

Library Number	RMK003
Library Name	Metabolic Genes in Cancer
Old Document Name	190725_50 metabolic genes in cancer (Arissa)
Library Purpose	CRISPR/Cas9 Knockout of 50 most commonly upregulated metabolic genes in cancer
Location	B3301 in -20 box labeled ACY Lipid Metabolism
Designer Name	Arissa C. Young
Designing Date	7/1/2019
Design Reference	50 most commonly upregulated metabolic genes in cancer taken from Nilsson et al. 2013
Usage Reference	This library has not been used yet

Species	Mouse (Mus musculus)
Total Gene #	52
Total Target #	218
Gene Group	
1. Negative Controls	10 random sequences
2. Positive Controls	2 (Rheb and Tsc2)
3. Most commonly upregulated	50
Target Number	
1. Negative Controls	10*1=10
2. Positive Controls	2*4=8
3. Most commonly upregulated	50*4=200

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
1	Aldoa	AATGGCGAGACAACTACCCA
2	Aldoa	CCTTGCCCGGAGCCACAATG
3	Aldoa	CCACGAGACACTGTACCAGA
4	Aldoa	GCCAGCATCTGCCAGCAGGT
5	Aprt	GAGTCCGGGTCTTTCAAGAG
6	Aprt	CTAACAGGTCTAGACTCCAG
7	Aprt	TGTGTGCTCATCCGAAACA
8	Aprt	CGCACCTGAACAGCACGCCC
9	Slc7a1	GCCATGGCATAGATAACTCG
10	Slc7a1	CACAAACGTGAAATACGGTG
11	Slc7a1	TGACGTGAGAACTCTCCGAT
12	Slc7a1	CCAGGTCCTCAGTTCAAAG
13	Dhfr	GACATGGTTTGGATAGTCGG
14	Dhfr	AACCTCAGAGAACCACCACG
15	Dhfr	TCGCCGTGTCCAAAATATG
16	Dhfr	CAGCCCGCCAATACCTGAG
17	Dnmt1	TAATGTGAACCGGTTACAG
18	Dnmt1	CAGAGCCCTATCGCATCGGT
19	Dnmt1	CATCACGGCTCACTTCACGA
20	Dnmt1	ACCTCGGGCCAATCAATCAG
21	Dpm2	TGATCAAGCTAACGGCGACA
22	Dpm2	CTTACCTACTACACCACTT
23	Dpm2	ACCGGGACAGACCAAGCAGT
24	Dpm2	ACATGCTGGCTGTCAATGAA
25	Gapdh	GCTGTGGCGTGATGGCCGTG
26	Gapdh	AAACAGGCCCACTTGAAGGG
27	Gapdh	TGCCATTTGCAGTGGCAAAG
28	Gapdh	GGCCGGTGCTGAGTATGTCG
29	Hmbs	AAGATGAGGGTGATTGAGT
30	Hmbs	CCTGGTCGTTCACTCCCTGA
31	Hmbs	AGAGAAGAGCCTGTTTACCA
32	Hmbs	CTCAGTTGCTATGTCCACCA
33	Inpp1	AGAATCCGGTCACACCACGA
34	Inpp1	CCTGGATATCCATGTCTAAG
35	Inpp1	TCACACTGGACGTACTGACG
36	Inpp1	GCAGGGCACAAACAAGACCC
37	Ldha	CAAGCTGGTCATTATCACCG
38	Ldha	GTTGCAATCTGGATTGAGCG
39	Ldha	GGAGAACATGGCGACTCCAG
40	Ldha	GTCATGGAAGACAAACTCAA
41	Mthfd2	TCGATGAGATATTGTGACTG
42	Mthfd2	AGATAATTAAGCGAACAGGT
43	Mthfd2	GCTTTCATGTCATTAACGTG
44	Mthfd2	CTATGTTCTCAACAAAACCA
45	Nme1	GCAGAACTTCAGACCAACA
46	Nme1	TGGTGGGCGAGATCATCAAG

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
47	Nme1	CTGGTGAAATACATGCACTC
48	Nme1	TGGTCTCTCCAAGCATCACG
49	P4ha1	TCATGGAAACGGATAATCCG
50	P4ha1	GATCCATAATGAGAAAGACC
51	P4ha1	TGAAACGTCTGAACACTGAG
52	P4ha1	GGACACAAATACCATCTCAA
53	Pafah1b3	TCAGCTAATGCACCAATGTG
54	Pafah1b3	GCAGCACCATCGGTTTGTAG
55	Pafah1b3	CTTGTTACCAGTTGTACGA
56	Pafah1b3	ACGCCTGTGCAAGACGTGCA
57	Plod1	AGCATATCTACCCGGACCGG
58	Plod1	CACTGGATACTCACACACGA
59	Plod1	TGTCAACGAAGAGAATAACC
60	Plod1	CCGTAGGCCCTCGTCACACA
61	Rpn2	GCACAACCACCACTGGTACG
62	Rpn2	TGGACGGTTCGGTCCCCACG
63	Rpn2	TGTGAAGGGCGGTCCAGTG
64	Rpn2	TGCAACTGCATGGTAGATCT
65	Rrm2	CTTGCTAGGAGAACGCGTTG
66	Rrm2	TATTCTGGCTCAAGAAACGG
67	Rrm2	GGAAAGACAACGAAGCGGCG
68	Rrm2	ACATTAAAGATCCCAAGGAA
69	Srm	TCTGCCCCGAGTAAACCTA
70	Srm	GGTCCAGTGCGAGATTGATG
71	Srm	CGTGCCCTGGCTCACCCATG
72	Srm	GCCCAGGTGCTGATCATCGG
73	Tk1	TAGGACTGACCGATCATGTG
74	Tk1	CAGGCCAGCCTCTTCGTGT
75	Tk1	AGGACTCCTGGGTCACATCG
76	Tk1	GTAATTGTGGCAGCGCTGGA
77	Dtymk	TGGTGTAACAACCGGACGT
78	Dtymk	ATTAAGGCGAAGTTGAACCA
79	Dtymk	CGTGCTGGCAAGACCACGCA
80	Dtymk	CGTCCAGCAATTGTAAGTGA
81	Tsta3	TCGGGTAATCATACGCCAAG
82	Tsta3	CATCTCGCTGCAATGGTAGG
83	Tsta3	TGTCTCGTCAATAGGATAGG
84	Tsta3	GAAGATGGCCACGTGCTACC
85	Tyms	CAGGCACGATACAGCCTGAG
86	Tyms	GACAATTCTACAGATTACTC
87	Tyms	TCACCACATAGAAGTACAG
88	Tyms	TTCAAGAAGGAGGACCGCAC
89	Umps	GAGCAGATAACTGTCGCCAG
90	Umps	CCGCAGGTGATGTAGACTG
91	Umps	AGAGCGTGCACACGGCGTGG
92	Umps	TCTGTCTGCCGATGTGTCGG

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
93	Plod3	AGAGAGAGATCCTGTCCGGG
94	Plod3	TCAGGCATATGTGATCCGCG
95	Plod3	CTGGCGGACAATCTGATGGA
96	Plod3	AGCTCCAGCTCAACTACCTG
97	Slc25a13	GGGGCGACTCCCAGTAACTG
98	Slc25a13	CAGATTTATATGAGCCGAGG
99	Slc25a13	ACAAGGCATCCGGAGCACAC
100	Slc25a13	TACAAGATCGATAGGATACA
101	Pmm2	ATCAATGAAAGTTCCCCTG
102	Pmm2	AAGACCAAAATTGGAGTGGT
103	Pmm2	GCTTGGTAGCGTACAAAGAT
104	Pmm2	AAAAGTTCGTAGCAGACCTG
105	Mogs	TCTAGGTCATTCTCCACG
106	Mogs	TCGGCAGCATATCCACGATG
107	Mogs	TGCCGAAATAGACGTGTGGG
108	Mogs	GAGGTCCTACTACCAGAGAT
109	Paics	TTCGGCACACCCACTCAATG
110	Paics	ATGCCAATAATGATCCACAG
111	Paics	TCAACCAGCGTACAGTCCTG
112	Paics	GTGGGTTGCAGACCGAGTGG
113	Cad	CGCAGGGGTACCCGACCGTG
114	Cad	AGGATTAGAACCTTTCGTGG
115	Cad	ATGGTGAGTGCCCACCACAA
116	Cad	CTCAGAACTCTGTTACGGG
117	B3gat3	GGACTCGCGGTGTCTCAGTG
118	B3gat3	TCTACACTGGCTGCTAGTGG
119	B3gat3	AATGACATAGATAGTAGGCA
120	B3gat3	ACGGAGATCAGCTTGCAACT
121	Srd5a1	TCGGCGGCCGGACCACTGCG
122	Srd5a1	TGCGGTGTATGCTGAAGACT
123	Srd5a1	GAAACATAGCTAGCAGGACG
124	Srd5a1	TCACCATGCCCACTAACCAC
125	Uck2	GGGAGACAAAGTCGTACACG
126	Uck2	GATACCCGTCTGTCTCGCCG
127	Uck2	CCCTTCGAAGAGCACCACGT
128	Uck2	CAATTCAACTTTGATCACCC
129	Chpf2	CCTGTGAAGTAGAGTAACCG
130	Chpf2	GGAGTCTCCTATTGCGCTTG
131	Chpf2	TCTGTATATACCGAGTCCTA
132	Chpf2	TGACGGTGCTGACCCCTGAG
133	Rpn1	TCTCCCGCTACGATTACCAG
134	Rpn1	CGAGGACGTGAAGCGCACGG
135	Rpn1	TCATTGCTCATCAAACAG
136	Rpn1	GTGAGATACCTCGATGACCC
137	Acly	GAGAGAGATTGACCCCGACG
138	Acly	AGAGCGATTGAGATTACCA

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
139	Acly	TTGTCACCTGTACACGACGG
140	Acly	GGACGAAAAGCTGAATACCG
141	Shmt2	CGGCAGATACTACGGAGGAG
142	Shmt2	AACATCCGCGTACTTGAAAG
143	Shmt2	AGCCTCATGATCGAATCATG
144	Shmt2	TAGTCGATGAGGCCAGTTTG
145	Atic	AGACGACTGTCACTCGAGCG
146	Atic	GAGATGTGTCTGAGCTAACA
147	Atic	AATTGCTTCATCGTATTGAG
148	Atic	TTCTTTCAAGCACGTCAGCC
149	Ehmt2	GGTGAGCTACACGAAAGTCG
150	Ehmt2	TTGGCAATTAATTACCAGCG
151	Ehmt2	GTCGGGCAATCAGTCAGACA
152	Ehmt2	GATGCATGTCATCACTCATG
153	Ggct	ACATTCCTGTACTTCGCCTA
154	Ggct	TTAAAGTTTCAACTCGAGAA
155	Ggct	ATGAGTGAGAGGTGGCACGG
156	Ggct	CGCAGCAGAACACGGCCGAG
157	Alg3	AAGAAGGAATAGCAATCCCG
158	Alg3	GGAAAAGAACTGACGACCA
159	Alg3	GCCACCAGCAATGTGTAGCG
160	Alg3	ATTGATGAAACCCTCCACCT
161	Pycr1	CCGGGGTGTTAGTCATACAT
162	Pycr1	TTGGGGCGAACATTGAGGAC
163	Pycr1	CACAGGTACTCACGCTCAGG
164	Pycr1	GGAGGGCCGAGACCGTAGCT
165	Gmps	AGGGCTATTATCATATCTGG
166	Gmps	AGTGCGTCCCTTGTTGCCAG
167	Gmps	AAATATGACAACAAGTCCTG
168	Gmps	GAATGAGCAGCATTATCAC
169	Flad1	ACAACTCGCGGAGTCAGGT
170	Flad1	TCACTCACGTCCTCACCGCG
171	Flad1	GCTAAGCCTACGCCAAAGT
172	Flad1	GAAGCTGATTCTAGACTCCG
173	Alg8	TTGTCCGCGTACTTCCCTG
174	Alg8	ACAGCCTCCCAATATCTCAG
175	Alg8	CCGCAGCAGATAGACACCAT
176	Alg8	AGTTTGGAGCCCAGTAGGCA
177	Tpi1	TGAAGGTCAGTACAAACGCA
178	Tpi1	AAGTCGATGTAAGCGGTGGG
179	Tpi1	AGTGAGCCACGCCCTAGCAG
180	Tpi1	CCAACGAAGAACTTCTGGT
181	GPI1	GTACACTGGCAAATCCATCA
182	GPI1	TTAGAGACAAACCAGACACG
183	GPI1	CGGCAAAGATGTGATGCCGG
184	GPI1	ACTTACCGTGTTCGTAGACA

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
185	Pkm	TTTCTCATGGAACCCATG
186	Pkm	TGAAATAGCACATGCCTGTG
187	Pkm	GGGCAGAGTCAATGTCCAGG
188	Pkm	CTTCCTGACTTCATGCACGT
189	Ctps	ATTGGCCATTAACCACAAGC
190	Ctps	ATACCAGTACGTCATTAACA
191	Ctps	GCCCACAAGAGCGATCGAGC
192	Ctps	TTAATACCCGTAGACGAAGA
193	Chpf	CACACCCAGTGTAGGCAACG
194	Chpf	GCCCCACGCAACGGGCAGCG
195	Chpf	CGGCCGCAGGACTTCATCGG
196	Chpf	GAAGCGCTGACACCCCAGGG
197	Eno1	CCTACCTTGCTAACCAGAGC
198	Eno1	CCTTACCCTTCCCCATGAAG
199	Eno1	GTTCCCTTAGGTGTCTCAC
200	Eno1	GGCCACTCACCGGGACAGGC
201	Tsc2	TGAACCACATGGCTATGACG
202	Tsc2	CACAGGGTGATAATGAACAG
203	Tsc2	CAGCTCCAAGACCCTTGAG
204	Tsc2	CTGATCCTAGCACACATGTG
205	Rheb	AACAACTGAATTGTCAATG
206	Rheb	CCATATCCAACAACCTTGCCA
207	Rheb	TTCAGCTTGTAGACACAGCG
208	Rheb	TCATAGGATACCTATTATGT
209	BRDN0000737505	AAAAAGTCCGCGATTACGTC
210	BRDN0000737693	AAAACGGCTCGATCGGTGAT
211	BRDN0000737637	AAAACGTAATTATACCGAGC
212	BRDN0000738185	AAAATTGCACCTTCCCGGCC
213	BRDN0000737801	AAACCCCGCGCGGAGCGTC
214	BRDN0000737467	AAACCTAGCGTAGATTCGGC
215	BRDN0000737848	AAACGAGGCTGTTTCGTACAC
216	BRDN0000737609	AAACTCATACTAGCGAATC
217	BRDN0000737434	AAACTCCCGTGTCAACCGAT
218	BRDN0000738254	AAAGACGTGCATTCAGCGAG

Original Doc Name: 190725_50 metabolic genes in cancer (Arissa)

Target.Gene.Symbol	sgRNA.Target.Sequence
Aldoa	AATGGCGAGACAACTACCCA
Aldoa	CCTTGCCCGGAGCCACAATG
Aldoa	CCACGAGACACTGTACCAGA
Aldoa	GCCAGCATCTGCCAGCAGGT
Aprt	GAGTCCGGGTCTTTCAAGAG
Aprt	CTAACAGGTCTAGACTCCAG
Aprt	TGTGTGCTCATCCGGAAACA
Aprt	CGCACCTGAACAGCACGCCC
Slc7a1	GCCATGGCATAGATAACTCG
Slc7a1	CACAAACGTGAAATACGGTG
Slc7a1	TGACGTGAGAACTCTCCGAT
Slc7a1	CCAGGTCCTTCAGTTCAAAG
Dhfr	GACATGGTTTGGATAGTCGG
Dhfr	AACCTCAGAGAACCACCACG
Dhfr	TCGCCGTGTCCCAAATATG
Dhfr	CAGCCCGCCAATACCTGAG
Dnmt1	TAATGTGAACCGGTTACAG
Dnmt1	CAGAGCCCTATCGCATCGGT
Dnmt1	CATCACGGCTCACTTCACGA
Dnmt1	ACCTCGGGCCAATCAATCAG
Dpm2	TGATCAAGCTAACGGCGACA
Dpm2	CTTACCTACTACACCACTT

Target.Gene.Symbol	sgRNA.Target.Sequence
Dpm2	ACCGGGACAGACCAAGCAGT
Dpm2	ACATGCTGGCTGTCAATGAA
Gapdh	GCTGTGGCGTGATGGCCGTG
Gapdh	AAACAGGCCCACTTGAAGGG
Gapdh	TGCCATTTGCAGTGGCAAAG
Gapdh	GGCCGGTGCTGAGTATGTCG
Hmbs	AAGATGAGGGTGATTTCGAGT
Hmbs	CCTGGTCGTTCACTCCCTGA
Hmbs	AGAGAAGAGCCTGTTTACCA
Hmbs	CTCAGTTGCTATGTCCACCA
Inpp1	AGAATCCGGTCACACCACGA
Inpp1	CCTGGATATCCATGTCTAAG
Inpp1	TCACACTGGACGTACTGACG
Inpp1	GCAGGGCACAAACAAGACCC
Ldha	CAAGCTGGTCATTATCACCG
Ldha	GTTGCAATCTGGATTCAGCG
Ldha	GGAGAACATGGCGACTCCAG
Ldha	GTCATGGAAGACAAACTCAA
Mthfd2	TCGATGAGATATTGTGACTG
Mthfd2	AGATAATTAAGCGAACAGGT
Mthfd2	GCTTTCATGTCATTAACGTG
Mthfd2	CTATGTTCTCAACAAAACCA
Nme1	GCAGAAACTTCAGACCAACA

Target.Gene.Symbol	sgRNA.Target.Sequence
Nme1	TGGTGGGCGAGATCATCAAG
Nme1	CTGGTGAAATACATGCACTC
Nme1	TGGTCTCTCCAAGCATCACG
P4ha1	TCATGGAAACGGATAATCCG
P4ha1	GATCCATAATGAGAAAGACC
P4ha1	TGAAACGTCTGAACACTGAG
P4ha1	GGACACAAATACCATCTCAA
Pafah1b3	TCAGCTAATGCACCAATGTG
Pafah1b3	GCAGCACCATCGGTTTGTAG
Pafah1b3	CTTGTTCAACAGTTGTACGA
Pafah1b3	ACGCCTGTGCAAGACGTGCA
Plod1	AGCATATCTACCCGGACCGG
Plod1	CACTGGATACTCACACACGA
Plod1	TGTCAACGAAGAGAATAACC
Plod1	CCGTAGGCCCTCGTCACACA
Rpn2	GCACAACCACCACTGGTACG
Rpn2	TGGACGGTTCGGTCCCCACG
Rpn2	TGTGAAGGGGCGGTCCAGTG
Rpn2	TGCAACTGCATGGTAGATCT
Rrm2	CTTGCTAGGAGAACGCGTTG
Rrm2	TATTCTGGCTCAAGAAACGG
Rrm2	GGAAAGACAACGAAGCGGCG
Rrm2	ACATTAAAGATCCCAAGGAA

Target.Gene.Symbol	sgRNA.Target.Sequence
Srm	TCTGCCCCGAGTAAAACCTA
Srm	GGTCCAGTGCAGATTGATG
Srm	CGTGCCCTGGCTCACCCATG
Srm	GCCCAGGTGCTGATCATCGG
Tk1	TAGGACTGACCGATCATGTG
Tk1	CAGGCCAGCCTCTTCGTGT
Tk1	AGGACTCCTGGGTCACATCG
Tk1	GTAATTGTGGCAGCGCTGGA
Dtymk	TGGTGTAACAACCGGACGT
Dtymk	ATTAAGGCGAAGTTGAACCA
Dtymk	CGTGCTGGCAAGACCACGCA
Dtymk	CGTCCAGCAATTGTAAGTGA
Tsta3	TCGGGTACTCATAACGCAAG
Tsta3	CATCTCGCTGCAATGGTAGG
Tsta3	TGTCTCGTCAATAGGATAGG
Tsta3	GAAGATGGCCACGTGCTACC
Tyms	CAGGCACGATACAGCCTGAG
Tyms	GACAATTCTACAGATTACTC
Tyms	TCACCACATAGAACTGACAG
Tyms	TTCAAGAAGGAGGACCGCAC
Umps	GAGCAGATAACTGTCGCCAG
Umps	CCGCAGGTCGATGTAGACTG
Umps	AGAGCGTGCACACGGCGTGG

Target.Gene.Symbol	sgRNA.Target.Sequence
Umps	TCTGTCTGCCGATGTGTCGG
Plod3	AGAGAGAGATCCTGTCCGGG
Plod3	TCAGGCATATGTGATCCGCG
Plod3	CTGGCGGACAATCTGATGGA
Plod3	AGCTCCAGCTCAACTACCTG
Slc25a13	GGGGCGACTCCCAGTAACTG
Slc25a13	CAGATTTATATGAGCCGAGG
Slc25a13	ACAAGGCATCCGGAGCACAC
Slc25a13	TACAAGATCGATAGGATACA
Pmm2	ATTCAATGAAAGTTCCCCTG
Pmm2	AAGACCAAATTGGAGTGGT
Pmm2	GCTTGGTAGCGTACAAAGAT
Pmm2	AAAAGTTCGTAGCAGACCTG
Mogs	TCTAGGTCATTCTCCCACG
Mogs	TCGGCAGCATATCCACGATG
Mogs	TGCCGAAATAGACGTGTGGG
Mogs	GAGGTCCTACTACCAGAGAT
Paics	TTCGGCACACCCACTCAATG
Paics	ATGCCAATAATGATCCACAG
Paics	TCAACCAGCGTACAGTCCTG
Paics	GTGGGTTGCAGACCGAGTGG
Cad	CGCAGGGGTACCCGACCGTG
Cad	AGGATTAGAACCTTTCGTGG

Target.Gene.Symbol	sgRNA.Target.Sequence
Cad	ATGGTGAGTGCCCACCACAA
Cad	CTCAGAAACTCTGTTACGGG
B3gat3	GGACTCGCGGTGTCTCAGTG
B3gat3	TCTACACTGGCTGCTAGTGG
B3gat3	AATGACATAGATAGTAGGCA
B3gat3	ACGGAGATCAGCTTGCAACT
Srd5a1	TCGGCGGCCGGACCACTGCG
Srd5a1	TGCGGTGTATGCTGAAGACT
Srd5a1	GAAACATAGCTAGCAGGACG
Srd5a1	TCACCATGCCCACTAACCAC
Uck2	GGGAGACAAAGTCGTACACG
Uck2	GATACCCGTCTGTCTCGCCG
Uck2	CCCTTCGAAGAGCACCCAGT
Uck2	CAATTCAACTTTGATCACCC
Chpf2	CCTGTGAAGTAGAGTAACCG
Chpf2	GGAGTCTCCTATTGCGCTTG
Chpf2	TCTGTATATACCGAGTCCTA
Chpf2	TGACGGTGCTGACCCCTGAG
Rpn1	TCTCCCGCTACGATTACCAG
Rpn1	CGAGGACGTGAAGCGCACGG
Rpn1	TCACTTGCTCATCAAACACG
Rpn1	GTGAGATACCTCGATGACCC
Acly	GAGAGAGATTGACCCCGACG

Target.Gene.Symbol	sgRNA.Target.Sequence
Acly	AGAGCGATTTCGAGATTACCA
Acly	TTGTCACCTGTACACGACGG
Acly	GGACGAAAAGCTGAATACCG
Shmt2	CGGCAGATACTACGGAGGAG
Shmt2	AACATCCGCGTACTTGAAAG
Shmt2	AGCCTCATGATCGAATCATG
Shmt2	TAGTCGATGAGGCCAGTTTG
Atic	AGACGACTGTCACTCGAGCG
Atic	GAGATGTGTCTGAGCTAACA
Atic	AATTGCTTCATCGTATTGAG
Atic	TTCTTTCAAGCACGTCAGCC
Ehmt2	GGTGAGCTACACGAAAGTCG
Ehmt2	TTGGCAATTAATTACCAGCG
Ehmt2	GTCGGGCAATCAGTCAGACA
Ehmt2	GATGCATGTCATCACTCATG
Ggct	ACATTCCTGTA CTTCGCCTA
Ggct	TTAAAGTTTCAACTCGAGAA
Ggct	ATGAGTGAGAGGTGGCACGG
Ggct	CGCAGCAGAACACGGCCGAG
Alg3	AAGAAGGAATAGCAATCCCG
Alg3	GGAAAAGAACTGACGACCA
Alg3	GCCACCAGCAATGTGTAGCG
Alg3	ATTGATGAAACCCTCCACCT

Target.Gene.Symbol	sgRNA.Target.Sequence
Pycr1	CCGGGGTGTTAGTCATACAT
Pycr1	TTGGGGCGAACATTGAGGAC
Pycr1	CACAGGTA CTACGCTCAGG
Pycr1	GGAGGGCCGAGACCGTAGCT
Gmps	AGGGCTATTATCATATCTGG
Gmps	AGTGCGTCCCTTGTTGCCAG
Gmps	AAATATGACAACAAGTCCTG
Gmps	GAATGAGCAGCATTATCAC
Flad1	ACAAACTCGCGGAGTCAGGT
Flad1	TCACTCACGTCCTCACCGCG
Flad1	GCTAAGCCTACGCCAAAGT
Flad1	GAAGCTGATTCTAGACTCCG
Alg8	TTGTCCGCGTTACTTCCCTG
Alg8	ACAGCCTCCAATATCTCAG
Alg8	CCGCAGCAGATAGACACCAT
Alg8	AGTTTGGAGCCCAGTAGGCA
Tpi1	TGAAGGTCAGTACAAACGCA
Tpi1	AAGTCGATGTAAGCGGTGGG
Tpi1	AGTGAGCCACGCCCTAGCAG
Tpi1	CCAACGAAGAACTTCTGGT
GPI1	GTACTGGCAAATCCATCA
GPI1	TTAGAGACAAACCAGACACG
GPI1	CGGCAAAGATGTGATGCCGG

Target.Gene.Symbol	sgRNA.Target.Sequence
GPI1	ACTTACCGTGTTCTAGACA
Pkm	TTTCTCATGGAACCCATG
Pkm	TGAAATAGCACATGCCTGTG
Pkm	GGGCAGAGTCAATGTCCAGG
Pkm	CTTCCTGACTTCATGCACGT
Ctps	ATTGGCCATTAACCACAAGC
Ctps	ATACCAGTACGTCATTAACA
Ctps	GCCCCAAGAGCGATCGAGC
Ctps	TTAATACCCGTAGACGAAGA
Chpf	CACACCCAGTGTAGGCAACG
Chpf	GCCCCACGCAACGGGCAGCG
Chpf	CGGCCGCAGGACTTCATCGG
Chpf	GAAGCGCTGACACCCCAGGG
Eno1	CCTACCTTGCTAACCAGAGC
Eno1	CCTTACCCTTCCCCATGAAG
Eno1	GTTCTTCTAGGTGTCTCAC
Eno1	GGCCTCACCAGGACAGGC
Tsc2	TGAACCACATGGCTATGACG
Tsc2	CACAGGGTGATAATGAACAG
Tsc2	CAGCTCCAAAGACCCTTGAG
Tsc2	CTGATCCTAGCACACATGTG
Rheb	AACAACTGAATTGTCAATG
Rheb	CCATATCCAACAACCTTGCCA

Target.Gene.Symbol	sgRNA.Target.Sequence
Rheb	TTCAGCTTGTAGACACAGCG
Rheb	TCATAGGATACCTATTATGT
BRDN0000737505	AAAAAGTCCGCGATTACGTC
BRDN0000737693	AAAACGGCTCGATCGGTGAT
BRDN0000737637	AAAACGTAATTATACCGAGC
BRDN0000738185	AAAATTGCACCTCCCGGCC
BRDN0000737801	AAACCCCGCGCGGAGCGTC
BRDN0000737467	AAACCTAGCGTAGATTCGGC
BRDN0000737848	AAACGAGGCTGTTCGTACAC
BRDN0000737609	AAACTCATACGTAGCGAATC
BRDN0000737434	AAACTCCCGTGTCAACCGAT
BRDN0000738254	AAAGACGTGCATTCAGCGAG