

**Supplemental Table S1.** Spectral count data of pacCer-modified proteins in cytosol fractions from mouse melanoma GM95 cells. Displayed are data from two independent experiments showing spectral counts for samples incubated with pacCer or pacGlcCer and then subjected to UV-irradiation (+UV), as indicated. Note that Exp. #1 included an additional control, in which pacLipids were omitted. The following criteria were applied to select for pacCer-modified proteins: (i) no spectral counts in the controls (no pacLipid/ $\pm$ UV, pacCer/-UV) and  $\geq 3$  spectral counts in the pacCer photoaffinity-labeled samples (pacCer/+UV) for Exp. #1 or #2; (ii) a 5-fold enrichment in spectral counts for pacCer photoaffinity-labeled samples (pacCer/+UV) in comparison with the controls for Exp. #1 or #2; (iii) a spectral count ratio for pacCer/+UV over pacGlcCer/+UV samples of  $\geq 1$  for Exp. #1 or #2. High-confidence ceramide binding proteins were selected based on a spectral count ratio for pacCer/+UV over pacGlcCer/+UV samples of  $\geq 2$  for both Exp. #1 and #2 (marked in red).

Exp. #1	Exp. #2	IPI Number	Protein	MW (kDa)	Experiment #1						Experiment #2			
					no addition		pacCer		pacGlcCer		pacCer		pacGlcCer	
					-UV	+UV	-UV	+UV	-UV	+UV	-UV	+UV	-UV	+UV
150	291	IPI00322150	Thimet oligopeptidase	78	0	0	0	16	5	8	2	5	4	0
84		IPI00310240	Annexin A6	75	0	0	0	24	8	17				
248	318	<b>IPI00230084</b>	<b>Aldehyde dehydrogenase family 7, member A1</b>	<b>59</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>9</b>	<b>2</b>	<b>1</b>
93	251	IPI00122815 (+1)	Prolyl 4-hydroxylase, beta	57	3	1	0	19	8	16	2	5	4	3
169		IPI00123604 (+2)	40S ribosomal protein SA	33	1	1	0	14	7	11				
116	127	IPI00223415	Asparaginyl-tRNA synthetase	64	1	0	3	19	7	12	3	4	6	3
228		IPI00678265	ADP-ribosylation factor interacting protein 1	38	0	0	0	12	0	7				
97	125	IPI00467004	Signal transducer and activator of transcription 1	88	0	0	0	24	10	18	2	6	4	8
115	148	IPI00126248 (+1)	ATP citrate lyase	121	0	0	0	14	3	17	1	9	4	6
436	596	<b>IPI00310658</b>	<b>Aldo-keto reductase family 1 member C13</b>	<b>37</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>0</b>
156	401	IPI00380436	Alpha-actinin-1	103	0	0	0	11	3	15	0	4	2	1
29	63	IPI00118899	Alpha-actinin-4	105	7	5	3	63	29	53	4	13	8	10
203		IPI00608097	Aminopeptidase puromycin sensitive	103	0	0	0	16	0	5				
378	559	<b>IPI00314510</b>	<b>Aspartoacylase-2</b>	<b>35</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>
267	426	<b>IPI00131870</b>	<b>COP9 signalosome complex subunit 3</b>	<b>48</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>1</b>
118	100	IPI00323820	Minichromosome maintenance deficient mitotin	103	0	0	0	22	4	16	11	7	12	6
453	610	<b>IPI00111959</b>	<b>CTP synthase 1</b>	<b>67</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>
210	183	IPI00315879	Cytosolic non-specific dipeptidase	53	0	0	0	12	0	3	6	5	5	2
186	655	<b>IPI00316740</b>	<b>DNA damage-binding protein 1</b>	<b>127</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>
108	156	IPI00108338	DNA replication licensing factor MCM3	92	0	0	0	17	2	17	3	7	5	3
107	138	IPI00117016	DNA replication licensing factor MCM4	97	0	0	0	23	4	3	3	5	5	4
290	569	<b>IPI00331385</b>	<b>DnaJ homolog subfamily C member 7</b>	<b>56</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>
110	159	IPI00462445	E3 ubiquitin-protein ligase NEDD4	103	0	0	0	20	7	13	4	7	7	5
48	91	IPI00118676	Eukaryotic initiation factor 4A-I	46	2	1	2	32	9	36	4	9	10	6
185		IPI00515654	Eukaryotic translation elongation factor 1 delta isoform b	31	0	0	0	22	2	6				
260		IPI00116741	Exportin-T	110	0	0	0	10	0	3				
33	44	IPI00555023	Glutathione S-transferase P 1	24	7	4	4	60	23	72	4	5	6	6
55	40	IPI00112555	Glycyl-tRNA synthetase	82	2	1	3	30	9	13	4	15	11	7
75	126	IPI00331556	Heat shock 70 kDa protein 4	94	1	1	2	19	15	24	3	8	5	8
287	595	<b>IPI00331707</b>	<b>Hydroxymethylglutaryl-CoA synthase, cytoplasmic</b>	<b>58</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>
149	215	<b>IPI00128880</b>	<b>Importin-4</b>	<b>119</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>18</b>	<b>1</b>	<b>8</b>	<b>1</b>	<b>6</b>	<b>3</b>	<b>3</b>
142	134	IPI00331444	Importin-7	119	0	0	0	17	3	17	3	5	6	7
229		IPI00119784 (+1)	Insulin-degrading enzyme	118	0	0	0	12	0	6				
138	193	IPI00124444	Isoform 1 of 6-phosphofructokinase type C	85	0	0	0	11	3	10	2	9	5	3
517	381	<b>IPI00111167 (+1)</b>	<b>Ceramide transfer protein CERT</b>	<b>71</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>1</b>
180		IPI00153832 (+1)	Isoform 1 of endophilin-B2	44	0	0	0	14	0	9				
417	729	<b>IPI00223861</b>	<b>Isoform 1 of peroxisomal N(1)-acetyl-spermine/spermidine oxidase</b>	<b>55</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>
86	124	IPI00122565 (+1)	Isoform 1 of rab GDP dissociation inhibitor beta	51	2	1	0	15	5	18	3	4	6	6
440	425	IPI00153642 (+1)	Isoform 1 of ubiquilin-1	62	0	0	0	4	0	2	0	3	0	3
369	529	<b>IPI00134334 (+1)</b>	<b>Prostaglandin reductase 2</b>	<b>38</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>1</b>

Supplemental Table S1. (continued)

Exp. #1	Exp. #2	IPI Number	Protein	MW (kDa)	Experiment #1						Experiment #2			
					no addition		pacCer		pacGlcCer		pacCer		pacGlcCer	
					-UV	+UV	-UV	+UV	-UV	+UV	-UV	+UV	-UV	+UV
99	69	IPI00230044	Isoform 2 of tropomyosin alpha-3 chain	29	1	0	0	14	2	12	9	15	12	10
238		IPI00556781 (+1)	Isoform 3 of dynamin-1-like protein	78	0	0	0	10	1	10				
111	171	IPI00123802 (+2)	Isoform HSP105-alpha of heat shock protein 105 kDa	96	1	1	0	15	4	21	3	6	6	4
177	194	IPI00230682	Isoform long of 14-3-3 protein beta/alpha	28	1	0	0	12	4	8	0	10	5	2
201	297	<b>IPI00321734</b>	<b>Lactoylglutathione lyase</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>1</b>
113	149	IPI00230612	Phosphoribosylglycinamide formyltransferase	108	0	0	0	10	2	7	4	6	4	4
128	76	IPI00420363	Probable ATP-dependent RNA helicase DDX5	69	0	0	0	19	7	12	3	10	10	5
157		IPI00317902	Proteasome (prosome, macropain) subunit, beta type 5	29	0	0	1	18	3	12				
371	448	<b>IPI00131315 (+1)</b>	<b>Unc-119 homolog A</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>
363	471	IPI00380195	RIKEN cDNA 1700012G19 gene	35	0	0	0	3	2	2	0	4	4	1
136	176	IPI00123557	RuvB-like 2	51	1	1	1	18	8	12	8	5	7	4
219	376	IPI00454016	S-adenosylmethionine synthetase isoform type-2	44	1	0	0	10	2	9	1	4	5	2
495	644	<b>IPI00114818</b>	<b>SEC14-like protein 2</b>	<b>46</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>
166	182	IPI00310091	Serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha	65	1	0	0	12	3	12	4	5	5	6
187	333	<b>IPI00622364 (+1)</b>	<b>Sorting nexin-1</b>	<b>59</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>2</b>	<b>8</b>	<b>1</b>	<b>8</b>	<b>4</b>	<b>3</b>
146	339	<b>IPI00109212</b>	<b>Sorting nexin-2</b>	<b>58</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>10</b>	<b>2</b>	<b>0</b>
80	181	IPI00112053	Sorting nexin-5	47	0	0	1	31	4	23	1	6	4	5
279	431	IPI00409462	Spliceosome RNA helicase Bat1	49	1	0	0	10	2	8	1	1	3	1
239	86	IPI00126072	Synaptic vesicle membrane protein VAT-1 homolog	43	0	0	0	13	1	8	4	7	6	6
126	66	IPI00116283	T-complex protein 1 subunit gamma	61	0	0	0	22	2	12	7	11	9	9
91	132	IPI00468688	Threonyl-tRNA synthetase, cytoplasmic	83	1	0	0	14	5	18	4	3	9	4
402	409	<b>IPI00421223</b>	<b>Tropomyosin alpha-4 chain</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>1</b>
390	363	<b>IPI00225371</b>	<b>Unc-119 homolog B</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>1</b>
351	398	<b>IPI00348414</b>	<b>Ado, 2-aminoethanethiol dioxygenase</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>
161	253	IPI00121552	Uridine 5'-monophosphate synthase	52	0	0	0	10	1	7	2	5	3	6
253	453	IPI00111181	Vacuolar protein sorting-associated protein 35	92	0	0	0	9	1	8	0	3	2	1
127	117	IPI00405227	Vinculin	117	1	0	0	16	6	23	7	11	11	6