

Library Number	RMK011
Library Name	Glycolysis Library
Old Document Name	190628_Glycolysis Library
Library Purpose	CRISPR/Cas9 Knockout of genes from Glycolysis genes in mouse T cells
Location (Oligos)	targeted metabolic pathway libraries box, -20 freezer in B3301
Designer Name	Ayaka Sugiura/Kate Beier
Designing Date	2019-06-03
Design Reference	Mouse CRISPR Knockout Pooled Library (Brie) (Addgene#73632) (Doench et al., 2016)
Usage Reference	Ayaka Sugiura
Species	Mouse (<i>Mus musculus</i>)
Total Gene #	62
Total Target #	258
Gene Group	
1. Negative Controls	10 Nontargeting controls (NTC)
2. Positive Controls	Tsc2
3. Glycolysis genes	62
Target Number	
1. Negative Controls	10*1=10
2. Positive Controls	Tsc2
3. Glycolysis genes	62*4=248

Note: Target selected from KEGG pathways

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
1	Acss1	CGGACACCAAGGTTCCCATG
2	Acss1	GATCACAGGACACAGCTATG
3	Acss1	GGGTGATGGCAGATGTACAC
4	Acss1	GTATCCCTTAGCCAAATGCA
5	Acss2	GCTGGGAACCTACTACCCGG
6	Acss2	CAGAACGCCGGTGCAGCTCG
7	Acss2	AAGGGAAAATATTTACTGAG
8	Acss2	GCATTGTGGTCAAACATCTG
9	Adh1	CCTTCGCGCAAAGTCCCCCG
10	Adh1	CTGCCGCTCAGACGATCACG
11	Adh1	TCACAAACCCTTCACCATCG
12	Adh1	GGGGTGACTTGTGTGAAACC
13	Adh4	GGAGTGACCAACTTCAAACC
14	Adh4	TTCATTCTCTCAATACTG
15	Adh4	TGAGCTCCTGATCAATAGTG
16	Adh4	TCAATTTCTTCAATGCAAAG
17	Adh5	AAGACGGCACAAAGTAGAACC
18	Adh5	CCCCATCTGTCATCTCAACG
19	Adh5	CAATAAAGATAAATTCGCAA
20	Adh5	ACTTTATCCAAAGGGGCCGA
21	Adh7	ACCGTCAACCTTCGCTACGG
22	Adh7	AACAGCAGCTCCATAACCCG
23	Adh7	TTTCTCCATTGAGGAAATCG
24	Adh7	CACAGAGTGTATCAGTCCCA
25	Adpgk	CTCTCACGACCTCTCCAACG
26	Adpgk	ATGCTGCTTTAATTGGACAG
27	Adpgk	CCAGGTA CTCTAAAATAAGG
28	Adpgk	GCTGGCCAGTATGACCAACA
29	Akr1a1	GAATACTAAGCACCACCCTG
30	Akr1a1	CAATGAAACTGAGATTGGGG
31	Akr1a1	AAGGCCAGTGCATCAAATAG
32	Akr1a1	TCACTATAAAGAGACCTGGA
33	Aldh1a3	CACCAGGCATGAGCCCATCG
34	Aldh1a3	TGCATCCAGCCGGCGCCACG
35	Aldh1a3	CCACCCGGCAAATATCTGA
36	Aldh1a3	AACACTAGAGAAAATATGTG
37	Aldh3a1	TGAATGGACCTCCTACTACG
38	Aldh3a1	AGTCCTTGTCTACGTAACAA
39	Aldh3a1	CTGTACCCAGTGATCAAAGG
40	Aldh3a1	ATGTGATCACTCACTCCGA
41	Aldh3b1	GAGGTCAGCTGAGTTCGGAG
42	Aldh3b1	TACCCAGGGAATGCTTATGT
43	Aldh3b1	GTCTCCATAGAAACGTGTGA
44	Aldh3b1	GGCCCAAGACCTGCACAAGG
45	Aldh3b2	GGGAGGCCCTTCAATGCAGGG
46	Aldh3b2	GATGCACTGGCTAAGGACGT

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
47	Aldh3b2	ACGCGTGATGGAATTCTGCA
48	Aldh3b2	TTCTCAGGAAGTCCTCGGGT
49	Aldoa	AATGGCGAGACAACACTACCCA
50	Aldoa	CCTTGCCCGGAGCCACAATG
51	Aldoa	CCACGAGACACTGTACCAGA
52	Aldoa	GCCAGCATCTGCCAGCAGGT
53	Aldoart1	GCGATTGCCCATGCTTCCAA
54	Aldoart1	GTGGCTCCAGTCTTGCCACT
55	Aldoart1	GTATGGGCAGGGCATAGTTC
56	Aldoart1	GGTGACCCATGGCAACGCAC
57	Aldob	TATCCACAGTTGGACCAAGG
58	Aldob	AATCCATTAGCCAGAGCAT
59	Aldob	CCGCCTGCAAAGGATAAAGG
60	Aldob	GGTCCCTATTGTTGAGCCAG
61	Aldoc	GCCTCTAGCTGGGACCGACG
62	Aldoc	AATCAGTGATCGCACGCCGT
63	Aldoc	AGTTGTGCGATATTGCTCTA
64	Aldoc	ACCATCATGTATACCTCGAA
65	Bpgm	GACCAGAACTTAACAACGA
66	Bpgm	GGATGAGACTCCTCTATAGG
67	Bpgm	GAACGTGGCAGTTGATCCAA
68	Bpgm	AGCAATCCTTTCCTTCCAGT
69	BRDN0000737434	AAACTCCCGTGTCAACCGAT
70	BRDN0000737467	AAACCTAGCGTAGATTCGGC
71	BRDN0000737505	AAAAAGTCCGCGATTACGTC
72	BRDN0000737609	AAACTCATACGTAGCGAATC
73	BRDN0000737637	AAAACGTAATTATACCGAGC
74	BRDN0000737693	AAAACGGCTCGATCGGTGAT
75	BRDN0000737801	AAACCCCGCGCGGAGCGTC
76	BRDN0000737848	AAACGAGGCTGTTCGTACAC
77	BRDN0000738185	AAAATTGCACCTTCCCGGCC
78	BRDN0000738254	AAAGACGTGCATTAGCGAG
79	Dlat	ACTACCGCAACGGACCGCAG
80	Dlat	CAGGCTCTCAAACCCAACAG
81	Dlat	CGACAAGGCCACCATAGGTG
82	Dlat	TTCAGAACCACACCTACCGG
83	Dld	GGTGGAACATGCTTGAACGT
84	Dld	GCAGTAAAAGCATTAAACAGG
85	Dld	AGAGAAGCTGGTTGTTATTG
86	Dld	CAAAAACATCCTTGTAGCTA
87	Eno1	GGCCACTCACCGGGACAGGC
88	Eno1	TCCAGGTCTCTCCGAGCTG
89	Eno1	CCTGCAGAAAGTGAATGTTG
90	Eno1	CCTACCTTGCTAACCGAGGC
91	Eno2	GCCATCGCGGTAAAACCTCAG
92	Eno2	GGTGTACCACACCCTCAAGG

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
93	Eno2	TCCTTCCCGATACATCACTG
94	Eno2	AAACAGCGTACTTAGGCAA
95	Eno3	AGCCGGTTACCCGGACAAGG
96	Eno3	GAGACAAAGCACGATACCTG
97	Eno3	CTCCAGAACTAAGTGTTG
98	Eno3	CTGCAAGATCTGCGATGTGT
99	Eno4	TCCACGACTTCAAAGTGCGT
100	Eno4	GATCAATCAGTCCATCACAG
101	Eno4	GGTTAAGTAGAGAGGATCGC
102	Eno4	GCTCTCCTCTTAGGACGGA
103	Fbp1	CATGGCAAGGACCAACATGG
104	Fbp1	CACAAGAACACAGGTAGCGT
105	Fbp1	TGGCTCAACCAATGTGACTG
106	Fbp1	AACATCTACAGCCTTAATGA
107	Fbp2	ACTGTATGGTAGTGCAACCC
108	Fbp2	CCCGTTACGTTATGGAAAAG
109	Fbp2	TTGTCTTCCACAGACCACGG
110	Fbp2	TGTGATGTAGGGGAAATATG
111	G6pc	GGTGTGTTGAACGTCATCTTG
112	G6pc	GTTGTCCAAACAGAATCCTG
113	G6pc	GGTCAGCAATCACAGACACA
114	G6pc	ACAAGACTCCAGCCACGACC
115	G6pc2	GACCTGATGGGGGAAATGTG
116	G6pc2	GCAGGTCAATACCGAACAGT
117	G6pc2	GGGTAGCGGTCATAGGGGAC
118	G6pc2	AACACTCCACAGAAAGGACC
119	G6pc3	TAGGCCGACTGCCAATAGGA
120	G6pc3	TTCCCGGGCTAGAGAATATG
121	G6pc3	GGGGCTCATTAGCCAGCCAA
122	G6pc3	TAAAGAGAGTCCAATACATG
123	Galm	GTAGCCAACCGAATTGCCAA
124	Galm	CAAACCCCGTGAATCCGCCA
125	Galm	AGCAGATGCATATTTGCCCG
126	Galm	GTTGGTCAGATTAAGTGGAG
127	Gapdh	GCTGTGGCGTGATGGCCGTG
128	Gapdh	AAACAGGCCCACTTGAAGGG
129	Gapdh	TGCCATTTGCAGTGGCAAAG
130	Gapdh	GGCCGGTGCTGAGTATGTCG
131	Gapdhs	GCCAGCTAGAGAGCTGACAG
132	Gapdhs	GGTTGAGGATCCACCACCA
133	Gapdhs	AACTTGTCTGGCTCTATCTG
134	Gapdhs	CTCTATAGGGAATCCCTACG
135	Gck	TTCTGGGGTGGAACGCACGT
136	Gck	AAGGCACGAAGACATAGACA
137	Gck	CCATCCGGTTCGTAATCCAGG
138	Gck	CCAGATGTATTCCATCCCCG

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
139	Gpi1	GTACACTGGCAAATCCATCA
140	Gpi1	TTAGAGACAAACCAGACACG
141	Gpi1	CGGCAAAGATGTGATGCCGG
142	Gpi1	ACTTACCGTGTCGTAGACA
143	Hk1	CCGACAATCCAAAATAGACG
144	Hk1	CGTAGCCGCCATTGAAACGT
145	Hk1	GGATCTTTACCAGTAGGACT
146	Hk1	CTCCCGGGATTATAACCCAA
147	Hk2	ATCCCGAGGACATCATGCG
148	Hk2	GGAGATGCGTCACATTGACA
149	Hk2	ATCCGGAGTTGACCTCACAA
150	Hk2	GGAGTGGCACACACATAAGT
151	Hk3	TGTTACCCACCGGTGCCGTG
152	Hk3	ATCCTGGATGCATACCCCG
153	Hk3	TCCTATCCTCAGACTACCTG
154	Hk3	ACAATCAGCCCGACTTCACA
155	Hkdc1	CATGAGCAACATCGACCTCG
156	Hkdc1	CCCCAAACGCCTACACAAGG
157	Hkdc1	CAGCGATGCACTGTACGATG
158	Hkdc1	TGCCCAATGAAATCACCCGT
159	Ldha	CAAGCTGGTCATTATCACCG
160	Ldha	GTTGCAATCTGGATTGAGCG
161	Ldha	GGAGAACATGGCGACTCCAG
162	Ldha	GTCATGGAAGACAACTCAA
163	Ldhal6b	AGGAACTGGATCAGTCGGCA
164	Ldhal6b	GAGATTCAAGTGCCCTGTG
165	Ldhal6b	TGAGGTAGTGATTATCACAG
166	Ldhal6b	GCAACGTGTCCCTCCCAACC
167	Ldhb	AAATTGTGGCCGATAAAGGT
168	Ldhb	GTCTTCCAACACATCCACCA
169	Ldhb	GCTCGCCCAGGATCCATCCG
170	Ldhb	GGGCTGTACTTGACGATCTG
171	Ldhc	TTCCCGGTGTAAGACTACTG
172	Ldhc	GTTTCGTATCAGCGTCAACAA
173	Ldhc	TCATGATAGCGACATTACGT
174	Ldhc	TACAGCCACTTCCGATCACA
175	Minpp1	ATCCAGTCACCGTACCACAG
176	Minpp1	TGATGTGGAAAGAAACGAGA
177	Minpp1	AGCTACCTGAATTAAGTCTG
178	Minpp1	TCGGTGCTCAGCCCCTACTT
179	Pck1	ACTGACAGACTCGCCCTATG
180	Pck1	GTGGCCGAGACTAGCGATGG
181	Pck1	CCTTTGGAAGCGGATATGGT
182	Pck1	TCGCAGATGTGGATATACTC
183	Pck2	TGCGTATTATGACCCGCCTG
184	Pck2	TGATTGTAACCTTCGCAG

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
185	Pck2	AGGGTTTGGATGCTACGGCA
186	Pck2	ATGGAAGCACATACATAATG
187	Pdha1	AGAACAACCGCTATGGCATG
188	Pdha1	ATCACTGCCTATCGAGCACA
189	Pdha1	GCGCCGGATGGAGCTAAAGG
190	Pdha1	TGTTTGACATTATACGGCGA
191	Pdha2	TTCTCACAGATGAAAACACA
192	Pdha2	CAAGTACTACCGGACCATGC
193	Pdha2	GGACGTGATGACGTGATCCG
194	Pdha2	TACGGCAAGAACTTCTACGG
195	Pdhb	TCTTAATTGTAGGTTAGCAG
196	Pdhb	GGGCACAGGCTGAAGGCCAG
197	Pdhb	TGAAGCTATTAATCAAGGTA
198	Pdhb	GCCATTCGTGATAATAACCC
199	Pfkl	GGAGATAACAGTGCGCACTG
200	Pfkl	CTGTAAGGCCTTCACTACGA
201	Pfkl	AGCCCTGCACCGCATTATGG
202	Pfkl	CCGTATGGGCATATATGTGG
203	Pfkm	CCTCACGGTAGAGCGAACAG
204	Pfkm	GCGCCTTGGATATGACACCC
205	Pfkm	TTAGACCAAAGACGTGACCA
206	Pfkm	CATAGACACGCTCTCCACG
207	Pfkp	CAATCTGTGCGTGATCGGCG
208	Pfkp	GAAGTATTCTACCTCAACG
209	Pfkp	TTAGATCAAAGAAATCGGCT
210	Pfkp	AAGGAAGCCGTGAAACTCCG
211	Pgam1	AACCTGGAGAACCGCTTCAG
212	Pgam1	GCAGAAACTGCTGCTAAGCA
213	Pgam1	GAGCCCGGCGGGCCACGAGG
214	Pgam1	CTCAATGAGCGACACTATGG
215	Pgam2	GGATGTTACGGACCAAATGT
216	Pgam2	AACCAAGAGAACCGTTTCTG
217	Pgam2	GCTTCAAGCCTGCATAGCGG
218	Pgam2	GTTTGACATCTGCTACACGT
219	Pgk1	TAAGGTGCTCAACAACATGG
220	Pgk1	TCAAGAACAGAACATCCCTG
221	Pgk1	GGACTGCACACCGAGCCCAT
222	Pgk1	CTTCCTCTACATGAAAGCGG
223	Pgk2	GGATACCATCAGGCCGACCG
224	Pgk2	GGATGATAGACCCATTATCT
225	Pgk2	CGGGCTCACAGTTCTACGGT
226	Pgk2	GGAAGGCTTCTACTTTAGCA
227	Pgm1	CATTACCGATGGACGCGCTG
228	Pgm1	ATCATCTCTCCCCACGATCG
229	Pgm1	TGGGGGTTATATCAGAGAAG
230	Pgm1	AGGCCAACTGCACAAACTCG

Number	Target.Gene.Symbol	sgRNA.Target.Sequence
231	Pgm2	CGGCCGCTTCTACATGACCG
232	Pgm2	CGCATAGACGCCATGCACGG
233	Pgm2	CAGCCAGCCATAATCCAGGA
234	Pgm2	CAGCAGCATAGGTGAGATTG
235	Pklr	TGTACGAAAAGCCAGTGATG
236	Pklr	GGGTTCACTCCAGACCTGTG
237	Pklr	GGGCGATGCAAAGACAGTGT
238	Pklr	CTGGTGACCGAAGTGGAAACA
239	Pkm	TTTCTCTCATGGAACCCATG
240	Pkm	TGAAATAGCACATGCCTGTG
241	Pkm	GGGCAGAGTCAATGTCCAGG
242	Pkm	CTTCCTGACTTCATGCACGT
243	Rheb	AACAAACTGAATTGTCAATG
244	Rheb	CCATATCCAACAACCTTGCCA
245	Rheb	TTCAGCTTGTAGACACAGCG
246	Rheb	TCATAGGATACCTATTATGT
247	Slc2a1	CCTGCTCATCAATCGTAACG
248	Slc2a1	TCAGCATGGAGTTCCGCCTG
249	Slc2a1	GTGTCACCTACAGCTCTACG
250	Slc2a1	CAAACATGGAACCACCGCTA
251	Tpi1	TGAAGGTCAGTACAAACGCA
252	Tpi1	AAGTCGATGTAAGCGGTGGG
253	Tpi1	AGTGAGCCACGCCCTAGCAG
254	Tpi1	CCAACGAAGAACTTCCTGGT
255	Tsc2	TGAACCACATGGCTATGACG
256	Tsc2	CACAGGGTGATAATGAACAG
257	Tsc2	CAGCTCCAAGACCCTTGAG
258	Tsc2	CTGATCCTAGCACACATGTG

Original Doc Name: 190628_Glycolysis library

Target.Gene.Symbol	sgRNA.Target.Sequence
Acss1	CGGACACCAAGGTTCCCATG
Acss1	GATCACAGGACACAGCTATG
Acss1	GGGTGATGGCAGATGTACAC
Acss1	GTATCCCTTAGCCAAATGCA
Acss2	GCTGGGAACCTACTACCCGG
Acss2	CAGAACGCCGGTGCAGCTCG
Acss2	AAGGGAAAATATTCAGT
Acss2	GCATTGTGGTCAAACATCTG
Adh1	CCTTCGCGCAAAGTCCCCCG
Adh1	CTGCCGCTCAGACGATCACG
Adh1	TCACAAACCCTTCACCATCG
Adh1	GGGGTGACTTGTGTGAAACC
Adh4	GGAGTGACCAACTTCAAACC
Adh4	TTCATTCTCTCAATACTG
Adh4	TGAGCTCCTGATCAATAGTG
Adh4	TCAATTTCTTCAATGCAAAG
Adh5	AAGACGGCACAAGTAGAACC
Adh5	CCCCATCTGTCATCTCAACG
Adh5	CAATAAAGATAAATTCGCAA
Adh5	ACTTTATCCAAAGGGGCCGA
Adh7	ACCGTCAACCTTCGCTACGG
Adh7	AACAGCAGCTCCATAACCCG
Adh7	TTTCTCCATTGAGGAAATCG

Target.Gene.Symbol	sgRNA.Target.Sequence
Adh7	CACAGAGTGTATCAGTCCCA
Adpgk	CTCTCACGACCTCTCCAACG
Adpgk	ATGCTGCTTTAATTGGACAG
Adpgk	CCAGGTACTCTAAAATAAGG
Adpgk	GCTGGCCAGTATGACCAACA
Akr1a1	GAATACTAAGCACCCACCTG
Akr1a1	CAATGAAACTGAGATTGGGG
Akr1a1	AAGGCCAGTGCATCAAATAG
Akr1a1	TCACTATAAAGAGACCTGGA
Aldh1a3	CACCAGGCATGAGCCCATCG
Aldh1a3	TGCATCCAGCCGGCGCCACG
Aldh1a3	CCACCCGGCAAATATCTGA
Aldh1a3	AACACTAGAGAAAATATGTG
Aldh3a1	TGAATGGACCTCCTACTACG
Aldh3a1	AGTCCTTGTCTACGTAACAA
Aldh3a1	CTGTACCCAGTGATCAAAGG
Aldh3a1	ATGTGATCACTCACTCCGA
Aldh3b1	GAGGTCAGCTGAGTTCCGAG
Aldh3b1	TACCCAGGGAATGCTTATGT
Aldh3b1	GTCTCCATAGAAACGTGTGA
Aldh3b1	GGCCCAAGACCTGCACAAGG
Aldh3b2	GGGAGGCCTTCAATGCAGGG
Aldh3b2	GATGCACTGGCTAAGGACGT

Target.Gene.Symbol	sgRNA.Target.Sequence
Aldh3b2	ACGCGTGATGGAATTCTGCA
Aldh3b2	TTCTCAGGAAGTCCTCGGGT
Aldoa	AATGGCGAGACAACTACCCA
Aldoa	CCTTGCCCGGAGCCACAATG
Aldoa	CCACGAGACACTGTACCAGA
Aldoa	GCCAGCATCTGCCAGCAGGT
Aldoart1	GCGATTGCCCATGCTTCCAA
Aldoart1	GTGGCTCCAGTCTTGCCACT
Aldoart1	GTATGGGCAGGGCATAGTTC
Aldoart1	GGTGACCCATGGCAACGCAC
Aldob	TATCCACAGTTGGACCAAGG
Aldob	AATTCCATTAGCCAGAGCAT
Aldob	CCGCCTGCAAAGGATAAAGG
Aldob	GGTCCCTATTGTTGAGCCAG
Aldoc	GCCTCTAGCTGGGACCGACG
Aldoc	AATCAGTGATCGCACGCCGT
Aldoc	AGTTGTCCGATATTGCTCTA
Aldoc	ACCATCATGTATACCTCGAA
Bpgm	GACCAGAACTTAACAACGA
Bpgm	GGATGAGACTCCTCTATAGG
Bpgm	GAACGTGGCAGTTGATCCAA
Bpgm	AGCAATCCTTTCCTTCCAGT
BRDN0000737434	AAACTCCCGTGTCAACCGAT

Target.Gene.Symbol	sgRNA.Target.Sequence
BRDN0000737467	AAACCTAGCGTAGATTCGGC
BRDN0000737505	AAAAAGTCCGCGATTACGTC
BRDN0000737609	AAACTCATACGTAGCGAATC
BRDN0000737637	AAAACGTAATTATACCGAGC
BRDN0000737693	AAAACGGCTCGATCGGTGAT
BRDN0000737801	AAACCCCGCGCGGAGCGTC
BRDN0000737848	AAACGAGGCTGTTCGTACAC
BRDN0000738185	AAAATTGCACCTTCCCGGCC
BRDN0000738254	AAAGACGTGCATTCAGCGAG
Dlat	ACTACCGCAACGGACCGCAG
Dlat	CAGGCTCTCAAACCCAACAG
Dlat	CGACAAGGCCACCATAGGTG
Dlat	TTCAGAACCACACCTACCGG
Dld	GGTGGAACATGCTTGAACGT
Dld	GCAGTAAAAGCATTAAACAGG
Dld	AGAGAAGCTGGTTGTTATTG
Dld	CAAAAACATCCTTGTAGCTA
Eno1	GGCCACTCACCGGGACAGGC
Eno1	TCCAGGTCTCTCCGAGCTG
Eno1	CCTGCAGAAAGTGAATGTTG
Eno1	CCTACCTTGCTAACCAGAGC
Eno2	GCCATCGCGGTAAAACCTCAG
Eno2	GGTGTACCACACCCTCAAGG

Target.Gene.Symbol	sgRNA.Target.Sequence
Eno2	TCCTTCCCGATACATCACTG
Eno2	AAACAGCGTTACTTAGGCAA
Eno3	AGCCGGTTACCCGGACAAGG
Eno3	GAGACAAAGCACGATACCTG
Eno3	CTTCCAGAACTAAGTGTTG
Eno3	CTGCAAGATCTGCGATGTGT
Eno4	TCCACGACTTCAAAGTGCGT
Eno4	GATCAATCAGTCCATCACAG
Eno4	GGTTAAGTAGAGAGGATCGC
Eno4	GCTCTCCTCTCTAGGACGGA
Fbp1	CATGGCAAGGACCAACATGG
Fbp1	CACAAGAACACAGGTAGCGT
Fbp1	TGGCTCAACCAATGTGACTG
Fbp1	AACATCTACAGCCTTAATGA
Fbp2	ACTGTATGGTAGTGCAACCC
Fbp2	CCCGTTACGTTATGGAAAAG
Fbp2	TTGTCTTCCACAGACCACGG
Fbp2	TGTGATGTAGGGGAAATATG
G6pc	GGTGTTTGAACGTCATCTTG
G6pc	GTTGTCCAAACAGAATCCTG
G6pc	GGTCAGCAATCACAGACACA
G6pc	ACAAGACTCCAGCCACGACC
G6pc2	GACCTGATGGGGGAAATGTG

Target.Gene.Symbol	sgRNA.Target.Sequence
G6pc2	GCAGGTCAATACCGAACAGT
G6pc2	GGGTAGCGGTCATAGGGGAC
G6pc2	AACACTCCACAGAAAGGACC
G6pc3	TAGGCCGACTGCCAATAGGA
G6pc3	TTCCCGGGCTAGAGAATATG
G6pc3	GGGGCTCATTAGCCAGCCAA
G6pc3	TAAAGAGAGTCCAATACATG
Galm	GTAGCCAACCGAATTGCCAA
Galm	CAAACCCCGTGAATCCGCCA
Galm	AGCAGATGCATATTTGCCCG
Galm	GTTGGTCAGATTA ACTGGAG
Gapdh	GCTGTGGCGTGATGGCCGTG
Gapdh	AAACAGGCCCACTTGAAGGG
Gapdh	TGCCATTTGCAGTGGCAAAG
Gapdh	GGCCGGTGCTGAGTATGTCG
Gapdhs	GCCAGCTAGAGAGCTGACAG
Gapdhs	GGTTGAGGATCCACCACCCA
Gapdhs	AACTTGTCTGGCTCTATCTG
Gapdhs	CTCTATAGGGAATCCCTACG
Gck	TTCTGGGGTGGAACGCACGT
Gck	AAGGCACGAAGACATAGACA
Gck	CCATCCGGTCGTA CTCCAGG
Gck	CCAGATGTATTCCATCCCCG

Target.Gene.Symbol	sgRNA.Target.Sequence
Gpi1	GTACACTGGCAAATCCATCA
Gpi1	TTAGAGACAAACCAGACACG
Gpi1	CGGCAAAGATGTGATGCCGG
Gpi1	ACTTACCGTGTTCGTAGACA
Hk1	CCGACAATCCAAAATAGACG
Hk1	CGTAGCCGCCATTGAAACGT
Hk1	GGATCTTTACCAGTAGGACT
Hk1	CTCCCGGGATTATAACCCAA
Hk2	ATCCCGAGGACATCATGCG
Hk2	GGAGATGCGTCACATTGACA
Hk2	ATCCGGAGTTGACCTCACA
Hk2	GGAGTGGCACACACATAAGT
Hk3	TGTTACCCACCGGTGCCGTG
Hk3	ATTCCTGGATGCATACCCCG
Hk3	TCCTATCCTCAGACTACCTG
Hk3	ACAATCAGCCCGACTTCACA
Hkdc1	CATGAGCAACATCGACCTCG
Hkdc1	CCCCAAACGCCTACACAAGG
Hkdc1	CAGCGATGCACTGTACGATG
Hkdc1	TGCCCAATGAAATCACCCGT
Ldha	CAAGCTGGTCATTATCACCG
Ldha	GTTGCAATCTGGATTGAGCG
Ldha	GGAGAACATGGCGACTCCAG

Target.Gene.Symbol	sgRNA.Target.Sequence
Ldha	GTCATGGAAGACAAACTCAA
Ldhal6b	AGGAACTGGATCAGTCGGCA
Ldhal6b	GAGATTCAAGTGTCCTGTG
Ldhal6b	TGAGGTAGTGATTATCACAG
Ldhal6b	GCAACGTGTCCCTCCAACC
Ldhb	AAATTGTGGCCGATAAAGGT
Ldhb	GTCTCCAACACATCCACCA
Ldhb	GCTCGCCCAGGATCCATCCG
Ldhb	GGGCTGTACTTGACGATCTG
Ldhc	TTCCCGGTGTAAGATTACTG
Ldhc	GTTCGTATCAGCGTCAACAA
Ldhc	TCATGATAGCGACATTACGT
Ldhc	TACAGCCACTTCCGATCACA
Minpp1	ATCCAGTCACCGTACCACAG
Minpp1	TGATGTGGAAAGAAACGAGA
Minpp1	AGCTACCTGAATTAAGTCTG
Minpp1	TCGGTGCTCAGCCCCTACTT
Pck1	ACTGACAGACTCGCCCTATG
Pck1	GTGGCCGAGACTAGCGATGG
Pck1	CCTTTGGAAGCGGATATGGT
Pck1	TCGCAGATGTGGATATACTC
Pck2	TGCGTATTATGACCCGCCTG
Pck2	TGATTGTAACCTTCGCAG

Target.Gene.Symbol	sgRNA.Target.Sequence
Pck2	AGGGTTTGGATGCTACGGCA
Pck2	ATGGAAGCACATACATAATG
Pdha1	AGAACAACCGCTATGGCATG
Pdha1	ATCACTGCCTATCGAGACA
Pdha1	GCGCCGGATGGAGCTAAAGG
Pdha1	TGTTTGACATTATACGGCGA
Pdha2	TTCTCACAGATGAAAACACA
Pdha2	CAAGTACTACCGGACCATGC
Pdha2	GGACGTGATGACGTGATCCG
Pdha2	TACGGCAAGAACTTCTACGG
Pdhb	TCTTAATTGTAGGTTAGCAG
Pdhb	GGGCACAGGCTGAAGGCCAG
Pdhb	TGAAGCTATTAATCAAGGTA
Pdhb	GCCATTCGTGATAATAACCC
Pfkl	GGAGATACCAGTGCGCACTG
Pfkl	CTGTAAGGCCTTCACTACGA
Pfkl	AGCCCTGCACCGCATTATGG
Pfkl	CCGTATGGGCATATATGTGG
Pfkm	CCTCACGGTAGAGCGAACAG
Pfkm	GCGCCTTGGATATGACACCC
Pfkm	TTAGACCAAAGACGTGACCA
Pfkm	CATAGACACGCTCTCCCACG
Pfkp	CAATCTGTGCGTGATCGGCG

Target.Gene.Symbol	sgRNA.Target.Sequence
Pfkp	GAAGTATTCTACCTCAACG
Pfkp	TTAGATCAAAGAAATCGGCT
Pfkp	AAGGAAGCCGTGAAACTCCG
Pgam1	AACCTGGAGAACCGCTTCAG
Pgam1	GCAGAAACTGCTGCTAAGCA
Pgam1	GAGCCCGGCGGGCCACGAGG
Pgam1	CTCAATGAGCGACACTATGG
Pgam2	GGATGTTACGGACCAAATGT
Pgam2	AACCAAGAGAACCGTTTCTG
Pgam2	GCTTCAAGCCTGCATAGCGG
Pgam2	GTTTGACATCTGCTACACGT
Pgk1	TAAGGTGCTCAACAACATGG
Pgk1	TCAAGAACAGAACATCCCTG
Pgk1	GGACTGCACACCGAGCCCAT
Pgk1	CTTCCTCTACATGAAAGCGG
Pgk2	GGATACCATCAGGCCGACCG
Pgk2	GGATGATAGACCCATTATCT
Pgk2	CGGGCTCACAGTTCTACGGT
Pgk2	GGAAGGCTTCTACTTTAGCA
Pgm1	CATTACCGATGGACGCGCTG
Pgm1	ATCATCTCTCCCCACGATCG
Pgm1	TGGGGGTTATATCAGAGAAG
Pgm1	AGGCCAACTGCACAAACTCG

Target.Gene.Symbol	sgRNA.Target.Sequence
Pgm2	CGGCCGCTTCTACATGACCG
Pgm2	CGCATAGACGCCATGCACGG
Pgm2	CAGCCAGCCATAATCCAGGA
Pgm2	CAGCAGCATAGGTGAGATTG
Pklr	TGTACGAAAAGCCAGTGATG
Pklr	GGGTTCACTCCAGACCTGTG
Pklr	GGGCGATGCAAAGACAGTGT
Pklr	CTGGTGACCGAAGTGGAACA
Pkm	TTTCTCTCATGGAACCCATG
Pkm	TGAAATAGCACATGCCTGTG
Pkm	GGGCAGAGTCAATGTCCAGG
Pkm	CTTCCTGACTTCATGCACGT
Rheb	AACAAACTGAATTGTCAATG
Rheb	CCATATCCAACAACCTTGCCA
Rheb	TTCAGCTTGTAGACACAGCG
Rheb	TCATAGGATACCTATTATGT
Slc2a1	CCTGCTCATCAATCGTAACG
Slc2a1	TCAGCATGGAGTTCCGCCTG
Slc2a1	GTGTCACCTACAGCTCTACG
Slc2a1	CAAACATGGAACCACCGCTA
Tpi1	TGAAGGTCAGTACAAACGCA
Tpi1	AAGTCGATGTAAGCGGTGGG
Tpi1	AGTGAGCCACGCCCTAGCAG

Target.Gene.Symbol	sgRNA.Target.Sequence
Tpi1	CCAACGAAGAACTTCCTGGT
Tsc2	TGAACCACATGGCTATGACG
Tsc2	CACAGGGTGATAATGAACAG
Tsc2	CAGCTCCAAAGACCCTTGAG
Tsc2	CTGATCCTAGCACACATGTG