKEKGVLD
432	P07737	116	LVLLMGKEGVHGG
433	P62191	16	GPGGGKKDDKDKK
434	P62191	69	LKLERIKDYLLME
435	P25786	61	ELAAHQKKILHVD
436	P25786	217	SIGIVGKDLEFTI
437	P25786	256	ADEPAEKADPME
438	P23638	68	STEKLYKLNDKIA
439	P60900	55	VIVTQKKVPDKLL
440	P51665	28	HFNRIGKVGNGQR
441	P51665	247	SLQEFVKAFYLKT
442	P60484	128	IHCKAGKGRTGVM
443	P60484	163	EVTRTRDKKGV TIP
444	P60484	223	VCQLKVKIYSSNS
445	P34222	102	QDLGMTKGKIAAQ
446	Q06991	30	ACAGSTKNYSPIN

447	Q05911	215	FHGNHDKVEALDE
448	Q05911	231	ELLGFDKVYPVTG
449	Q05911	261	FAATAHKMATDIR
450	Q05911	281	VEEPFEKSQIGSS
451	P03962	75	SMEGTVKPLKALS
452	P63000	132	IEKLKEKKLTPIT
453	P63000	184	CPPPVKKRKRKCL
454	P15919	49	EEAQKEKDSSEGK
455	P15919	143	QSLFRKKEKRVTS
456	P62826	38	TGEFEKKYVATLG
457	P62826	132	IKDRKVKAKSIVF
458	Q09028	296	ATGSADKTVALWD
459	Q16576	306	WDLRNLKLKLHTF
460	P49756	164	LVKVDAKTKAQLD
461	P49756	175	LDEWKAKKKASNG
462	P49756	238	HPRKKKKKEKKEDI
463	Q9P2N5	15	LKSWLAKLLEPIC
464	P40043	78	AANSHSKKFVRHL
465	P40043	79	ANSHSKKFVRHLH
466	O14924	165	SNSEPLKLKQORSL
467	O14924	350	PDLFNHKKIHQGIA
468	O14924	578	LPPPMSKIPADRY
469	O14924	605	KREWSRKAFGMQS
470	Q7Z5B4	163	TEAAMEKLINRVG
471	O15034	307	RKITLIKQLAKSV
472	O15034	356	TKALIEKLNMAAC
473	O15034	388	CTLLVGKDVVVAP
474	O15034	457	KVKVLAKPHQMPW
475	Q9CQJ4	15	GTQPLSKTWELSL
476	Q9CQJ4	59	ICLDMLKNTMTTK
477	Q9CQJ4	160	NRLQRGKKQQIEN
478	Q9CQJ4	161	RLQRGKKQQIENG
479	P57078	417	PSSGSGKRLSGVS
480	P27635	169	QKIHISKKWGFTK
481	P47914	55	HNKKGLKKMQANN
482	P47914	77	AIKALVKPKEVKP
483	P63048	98	DKMICRKCYPARLH
484	P63048	114	VNCRKKKCGHTNN
485	Q9SJQ6	120	PEKPKRKKHRPKV
486	Q9SJQ6	137	KPKREPKPRAPRK
487	P04050	180	IRKDGLKLVGSWK
488	P04844	244	NAIFSKKNFESLS
489	P04844	311	VKLEHAKSVASRA
490	P38701	101	APVQIVKRITQIT
491	Q9SIP7	108	AESLRYKLLGGLA
492	Q9SIP7	132	VMESGAKGCEVIV
493	Q9SIP7	151	ARAKSMKFKDGYM
494	Q9SIP7	214	VIIHAPKDDVVYS

495	P23396	187	VLGIKVKIMLPWD
496	P0CX35	134	KVQLGKKGVPPYVV
497	P0CX35	161	KVNDTVKIDLASG
498	P39743	48	LEQETKKLSEESK
499	Q9Y467	8	SRRKQRKPQQQLIS
500	O94979	120	VIAQNDKHTGPVR
501	O94979	478	NVWSFLKVNFEED
502	Q5TEA6	85	IKGIQNKDILKRN
503	Q15047	149	RTPKDQKLREAMA
504	Q15047	166	SAQDVQKFMDAVN
505	Q15047	174	MDAVNKKSSSQDL
506	Q01105	14	PLPPQKKKPRPPP
507	Q01105	193	QNKASRKRQHEEP
508	Q6AI14	481	VRYLDVKKTNKKE
509	Q6AI14	531	DHRYLRKILIRKN
510	Q92581	206	GCVTLMKVTGQLA
511	Q13485	45	AIESLVKKLKEKK
512	Q13485	70	NGAHPKCVTIQR
513	Q13485	106	RWPDHLKKNELKHV
514	Q13485	428	PGDAVHKIYPSAY
515	O15105	101	LTHSVLKKLKERQ
516	O15105	316	VQKVRSKIGCGIQ
517	Q9HCE7	14	RNGSSIKIRLTVL
518	Q9HCE7	23	LTVLCAKNLAKKD
519	O95863	187	VCGTGKAFSRPW
520	Q9Y5W7	321	LVPFLQKFAEPRN
521	Q9Y5W7	328	FAEPRNKKPSVLK
522	Q9C093	14	WLNKELKVSRTVS
523	Q9C093	40	LGEVLHKFELQDD
524	Q9C093	109	ALQKKKKSGLTGV
525	Q9C093	185	ERFQKLKEEQRCF
526	Q8N0X7	377	QLDQGNKDVRHKG
527	P12866	211	ENSETSKAAQLLT
528	P12866	287	AMIKKGKLNINDV
529	Q3TBT3	19	PRGHRSKYVALIF
530	Q9WUM5	156	QDMVRVKHRLTRQ
531	Q9FFC7	179	FKKEAIKWAWELS
532	Q9FFC7	341	YDSANDKAKTSLK
533	Q9FFC7	343	SANDKAKTSLKVI
534	Q15431	174	ENKDLIKENNATR
535	P26639	65	EMYNILKAEHDSI
536	P26639	207	SLEALCKKIIKEK
537	Q9Y228	47	TCRQVGKTLRIQQ
538	Q9Y228	169	HRGTQTKAEGPTI
539	Q9Y228	243	LNEDKLKGKLRSL
540	Q9BVV6	245	HIRHLEKLQQQQI
541	P38085	281	PFAHGFKGVCTVF
542	P38085	320	IPNACKKVYRIL



543	P38085	529	HGKLNKVVFFQNY
544	P69697	19	HPGSQPKTACTNC
545	P69697	51	ISYGRKKRRQRRR
546	P10636	392	TGSDDKKAKTSTR
547	P68363	112	GHYTIGKEIIDLV
548	P68363	163	LSVDYGKKSKLEF
549	P68363	280	PVISAEKAYHEQL
550	Q9UHD2	60	REFEVLKKLNHKN
551	Q15560	35	DLLRELKAMPITL
552	Q15560	186	NTDMKYKNRVRSR
553	Q15560	240	IRKAMTKEAIREH
554	P50990	206	DNIRVCKILGSGI
555	P50990	224	LHGMVFKKETEGD
556	P50990	260	KGTVLIKTAEELM
557	P10827	25	ARSPDGKRKRKNG
558	P10827	74	ITCEGCKGFFRRT
559	A2ASS6	251	TGQLPHKTPPRIP
560	A2ASS6	413	AITTGTKEVKQET
561	A2ASS6	421	VKQETDKSAAVAT
562	A2ASS6	468	AQEQARKEAEKTA
563	P53322	87	EKRVLRKMDIYLI
564	P53322	107	FLSNLDSKNIGNA
565	P53322	120	EVAGLSKDIHLVG
566	O15417	429	PEGLREKNSVIRS
567	O15417	437	SVIRSLKRPPPAD
568	O15417	511	GPEHKWKPFELGN
569	P58771	12	KKMQMLKLDKENA
570	P40238	297	CFTLDLKNVTCQW
571	P40238	355	FSRCHFKSRNDSI
572	P29144	126	FYPKALKERIQKE
573	P29144	134	RIQKERKEKIWDP
574	P29144	220	EDGDLSKSTVLRN
575	Q13077	127	GFMKQWKARLGCG
576	Q13077	300	PAFYTAKYGYKLC
577	Q12933	27	KTLLGTKLEAKYL
578	Q12933	277	RCELEKKTATFE
579	Q12933	278	CESLEKKTATFEN
580	Q12933	313	HRLDQDKIEALSS
581	Q9Y4K3	340	IRTLLEDKVAEIEA
582	Q9Y4K3	453	EEIMDAKPELLAF
583	Q08960	101	CSSKGGKKGCCS
584	Q07307	473	GQAIVAKAPFTRR
585	P63279	101	SILEEDKDWRPAI
586	Q9UHP3	162	RNPYDRKRQDKAP
587	Q93009	161	SHLFFHKENDWGF
588	Q93009	277	DKPVGTKKLTCSF
589	Q07963	131	LCFDKEKHVNHSY
590	Q07963	342	IVVHVRKADDIFK

591	Q07963	348	KADDIFKRKLTTDD
592	O94888	359	KDLGHRKEENRRP
593	Q96T88	24	SLSRLTKVEELRR
594	Q96T88	50	RLFYRGKQMEDGH
595	Q96T88	84	VLPSTKERDSEL
596	Q96T88	213	RARTIIKWQDLEV
597	Q96T88	233	YNPDNPKERGFY
598	P39547	196	VSNEVMKPYIFSS
599	P28274	84	LGVTTLTKDHNITT
600	P28274	100	YSHVIAKERKGDY
601	P28274	311	KIALVGKYTNLKD
602	Q96JH7	147	KQTGRAKLLRDMN
603	Q96JH7	386	VPQDLIKKYIKLE
604	P98155	32	GTGRKAKCEPSQF
605	P98155	238	QPVIHTKCPASEI
606	Q709C8	102	IKYDAVKEEKSLQ
607	Q709C8	152	DIKPGRRKKHKK
608	Q709C8	162	HKKHFKKPFKGLD
609	Q9Y4B6	125	AVVFQEKEGIVEN
610	Q9Y4B6	258	RVNSTTKPEDGGL
611	Q9Y4B6	271	KKNKSAKQGDREN
612	Q9Y4B6	526	TCMALRKYFEAHL
613	P04275	397	TGQSHFKSFDNRY
614	P04275	762	PLSHRSKRSLSCR
615	Q96S55	459	ARLSSRKMFCCKS
616	Q96S55	463	SRKMFCKKSGQSY
617	P98170	433	SQTSLQKEISTEE
618	P39548	162	FFTTLIKEVNSGS
619	P67809	26	LSAADTKPGTTGS
620	P35723	67	LFIDSWKRSQIRV
621	P35723	181	GLQKQVKNLEKYF
622	P43590	190	DLGKKFKELQDFA
623	P38809	218	RAYLFNKANSSTT
624	P38809	230	TTLDAIKPNSKNI
625	P38809	234	AIKPNSKNITQFD
626	P36134	142	FAFDQAKGISSKV
627	P36134	147	AKGISSKVEAEER
628	P36134	191	LDMIDDKSVEQFY
629	P34231	213	NLTMSEKAQLLPV
630	P34231	483	HANLENKILDCNS
631	P34231	574	FNRYMFKQPLWLI
632	P34231	665	GSVTNRKGEIYTY
633	Q06689	476	TMYSCKSHAVQN
634	Q06689	499	IEGSDFKPYMDAL
635	Q06689	598	MKSGSKKDNVDVI
636	P38079	104	VQTSTQKEHPGYR
637	P38079	167	CVHSTYKWGYITI
638	Q60821	50	ACSEYFKMLFVDQ

639	Q60821	81	EFMYTAKLSLSPE
640	Q8BID6	57	GSSRYFKTLYCQV
641	Q8BID6	126	ACHDFIKAALDIS
642	Q8BID6	134	ALDISIKSDASDE
643	Q8BID6	204	KEDQEPKADGPDD
644	Q9NUD5	37	ADGGREKMGWAQV
645	Q9NUD5	124	AEAGRRKKAEAAA
646	Q9NUD5	125	EAGRRKKAEAAAA
647	Q08245	69	ADGVEQKKTEAAN
648	Q08245	95	SEKKETKKEGGFL
649	P31629	114	GVMHSTKPHQSLE
650	P31629	184	KKEHKPKKPGKYI
651	P22227	12	MNEQMKKTAKTSG
652	P22227	275	IQSNNQKIHILTH
653	Q6NZP1	7	MPTAGSKKKAPTP
654	Q6NZP1	32	LDFLPDKLRTKLL
655	Q6NZP1	179	LLPMVQKARRAIL
656	Q709C8	111	KSLQDVKQKELSR
657	Q709C8	124	IEEALQKAAEKG
658	Q9Y4B6	44	MSQLIEKETEEYR
659	Q9Y4B6	51	ETEEYRKGDPDF

**S<sup>-</sup>(11): List of 606 negative Ubiquitination sites and sequence**

Sample #	Protein ID	Site	Sequences
1	P08195	299	LLQSAKKKSIRVI
2	P08908	232	IRKTVKKVEKTGA
3	P08908	324	PASFERKNERNAE
4	Q8NE71	29	PSDKVVKKGKKDK
5	Q8NE71	32	KVVKKGKKDKKIK
6	Q8NE71	60	EEKVLKEKEQQQ
7	Q8NE71	74	QQQQQKKKRDTR
8	Q8NE71	76	QQQQKKKRDTRKG
9	Q8NE71	86	RKGRRKKDVDDDG
10	Q8NE71	95	DDGEEKELMERL
11	P93821	22	KSLEETKVPPIFG
12	P93821	104	EEDPEVKKSIFSL
13	Q9UKV3	81	LRVTDLKAALQQR
14	Q9UKV3	113	MLNLQKHSTPHA
15	Q9UKV3	325	MMDERPKTRSQQ
16	Q07622	14	QPNLYDKHINMFP
17	Q07622	30	ARESSHKLGNANS
18	Q07622	296	KPEEMLKNQKVIL
19	Q07622	348	VIKNDEKALEYYC
20	Q99KI0	245	SGWTSPKDVILKV
21	P52910	196	VVDANSKVVITCD
22	P52910	214	GKTINTKKIVDEG

23	P52910	244	TEGIPMKAGRDIW
24	P52910	257	WHEEAQKQRTYLP
25	O43707	50	LDPAWEKQQRKTF
26	O43707	103	PKPERGKMRVHKI
27	O43707	140	IVDGNAMKTLGMI
28	O43707	181	RKTAPYKNVNVQN
29	O43707	217	EYDKLRKDDPVTN
30	O43707	323	EDRVPQKTIQEMQ
31	Q16186	97	GRVYVLKFKAGSK
32	Q16186	371	AVEAANKGDVEAF
33	P48962	63	CVVRIPKEQGFLS
34	P48962	272	GANAFFKGAWSNV
35	Q84VQ0	127	GALPSNKLDFSUV
36	P38080	183	LIHRDIKIENVLV
37	P38080	291	VNKYSSKLINLII
38	Q9SLK6	230	NFSGTIKCEDPNP
39	Q9SLK6	384	VSIEVVKVLQAHF
40	P54115	36	INNKFMAQDGKT
41	P54115	117	EALDNGKTLALAR
42	P54115	196	GNVCILKPAAVTP
43	P54115	300	LVNGIFKNAGQIC
44	Q12955	9	HAASQLKKNRDLE
45	Q12955	83	ALHLASKEGHVEV
46	Q12955	200	ENDTKGKVRLPAL
47	Q12955	212	LHIAARKDDTKAA
48	Q9Y2G4	317	EQAVARKEEAREE
49	Q9Y2G4	340	KDDRRRKSRPKVS
50	Q69ZU8	20	LLIAAYKGQTENV
51	Q69ZU8	35	LINKGAKVAVTKH
52	Q69ZU8	333	ASQEPRKDERRRK
53	Q69ZU8	362	QQPGHQKNLHSHH
54	Q06408	8	APVTIEKFVNQEE
55	Q06408	129	HIVGVAKSIDSRS
56	Q06408	345	HYTFTYKPNAKII
57	Q9NR48	76	QQQFSVKETNFSE
58	Q9NR48	147	DPSKLYKKADDVA
59	O55143	7	MENAHKTVEEVL
60	O55143	204	RAVNQDKKNMLFS
61	O55143	205	AVNQDKKNMLFSG
62	Q8NBU5	35	VTYFTIKWMVDAI
63	Q8NBU5	165	PSTLTDKWYGESQ
64	P35193	89	YLQCQRKCSVYIG
65	Q12691	47	ESLRLKAVGENT
66	Q12691	144	SETINSKDVVPGD
67	Q8WXE1	10	TSAPGSKRRSEPP
68	Q8WXE1	129	ELKEKMKVMEEEV
69	Q8WXE1	143	IKNGEIKILRDSL
70	Q8WXE1	177	TQALSDKEKEFSK

71	Q99728	110	MIQLCSKLRNLLH
72	Q99728	124	NELSDLKEDKPRK
73	Q99728	140	NDAGNKKNSIKMW
74	Q8NFC6	295	EIKNYTKEHNNLI
75	P55061	28	STQQHLKKVYASF
76	P55061	220	FITVFRKLMMILA
77	P38356	97	ILDRLFKKRTQQS
78	P38356	236	VTSKVGKNKSLNR
79	Q9Y4F5	150	SNPRPEKGDRRPG
80	Q9Y4F5	353	RTLKGHKHEDGTQ
81	Q9Y4F5	416	DEDTPRKKRSQSF
82	Q96514	29	KRLKPSKWKLPFG
83	Q96514	129	EWKALRKLVMEL
84	Q9UKL3	82	LQVEYGKCQLQMK
85	Q9UKL3	88	KCQLQMKELMKKF
86	Q9UKL3	129	RVEINRKDEEISN
87	O22203	214	IVSNGCLKGASLS
88	O22203	268	QKSSGAKQHFVDA
89	O22203	279	DALLTLKDQYDLS
90	O22203	377	RSNADVKIGGYDI
91	O22203	385	GGYDIPKGSNVHV
92	Q96M89	43	FYQSKYKRRTLTS
93	Q8IX12	492	KFLVGMKGKDEAM
94	Q8IX12	606	KLQGERKEADGEQ
95	Q12834	62	PGRTPGKSSSKVQ
96	Q12834	155	KVLYSQKATPGSS
97	Q12834	236	SSVAWIKEGNYLA
98	P25694	246	FKAIGIKPPRGVL
99	P25694	346	TLMDGMKARSNVV
100	P06493	88	FLSMDLKKYLDSE
101	P06493	130	VLHRDLKPQNLLI
102	Q5TB80	68	TNVSYLTKTKTSQ
103	Q5TB80	70	VSYLTKTKTSQPV
104	Q5TB80	86	EEESAEEKIQFLKS
105	Q02224	118	DIFQKIKKFPDRE
106	Q02224	327	QFASTAKYMKNTP
107	P13569	273	ENIQSVKAYCWEE
108	P32657	106	KSRTKSKSKSKPK
109	P32657	108	RTKSKSKSKPKSQ
110	P32657	122	EKQSTVKIPIRFS
111	P32657	310	QLQYLVKWRRLNY
112	Q9UNE7	125	RAYSLAKEQRLNF
113	Q9Y3E7	81	SKLYASKAHMNSV
114	P29465	62	HFYYAQKTQEQMN
115	P29465	323	YFPCKLKNQDGSS
116	P08679	102	KDLPKAKGSSQPL
117	P08679	176	SESKFAKAYAQGI
118	P08679	184	YAQGISKQDYWSY

119	Q9D5U8	91	RPGVQIKLSWSQK
120	Q01955	34	SKGCVCKDKGQCF
121	P0CX12	199	EVEKQWKLFNTEK
122	P43542	174	DEAAKVKSFKDSV
123	P32798	236	TEHNKRKRSLNMH
124	P97784	68	LDANLRKLNSRLF
125	Q9R194	136	AIMKMAKEAGVEV
126	Q12734	193	ADRGFIKQTPLYN
127	Q12734	200	QTPLYNKKSVLEI
128	Q12734	433	NHSNNRKLKVLQK
129	P89105	277	TNDKTFKEAFTKA
130	P57076	76	IEELKLKDEWGEK
131	Q08412	52	AKDGTpkVEEKVN
132	Q13616	73	VPPSKSKKGQTPG
133	Q13616	229	PTLTvyKESFESQ
134	Q13616	290	QDELARKCEQVLI
135	Q13619	23	RTNGLTKPAALAA
136	Q13619	97	ENLCshKVSPMLY
137	Q13619	134	SVLFLKKINTCWQ
138	Q13619	191	DKMVQSKTIDGIL
139	Q13619	305	LTAILQKGLDHLL
140	Q13619	369	QDLLDFKDKVDHV
141	P40087	295	IGLDMLKRHLACV
142	P40087	325	SEAEIPKSFQEGL
143	Q39017	265	IQSKKYKQTNETS
144	Q39017	347	YHALRSKLKYELA
145	Q39017	349	ALRSKLKYELADL
146	Q39017	368	LLVFINKKSGAQR
147	P07262	98	GFEQIFKNSLTGL
148	O60610	19	GTRDKKKGRSPDE
149	O60610	42	SKKFTLKRMLADE
150	Q9NSV4	115	MMENFPKPLSENE
151	Q9NSV4	128	LLELFEKMMEDMN
152	Q9NSV4	152	KDFSikkEMVMQY
153	P39976	25	KRNPnFkvLDSED
154	P39976	90	MKYCNDKKLAVVP
155	P39976	245	VAAAKPKALNAVf
156	P39976	323	KRHDDEKLTAFLK
157	P38823	145	IDQSTLKRMDKH
158	P18858	19	KEGKAKKPEKEAS
159	P18858	126	KRRTARKQLPKRT
160	P18858	192	KPLKTSKAETPTE
161	P06746	52	IAKYPHKIKSGAE
162	P01903	240	GTIFIikGVRKSN
163	F4IBE4	51	LKDANAKKHTSAV
164	F4IBE4	59	HTSAVVKNCVEEI
165	F4IBE4	196	GMGGLGKTTLAKQ
166	F4IBE4	246	PKEEEKKIMEMTQ

167	Q03001	109	LKRRQVKLVNIRN
168	P38167	190	TRLANSKKFNEQF
169	P38167	334	VIVSVKKPTRFTD
170	P38167	350	ELCSRVKVFWNTG
171	P00533	37	CQGTSNKLTQLGT
172	P00533	325	EEDGVRKCKKCEG
173	P00533	357	INATNIKHFKNCT
174	P00533	360	TNIKHFKNCT SIS
175	Q9LD55	239	TRFDQLKVATELG
176	Q13347	85	WDCETGKQLALLK
177	Q02908	14	PKTNKKKLAPKE
178	P14351	290	PANWT'TKSKYGQA
179	P14351	368	DWSSQGKNALFRE
180	P14753	300	GLFT'THKGNFQLW
181	P32476	135	DSTIHIKDYEDDE
182	P32476	182	EILKDEKNEVVGA
183	P32476	289	IKSWMIKDVQPFI
184	P32353	140	QMAMEIKLAVSAI
185	P32353	166	ELNGHSHKLYMKID
186	P54781	192	MDKYMDKFVRLSK
187	P54781	260	IIIPYTKTWYGKK
188	P38748	154	ILRNQQKGMGFNF
189	P38748	176	LDKNFKKEEFNGK
190	P38748	234	KKKELVKVELPTC
191	Q0WPQ2	154	EFMLKKKAHELGR
192	Q0WPQ2	397	SMIQDEKLSDEQK
193	Q0WPQ2	436	RFGTEMKPFSLHR
194	Q92817	159	ARVLEQKQKQVCA
195	P38261	17	NNWKHVKKSSASP
196	P38261	27	SSPAKQKTPPSPA
197	P38261	125	NESVSSKGPSNSL
198	Q5HYJ3	65	KCAQNVKQFGTPK
199	Q5HYJ3	202	EEQGLWKQSHKSS
200	Q9BXW9	34	LSKKT'KKSHIANE
201	Q9BXW9	60	ISGIILKTGESQN
202	Q9BXW9	91	RHPSYPKIIIEEFV
203	Q9NVI1	41	NQAVKGKVAGALL
204	Q9NVI1	280	HIVFAIKLDYELG
205	P38631	252	LSRKARKAKKKNK
206	P40989	311	DFRWKSKMNQLSP
207	P01100	190	ANLLKEKEKLEFI
208	P38297	13	QFKDSNKP'HKDST
209	P38297	16	DSNKP'HKDSTDQD
210	P38297	263	YSIQNP'KTYE'IHT
211	P38297	291	LLKIYIKDDK'KPA
212	P31644	211	WTNGSTKSVVVAE
213	P47870	126	TYFLNDKKSFVHG
214	P47870	127	YFLNDKKSFVHG

215	P10071	14	STTTEKKKVENSI
216	P10071	88	RASLIKKEIHGSL
217	P10071	433	GDPMHNKRSKIKP
218	P10071	436	MHNKRSKIKPDED
219	P10071	510	DHIHGEKKEFVCR
220	P10071	555	TFEGCTKAYSRL
221	P32288	166	CGVGAGKVYARDM
222	P63092	17	DQRNEEKAQREAN
223	P63092	233	QRDERRKWIQCFN
224	Q3T8J9	133	GSKRGKKMTLRPG
225	Q3T8J9	248	KRRKKKKGTRKR
226	Q5T848	95	GDSHQLKRANCSG
227	Q5T848	229	FHGLRRKWRPHLH
228	Q5T848	341	SECMPKGLGFVL
229	Q5T848	355	AYECICKAGFYHP
230	P08539	21	DPFLQNKRANDVI
231	P08539	147	LNDYVLKYSERYE
232	Q8N442	293	VSAHTQKTYEVNE
233	P26569	31	EKKPAAGGKSKK
234	P26569	42	KKTTTAKATKKPV
235	P26569	111	LLLVLNLKRLVASE
236	P16403	23	KAPVKKKAACKAG
237	P16403	75	AGYDVEKNNSRIK
238	Q96QV6	37	IHRLLRKGNYAER
239	O75367	12	GKKKSTKTSRSAK
240	P0C0S5	12	AGKDSGKAKTKAV
241	Q96A08	18	SKKGFKKAVVKTQ
242	Q96A08	30	QKKEGKKRKRTRK
243	Q96A08	45	YSIYIYKVLKQVH
244	P33778	21	SKKAITKAQKKDG
245	P33778	47	YVYKVLKQVHPDT
246	A3AGM4	8	APKAEKKPAEKKP
247	A3AGM4	30	KAPAGKKPKAEKR
248	A3AGM4	53	GGAGDKKGRKKAK
249	P04913	16	SKAPAGKAPRDTM
250	P02293	17	SKAPAEKKPAAKK
251	Q5QNW6	21	SKKAVTKVQKKDG
252	O15379	159	GILELLKYHPRVL
253	O15379	367	TIFENLKMLNHAP
254	P09429	30	REEHKKKHPDASV
255	P09429	43	NFSEFSKKCSERW
256	P09429	68	DMAKADKARYERE
257	P09429	90	ETKKKFKDPNAPK
258	P41235	290	NEYAYLKAIIFFD
259	O60506	81	AVLQQFKDSDLSH
260	O60506	184	LVPLFEKAGPIWD
261	P31539	141	VDIEAIKQQAEL
262	P31539	182	EQARQGKLDPVIG



263	P10591	136	ESYLGAKVNDAVV
264	P10591	188	GLDKKGKEEHVLI
265	P10591	217	DGIFEVKATAGDT
266	P10591	325	RDAKLDKSQVDEI
267	O65719	98	LWPF TLKSGPAEK
268	O65719	191	IAYGLDKKATSVG
269	P57058	67	YLIGSRKLGECSF
270	P09629	194	RRMKWKKENKTAG
271	P32467	149	GDMYGRKMGLIVV
272	P32467	279	GKIEEAKRSIALS
273	P38695	80	QLEKSKSDLLFV
274	P38695	156	GGIVLSKLGD MYG
275	P38695	484	PLRVRGKAMSIAS
276	P39003	268	YLAEVGKIEEAKR
277	P39003	536	EGVLPWKSASWVP
278	O14602	56	LCFDGVKRLCHIR
279	P08069	126	FEMTNLKDIGLYN
280	P08069	445	LTIKAGKMYFAFN
281	P08069	474	TKGRQSKGDINTR
282	P25963	21	GPRDGLKKERLLD
283	P25963	177	HLHSILKATNYNG
284	O14920	254	DLNGTVKFSSSLP
285	Q14974	62	AAGLQIKNSLTSK
286	Q14974	68	KNSLTSKDPDIKA
287	Q14974	537	SLMEIVKNSAKDC
288	Q6PI98	158	YTDPQSKLRFSTI
289	O80560	60	SLDDIPKITEIVS
290	O80560	444	GAYEDAKRTEAMV
291	Q13568	366	PIQREVKTKLFSL
292	Q13568	407	EEWPDRKPREKKL
293	P56477	96	LRCALNKS RDFQL
294	P29994	70	NRYS AQKQFWKAA
295	P29994	74	AQKQFWKAAKPGA
296	P29994	168	YIQPFYKLRSIGD
297	P30605	121	GTDL DHKVLTYGE
298	P30605	156	ADIFGRKRCLMGS
299	Q8NCM2	144	IEDDSTKGWTKFA
300	Q8NCM2	171	QLTPMNKTEVVHK
301	Q15058	98	RRTTRNKESLLV
302	Q15058	134	DSAEKWKTAEIDS
303	Q15058	243	TKPTQSKLDIKVL
304	Q7M6Z4	18	IRPLLCKEVLHNNH
305	Q7M6Z4	364	EMEFEIKLLREAL
306	O43474	228	GGGLMGKFVLKAS
307	Q15349	72	GQGSYGVFLVRK
308	Q15349	78	KVFLVRKVKGSDA
309	Q86UP2	40	YDEV LAKQKREQK
310	Q86UP2	54	IPTKTDKKA EKK

311	Q86UP2	61	KKAEEKKKKKKEI
312	Q01650	77	TPTGVLKEAGSPG
313	Q01650	191	VNCYSVKAATRVQ
314	Q01650	204	DAFAAAKLLALAL
315	Q01650	422	IWLRHRKPELERP
316	Q12502	255	EGSSSKKRLQLA
317	Q12502	276	IPRGPDKNSLRVF
318	Q12502	308	TFPLEMKLDGVSS
319	Q12502	343	HACPVHKHELRL
320	Q12502	354	QLEEQVKIKESEK
321	Q5VZK9	37	KVKLEVKGDKVEN
322	Q5VZK9	80	HGVVCSKSAQMIV
323	Q5VZK9	90	MIVETEKCSISMK
324	Q5VZK9	116	IGTCLRKIFPGLS
325	O75581	510	IYWGDAKTDKIEV
326	P53281	75	DGDLSLKTGDKIQ
327	Q9HCC9	601	YAAGLAKASDRAP
328	O22042	60	GLPAPRKEEAPSI
329	O22042	198	IMHRDIKGANILV
330	O22042	234	NGAKSMKGTPYWM
331	O22042	304	DLSPEAKDFLMKC
332	Q3KQU3	62	KNATSSKQLPLEP
333	Q3KQU3	129	SDSPPTKQEVKKA
334	Q3KQU3	143	ERHKLAKERREER
335	Q7L590	134	ALQEQLKVTTIKQ
336	Q7L590	303	FGVILKKVTPQSV
337	Q7L590	319	KTFSIWKLNDLRD
338	P93819	142	TNALILKEFAPSI
339	P93819	324	EELKEEKDLAYSC
340	O50008	47	LRSSIWKQMSAAG
341	O50008	111	PAMEMTKWFDTNY
342	O50008	286	AGFPEGKYL FAGV
343	P19358	340	IIIEIIKKNFDLRP
344	Q03164	234	FPGVKIKITHGKD
345	Q03164	246	DISELPKGNKEDS
346	Q03164	254	NKEDSLKKIKRTP
347	Q03164	269	TFQQATKIKKLRA
348	O75081	56	PAPVDRKAKASAM
349	O75081	58	PVDRKAKASAMPD
350	O75081	70	DSPA EVKTQPRST
351	O75081	507	AMSELQKAVSDAE
352	O75081	526	ITTERAKMERALA
353	Q9Y623	237	EAFGNAKTVRNDN
354	Q02566	72	GKTVTIKEDQVMQ
355	P16603	166	FNGAAKKA EKHLS
356	P16603	219	LDEQEAKFTSQFQ
357	P16603	336	ETIFDLKPLDPTV
358	P15531	39	FRLVGLKFMQASE

359	Q00653	72	PGASSEKGRKTYP
360	Q00653	144	VLHVTKKNMMGMT
361	Q00653	252	VYLLCDKVQKDDI
362	P25208	135	SYVEPLKLYLQKF
363	P25208	146	KFREAMKGEKGIG
364	Q39161	247	FTNLPRKWNVCVV
365	P30415	116	SMANRGKHTNGSQ
366	P53253	65	SFIVATKCKDFLA
367	P53253	99	IDISTSKVTNGSS
368	P53253	151	YFVKPIKNLAISI
369	P53253	226	YSQFFKKLFSLFL
370	P53253	241	PFKMLGKHSDSMI
371	Q01705	267	CPGNNCKNGGACV
372	Q01705	538	CASTPCKNGAKCL
373	P53370	166	VVQDRNKLKNMWK
374	Q02218	171	IISSTDKLGfyGL
375	Q02218	251	QFTNEEKRTLAR
376	Q02218	389	VVMGKTKAEQFYC
377	Q02218	488	AVMYVCKVAAEWR
378	Q38799	79	TKGLELEKYGPerv
379	P04637	321	SPQPKKKPLDGEY
380	Q56WK6	73	EKSVSvkEEETVV
381	P12004	13	VQGSILKKVLEAL
382	P15873	242	LFQFDLKSgFLQF
383	Q9UHG3	104	HMKRFVKDLGLSA
384	Q02785	302	VSGGERKRVSLVE
385	P33302	45	TEARIQKLARTLT
386	P33302	220	DLGADTKISYSGY
387	P33302	352	EFIRALKTQADIS
388	O43933	279	FKNMQSKVVPLDN
389	O43933	308	ATSVFHKHCAIHV
390	P35056	81	EPLIDDKRRMEIG
391	P35056	112	ANPTQIKGVNDIS
392	P35056	238	SEVEQNKPETVEK
393	P25360	38	LQTDELKQETPTG
394	P25360	95	KTPSGSKRGDSDE
395	P25360	136	KNFIRKKFFESRS
396	P25360	150	SVSSEGKTLFSSY
397	P25360	289	QKKSLLKQTIINL
398	Q99755	225	PRTLTPKFYGLYC
399	Q06449	193	LKSFGSKLGNAAI
400	Q99569	339	VGSSSPKRSGMTA
401	Q99569	649	SSCDAVKMTIIRD
402	O23522	280	SDPTRPKVECGFN
403	O23522	398	IFADNDKQGQSRN
404	O82274	74	ARTGYLkanPFRY
405	O82274	101	PECFIIKSLSREA
406	P53350	76	ISDADTKEVFAGK

407	P53350	97	KPHQREKMSMEIS
408	P13797	11	ATTQISKDELDEL
409	P13797	95	IAKTFRKAINRKE
410	Q8WZA1	146	TGHVMAKRVDFTY
411	Q8WZA1	471	KWPTPEKLWDWDM
412	P29590	460	VYAFSIKGPSYGE
413	P29590	635	AVNRESKFRVVIQ
414	Q9Y253	323	KTIGCSKNFPGKT
415	Q6S8J3	55	HDDSAMKTLRSKM
416	O23404	14	MTSMIVKTTPELF
417	P62937	49	EKGFGYKGSCFHR
418	Q5JSZ5	17	GKD GKSKYSTLSL
419	Q5JSZ5	82	NIVIVPKDGTGWA
420	Q5JSZ5	117	PQPGLQKSVSNLQ
421	Q5JSZ5	124	SVSNLQKPTQSSIS
422	P06401	183	GTAAAHKVLPRGL
423	P06401	211	WSGAPVKPSPQAA
424	P06401	370	PPDAEPKDDAYPL
425	P62191	24	DKDKKKKYEPPVP
426	P62191	178	TVMKVEKAPQETY
427	P23638	51	VLAAERKVTSTLL
428	P60900	102	YEAANWKYKYGYE
429	P60900	184	FLEKKVKKKFDWT
430	P51665	63	PFDEDDKDDSVWF
431	P51665	219	EKVATGKLPINHQ
432	P51665	252	VKAFYLKTNDQMV
433	P51665	288	NRDAEKKEGQEKE
434	P60484	60	VRFLDSKHKNHYK
435	P60484	144	YLLHRGKFLKAQE
436	P60484	269	KMLKKDKMFHFWV
437	Q05911	131	YDIIIPKLVNVIN
438	Q05911	364	GLVVYPKVIERRI
439	P03962	166	ATGEYTKGTVDIA
440	P03962	176	DIAKSDKDFVIGF
441	P59271	78	RLRGGAKKRKKKT
442	P63000	49	NVMVDGKPVNLGL
443	P63000	133	EKLKEKKLTPITY
444	P63000	186	PPVKKRKRKCLLL
445	P15919	67	SPVVPEKPGGQNS
446	P15919	88	LHPKFSKKFHADG
447	P15919	118	ICGNRFKSDGHSR
448	P15919	163	IFRIDVKADVDSI
449	Q09028	160	YTKHPSKPDPSGE
450	Q16576	113	FGSVTGKIECEIK
451	Q16576	214	AGPKEGKIVDAKA
452	Q16576	316	HTFESHKDEIFQV
453	P49756	201	ALDEETKRRDQMI
454	Q9P2N5	95	KPLVQEKEEIKEE

455	Q9P2N5	136	ERRTREKKREDGK
456	Q9P2N5	172	RSKSRSKSRGLSR
457	P40043	10	KDKKEVKVQTVTT
458	O14924	121	EGKGWLKPKLDSK
459	O14924	167	SEPLKCLKQSLSE
460	Q7Z5B4	141	PGNTHRKITSFEL
461	Q7Z5B4	353	LGISTDKAYTGSM
462	O15034	43	VRELEEKCRTOSE
463	O15034	67	FRQHAGKIDLLGG
464	O15034	168	KQRYSGKVHLCVA
465	O15034	198	LPLTAGKYLYVYG
466	Q9CQJ4	239	HPTLMEKDDSAQT
467	Q9CQJ4	261	TVDHLSKYLAURL
468	Q9CQJ4	317	LELVSEKYWKVKN
469	P57078	227	KPFADEKNILHIM
470	P57078	343	KPDDEVKETAHDL
471	P27635	74	ARICANKYMKVSC
472	P27635	198	PDGCGVKYIPNRG
473	P47914	33	QRYESLKGVDPKF
474	P47914	82	VKPKEVKPKIPKG
475	P47914	124	LCRPKAKAKAKAK
476	Q9SJQ6	131	KVRREAKPKREPK
477	Q9SJQ6	162	KRKYVRKKVEVSK
478	Q9SJQ6	244	SAPSTPKRKRSQG
479	P04050	186	KLVGSWKKDRATG
480	P04050	212	EILNIFKHISVKD
481	P04844	109	SISNETKDLLLLAA
482	P60866	59	PVRMPTKTLRITT
483	Q9SIP7	90	VELYAEKVNNRGL
484	P05750	10	LISKRRKLVDAGV
485	P05750	185	QGVLGKVKIMRD
486	P0CX35	122	DEEASYKLGKVKK
487	P0CX35	155	YPDPNIKVNDTVK
488	P0CX35	211	FDLVHIKDSLNT
489	P0CX35	233	VIGEQQGPYISLP
490	P39743	8	SFKGFTKAVSRAP
491	Q31125	243	AFLVVEKFVRHVK
492	Q31125	249	KFVRHVKGGHGHS
493	Q31125	281	ECSSKEKPSTEEE
494	Q9LK36	182	IVLSIIKDGLQVD
495	Q9LK36	194	DPKKYHKMKERLV
496	Q9LK36	196	KKYHKMKERLVGV
497	O94979	471	SQTEFEKNVWSFL
498	Q8RXK2	18	LLVDLVKLVQKRG
499	Q8RXK2	68	LLTFKKKEDLQLI
500	Q8RXK2	89	NRELIEKFQETP
501	Q8RXK2	173	AVDRDLKVVLDFK
502	Q5TEA6	63	SSNVINKRENLE

503	Q5TEA6	92	DILKRKNHNLQKQ
504	Q01105	15	LPPQKKKPRPPPA
505	Q01105	132	TEFEDIKSGYRID
506	Q92581	585	ENQEQLKDDSDL
507	Q13485	46	IESLVKKLKEKKD
508	Q13485	50	VKKLKEKKDELDS
509	Q13485	113	NELKHVKYCQYAF
510	O15105	306	QLNSDNKSQLVQK
511	Q9HCE7	350	NHQCQLKEPSQPL
512	O95863	9	RSFLVRKPSDPNR
513	P31109	26	PQNVQSKSRTAEL
514	P31109	83	GANRVRKAMWYKD
515	P33328	74	ISAQGFKRGANRV
516	Q9C093	11	LCQWLNKELKVS
517	Q9C093	89	HGIITEKPGVATK
518	Q9C093	108	IALQKKKSGLTG
519	Q8N0X7	43	GQKEEAKNYYKQG
520	Q8N0X7	47	EAKNYYKQGIGHL
521	Q8N0X7	82	QMQQKMKETLQNV
522	Q8N0X7	387	HKGKRGKRAKDT
523	P51571	117	SYSLLRKAQRNNE
524	P12866	284	FGSAMIKKGLNI
525	P12866	319	QIVVLQGGVAME
526	P12866	332	KIMTLLKDGSKR
527	Q86WV6	236	GDHAGIKDRVYSN
528	Q86WV6	289	DRLEQAKLFCRTL
529	Q86WV6	347	VTVGSLKTSVPS
530	Q86WV6	370	LISGMEKPLPLRT
531	Q9WUM5	110	VKEAKEKTGATAS
532	Q9FFC7	122	AGMLQFKPIFLGK
533	Q9FFC7	212	EAFEIWKNEVGVS
534	Q9FFC7	310	IAQILQKVPNNYE
535	Q15431	24	SQVSAVKPQTLGG
536	Q15431	57	AKTNLSKNGENID
537	Q15431	157	LQFGNEKVSLKLE
538	Q15431	161	NEKVSLKLEEGIQ
539	P26639	12	ASSPSGKMGGEEK
540	P26639	81	KAEKDSKPIKVT
541	Q9Y228	76	NLELEEKGKAQHP
542	Q9Y228	212	QRELVLKQKMVIL
543	Q9BVV6	144	EDAGIEKDAVTQE
544	P38085	240	FIFNSCKILMVIG
545	P38085	411	EQGVLPKCLAYVD
546	P38085	525	PVNEHGKLNKVF
547	P04610	28	CTTCYCKKCCFHC
548	P04610	41	QVCFTTKALGISY
549	P10636	236	QDSPPSKASPAQD
550	P68363	40	GQMPSDKTIGGGD

551	P68363	124	VLDRIRKLADQCT
552	P07437	252	LNADLRKLAVNMV
553	P07437	336	MLNVQNKNSSYFV
554	P07437	350	WIPNNVKTAVCDI
555	P07437	392	TAMFRRKAFLHWY
556	Q9UHD2	65	LKKLNHKNIIVKLF
557	Q15560	17	IARRLDKMVTKKS
558	P10827	36	NGQCSLKTSMSGY
559	P10827	147	NRERRRKEEMIRS
560	A2ASS6	259	PPRIPPKPKSRSP
561	A2ASS6	321	SPIRSVKSPLLIR
562	A2ASS6	486	VAADKAKEQELKS
563	A2ASS6	491	AKEQELKSRTREV
564	A2ASS6	514	SHEQIRKETEKAF
565	P53322	273	YAFGLSKNLED SW
566	P53322	315	QVWQAVKDVKTWA
567	P53322	318	QAVKDVKTWASAV
568	P53322	473	DKPRYIKGLSISL
569	O15417	609	RPGGCGKKSPFGG
570	O15417	610	PGGCGKKSPFGGL
571	P58771	149	IQEIQLK EAKHIA
572	P29144	18	FHGLLPK KETGAA
573	P29144	351	INEAVWKHNIIYV
574	Q13077	56	EDQICPKCRGEDL
575	Q13077	76	RLRTQEKAHPEVA
576	Q13077	246	QQT LAQKDQALGK
577	Q9Y4K3	180	INIHILKDCPRRQ
578	Q9H8W5	294	IEEHRDKLLKQLE
579	Q9H8W5	314	NSLQLQKAQLEQL
580	Q08960	98	GGCCSSKGGKKG G
581	Q08960	120	GGCCSSKKNIGDN
582	Q08960	151	FTEVFRKPTKKRS
583	Q07307	60	ELPFMKKDP RAPP
584	Q9NPD8	141	NKPAFLKNARQWT
585	Q9UHP3	236	ALLVGTKRKYVDP
586	Q9UHP3	250	RAVEILKDAFKSN
587	Q9UHP3	254	ILKDAFKSND SQQ
588	Q93009	148	NYRDDEKSFSRRI
589	Q93009	327	PKLFRGKMVS YIQ
590	Q07963	20	FLTELPKLAKCEY
591	Q07963	76	DILNGR KWRTLEF
592	Q07963	140	NHSYVAKVVMRPE
593	Q07963	166	DPSDAFKCKNELN
594	Q07963	168	SDAFKCKNELNNI
595	Q07963	262	NWSNTRKEAHMEW
596	Q07963	333	IAKEFQKENIVVH
597	O94888	133	NGGAIDKKLT TLA
598	O94888	309	FDSTQTKQDSRSD

599	Q96T88	187	DVIYHVKYDDYPE
600	Q96T88	500	EQSCDQKLTNTNR
601	P28274	16	VISGIGKGVCLASS
602	P28274	103	VIAKERKGDYLGK
603	Q96JH7	243	ALRENLKQHFQQH
604	P98155	392	FELIDRKTCGDID
605	P98155	435	LATGVCKAVGKEP
606	Q709C8	68	IDKLTLKIPWKNL