```
   1 cctctcgagg cggggcgggg cctccgcgtt cgctacaaaa gccgcgcggc ggctgcgacc
  61 gggacggccc gttttccgcc agctcgccgc tcgctatggc gtcgctcacc gtgaaggcct
 121 accttctggg caaggaggac gcggcgcgcg agattcgccg cttcagcttc tgctgcagcc
 181 ccgagcctga ggcggaagcc gaggctgcgg cgggtccggg accctgcgag cggctgctga
 241 gccgggtggc cgccctgttc cccgcgctgc ggcctggcgg cttccaggcg cactaccgcg
 301 atgaggacgg ggacttggtt gccttttcca gtgacgagga attgacaatg gccatgtcct
 361 acgtgaagga tgacatcttc cgaatctaca ttaaagagaa aaaagagtgc cggcgggacc
 421 accgcccacc gtgtgctcag gaggcgcccc gcaacatggt gcaccccaat gtgatctgcg
 481 atggctgcaa tgggcctgtg gtaggaaccc gctacaagtg cagcgtctgc ccagactacg
 541 acttgtgtag cgtctgcgag ggaaagggct tgcaccgggg gcacaccaag ctcgcattcc
 601 ccagcccctt cgggcacctg tctgagggct tctcgcacag ccgctggctc cggaaggtga
 661 aacacggaca cttcgggtgg ccaggatggg aaatgggtcc accaggaaac tggagcccac
 721 gtcctcctcg tgcaggggag gcccgccctg gccccacggc agaatcagct tctggtccat
 781 cggaggatcc gagtgtgaat ttcctgaaga acgttgggga gagtgtggca gctgcccttа
 841 gccctctggg cattgaagtt gatatcgatg tggagcacgg agggaaaaga agccgcctga
 901 cccccgtctc tccagagagt tccagcacag aggagaagag cagctcacag ccaagcagct
 961 gctgctctga ccccagcaag ccgggtggga atgttgaggg cgccacgcag tctctggcgg
1021 agcagatgag gaagatcgcc ttggagtccg aggggcgccc tgaggaacag atggagtcgg
1081 ataactgttc aggaggagat gatgactgga cccatctgtc ttcaaaagaa gtggacccgt
1141 ctacaggtga actccagtcc ctacagatgc cagaatccga agggccaagc tctctggacc
1201 cctcccagga gggacccaca gggctgaagg aagctgcctt gtacccacat ctcccgccag
1261 aggctgaccc gcggctgatt gagtccctct cccagatgct gtccatgggc ttctctgatg
1321 aaggcggctg gctcaccagg ctcctgcaga ccaagaacta tgacatcgga gcggctctgg
1381 acaccatcca gtattcaaag catcccccgc cgttgtgacc acttttgccc acctcttctg
1441 cgtgcccctc ttctgtctca tagttgtgtt aagcttgcgt agaattgcag gtctctgtac
1501 gggccagttt ctctgccttc ttccaggatc aggggttagg gtgcaagaag ccatttaggg
1561 cagcaaaaca agtgacatga agggagggtc cctgtgtgtg tgtgtgctga tgtttcctgg
1621 gtgccctggc tccttgcagc agggctgggc ctgcgagacc caaggctcac tgcagcgcgc
1681 tcctgacccc tccctgcagg ggctacgtta gcagcccagc acatagcttg cctaatggct
1741 ttcactttct cttttgtttt aaatgactca taggtccctg acatttagtt gattattttc
1801 tgctacagac ctggtacact ctgattttag ataaagtaag cctaggtgtt gtcagcaggc
1861 aggctgggga ggccagtgtt gtgggcttcc tgctgggact gagaaggctc acgaagggca
1921 tccgcaatgt tggtttcact gagagctgcc tcctggtctc ttcaccactg tagttctctc
1981 atttccaaac catcagctgc ttttaaaata agatctcttt gtagccatcc tgttaaattt
2041 gtaaacaatc taattaaatg gcatcagcac tttaaccaat gacgtttgca tagagagaaa
2101 tgattgacag taagtttatt gttaatggtt cttacagagt atctttaaaa gtgccttagg
2161 ggaaccctgt ccctcctaac aagtgtatct cgattaataa cctgccagtc ccagatcaca
2221 catcatcatc gaagtcttcc ccagttataa agaggtcaca tagtcgtgtg ggtcgaggat
2281 tctgtgcctc caggaccagg ggcccaccct ctgcccaggg agtccttgcg tcccatgagg
2341 tcttcccgca aggcctctca gacccagatg tgacggggtg tgtggcccga ggaagctgga
2401 cagcggcagt gggcctgctg aggccttctc ttgaggcctg tgctctgggg gtcccttgct
2461 tagcctgtgc tggaccagct ggcctggggt ccctctgaag agaccttggc tgctcactgt
2521 ccacatgtga acttttcta ggtggcagga caaattgcgc ccatttagag gatgtggctg
2581 taacctgctg gatgggactc catagctcct tcccaggacc cctcagctcc ccggcactgc
2641 agtctgcaga gttctcctgg aggcaggggc tgctgccttg tttcaccttc catgtcaggc
2701 cagcctgtcc ctgaaagaga agatggccat gccctccatg tgtaagaaca atgccagggc
2761 ccaggaggac cgcctgccct gcctgggcct tggctgggcc tctggttctg acactttctg
2821 ctggaagctg tcaggctggg acaggctttg attttgaggg ttagcaagac aaagcaaata
2881 aatgccttcc acctcaccgc aaaaaaaaaa aaaaaaaaaa aaa
```

(SEQ ID NO: 1)

FIG. 1

MASLTVKAYLLGKEDAAREIRRFSFCCSPEPEAEAEAAAGPGPC
ERLLSRVAALFPALRPGGFQAHYRDEDGDLVAFSSDEELTMAMSYVKDDIFRIYIKEK
KECRRDHRPPCAQEAPRNMVHPNVICDGCNGPVVGTRYKCSVCPDYDLCSVCEGKGLH
RGHTKLAFPSPFGHLSEGFSHSRWLRKVKHGHFGWPGWEMGPPGNWSPRPPRAGEARP
GPTAESASGPSEDPSVNFLKNVGESVAAALSPLGIEVDIDVEHGGKRSRLTPVSPESS
STEEKSSSQPSSCCSDPSKPGGNVEGATQSLAEQMRKIALESEGRPEEQMESDNCSGG
DDDWTHLSSKEVDPSTGELQSLQMPESEGPSSLDPSQEGPTGLKEAALYPHLPPEADP
RLIESLSQMLSMGFSDEGGWLTRLLQTKNYDIGAALDTIQYSKHPPPL
(SEQ ID NO: 2)

FIG. 2

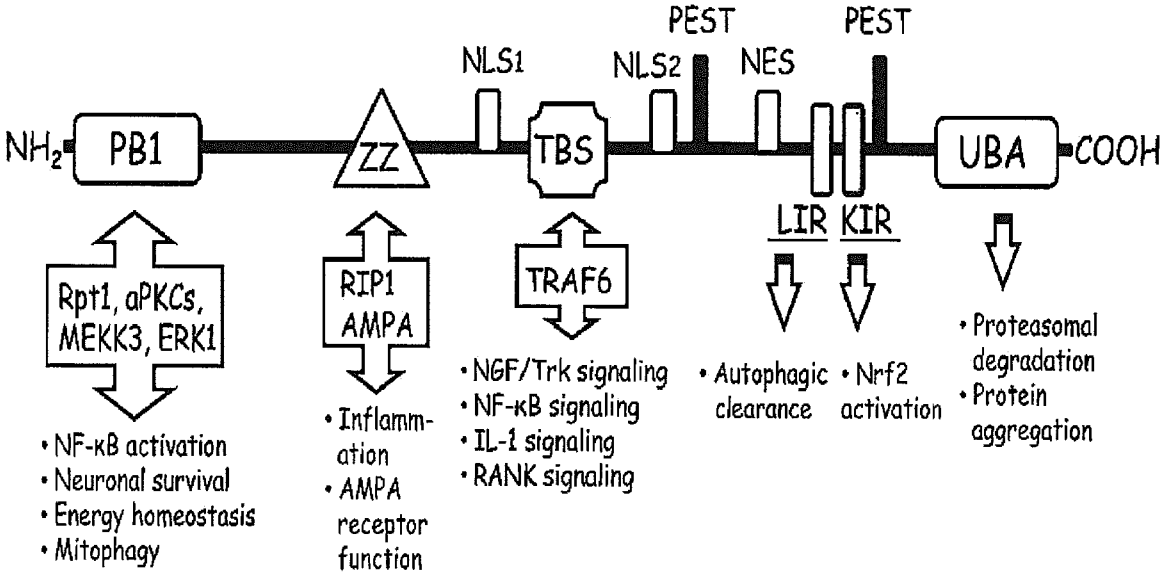


FIG. 3

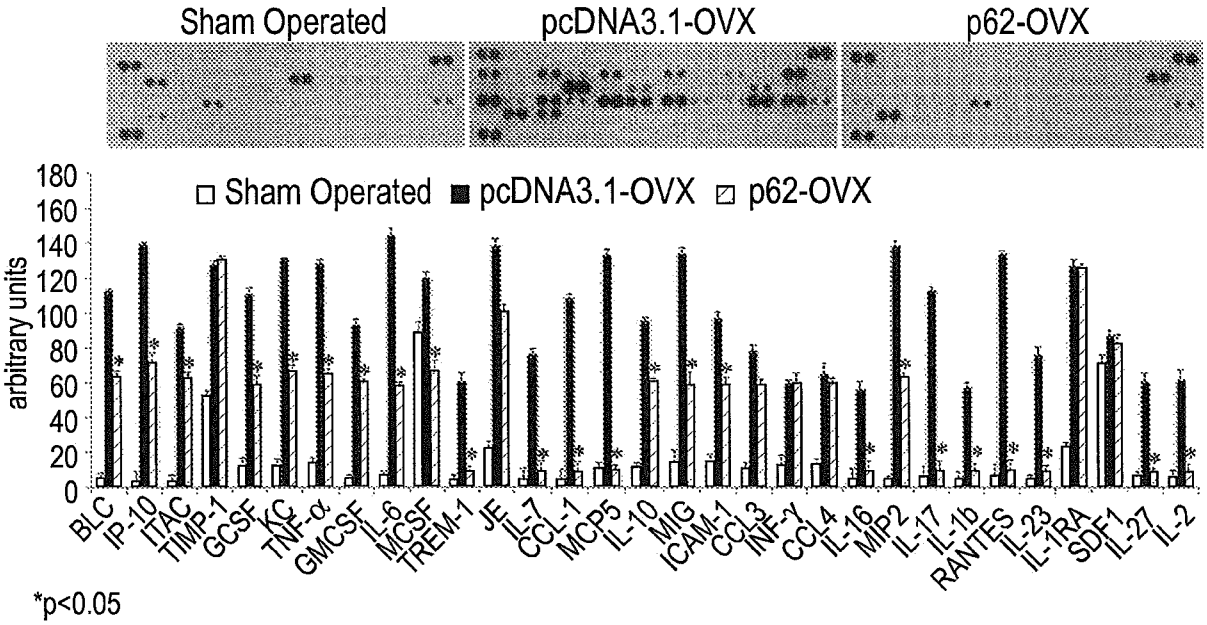

Sham Operated
pcDNA3.1-OVX
p62-OVX
Sham Operated
pcDNA3.1-OVX
p62-OVX
arbitrary units
180
160
140
120
100
80
60
40
20
0
BLC
IP-10
ITAC
TIMP-1
GCSF
KC
TNF-α
GMCSF
IL-6
MCSF
TREM-1
JE
IL-7
CCL-1
MCP5
IL-10
MIG
ICAM-1
CCL3
INF-γ
CCL4
IL-16
MIP2
IL-17
IL-1b
RANTES
IL-23
IL-1RA
SDF1
IL-27
IL-2
*p<0.05

FIG. 4

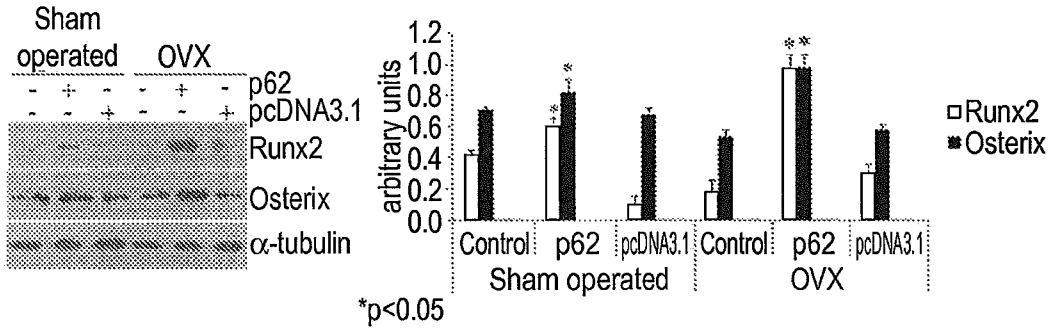

Sham operated
OVX
p62
pcDNA3.1
Runx2
Osterix
α-tubulin
arbitrary units
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Control
p62
pcDNA3.1
Control
p62
pcDNA3.1
Sham operated
OVX
Runx2
Osterix
*p<0.05

FIG. 5

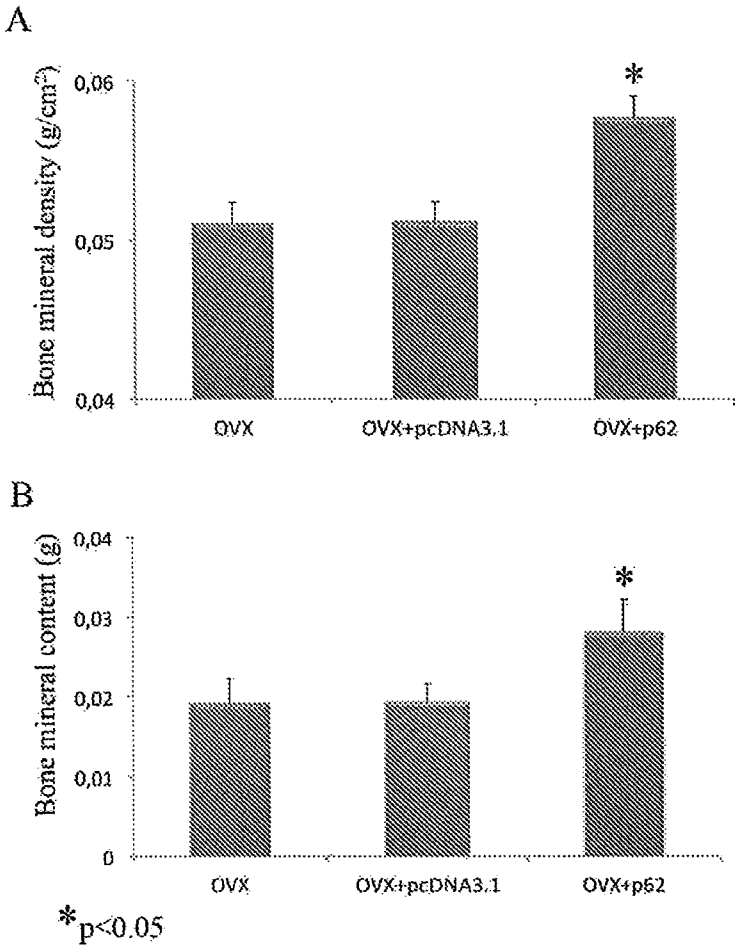

A
Bone mineral density (g/cm²)
0,06
0,05
0,04
*
OVX
OVX+pcDNA3.1
OVX+p62
B
Bone mineral content (g)
0,04
0,03
0,02
0,01
0
*
OVX
OVX+pcDNA3.1
OVX+p62
*p<0.05

FIG. 6

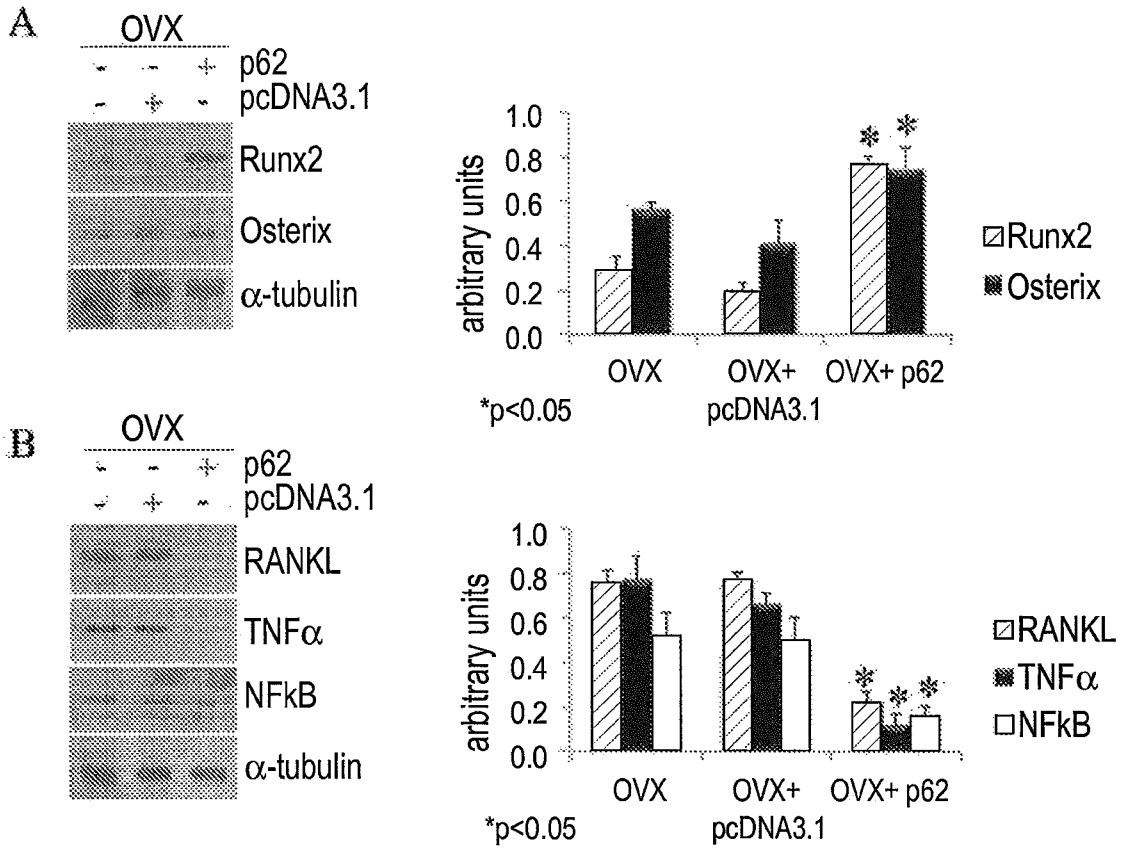

A
OVX
p62
pcDNA3.1
Runx2
Osterix
α-tubulin
arbitrary units
1.0
0.8
0.6
0.4
0.2
0.0
OVX
OVX+ pcDNA3.1
OVX+ p62
*p<0.05
Runx2
Osterix
B
OVX
p62
pcDNA3.1
RANKL
TNFα
NFkB
α-tubulin
arbitrary units
1.0
0.8
0.6
0.4
0.2
0.0
OVX
OVX+ pcDNA3.1
OVX+ p62
*p<0.05
RANKL
TNFα
NFkB

FIG. 7

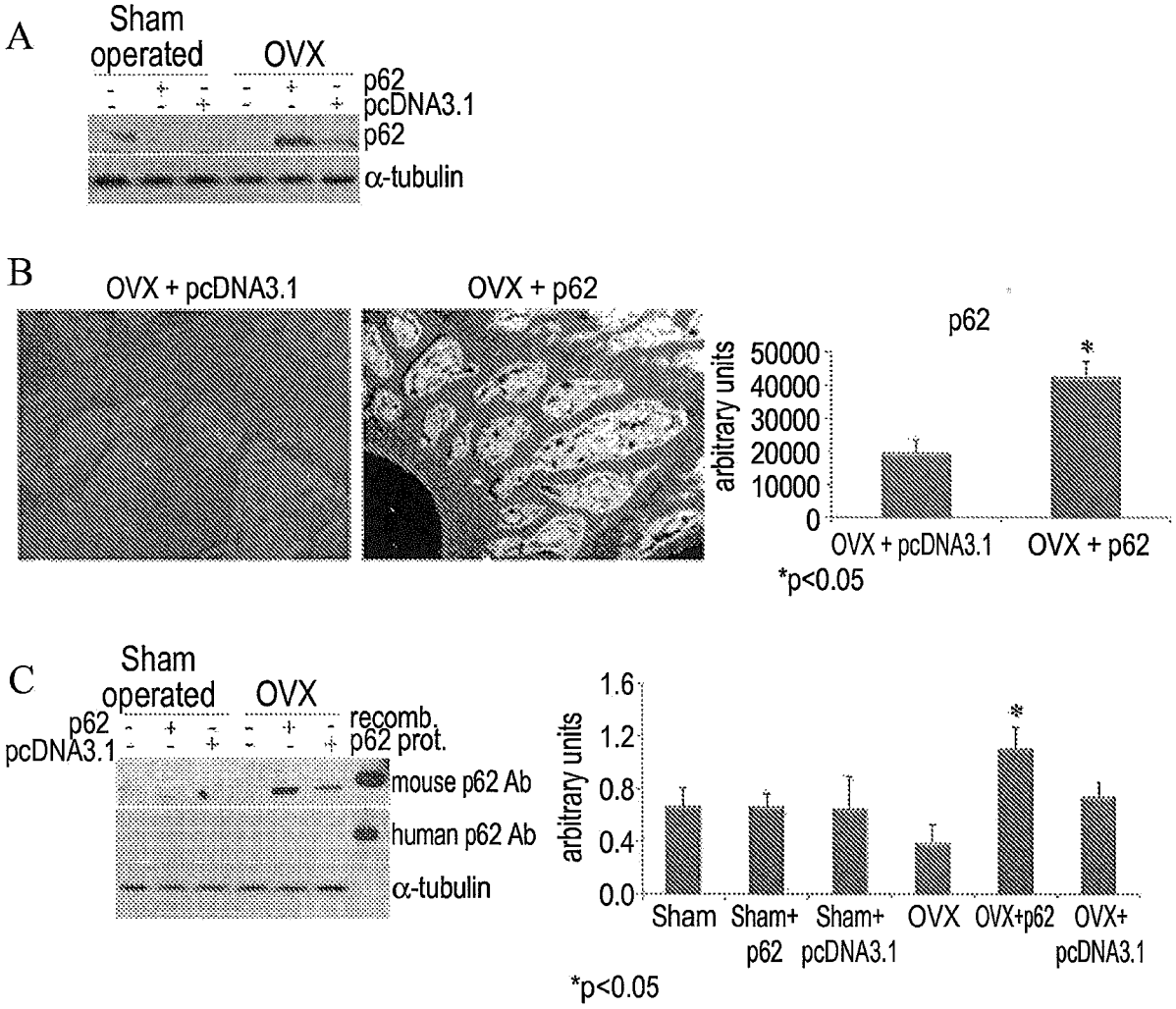

A
Sham operated
OVX
p62 pcDNA3.1
p62
α-tubulin
B
OVX + pcDNA3.1
OVX + p62
p62
arbitrary units
50000
40000
30000
20000
10000
0
OVX + pcDNA3.1
OVX + p62
*p<0.05
C
Sham operated
OVX
p62 pcDNA3.1
recomb. p62 prot.
mouse p62 Ab
human p62 Ab
α-tubulin
arbitrary units
1.6
1.2
0.8
0.4
0.0
Sham
Sham+ p62
Sham+ pcDNA3.1
OVX
OVX+p62
OVX+ pcDNA3.1
*p<0.05

FIG. 8

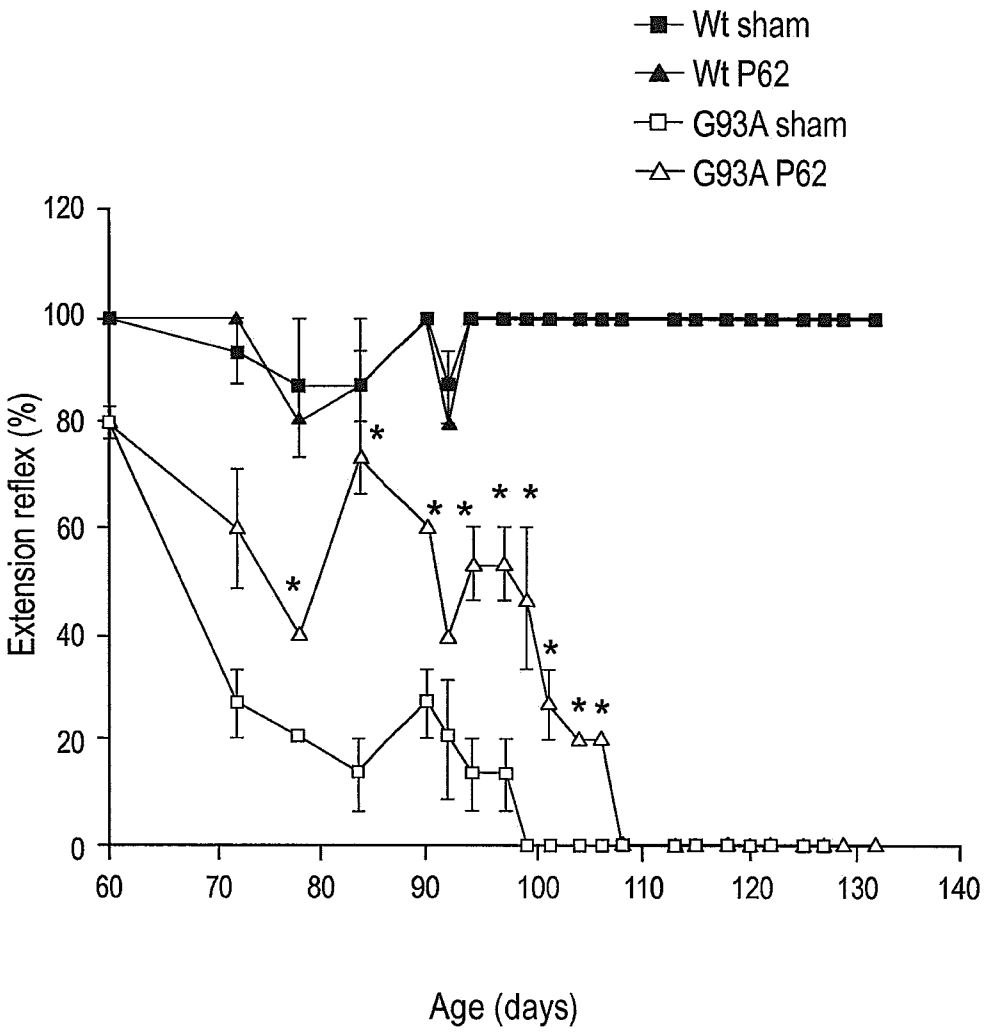

Wt sham
Wt P62
G93A sham
G93A P62
Extension reflex (%)
120
100
80
60
40
20
0
60
70
80
90
100
110
120
130
140
Age (days)

FIG. 9

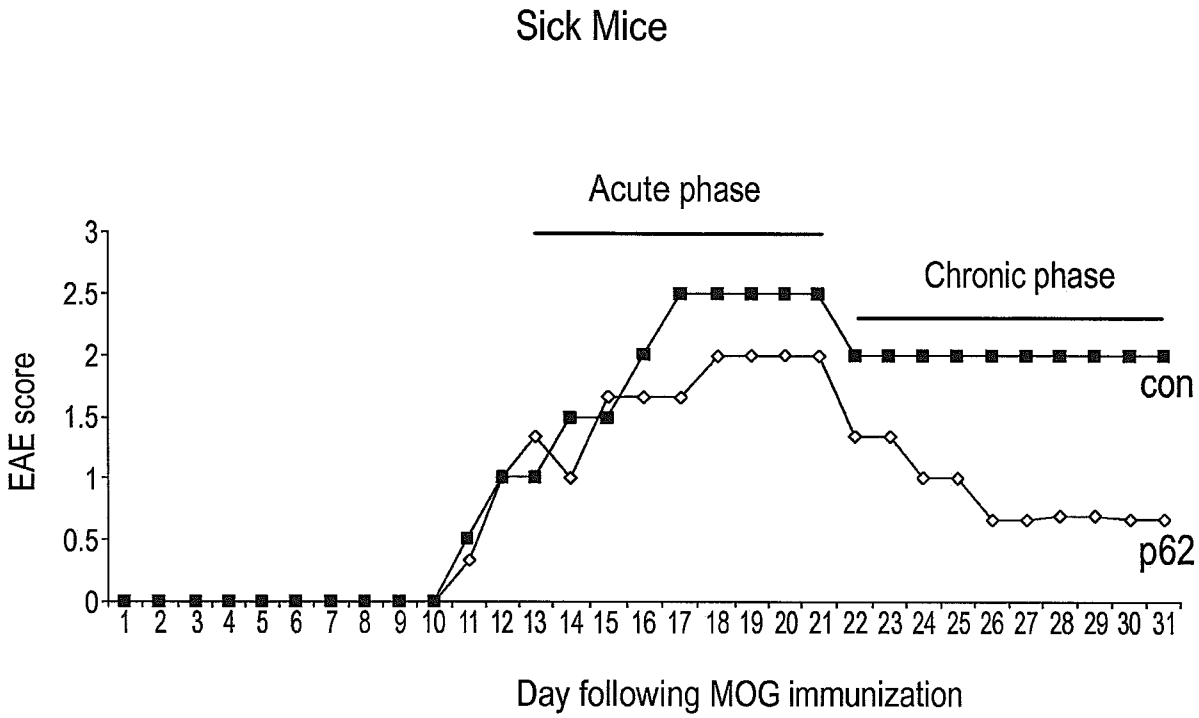

Sick Mice
Acute phase
Chronic phase
EAE score
3
2.5
2
1.5
1
0.5
0
con
p62
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Day following MOG immunization

FIG. 10

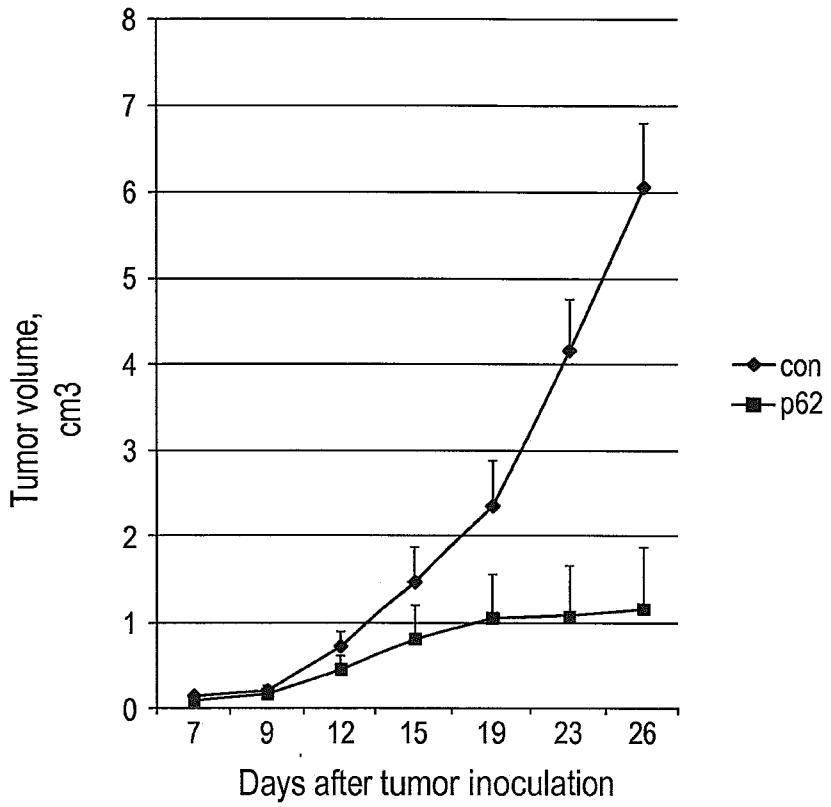

8
7
6
5
4
3
2
1
0
Tumor volume, cm3
7
9
12
15
19
23
26
Days after tumor inoculation
con
p62

FIG. 11

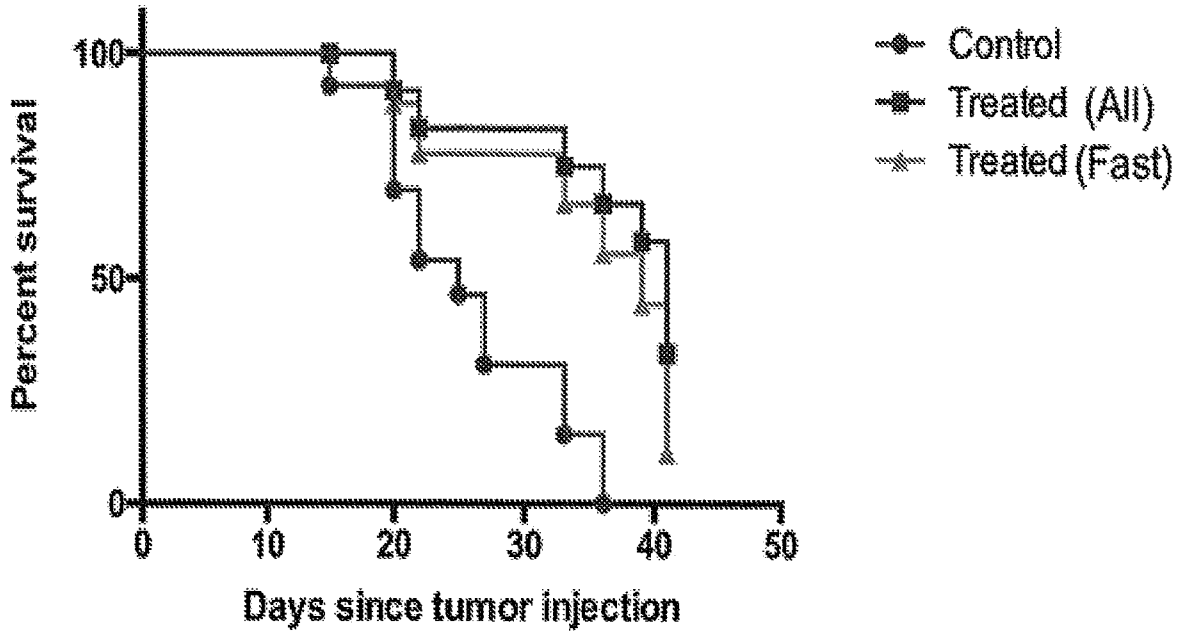

Percent survival
100
50
0
0
10
20
30
40
50
Days since tumor injection
Control
Treated (All)
Treated (Fast)

FIG. 12

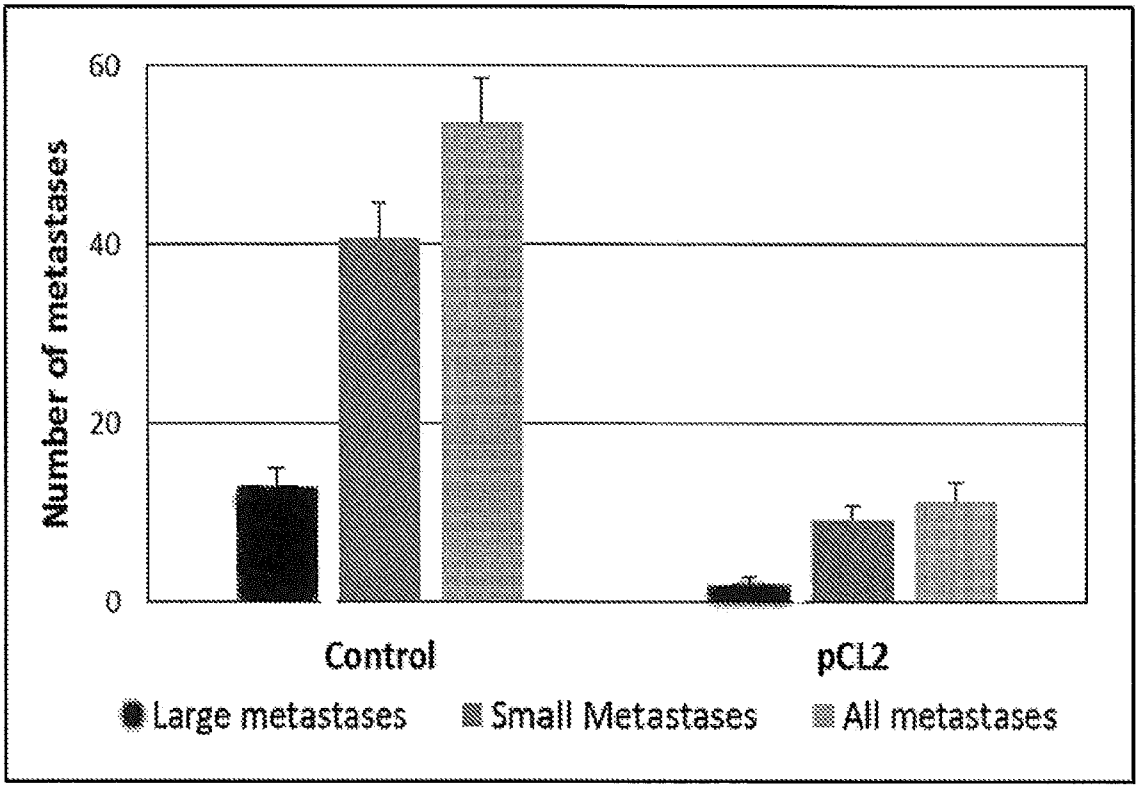

60
40
20
0
Number of metastases
Control
pCL2
Large metastases
Small Metastases
All metastases

FIG. 13

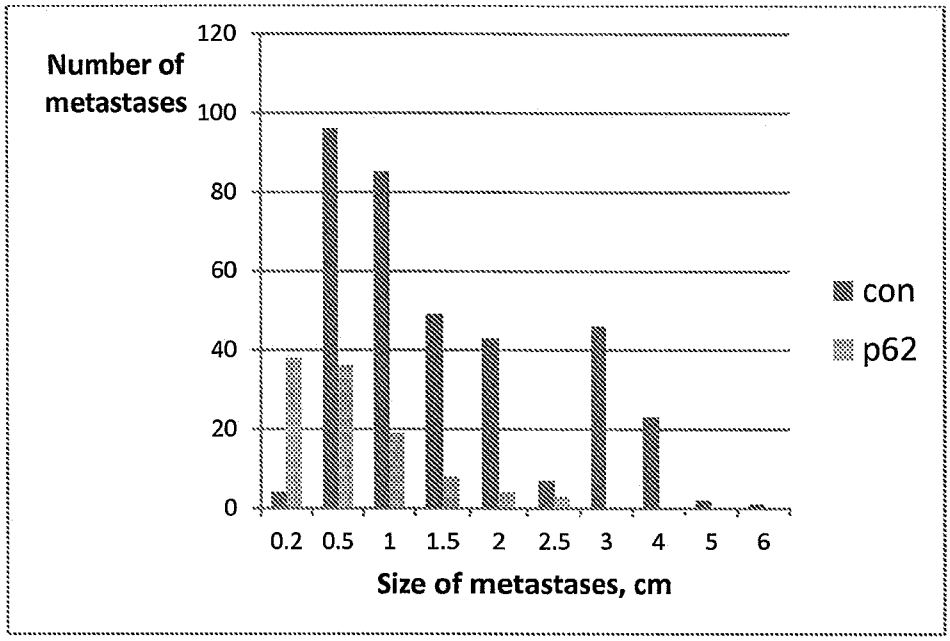

Number of metastases
120
100
80
60
40
20
0
0.2
0.5
1
1.5
2
2.5
3
4
5
6
Size of metastases, cm
con
p62

FIG.14