

LAB65256PC sequence listing  
SEQUENCE LISTING

<110> Labeit, Siegfried

<120> A host cell deficient for MuRF1 and MuRF2

<130> LAB65256PC

<160> 15

<170> PatentIn version 3.4

<210> 1

<211> 340

<212> PRT

<213> Homo sapiens

<400> 1

Met Glu Asn Leu Glu Lys Gln Leu Ile Cys Pro Ile Cys Leu Glu Met  
1 5 10 15

Phe Thr Lys Pro Val Val Ile Leu Pro Cys Gln His Asn Leu Cys Arg  
20 25 30

Lys Cys Ala Asn Asp Ile Phe Gln Ala Ala Asn Pro Tyr Trp Thr Ser  
35 40 45

Arg Gly Ser Ser Val Ser Met Ser Gly Gly Arg Phe Arg Cys Pro Thr  
50 55 60

Cys Arg His Glu Val Ile Met Asp Arg His Gly Val Tyr Gly Leu Gln  
65 70 75 80

Arg Asn Leu Leu Val Glu Asn Ile Ile Asp Ile Tyr Lys Gln Glu Cys  
85 90 95

Ser Ser Arg Pro Leu Gln Lys Gly Ser His Pro Met Cys Lys Glu His  
100 105 110

Glu Asp Glu Lys Ile Asn Ile Tyr Cys Leu Thr Cys Glu Val Pro Thr  
115 120 125

Cys Ser Met Cys Lys Val Phe Gly Ile His Lys Ala Cys Glu Val Ala  
130 135 140

Pro Leu Gln Ser Val Phe Gln Gly Gln Lys Thr Glu Leu Asn Asn Cys  
145 150 155 160

Ile Ser Met Leu Val Ala Gly Asn Asp Arg Val Gln Thr Ile Ile Thr  
165 170 175

Gln Leu Glu Asp Ser Arg Arg Val Thr Lys Glu Asn Ser His Gln Val  
180 185 190

Lys Glu Glu Leu Ser Gln Lys Phe Asp Thr Leu Tyr Ala Ile Leu Asp  
195 200 205

# LAB65256PC sequence listing

Glu Lys Lys Ser Glu Leu Leu Gln Arg Ile Thr Gln Glu Gln Glu Glu  
210 215 220

Lys Leu Ser Phe Ile Glu Ala Leu Ile Gln Gln Tyr Gln Glu Gln Leu  
225 230 235 240

Asp Lys Ser Thr Lys Leu Val Glu Thr Ala Ile Gln Ser Leu Asp Glu  
245 250 255

Pro Gly Gly Ala Thr Phe Leu Leu Thr Ala Lys Gln Leu Ile Lys Ser  
260 265 270

Ile Val Glu Ala Ser Lys Gly Cys Gln Leu Gly Lys Thr Glu Gln Gly  
275 280 285

Phe Glu Asn Met Asp Phe Phe Thr Leu Asp Leu Glu His Ile Ala Asp  
290 295 300

Ala Leu Arg Ala Ile Asp Phe Gly Thr Asp Glu Glu Glu Glu Glu Phe  
305 310 315 320

Ile Glu Glu Glu Asp Gln Glu Glu Glu Glu Ser Thr Glu Gly Lys Glu  
325 330 335

Glu Gly His Gln  
340

<210> 2  
<211> 436  
<212> PRT  
<213> Homo sapiens

<400> 2

Met Asp Asn Leu Glu Lys Gln Leu Ile Cys Pro Ile Cys Leu Glu Met  
1 5 10 15

Phe Thr Lys Pro Val Val Ile Leu Pro Cys Gln His Asn Leu Cys Arg  
20 25 30

Lys Cys Ala Ser Asp Ile Phe Gln Ala Ser Asn Pro Tyr Leu Pro Thr  
35 40 45

Arg Gly Gly Thr Thr Met Ala Ser Gly Gly Arg Phe Arg Cys Pro Ser  
50 55 60

Cys Arg His Glu Val Val Leu Asp Arg His Gly Val Tyr Gly Leu Gln  
65 70 75 80

Arg Asn Leu Leu Val Glu Asn Ile Ile Asp Ile Tyr Lys Gln Glu Ser  
85 90 95

# LAB65256PC sequence listing

Thr Arg Pro Glu Lys Lys Ser Asp Gln Pro Met Cys Glu Glu His Glu  
100 105 110

Glu Glu Arg Ile Asn Ile Tyr Cys Leu Asn Cys Glu Val Pro Thr Cys  
115 120 125

Ser Leu Cys Lys Val Phe Gly Ala His Lys Asp Cys Gln Val Ala Pro  
130 135 140

Leu Thr His Val Phe Gln Arg Gln Lys Ser Glu Leu Ser Asp Gly Ile  
145 150 155 160

Ala Ile Leu Val Gly Ser Asn Asp Arg Val Gln Gly Val Ile Ser Gln  
165 170 175

Leu Glu Asp Thr Cys Lys Thr Ile Glu Glu Cys Cys Arg Lys Gln Lys  
180 185 190

Gln Glu Leu Cys Glu Lys Phe Asp Tyr Leu Tyr Gly Ile Leu Glu Glu  
195 200 205

Arg Lys Asn Glu Met Thr Gln Val Ile Thr Arg Thr Gln Glu Glu Lys  
210 215 220

Leu Glu His Val Arg Ala Leu Ile Lys Lys Tyr Ser Asp His Leu Glu  
225 230 235 240

Asn Val Ser Lys Leu Val Glu Ser Gly Ile Gln Phe Met Asp Glu Pro  
245 250 255

Glu Met Ala Val Phe Leu Gln Asn Ala Lys Thr Leu Leu Lys Lys Ile  
260 265 270

Ser Glu Ala Ser Lys Ala Phe Gln Met Glu Lys Ile Glu His Gly Tyr  
275 280 285

Glu Asn Met Asn His Phe Thr Val Asn Leu Asn Arg Glu Glu Lys Ile  
290 295 300

Ile Arg Glu Ile Asp Phe Tyr Arg Glu Asp Glu Asp Glu Glu Glu Glu  
305 310 315 320

Glu Gly Gly Glu Gly Glu Lys Glu Gly Glu Gly Glu Val Gly Gly Glu  
325 330 335

Ala Val Glu Val Glu Glu Val Glu Asn Val Gln Thr Glu Phe Pro Gly  
340 345 350

Glu Asp Glu Asn Pro Glu Lys Ala Ser Glu Leu Ser Gln Val Glu Leu  
355 360 365

Gln Ala Ala Pro Gly Ala Leu Pro Val Ser Ser Pro Glu Pro Pro Pro

LAB65256PC sequence listing

370

375

380

Ala Leu Pro Pro Ala Ala Asp Ala Pro Val Thr Gln Ile Gly Phe Glu  
385 390 395 400

Ala Pro Pro Leu Gln Gly Gln Ala Ala Ala Pro Ala Ser Gly Ser Gly  
405 410 415

Ala Asp Ser Glu Pro Ala Arg His Ile Phe Ser Phe Ser Trp Leu Asn  
420 425 430

Ser Leu Asn Glu  
435

<210> 3  
<211> 2097  
<212> DNA  
<213> Homo sapiens

<400> 3  
ttctcaggta ctttatcgga cctctcacat ggctgcatgc ccagaaatgt gatgatattg 60  
ttgacagcct cttcaagggt tttggtagaa ctgagggcaa aggtttcctc tttctcaaag 120  
gtatctccca cctcttccca agcagcagca aagttaggct gacctcgtct gttatgtaaa 180  
ggatgtagtag ggatgggagg gcatgagga ctaggatgat ggcgggcagg atagttcaga 240  
cggtttccat ttcctgagcg tctgagatgt tagtattagt tagttttgtt gtgagtgtta 300  
gaattcgggc accaggagaa ggaagccaac aggatccgac ccggtgtttt gtgacaaagg 360  
caagaccccc aggtctactt agagcaaagt tagtagagga ggcagctagg cgtggctctc 420  
attccttccc acagaatgga ttataagtcg agcctgatcc aggatgggaa tcccatggag 480  
aacttgagga agcagctgat ctgccctatc tgcctggaga tgtttaccaa gccagtggctc 540  
atcttgccgt gccagcacia cctgtgccgg aagtgtgcca atgacatctt ccaggctgca 600  
aatccctact ggaccagccg gggcagctca gtgtccatgt ctggaggccg tttccgctgc 660  
cccacctgcc gccacgaggt gatcatggat cgtcacggag tgtacggcct gcagaggaac 720  
ctgctgggtg agaacatcat cgacatctac aaacaggagt gctccagtcg gccgctgcag 780  
aagggcagtc acccatgtg caaggagcac gaagatgaga aaatcaacat ctactgtctc 840  
acgtgtgagg tgcccacctg ctccatgtgc aagggtgttg ggatccacaa ggcctgcgag 900  
gtggcccat tgcagagtgt cttccaggga caaaagactg aactgaataa ctgtatctcc 960  
atgctgggtg cggggaatga ccgtgtgcag accatcatca ctgagctgga ggattcccgt 1020  
cgagtgacca aggagaacag tcaccaggta aaggaagagc tgagccagaa gtttgacacg 1080  
ttgtatgcca tcctggatga gaagaaaagt gagttgctgc agcggatcac gcaggagcag 1140  
gaggaagagc ttagcttcat cgaggccctc atccagcagt accaggagca gctggacaag 1200  
tccacaaagc tgggtgaaac tgccatccag tccctggacg agcctggggg agccaccttc 1260  
ctcttgactg ccaagcaact catcaaaagc attgtggaag cttccaaggg ctgccagctg 1320

# LAB65256PC sequence listing

gggaagacag	agcagggcctt	tgagaacatg	gacttcttta	ctttggattt	agagcacata	1380
gcagacgccc	tgagagccat	tgactttggg	acagatgagg	aagaggaaga	attcattgaa	1440
gaagaagatc	aggaagagga	agagtccaca	gaaggggaagg	aagaaggaca	ccagtaagga	1500
gctggatgaa	tgagaggccc	ccagatgcag	agagactgga	gaggggtggg	aggggcccag	1560
cggccttggg	gacaggccca	gggtgggagg	ggtcggggcc	cctggagggg	caatggggag	1620
gtgatgtctt	ctctctgctc	agagagcagg	gactagggta	ggaccctcac	cgctgcgtcc	1680
agcagacact	gaaccagaat	tggaaacgtg	cttgaaacaa	tcacacagga	cacttttcta	1740
cattgggtgca	aaatggaata	ttttgtacat	ttttaaaatg	tgatttttgt	atatacttgt	1800
atatgtatgc	caatttggtg	ctttttgtaa	aggaactttt	gtataataat	gcctggctcg	1860
tgggtgacct	gcgattgtca	gaaagagggg	aaggaagcca	ggttgatata	gctgcccact	1920
tcctttcctg	agcaggagga	tggggtagca	ctcacagga	cgatgtgctg	tatttcagtg	1980
cctatcccag	acatacgggg	tggtaactga	gtttgtgtta	tatgtttgtt	taataaatgc	2040
acaatgctct	cttcctgttc	ttcaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaa	2097

<210> 4  
 <211> 2202  
 <212> DNA  
 <213> Homo sapiens

<400> 4	
aaacaatgtc	ctccaccgag agaaacgtaa aggacacttg atcacacaat ccctggaata 60
atatccagga	aacacttgct ggagccactc gcagcacctt tccctggcag cacacttggg 120
gacagcgagg	agatgagcgc atctctgaat tacaaatctt tttccaaaga gcagcagacc 180
atggataact	tagagaagca actcatctgt cccatctgct tagagatgtt cacgaaacct 240
gtggtgattc	tcccttgta gcacaacctg tgtaggaaat gtgccagtga tattttccag 300
gcctctaacc	cgtatttgcc cacaagagga ggtaccacca tggcatcagg gggccgattc 360
cgctgcccac	cctgtagaca tgaagtgggt ttggatagac atgggggtata tggacttcag 420
aggaacctgc	tgggtggaaa tatcattgac atctacaagc aggagtccac caggccagaa 480
aagaaatccg	accagcccat gtgcgaggaa catgaagagg agcgcatcaa catctactgt 540
ctgaactgcg	aagtaccac ctgctctctg tgcaagggtg ttggtgcaca caaagactgc 600
cagggtggctc	ccctcactca tgtgttccag agacagaagt ctgagctcag tgatggcatc 660
gccatcctcg	tgggcagcaa cgatcgagtc cagggagtga tcagccagct ggaagacacc 720
tgcaaaacta	tcgaggaatg ttgcagaaaa cagaaacaag agctttgtga gaagtttgat 780
tacctgtatg	gcatttttga ggagaggaag aatgaaatga cccaagtcac taccgaacc 840
caagaggaga	aactggaaca tgtccgtgct ctgatcaaaa agtattctga tcatttgag 900
aacgtctcaa	agttggttga gtcaggaatt cagtttatgg atgagccaga aatggcagtg 960
tttctgcaga	atgccaaaac cctgctaaaa aaaatctcgg aagcatcaaa ggcatttcag 1020
atggagaaaa	tagaacatgg ctatgagaac atgaaccact tcacagtcaa cctcaataga 1080

# LAB65256PC sequence listing

```

gaagaaaaga taatacgtga aattgacttt tacagagaag atgaagatga agaagaagaa 1140
gaaggcggag aaggagaaaa agaaggagaa ggagaagtgg gaggagaagc agtagaagtg 1200
gaagaggtag aaaatgttca aacagagttt ccaggagaag atgaaaaccc agaaaaagct 1260
tcagagctct ctcaggtgga gctgcaggct gcccctgggg cacttccagt ttcctctcca 1320
gagccacctc cagccctgcc acctgctgcg gatgcccctg tgacacaggg ggaggttgta 1380
cccactggct ctgagcagac cacagagtct gaaactccag tccctgcagc agcagaaact 1440
gcggatccct tgttttaccc tagttggtat aaaggccaaa cccggaaagc caccaccaac 1500
ccaccttgca cccaggggag cgaaggtctg gggcaaatag ggcctccagg ttctgaggat 1560
tcgaatgtac ggaaggcaga agtggcagca gccgcagcga gtgagagggc agctgtgagt 1620
ggtaaggaaa ctagtgcacc tgcagctact tctcagattg gatttgaggc tcctcccctc 1680
cagggacagg ctgcagctcc agcgagtggc agtggagctg attctgagcc agctcgccat 1740
atcttctcct tttcctgggt gaactcccta aatgaatgat attcattcca actgctgccc 1800
ctctgtctgc ctggctgaga tgcagtgtgg cagcaggaag cccaagtga attaatatta 1860
tgcatgatgat gaaagggacc tctgaacagg atttctgcaa aaatagcccc aaactgcaat 1920
tccatatgac ttatctaaca tcttgggggg aaagaatatt ttgagaaaat agttgcagaa 1980
agcactggaa ataataaact tgatcttata caaatcttct attgtgtgga aaatgttgtg 2040
aagggtgtgt aggtgtggta catgtgtatg tcactaacia gtggcaaata gtgaaaaaag 2100
tggtcactat gcttttgtct ctcataggca ctgacttttt gttattatat tatggtagct 2160
ttcatttcct ttactcttta acagtgcagg tggtcagtga aa 2202

```

```

<210> 5
<211> 212
<212> PRT
<213> Homo sapiens
<400> 5

```

```

Lys Ala Ser His Pro Met Cys Lys Glu His Glu Asp Glu Lys Ile Asn
1      5      10     15

```

```

Ile Tyr Cys Leu Thr Cys Glu Val Pro Thr Cys Ser Met Cys Lys Val
20     25     30

```

```

Phe Gly Ile His Lys Ala Cys Glu Val Ala Pro Leu Gln Ser Val Phe
35     40     45

```

```

Gln Gly Gln Lys Thr Glu Leu Asn Asn Cys Ile Ser Met Leu Val Ala
50     55     60

```

```

Gly Asn Asp Arg Val Gln Thr Ile Ile Thr Gln Leu Glu Asp Ser Arg
65     70     75     80

```

```

Arg Val Thr Lys Glu Asn Ser His Gln Val Lys Glu Glu Leu Ser Gln
85     90     95

```

# LAB65256PC sequence listing

Lys Phe Asp Thr Leu Tyr Ala Ile Leu Asp Glu Lys Lys Ser Glu Leu  
100 105 110

Leu Gln Arg Ile Thr Gln Glu Gln Glu Lys Leu Ser Phe Ile Glu  
115 120 125

Ala Leu Ile Gln Gln Tyr Gln Glu Gln Leu Asp Lys Ser Thr Lys Leu  
130 135 140

Val Glu Thr Ala Ile Gln Ser Leu Asp Glu Pro Gly Gly Ala Thr Phe  
145 150 155 160

Leu Leu Thr Ala Lys Gln Leu Ile Lys Ser Ile Val Glu Ala Ser Lys  
165 170 175

Gly Cys Gln Leu Gly Lys Thr Glu Gln Gly Phe Glu Asn Met Asp Phe  
180 185 190

Phe Thr Leu Asp Leu Glu His Ile Ala Asp Ala Leu Arg Ala Ile Asp  
195 200 205

Phe Gly Thr Asp  
210

<210> 6  
<211> 212  
<212> PRT  
<213> Homo sapiens  
<400> 6

Lys Ser Asp Gln Pro Met Cys Glu Glu His Glu Glu Glu Arg Ile Asn  
1 5 10 15

Ile Tyr Cys Leu Asn Cys Glu Val Pro Thr Cys Ser Leu Cys Lys Val  
20 25 30

Phe Gly Ala His Lys Asp Cys Gln Val Ala Pro Leu Thr His Val Phe  
35 40 45

Gln Arg Gln Lys Cys Glu Leu Ser Asp Gly Ile Ala Ile Leu Val Gly  
50 55 60

Ser Asn Asp Arg Val Gln Gly Val Ile Ser Gln Leu Glu Asp Thr Cys  
65 70 75 80

Lys Thr Ile Glu Glu Cys Cys Arg Lys Gln Lys Gln Glu Leu Cys Glu  
85 90 95

Lys Phe Asp Tyr Leu Tyr Gly Ile Leu Glu Glu Lys Arg Asn Glu Met  
100 105 110

Thr Gln Val Ile Thr Arg Thr Gln Glu Glu Lys Leu Glu His Val Arg  
Seite 7

# LAB65256PC sequence listing

115

120

125

Ala Leu Ile Lys Lys Tyr Ser Asp His Leu Glu Asn Val Ser Lys Leu  
130 135 140

Val Glu Ser Gly Ile Gln Phe Met Asp Glu Pro Glu Met Ala Val Phe  
145 150 155 160

Leu Gln Asn Ala Lys Thr Leu Leu Lys Lys Ile Ser Glu Ala Ser Lys  
165 170 175

Ala Phe Gln Met Glu Lys Ile Glu His Gly Tyr Glu Asn Met Asn His  
180 185 190

Phe Thr Val Asn Leu Asn Arg Glu Glu Lys Ile Ile Arg Glu Ile Asp  
195 200 205

Phe Tyr Arg Glu  
210

<210> 7  
<211> 22  
<212> DNA  
<213> artificial

<220>  
<223> MuRF1 forward primer

<400> 7  
agaagtcggg ggtcagggga cg

22

<210> 8  
<211> 30  
<212> DNA  
<213> artificial

<220>  
<223> MuRF1 reverse primer

<400> 8  
ggtccatgat cacttcattg cggcacgagg

30

<210> 9  
<211> 31  
<212> DNA  
<213> artificial

<220>  
<223> MuRF2 forward primer

<400> 9  
gagcacttct ctgaattaca agtctttctc c

31

<210> 10  
<211> 28  
<212> DNA  
<213> artificial

<220>



# LAB65256PC sequence listing

<223>	MuRF2 reverse primer	
<400>	10	
	gctgagagcc aatgggcacc acctcccc	28
<210>	11	
<211>	31	
<212>	DNA	
<213>	artificial	
<220>		
<223>	MuRF3 forward primer	
<400>	11	
	gccccatctg cctggagatg ttctccaagc c	31
<210>	12	
<211>	29	
<212>	DNA	
<213>	artificial	
<220>		
<223>	MuRF3 reverse primer	
<400>	12	
	gccgctcctc ctccagcccc gcattgccc	29
<210>	13	
<211>	22	
<212>	DNA	
<213>	artificial	
<220>		
<223>	Aldolase forward primer	
<400>	13	
	agctgtctga catcgctcac cg	22
<210>	14	
<211>	22	
<212>	DNA	
<213>	artificial	
<220>		
<223>	Aldolase reverse primer	
<400>	14	
	cacatactgg cagcgcttca ag	22
<210>	15	
<211>	20	
<212>	DNA	
<213>	artificial	
<220>		
<223>	MuRF1/MuRF2 RNAi target	
<400>	15	
	cagaggaacc tgctggtgga	20