FIGURE 1

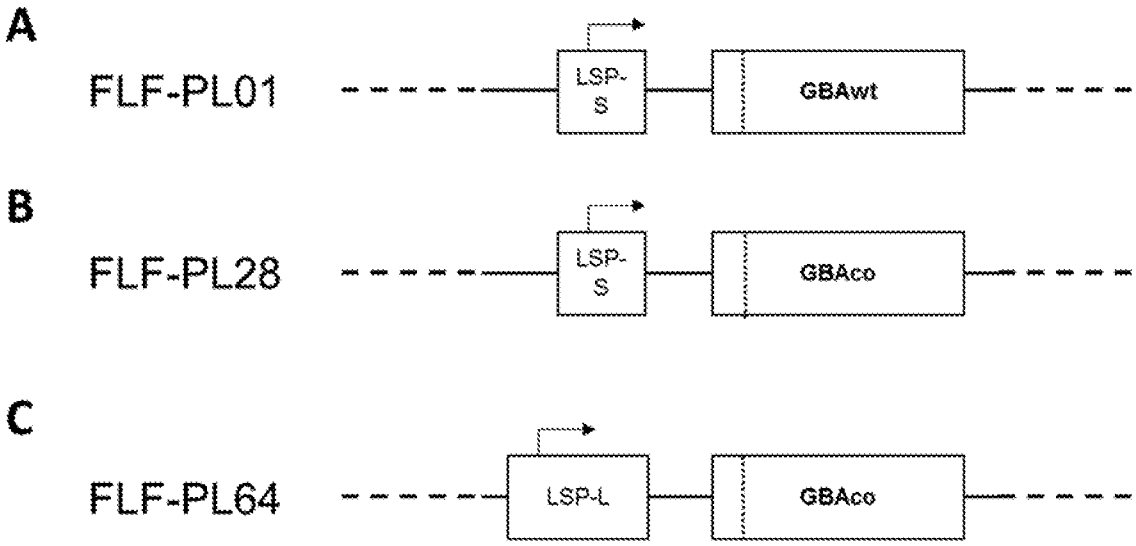
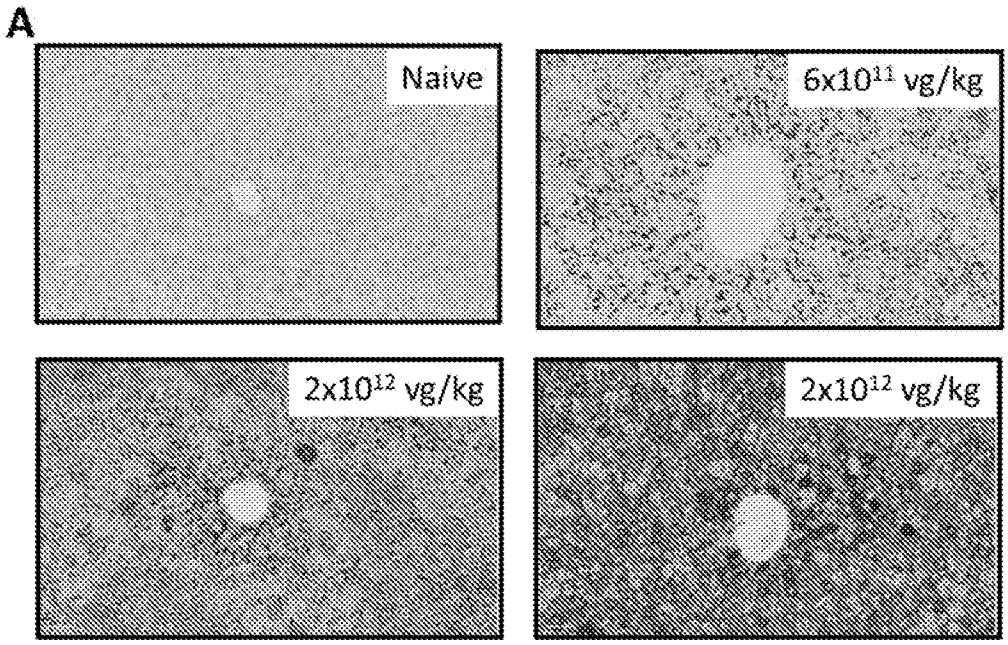

A
FLF-PL01
LSP-S
GBAwt
B
FLF-PL28
LSP-S
GBAco
C
FLF-PL64
LSP-L
GBAco

FIGURE 2


A
Naive
6x10^11 vg/kg
2x10^12 vg/kg
2x10^12 vg/kg

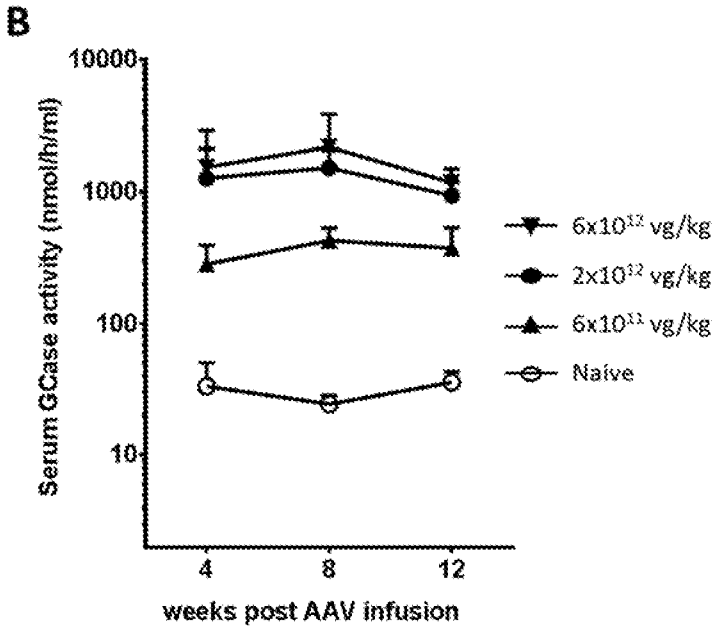

B
10000
1000
100
10
Serum GCase activity (nmol/h/ml)
4
8
12
weeks post AAV infusion
6x10^12 vg/kg
2x10^12 vg/kg
6x10^11 vg/kg
Naive

FIGURE 3

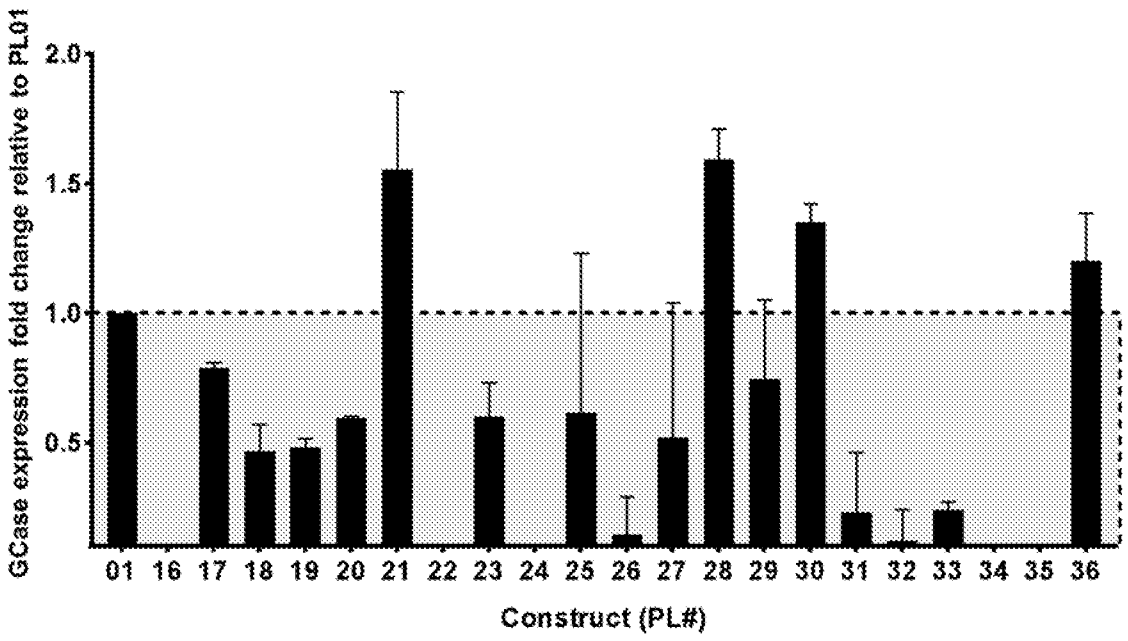

GCase expression fold change relative to PL01
2.0
1.5
1.0
0.5
01 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Construct (PL#)

FIGURE 4

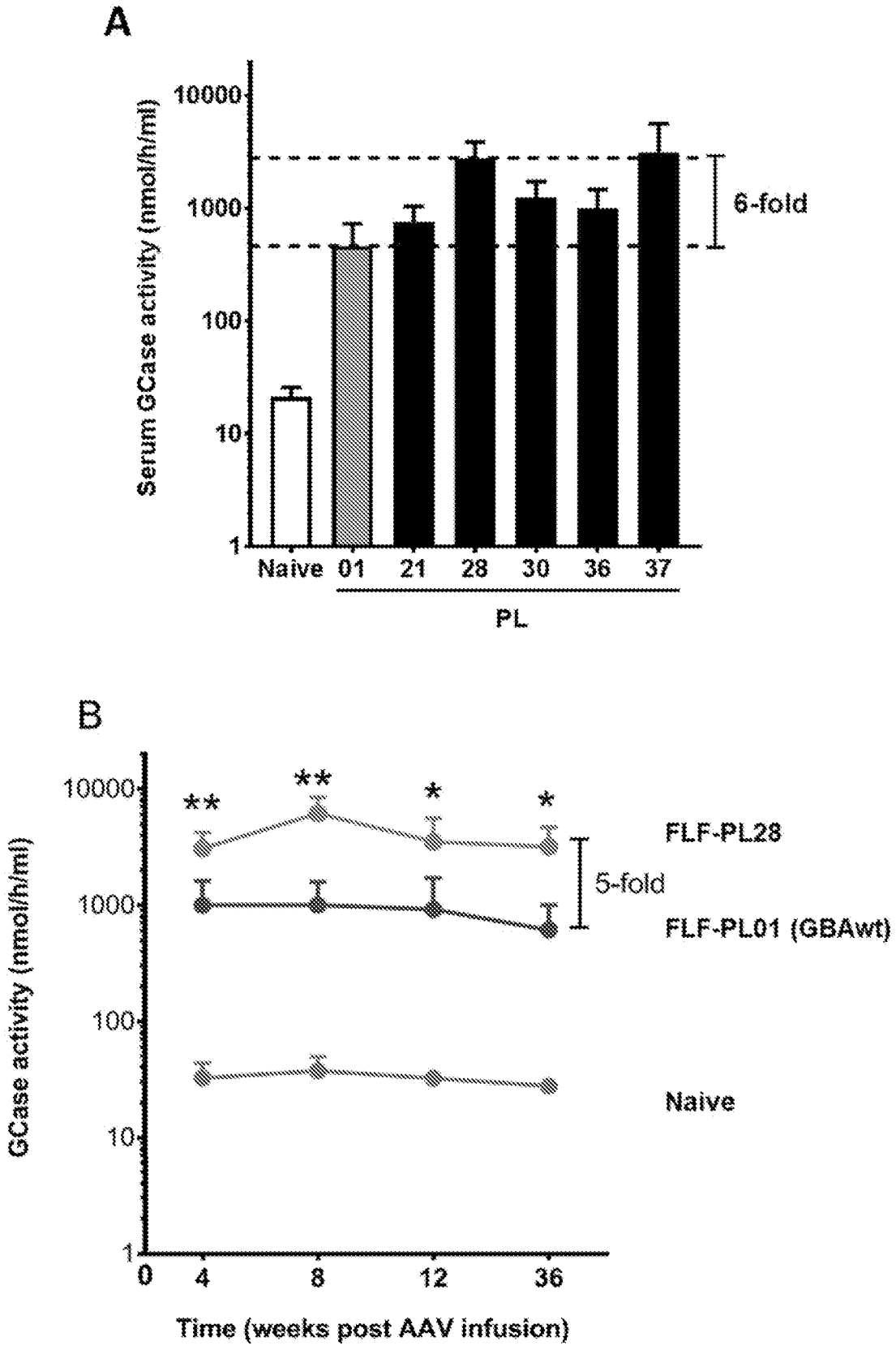

A
Serum GCase activity (nmol/h/ml)
10000
1000
100
10
1
6-fold
Naive
01
21
28
30
36
37
PL
B
GCase activity (nmol/h/ml)
10000
1000
100
10
1
**
**
*
*
FLF-PL28
5-fold
FLF-PL01 (GBAwt)
Naive
0
4
8
12
36
Time (weeks post AAV infusion)

FIGURE 5

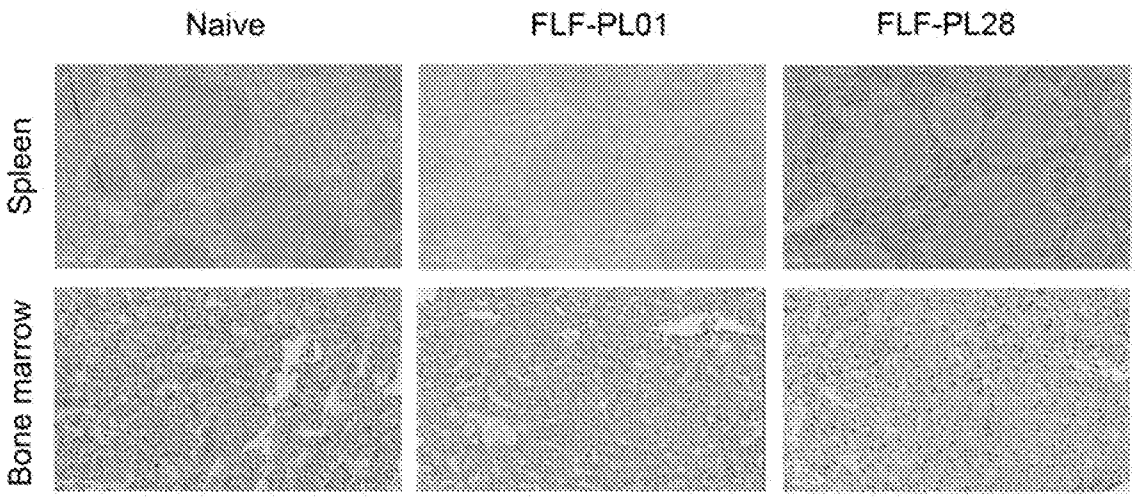


FIGURE 6

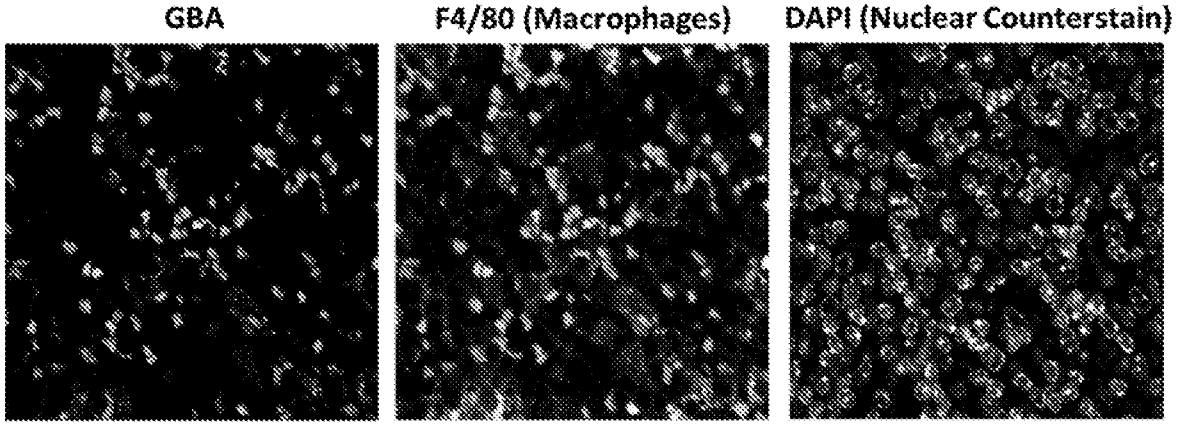


FIGURE 7

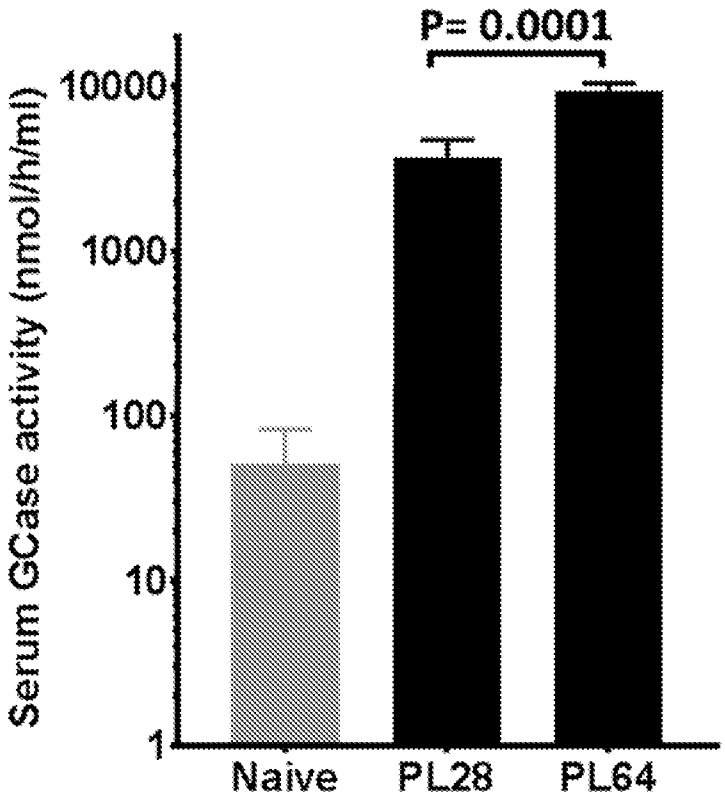

P= 0.0001
Serum GCase activity (nmol/h/ml)
10000
1000
100
10
1
Naive
PL28
PL64

FIGURE 8

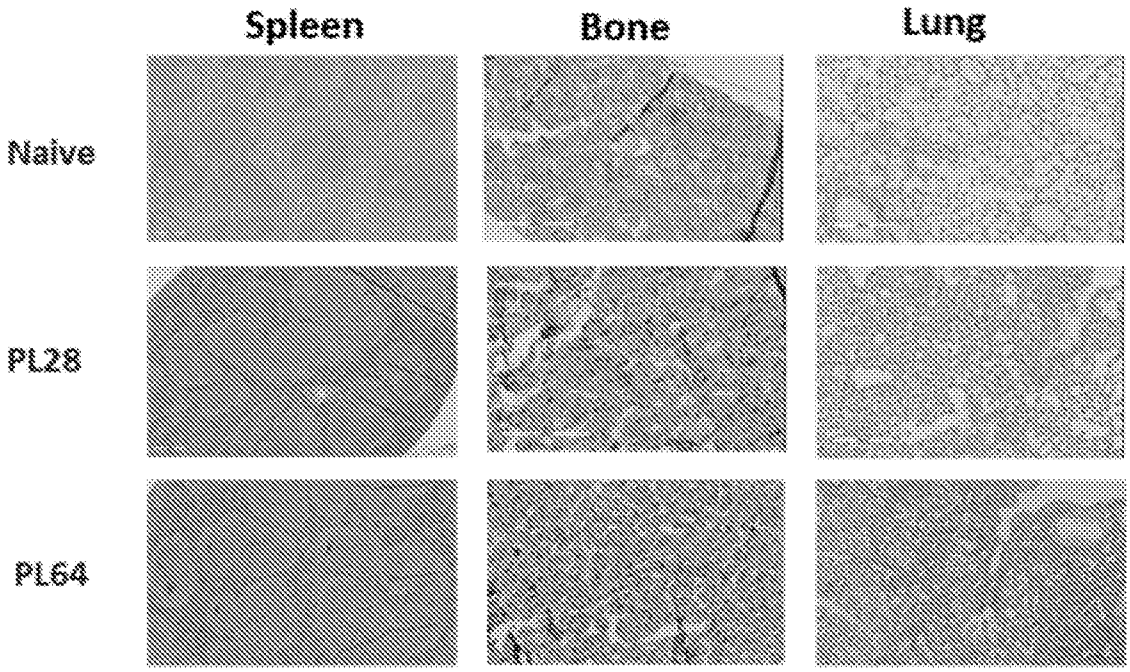


FIGURE 9

SEQ ID NO: 1 - Codon-optimised GBA nucleotide sequence from FLF-PL28, without signal peptide portion

GCCAGGCCCTGCATCCCTAAGAGCTTTGGCTACAGCTCTGTGGTGTGTGTGTGCAATGCCACCTAC
TGTGACAGCTTTGACCCCCCCACCTTTCCTGCCCTGGGCACCTTCAGCAGATATGAGAGCACCAGGT
CTGGGAGGAGGATGGAGCTGAGCATGGGGCCCATCCAGGCTAATCACACTGGCACTGGCCTGCTG
CTGACCCTGCAGCCTGAGCAGAAGTTCCAGAAAGTAAAGGGCTTTGGAGGGGCCATGACTGATGCT
GCTGCTCTGAACATCCTGGCCCTGAGCCCCCCTGCCCAGAATCTGCTGCTGAAGAGCTACTTCTCTG
AGGAGGGCATTGGCTATAACATCATCAGGGTGCCCATGGCCAGCTGTGACTTCAGCATCAGGACCT
ACACCTATGCTGACACCCCTGATGATTTCCAGCTGCACAACTTCAGCCTGCCTGAGGAGGATACCAA
GCTGAAGATCCCACTGATCCACAGGGCTCTGCAGCTGGCCCAGAGGCCTGTGAGCCTGCTGGCCAG
CCCCTGGACCAGCCCCACTTGGCTGAAGACCAATGGGGCTGTGAATGGGAAGGGGAGCCTGAAGG
GACAGCCTGGAGACATCTACCACCAGACCTGGGCCAGATACTTTGTGAAGTTCCTGGATGCCTATGC
TGAGCACAAGCTGCAGTTCTGGGCTGTGACTGCTGAGAATGAGCCTTCTGCTGGGCTGCTGTCTGG
CTACCCCTTCCAATGCCTGGGCTTCACCCCTGAGCATCAGAGGGACTTCATTGCCAGGGACCTGGG
CCCTACCCTGGCCAACAGCACTCACCATAATGTTAGGCTGCTGATGCTGGATGACCAGAGGCTGCT
GCTGCCCCACTGGGCTAAGGTGGTGCTGACTGACCCTGAGGCTGCTAAATATGTGCATGGCATTGC
TGTGCATTGGTACCTGGACTTTCTGGCTCCTGCCAAGGCCACCCTGGGGGAGACCCACAGGCTGTT
CCCCAACACCATGCTGTTTGCCTCTGAGGCCTGTGTGGGCAGCAAGTTCTGGGAGCAGTCTGTGAG
GCTGGGCAGCTGGGATAGGGGGATGCAGTACAGCCACAGCATCATCACCAACCTGCTGTACCATGT
GGTGGGCTGGACTGACTGGAACCTGGCCCTGAACCCTGAGGGAGGACCTAACTGGGTCAGAAACTT
TGTGGACAGCCCCATCATTGTGGACATCACCAAGGACACCTTTTACAAGCAGCCCATGTTCTACCAC
CTGGGCCACTTCAGCAAGTTCATCCCTGAGGGCAGCCAGAGAGTGGGGCTGGTGGCCAGCCAGAA
GAATGACCTGGATGCTGTGGCTCTGATGCATCCTGATGGCTCTGCTGTGGTGGTGGTGCTGAACAG
GAGCTCTAAGGATGTGCCTCTGACCATCAAGGATCCTGCTGTGGGCTTCCTGGAGACCATCAGCCC
TGGCTACAGCATCCACACCTACCTGTGGAGGAGGCAGTGA

SEQ ID NO: 2 - Codon-optimised GBA nucleotide sequence from FLF-PL21, without signal peptide portion

GCCAGGCCCTGTATCCCTAAGAGCTTtGGCTACAGCTCAGTaGTtTGTGTCTGTAATGCCACATACTG
TGACTCCTTtGACCCCCCTACCTTCCCTGCCCTGGGAACCTTCAGCAGaTATGAGTCAACAAGaTCAG
GAAGGAGGATGGAGCTGTCAATGGGACCCATCCAGGCTAATCACACAGGCACAGGCCTGCTGCTGA
CCCTGCAGCCAGAACAGAAGTTCCAGAAaGTGAAGGGATTtGGAGGAGCCATGACAGATGCTGCTG
CTCTCAACATCCTGGCCCTGTCACCCCCTGCCCAGAATCTGCTGCTGAAGTCATACTTCTCTGAAGA
AGGAATtGGATATAACATCATCAGGGTGCCCATGGCCAGCTGTGACTTCTCCATCAGGACCTACACC
TATGCtGACACCCCTGATGATTTCCAGCTGCACAACTTCAGCCTCCCAGAGGAAGATACCAAGCTCAA
GATCCCtCTGATaCAtAGgGCaCTGCAGCTGGCCCAGAGGCCtGTGTCACTCCTGGCCAGCCCCTGGA
CATCACCCACTTGGCTCAAGACCAATGGAGCtGTGAATGGAAAGGGATCACTCAAGGGACAGCCtGG
AGACATCTACCACCAGACCTGGGCCAGaTACTTtGTGAAGTTCCTGGATGCCTATGCTGAGCACAAG
CTGCAGTTCTGGGCaGTGACAGCTGAAAATGAGCCTTCTGCTGGACTGCTGTCAGGATACCCCTTCC
AGTGTCTGGGCTTCACCCCTGAACATCAGAGGGACTTCATTgCCAGGGACCTGGGACCTACCCTtGC
CAACTCAACTCACCACAATGTCAGGCTGCTCATGCTGGATGACCAGAGGCTGCTGCTGCCCCACTGG
GCCAAGGTGGTGCTGACAGACCCAGAAGCtGCTAAaTATGTGCATGGCATtGCTGTGCATTGGTACC
TGGACTTCCTGGCTCCAGCCAAGGCCACCCTGGGAGAGACACACAGGCTGTTCCCCAACACCATGCT
CTTtGCCTCtGAGGCCTGTGTGGGCTCCAAGTTCTGGGAGCAGTCAGTGAGGCTGGGCTCCTGGGA
TAGGGGAATGCAGTACAGCCACAGCATCATCACAAACCTCCTGTACCATGTGGTgGGCTGGACtGAC
TGGAACCTGGCCCTGAACCCtGAAGGAGGACCCAAcTGGGTcagaAAtTTtGTgGACTCACCCATCATt
GTGGACATCACCAAGGACACATTCTACAAGCAGCCCATGTTCTACCACCTGGGCCACTTCAGCAAGT
TCATCCCTGAGGGCTCCCAGAGGGTGGGACTGGTGGCCTCACAGAAGAAtGACCTGGAtGCaGTGG

CCCTGATGCATCCtGATGGCTCTGCTGTGGTGGTtGTGCTGAAtAGaTCCTCTAAGGATGTGCCTCT
GACCATCAAGGATCCTGCTGTGGGCTTCCTGGAGACAATCTCACCTGGCTACTCCATCCACACCTAC
CTGTGGAGGAGGCAGTGA

SEQ ID NO: 3 - Codon-optimised GBA nucleotide sequence from FLF-PL30, without signal peptide portion

GCCAGGCCCTGCATCCCTAAGAGCTTTGGCTACAGCTCTGTGGTGTGTGTGTGCAATGCCACATAC
TGTGACTCCTTTGACCCCCCCACCTTTCCTGCCCTGGGCACaTTctccAGaTATGAGAGCACAAGATC
TGGGAGAAGGATGGAGCTGAGCATGGGGCCCATCCAGGCTAATCACACTGGCACAGGCCTGCTGCT
GACCCTGCAGCCTGAACAGAAGTTTCAGAAaGTGAAGGGATTTGGAGGGGCCATGACAGATGCTGC
TGCTCTGAATATCCTGGCCCTGTCACCCCCTGCCCAGAATCTGCTGCTGAAGAGCTACTTTTCAGAA
GAAGGAATTGGATATAATATCATCAGAGTGCCCATGGCCAGCTGTGACTTTTCCATCAGAACCTACA
CCTATGCAGACACCCCTGATGATTTTCAGCTGCACAATTTTAGCCTGCCTGAGGAAGATACCAAGCT
GAAGATACCCCTGATTCACAGGGCCCTGCAGCTGGCCCAGAGGCCTGTTTCACTGCTGGCCAGCCC
CTGGACATCACCCACCTGGCTGAAGACCAATGGAGCTGTGAATGGGAAGGGGTCACTGAAGGGACA
GCCTGGAGACATCTACCACCAGACCTGGGCCAGATACTTTGTGAAGTTTCTGGATGCCTATGCTGA
GCACAAGCTGCAGTTTTGGGCAGTGACAGCTGAAAATGAGCCTTCAGCTGGGCTGCTGTCAGGATA
CCCCTTTCAGTGCCTGGGCTTTACCCCTGAACATCAGAGGGACTTTATTGCCAGGGACCTGGGCCCT
ACCCTGGCCAATAGCACCCAcCAtAATGTgAGgttgCTGATGCTGGATGACCAGAGGCTGCTGCTGCC
CCACTGGGCAAAGGTGGTGCTGACAGACCCTGAAGCAGCTAAaTATGTTCATGGCATTGCTGTGCA
TTGGTACCTGGACTTTCTGGCTCCTGCCAAGGCCACCCTGGGGGAGACACACAGGCTGTTTCCCAA
TACCATGCTGTTTGCCTCtGAGGCCTGTGTGGGCTCCAAGTTTTGGGAGCAGTCTGTGAGGCTGGG
CTCCTGGGATAGAGGGATGCAGTACAGCCACAGCATCATCACCAATCTGCTGTACCATGTGGTGGG
CTGGACTGACTGGAATCTGGCCCTGAATCCTGAAGGAGGACCtAAcTGGGTcAGgAATTTTGTGGAC
AGCCCCATCATTGTGGACATCACCAAGGACACCTTTTACAAGCAGCCCATGTTTTACCACCTGGGCC
ACTTTAGCAAGTTTATTCCTGAGGGCTCCCAGAGAGTGGGGCTGGTTGCCAGCCAGAAGAATGACC
TGGATGCAGTGGCACTGATGCATCCTGATGGCTCAGCTGTTGTGGTGGTGCTGAATAGATCCAGCA
AGGATGTGCCTCTGACCATCAAGGATCCTGCTGTGGGCTTTCTGGAGACAATCTCACCTGGCTACTC
CATTCACACCTACCTGTGGAGAAGGCAGTGA

SEQ ID NO: 4 - Codon-optimised GBA nucleotide sequence from FLF-PL36, without signal peptide portion

GCCAGGCCTTGCATCCCAAAGTCTTTCGGCTACAGCTCCGTGGTGTGCGTGTGCAACGCCACCTATT
GTGACTCCTTCGATCCCCCTACCTTTCCCGCCCTGGGCACATTTTCTAGATACGAGTCTACACGCAG
CGGCCGGAGAATGGAGCTGAGCATGGGCCCTATCCAGGCCAATCACACAGGAACAGGCCTGCTGCT
GACCCTGCAGCCAGAGCAGAAGTTCCAGAAGGTGAAGGGCTTTGGCGGAGCCATGACAGATGCAGC
CGCCCTGAACATCCTGGCCCTGTCCCCACCCGCCCAGAATCTGCTGCTGAAGTCCTACTTCTCTGAG
GAGGGCATCGGCTATAACATCATCCGGGTGCCCATGGCCAGCTGCGACTTTTCCATCAGAACCTACA
CATATGCCGATACCCCTGACGATTTCCAGCTGCACAATTTTTCCCTGCCAGAGGAGGATACAAAGCT
GAAGATCCCCCTGATTCACCGGGCCCTGCAGCTGGCACAGCGGCCCGTGAGCCTGCTGGCCAGCCC
CTGGACCTCCCCTACATGGCTGAAGACCAACGGCGCCGTGAATGGCAAGGGCTCTCTGAAGGGACA
GCCTGGCGACATCTACCACCAGACATGGGCCAGATATTTCGTGAAGTTTCTGGATGCCTACGCCGA
GCACAAGCTGCAGTTCTGGGCCGTGACAGCAGAGAATGAGCCTTCTGCCGGCCTGCTGAGCGGCTA
TCCCTTCCAGTGCCTGGGCTTTACACCTGAGCACCAGCGGGACTTTATCGCCAGAGATCTGGGCCC
AACCCTGGCCAACTCCACACACCACAATGTGAGGCTGCTGATGCTGGACGATCAGCGCCTGCTGCT
GCCTCACTGGGCCAAGGTGGTGCTGACCGACCCAGAGGCCGCCAAGTACGTGCACGGCATCGCCGT
GCACTGGTATCTGGATTTCCTGGCACCTGCAAAGGCCACCCTGGGAGAGACACACCGGCTGTTCCC
TAACACCATGCTGTTTGCCAGCGAGGCCTGCGTGGGCTCCAAGTTTTGGGAGCAGTCCGTGAGGCT
GGGATCTTGGGACAGAGGCATGCAGTACTCCCACTCTATCATCACCAATCTGCTGTATCACGTGGTG
GGCTGGACAGACTGGAACCTGGCCCTGAATCCAGAGGGCGGCCCCAACTGGGTGAGAAATTTCGTG
GATAGCCCCATCATCGTGGACATCACCAAGGATACATTCTACAAGCAGCCAATGTTTTATCACCTGG
GCCACTTCTCTAAGTTTATCCCTGAGGGCAGCCAGAGGGTGGGCCTGGTGGCCAGCCAGAAGAACG

ACCTGGATGCCGTGGCCCTGATGCACCCTGATGGCTCCGCCGTGGTGGTGGTGCTGAATCGCTCTA
GCAAGGACGTGCCTCTGACCATCAAGGATCCAGCCGTGGGATTTCTGGAGACTATTTCACCTGGCT
ATTCAATTCATACCTACCTGTGGAGGAGGCAGTGA

SEQ ID NO: 5 - Codon-optimised GBA nucleotide sequence from FLF-PL28, with signal peptide portion

ATGGAGTTTTCAAGTCCTTCCAGAGAGGAATGTCCCAAGCCTTTGAGTAGGGTAAGCATCATGGCT
GGCAGCCTCACAGGATTGCTTCTACTTCAGGCAGTGTCGTGGGCATCAGGTGCCAGGCCCTGCATC
CCTAAGAGCTTTGGCTACAGCTCTGTGGTGTGTGTGTGCAATGCCACCTACTGTGACAGCTTTGAC
CCCCCCACCTTTCCTGCCCTGGGCACCTTCAGCAGaTATGAGAGCACCAGGTCTGGGAGGAGGATG
GAGCTGAGCATGGGGCCCATCCAGGCTAATCACACTGGCACTGGCCTGCTGCTGACCCTGCAGCCT
GAGCAGAAGTTCCAGAAaGTaAAGGGCTTTGGAGGGGCCATGACTGATGCTGCTGCTCTGAACATC
CTGGCCCTGAGCCCCCCTGCCCAGAATCTGCTGCTGAAGAGCTACTTCTCTGAGGAGGGCATTGGC
TATAACATCATCAGGGTGCCCATGGCCAGCTGTGACTTCAGCATCAGGACCTACACCTATGCTGACA
CCCCTGATGATTTCCAGCTGCACAACTTCAGCCTGCCTGAGGAGGATACCAAGCTGAAGATCCCaCT
GATCCACAGGGCtCTGCAGCTGGCCCAGAGGCCTGTGAGCCTGCTGGCCAGCCCCTGGACCAGCCC
CACTTGGCTGAAGACCAATGGGGCTGTGAATGGGAAGGGGAGCCTGAAGGGACAGCCTGGAGACA
TCTACCACCAGACCTGGGCCAGATACTTTGTGAAGTTCCTGGATGCCTATGCTGAGCACAAGCTGCA
GTTCTGGGCTGTGACTGCTGAGAATGAGCCTTCTGCTGGGCTGCTGTCTGGCTACCCCTTCCAaTG
CCTGGGCTTCACCCCTGAGCATCAGAGGGACTTCATTGCCAGGGACCTGGGCCCTACCCTGGCCAA
CAGCACTCACCAtAATGTTtAGGCTGCTGATGCTGGATGACCAGAGGCTGCTGCTGCCCCACTGGGCT
AAGGTGGTGCTGACTGACCCTGAGGCTGCTAAaTATGTGCATGGCATTGCTGTGCATTGGTACCTG
GACTTTCTGGCTCCTGCCAAGGCCACCCTGGGGGAGACCCACAGGCTGTTCCCCAACACCATGCTG
TTTGCCTCTGAGGCCTGTGTGGGCAGCAAGTTCTGGGAGCAGTCTGTGAGGCTGGGCAGCTGGGA
TAGGGGGATGCAGTACAGCCACAGCATCATCACCAACCTGCTGTACCATGTGGTGGGCTGGACTGA
CTGGAACCTGGCCCTGAACCCTGAGGGAGGACCtAAcTGGGTcAGaAACTTTGTGGACAGCCCCATC
ATTGTGGACATCACCAAGGACACCTTTTACAAGCAGCCCATGTTCTACCACCTGGGCCACTTCAGCA
AGTTCATCCCTGAGGGCAGCCAGAGAGTGGGGCTGGTGGCCAGCCAGAAGAATGACCTGGATGCT
GTGGCTCTGATGCATCCTGATGGCTCTGCTGTGGTGGTGGTGCTGAACAGGAGCTCTAAGGATGTG
CCTCTGACCATCAAGGATCCTGCTGTGGGCTTCCTGGAGACCATCAGCCCTGGCTACAGCATCCACA
CCTACCTGTGGAGGAGGCAGTGA

SEQ ID NO: 6 - Codon-optimised GBA nucleotide sequence from FLF-PL21, with signal peptide portion

ATGGAGTTTTCAAGTCCTTCCAGAGAGGAATGTCCCAAGCCTTTGAGTAGGGTAAGCATCATGGCT
GGCAGCCTCACAGGATTGCTTCTACTTCAGGCAGTGTCGTGGGCATCAGGTGCCAGGCCCTGTATC
CCTAAGAGCTTtGGCTACAGCTCAGTaGTtTGTGTCTGTAATGCCACATACTGTGACTCCTTtGACCC
CCCTACCTTCCCTGCCCTGGGAACCTTCAGCAGaTATGAGTCAACAAGaTCAGGAAGGAGGATGGAG
CTGTCAATGGGACCCATCCAGGCTAATCACACAGGCACAGGCCTGCTGCTGACCCTGCAGCCAGAAC
AGAAGTTCCAGAAaGTGAAGGGATTtGGAGGAGCCATGACAGATGCTGCTGCTCTCAACATCCTGGC
CCTGTCACCCCCTGCCCAGAATCTGCTGCTGAAGTCATACTTCTCTGAAGAAGGAATtGGATATAAC
ATCATCAGGGTGCCCATGGCCAGCTGTGACTTCTCCATCAGGACCTACACCTATGCtGACACCCCTG
ATGATTTCCAGCTGCACAACTTCAGCCTCCCAGAGGAAGATACCAAGCTCAAGATCCCtCTGATaCAt
AGgGCaCTGCAGCTGGCCCAGAGGCCtGTGTCACTCCTGGCCAGCCCCTGGACATCACCCACTTGGC
TCAAGACCAATGGAGCtGTGAATGGAAAGGGATCACTCAAGGGACAGCCtGGAGACATCTACCACCA
GACCTGGGCCAGaTACTTtGTGAAGTTCCTGGATGCCTATGCTGAGCACAAGCTGCAGTTCTGGGCa
GTGACAGCTGAAAATGAGCCTTCTGCTGGACTGCTGTCAGGATACCCCTTCCAGTGTCTGGGCTTC
ACCCCTGAACATCAGAGGGACTTCATtGCCAGGGACCTGGGACCTACCCTtGCCAACTCAACTCACCA
CAATGTCAGGCTGCTCATGCTGGATGACCAGAGGCTGCTGCTGCCCCACTGGGCCAAGGTGGTGCT
GACAGACCCAGAAGCtGCTAAaTATGTGCATGGCATtGCTGTGCATTGGTACCTGGACTTCCTGGCT
CCAGCCAAGGCCACCCTGGGAGAGACACACAGGCTGTTCCCCAACACCATGCTCTTtGCCTCtGAGG
CCTGTGTGGGCTCCAAGTTCTGGGAGCAGTCAGTGAGGCTGGGCTCCTGGGATAGGGGAATGCAG

TACAGCCACAGCATCATCACAAACCTCCTGTACCATGTGGTgGGCTGGACtGACTGGAACCTGGCCC
TGAACCCtGAAGGAGGACCCAAcTGGGTcagaAAtTTtGTgGACTCACCCATCATtGTGGACATCACCA
AGGACACATTCTACAAGCAGCCCATGTTCTACCACCTGGGCCACTTCAGCAAGTTCATCCCTGAGGG
CTCCCAGAGGGTGGGACTGGTGGCCTCACAGAAGAAtGACCTGGAtGCaGTGGCCCTGATGCATCCt
GATGGCTCTGCTGTGGTGGTtGTGCTGAAtAGaTCCTCTAAGGATGTGCCTCTGACCATCAAGGATC
CTGCTGTGGGCTTCCTGGAGACAATCTCACCTGGCTACTCCATCCACACCTACCTGTGGAGGAGGC
AGTGA

SEQ ID NO: 7 - Codon-optimised GBA nucleotide sequence from FLF-PL30, with signal peptide portion

ATGGAGTTTTCAAGTCCTTCCAGAGAGGAATGTCCCAAGCCTTTGAGTAGGGTAAGCATCATGGCT
GGCAGCCTCACAGGATTGCTTCTACTTCAGGCAGTGTCGTGGGCATCAGGTGCCAGGCCCTGCATC
CCTAAGAGCTTTGGCTACAGCTCTGTGGTGTGTGTGTGCAATGCCACATACTGTGACTCCTTTGACC
CCCCCACCTTTCCTGCCCTGGGCACaTTctccAGaTATGAGAGCACAAGATCTGGGAGAAGGATGGA
GCTGAGCATGGGGCCCATCCAGGCTAATCACACTGGCACAGGCCTGCTGCTGACCCTGCAGCCTGA
ACAGAAGTTTCAGAAaGTGAAGGGATTTGGAGGGGCCATGACAGATGCTGCTGCTCTGAATATCCT
GGCCCTGTCACCCCCTGCCCAGAATCTGCTGCTGAAGAGCTACTTTTCAGAAGAAGGAATTGGATAT
AATATCATCAGAGTGCCCATGGCCAGCTGTGACTTTTCCATCAGAACCTACACCTATGCAGACACCC
CTGATGATTTTCAGCTGCACAATTTTAGCCTGCCTGAGGAAGATACCAAGCTGAAGATACCCCTGAT
TCACAGGGCCCTGCAGCTGGCCCAGAGGCCTGTTTCACTGCTGGCCAGCCCCTGGACATCACCCAC
CTGGCTGAAGACCAATGGAGCTGTGAATGGGAAGGGGTCACTGAAGGGACAGCCTGGAGACATCTA
CCACCAGACCTGGGCCAGATACTTTGTGAAGTTTCTGGATGCCTATGCTGAGCACAAGCTGCAGTTT
TGGGCAGTGACAGCTGAAAATGAGCCTTCAGCTGGGCTGCTGTCAGGATACCCCTTTCAGTGCCTG
GGCTTTACCCCTGAACATCAGAGGGACTTTATTGCCAGGGACCTGGGCCCTACCCTGGCCAATAGC
ACCCAcCAtAATGTgAGgttgCTGATGCTGGATGACCAGAGGCTGCTGCTGCCCCACTGGGCAAAGGT
GGTGCTGACAGACCCTGAAGCAGCTAAaTATGTTCATGGCATTGCTGTGCATTGGTACCTGGACTTT
CTGGCTCCTGCCAAGGCCACCCTGGGGGAGACACACAGGCTGTTTCCCAATACCATGCTGTTTGCC
TCtGAGGCCTGTGTGGGCTCCAAGTTTTGGGAGCAGTCTGTGAGGCTGGGCTCCTGGGATAGAGG
GATGCAGTACAGCCACAGCATCATCACCAATCTGCTGTACCATGTGGTGGGCTGGACTGACTGGAA
TCTGGCCCTGAATCCTGAAGGAGGACCtAAcTGGGTcAGgAATTTTGTGGACAGCCCCATCATTGTG
GACATCACCAAGGACACCTTTTACAAGCAGCCCATGTTTTACCACCTGGGCCACTTTAGCAAGTTTA
TTCCTGAGGGCTCCCAGAGAGTGGGGCTGGTTGCCAGCCAGAAGAATGACCTGGATGCAGTGGCAC
TGATGCATCCTGATGGCTCAGCTGTTGTGGTGGTGCTGAATAGATCCAGCAAGGATGTGCCTCTGA
CCATCAAGGATCCTGCTGTGGGCTTTCTGGAGACAATCTCACCTGGCTACTCCATTCACACCTACCT
GTGGAGAAGGCAGTGA

SEQ ID NO: 8 - Codon-optimised GBA nucleotide sequence from FLF-PL36, with signal peptide portion

ATGGAGTTTTCAAGTCCTTCCAGAGAGGAATGTCCCAAGCCTTTGAGTAGGGTAAGCATCATGGCT
GGCAGCCTCACAGGATTGCTTCTACTTCAGGCAGTGTCGTGGGCATCAGGTGCCAGGCCTTGCATC
CCAAAGTCTTTCGGCTACAGCTCCGTGGTGTGCGTGTGCAACGCCACCTATTGTGACTCCTTCGATC
CCCCTACCTTTCCCGCCCTGGGCACATTTTCTAGATACGAGTCTACACGCAGCGGCCGGAGAATGGA
GCTGAGCATGGGCCCTATCCAGGCCAATCACACAGGAACAGGCCTGCTGCTGACCCTGCAGCCAGA
GCAGAAGTTCCAGAAGGTGAAGGGCTTTGGCGGAGCCATGACAGATGCAGCCGCCCTGAACATCCT
GGCCCTGTCCCCACCCGCCCAGAATCTGCTGCTGAAGTCCTACTTCTCTGAGGAGGGCATCGGCTA
TAACATCATCCGGGTGCCCATGGCCAGCTGCGACTTTTCCATCAGAACCTACACATATGCCGATACC
CCTGACGATTTCCAGCTGCACAATTTTTCCCTGCCAGAGGAGGATACAAAGCTGAAGATCCCCCTGA
TTCACCGGGCCCTGCAGCTGGCACAGCGGCCCGTGAGCCTGCTGGCCAGCCCCTGGACCTCCCCTA
CATGGCTGAAGACCAACGGCGCCGTGAATGGCAAGGGCTCTCTGAAGGGACAGCCTGGCGACATCT
ACCACCAGACATGGGCCAGATATTTCGTGAAGTTTCTGGATGCCTACGCCGAGCACAAGCTGCAGTT
CTGGGCCGTGACAGCAGAGAATGAGCCTTCTGCCGGCCTGCTGAGCGGCTATCCCTTCCAGTGCCT
GGGCTTTACACCTGAGCACCAGCGGGACTTTATCGCCAGAGATCTGGGCCCAACCCTGGCCAACTC

CACACACCACAATGTGAGGCTGCTGATGCTGGACGATCAGCGCCTGCTGCTGCCTCACTGGGCCAA
GGTGGTGCTGACCGACCCAGAGGCCGCCAAGTACGTGCACGGCATCGCCGTGCACTGGTATCTGGA
TTTCCTGGCACCTGCAAAGGCCACCCTGGGAGAGACACACCGGCTGTTCCCTAACACCATGCTGTTT
GCCAGCGAGGCCTGCGTGGGCTCCAAGTTTTGGGAGCAGTCCGTGAGGCTGGGATCTTGGGACAG
AGGCATGCAGTACTCCCACTCTATCATCACCAATCTGCTGTATCACGTGGTGGGCTGGACAGACTGG
AACCTGGCCCTGAATCCAGAGGGCGGCCCCAACTGGGTGAGAAATTTCGTGGATAGCCCCATCATC
GTGGACATCACCAAGGATACATTCTACAAGCAGCCAATGTTTTATCACCTGGGCCACTTCTCTAAGT
TTATCCCTGAGGGCAGCCAGAGGGTGGGCCTGGTGGCCAGCCAGAAGAACGACCTGGATGCCGTG
GCCCTGATGCACCCTGATGGCTCCGCCGTGGTGGTGGTGCTGAATCGCTCTAGCAAGGACGTGCCT
CTGACCATCAAGGATCCAGCCGTGGGATTTCTGGAGACTATTTCACCTGGCTATTCAATTCATACCT
ACCTGTGGAGGAGGCAGTGA

SEQ ID NO: 9 - Wild type human GBA nucleotide sequence with signal peptide (from GenBank NM_000157.3)

ATGGAGTTTTCAAGTCCTTCCAGAGAGGAATGTCCCAAGCCTTTGAGTAGGGTAAGCATCATGGCT
GGCAGCCTCACAGGATTGCTTCTACTTCAGGCAGTGTCGTGGGCATCAGGTGCCCGCCCCTGCATC
CCTAAAAGCTTCGGCTACAGCTCGGTGGTGTGTGTCTGCAATGCCACATACTGTGACTCCTTTGACC
CCCCGACCTTTCCTGCCCTTGGTACCTTCAGCCGCTATGAGAGTACACGCAGTGGGCGACGGATGG
AGCTGAGTATGGGGCCCATCCAGGCTAATCACACGGGCACAGGCCTGCTACTGACCCTGCAGCCAG
AACAGAAGTTCCAGAAAGTGAAGGGATTTGGAGGGGCCATGACAGATGCTGCTGCTCTCAACATCC
TTGCCCTGTCACCCCCTGCCCAAAATTTGCTACTTAAATCGTACTTCTCTGAAGAAGGAATCGGATA
TAACATCATCCGGGTACCCATGGCCAGCTGTGACTTCTCCATCCGCACCTACACCTATGCAGACACC
CCTGATGATTTCCAGTTGCACAACTTCAGCCTCCCAGAGGAAGATACCAAGCTCAAGATACCCCTGA
TTCACCGAGCCCTGCAGTTGGCCCAGCGTCCCGTTTCACTCCTTGCCAGCCCCTGGACATCACCCAC
TTGGCTCAAGACCAATGGAGCGGTGAATGGGAAGGGGTCACTCAAGGGACAGCCCGGAGACATCTA
CCACCAGACCTGGGCCAGATACTTTGTGAAGTTCCTGGATGCCTATGCTGAGCACAAGTTACAGTTC
TGGGCAGTGACAGCTGAAAATGAGCCTTCTGCTGGGCTGTTGAGTGGATACCCCTTCCAGTGCCTG
GGCTTCACCCCTGAACATCAGCGAGACTTCATTGCCCGTGACCTAGGTCCTACCCTCGCCAACAGTA
CTCACCACAATGTCCGCCTACTCATGCTGGATGACCAACGCTTGCTGCTGCCCCACTGGGCAAAGGT
GGTACTGACAGACCCAGAAGCAGCTAAATATGTTCATGGCATTGCTGTACATTGGTACCTGGACTTT
CTGGCTCCAGCCAAAGCCACCCTAGGGGAGACACACCGCCTGTTCCCCAACACCATGCTCTTTGCCT
CAGAGGCCTGTGTGGGCTCCAAGTTCTGGGAGCAGAGTGTGCGGCTAGGCTCCTGGGATCGAGGG
ATGCAGTACAGCCACAGCATCATCACGAACCTCCTGTACCATGTGGTCGGCTGGACCGACTGGAACC
TTGCCCTGAACCCCGAAGGAGGACCCAATTGGGTGCGTAACTTTGTCGACAGTCCCATCATTGTAGA
CATCACCAAGGACACGTTTTACAAACAGCCCATGTTCTACCACCTTGGCCACTTCAGCAAGTTCATTC
CTGAGGGCTCCCAGAGAGTGGGGCTGGTTGCCAGTCAGAAGAACGACCTGGACGCAGTGGCACTG
ATGCATCCCGATGGCTCTGCTGTTGTGGTCGTGCTAAACCGCTCCTCTAAGGATGTGCCTCTTACCA
TCAAGGATCCTGCTGTGGGCTTCCTGGAGACAATCTCACCTGGCTACTCCATTCACACCTACCTGTG
GCGTCGCCAGTGA

SEQ ID NO: 10 - LSP-S transcription regulatory element

CCCTAAAATGGGCAAACATTGCAAGCAGCAAACAGCAAACACACAGCCCTCCCTGCCTGCTGACCTT
GGAGCTGGGGCAGAGGTCAGACACCTCTCTGGGCCCATGCCACCTCCAACTGGACACAGGACGCTG
TGGTTTCTGAGCCAGGGGGCGACTCAGATCCCAGCCAGTGGACTTAGCCCCTGTTTGCTCCTCCGA
TAACTGGGGTGACCTTGGTTAATATTCACCAGCAGCCTCCCCCGTTGCCCCTCTGGATCCACTGCTT
AAATACGGACGAGGACAGGGCCCTGTCTCCTCAGCTTCAGGCACCACCACTGACCTGGGACAGTGA
AT

SEQ ID NO: 11 - HCR enhancer portion of LSP-S

CCCTAAAATGGGCAAACATTGCAAGCAGCAAACAGCAAACACACAGCCCTCCCTGCCTGCTGACCTT
GGAGCTGGGGCAGAGGTCAGACACCTCTCTGGGCCCATGCCACCTCCAAC

SEQ ID NO: 12 - A1AT promoter portion of LSP-S

GGGCGACTCAGATCCCAGCCAGTGGACTTAGCCCCTGTTTGCTCCTCCGATAACTGGGGTGACCTT
GGTTAATATTCACCAGCAGCCTCCCCCGTTGCCCCTCTGGATCCACTGCTTAAATACGGACGAGGAC
AGGGCCCTGTCTCCTCAGCTTCAGGCACCACCACTGACCTGGGACAGTGAAT

SEQ ID NO: 13 - CAG promoter

GACATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATG
GAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCGCCCAACGACCCCCGCCCAT
TGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAATAGGGACTTTCCATTGACGTCAATGGGT
GGAGTATTTACGGTAAACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTACGCCCCCT
ATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAGTACATGACCTTATGGGACTTTC
CTACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTCGAGGTGAGCCCCACGTTCTG
CTTCACTCTCCCCATCTCCCCCCCCTCCCCACCCCCAATTTTGTATTTATTTATTTTTTAATTATTTTG
TGCAGCGATGGGGGCGGGGGGGGGGGGGGGCGCGCGCCAGGCGGGGCGGGGCGGGGCGAGG
GGCGGGGCGGGGCGAGGCGGAGAGGTGCGGCGGCAGCCAATCAGAGCGGCGCGCTCCGAAAGTT
TCCTTTTATGGCGAGGCGGCGGCGGCGGCGGCCCTATAAAAAGCGAAGCGCGCGGCGGGCG

SEQ ID NO: 14 - LSP-L transcription regulatory element

AGGCTCAGAGGCACACAGGAGTTTCTGGGCTCACCCTGCCCCCTTCCAACCCCTCAGTTCCCATCCT
CCAGCAGCTGTTTGTGTGCTGCCTCTGAAGTCCACACTGAACAAACTTCAGCCTACTCATGTCCCTA
AAATGGGCAAACATTGCAAGCAGCAAACAGCAAACACACAGCCCTCCCTGCCTGCTGACCTTGGAGC
TGGGGCAGAGGTCAGAGACCTCTCTGGGCCCATGCCACCTCCAACATCCACTCGACCCCTTGGAATT
TCGGTGGAGAGGAGCAGAGGTTGTCCTGGCGTGGTTTAGGTAGTGTGAGAGGGGTACCCGGGGAT
CTTGCTACCAGTGGAACAGCCACTAAGGATTCTGCAGTGAGAGCAGAGGGCCAGCTAAGTGGTACT
CTCCCAGAGACTGTCTGACTCACGCCACCCCCTCCACCTTGGACACAGGACGCTGTGGTTTCTGAGC
CAGGTACAATGACTCCTTTCGGTAAGTGCAGTGGAAGCTGTACACTGCCCAGGCAAAGCGTCCGGG
CAGCGTAGGCGGGCGACTCAGATCCCAGCCAGTGGACTTAGCCCCTGTTTGCTCCTCCGATAACTG
GGGTGACCTTGGTTAATATTCACCAGCAGCCTCCCCCGTTGCCCCTCTGGATCCACTGCTTAAATAC
GGACGAGGACAGGGCCCTGTCTCCTCAGCTTCAGGCACCACCACTGACCTGGGACAGTGAATGATC
CCCCTGATCTGCGGCC

SEQ ID NO: 15 - A1AT promoter portion of LSP-L

GGATCTTGCTACCAGTGGAACAGCCACTAAGGATTCTGCAGTGAGAGCAGAGGGCCAGCTAAGTGG
TACTCTCCCAGAGACTGTCTGACTCACGCCACCCCCTCCACCTTGGACACAGGACGCTGTGGTTTCT
GAGCCAGGTACAATGACTCCTTTCGGTAAGTGCAGTGGAAGCTGTACACTGCCCAGGCAAAGCGTC
CGGGCAGCGTAGGCGGGCGACTCAGATCCCAGCCAGTGGACTTAGCCCCTGTTTGCTCCTCCGATA
ACTGGGGTGACCTTGGTTAATATTCACCAGCAGCCTCCCCCGTTGCCCCTCTGGATCCACTGCTTAA
ATACGGACGAGGACAGGGCCCTGTCTCCTCAGCTTCAGGCACCACCACTGACCTGGGACAGTGAAT
GATCCCCCTGATCTGCGGCC

SEQ ID NO: 16 - HCR enhancer portion of LSP-L

AGGCTCAGAGGCACACAGGAGTTTCTGGGCTCACCCTGCCCCCTTCCAACCCCTCAGTTCCCATCCT
CCAGCAGCTGTTTGTGTGCTGCCTCTGAAGTCCACACTGAACAAACTTCAGCCTACTCATGTCCCTA
AAATGGGCAAACATTGCAAGCAGCAAACAGCAAACACACAGCCCTCCCTGCCTGCTGACCTTGGAGC
TGGGGCAGAGGTCAGAGACCTCTCTGGGCCCATGCCACCTCCAACATCCACTCGACCCCTTGGAATT
TCGGTGGAGAGGAGCAGAGGTTGTCCTGGCGTGGTTTAGGTAGTGTGAGAGGG

SEQ ID NO: 17 - Wild type GBA nucleotide sequence corresponding to signal peptide

ATGGAGTTTTCAAGTCCTTCCAGAGAGGAATGTCCCAAGCCTTTGAGTAGGGTAAGCATCATGGCT
GGCAGCCTCACAGGATTGCTTCTACTTCAGGCAGTGTCGTGGGCATCAGGT

SEQ ID NO: 18 - Wild type GCase polypeptide sequence of signal peptide

MEFSSPSREECPKPLSRVSIMAGSLTGLLLLQAVSWASG

SEQ ID NO: 19 - Polypeptide sequence of liver-tropic capsid

MAADGYLPDWLEDNLSEGIREWWALKPGVPQPKANQQHQDNRRGLVLPGYKYLGPGNGLDKGEPVNEA
DAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLQEDTSFGGNLGRAVFQAKKRILEPLGLVEEAAKT
APGKKRPVDQSPQEPDSSSGVGKSGKQPARKRLNFGQTGDSESVPDPQPLGEPPAAPTSLGSNTMASGGG
APMADNNEGADGVGNSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYST
PWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKKLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSE
YQLPYVLGSAHQGCLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFED
VPFHSSYAHSQSLDRLMNPLIDQYLYYLNRTQGTTSGTTNQSRLLFSQAGPQSMSLQARNWLPGPCYRQQ
RLSKTANDNNNSNFPWTAASKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGNLIFGKEGTTASNAELDN
VMITDEEEIRTTNPVATEQYGTVANNLQSSNTAPTTRTVNDQGALPGMVWQDRDVYLQGPIWAKIPHTD
GHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTTFSPAKFASFITQYSTGQVSVEIEWELQKENSKRWNP
EIQYTSNYNKSVNVDFTVDTNGVYSEPRPIGTRYLTRNL

SEQ ID NO: 20 - Polypeptide sequence of liver-tropic capsid

MAADGYLPDWLEDNLSEGIREWWALKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLDKGEPVNAA
DAAALEHDKAYDQQLQAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQAKKRVLEPLGLVEEGAK
TAPGKKRPVDQSPQEPDSSSGVGKSGKQPARKRLNFGQTGDSESVPDPQPLGEPPAAPTSLGSNTMASGG
GAPMADNNEGADGVGNSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGY
STPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKKLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTD
SEYQLPYVLGSAHQGCLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTF
EDVPFHSSYAHSQSLDRLMNPLIDQYLYYLNRTQGTTSGTTNQSRLLFSQAGPQSMSLQARNWLPGPCYR
QQRLSKTANDNNNSNFPWTAASKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGNLIFGKEGTTASNAEL
DNVMITDEEEIRTTNPVATEQYGTVANNLQSSNTAPTTRTVNDQGALPGMVWQDRDVYLQGPIWAKIPHT
DGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTTFSPAKFASFITQYSTGQVSVEIEWELQKENSKRWN
PEIQYTSNYNKSVNVDFTVDTNGVYSEPRPIGTRYLTRNL

SEQ ID NO: 21 - Polypeptide sequence of CNS-tropic capsid

MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLDKGEPVNAA
DAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQAKKRLLEPLGLVEEAAKT
APGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSGVGSLTMASGGG
APVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGY
STPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTD
SDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFE
NVPFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRV
STTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKV
MITNEEEIKTTNPVATESYGQVATNHQSAQAQAQTGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDG
NFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEI
QYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLTRNL

SEQ ID NO: 22 - Nucleotide sequence of SV40 intron

GTAAATATAAAATTTTTAAGTGTATAATGTGTTAAACTACTGATTCTAATTGTTTCTCTCTTTTAG

SEQ ID NO: 23 - Nucleotide sequence of bovine growth hormone poly A sequence

CTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGCCCCTCCCCCGTGCCTTCCTTGACCCTGGAAGG
TGCCACTCCCACTGTCCTTTCCTAATAAAATGAGGAAATTGCATCGCATTGTCTGAGTAGGTGTCAT
TCTATTCTGGGGGGTGGGGTGGGGCAGGACAGCAAGGGGGAGGATTGGGAAGACAATAGCAGGCA
TGCTGGGGA

SEQ ID NO: 24 - Polypeptide sequence of liver-tropic capsid

MAADGYLPDWLEDNLSEGIREWWALQPGAPKPKANQQHQDNARGLVLPGYKYLGPGNGLDKGEPVNAA
DAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQAKKRLLEPLGLVEEAAKT
APGKKRPVDQSPQEPDSSSGVGKSGKQPARKRLNFGQTGDSESVPDPQPLGEPPAAPTSLGSNTMASGGG
APMADNNEGADGVGNSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYST
PWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKKLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSE
YQLPYVLGSAHQGCLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFED
VPFHSSYAHSQSLDRLMNPLIDQYLYYLNRTQGTTSGTTNQSRLLFSQAGPQSMSLQARNWLPGPCYRQQ
RLSKTANDNNNSNFPWTAASKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGNLIFGKEGTTASNAELDN
VMITDEEEIRTTNPVATEQYGTVANNLQSSNTAPTTRTVNDQGALPGMVWQDRDVYLQGPIWAKIPHTD
GHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTTFSPAKFASFITQYSTGQVSVEIEWELQKENSKRWNP
EIQYTSNYNKSVNVDFTVDTNGVYSEPRPIGTRYLTRPL

SEQ ID NO: 25 - Polypeptide sequence of wild type human GCase

MEFSSPSREECPKPLSRVSIMAGSLTGLLLLQAVSWASGARPCIPKSFGYSSVVCVCNATYCDSFDPPTFPAL
GTFSRYESTRSGRRMELSMGPIQANHTGTGLLLTLQPEQKFQKVKGFGGAMTDAAALNILALSPPAQNLLL
KSYFSEEGIGYNIIRVPMASCDFSIRTYTYADTPDDFQLHNFSLPEEDTKLKIPLIHRALQLAQRPVSLLASPW
TSPTWLKTNGAVNGKGSLKGQPGDIYHQTWARYFVKFLDAYAEHKLQFWAVTAENEPSAGLLSGYPFQC
LGFTPEHQRDFIARDLGPTLANSTHHNVRLLMLDDQRLLLPHWAKVVLTDPEAAKYVHGIAVHWYLDFLA
PAKATLGETHRLFPNTMLFASEACVGSKFWEQSVRLGSWDRGMQYSHSIITNLLYHVVGWTDWNLALNPE
GGPNWVRNFVDSPIIVDITKDTFYKQPMFYHLGHFSKFIPEGSQRVGLVASQKNDLDAVALMHPDGSAVVV
VLNRSSKDVPLTIKDPAVGFLETISPGYSIHTYLWRRQ

FIGURE 10

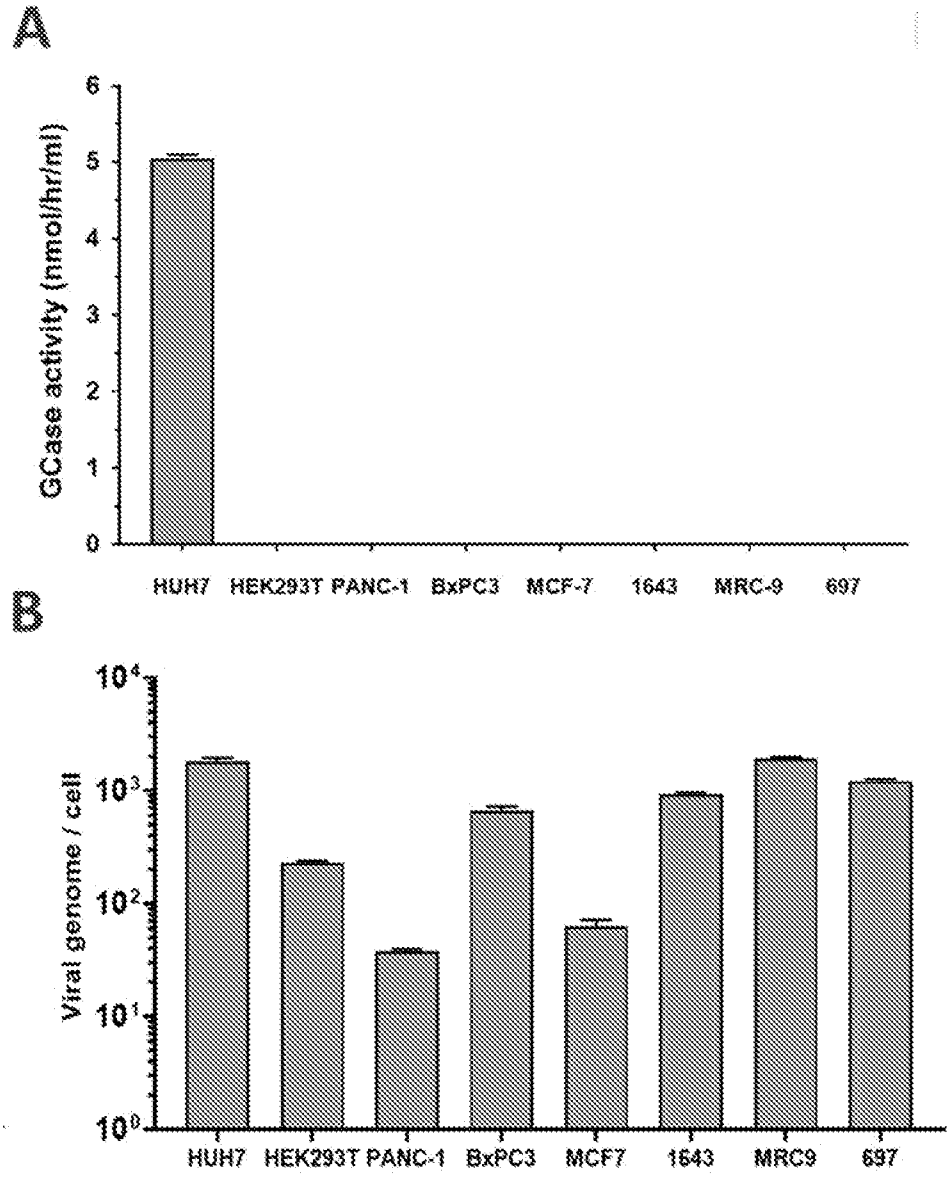
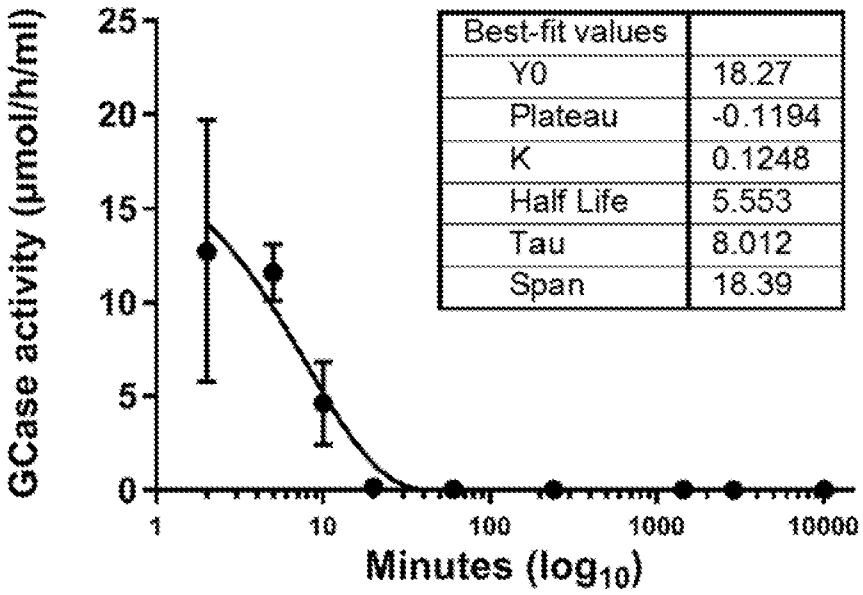

A
GCase activity (nmol/hr/ml)
0
1
2
3
4
5
6
HUH7
HEK293T
PANC-1
BxPC3
MCF-7
1643
MRC-9
697
B
Viral genome / cell
10^0
10^1
10^2
10^3
10^4
HUH7
HEK293T
PANC-1
BxPC3
MCF7
1643
MRC9
697

FIGURE 11

A


GCase activity (µmol/h/ml)
25
20
15
10
5
0
1
10
100
1000
10000
Minutes (log10)
Best-fit values
Y0 18.27
Plateau -0.1194
K 0.1248
Half Life 5.553
Tau 8.012
Span 18.39

B

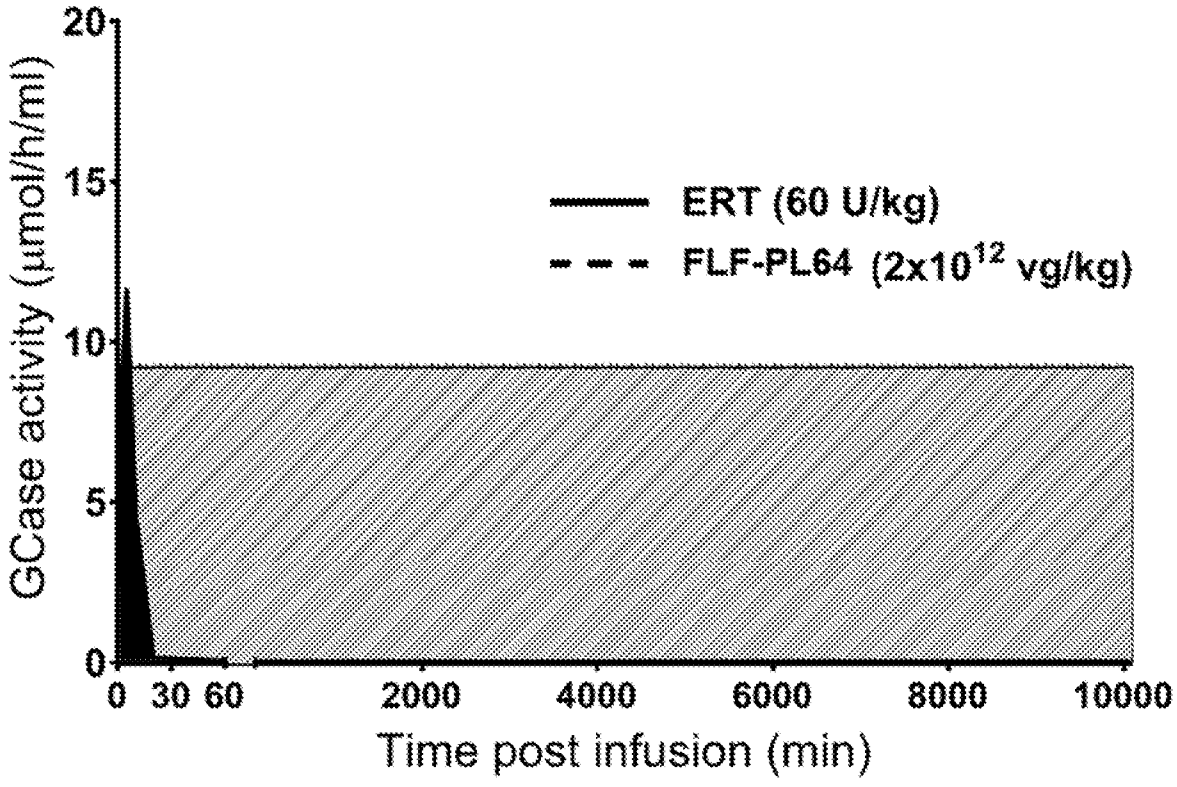

GCase activity (µmol/h/ml)
20
15
10
5
0
ERT (60 U/kg)
FLF-PL64 (2x10^12 vg/kg)
0 30 60
2000
4000
6000
8000
10000
Time post infusion (min)

FIGURE 12

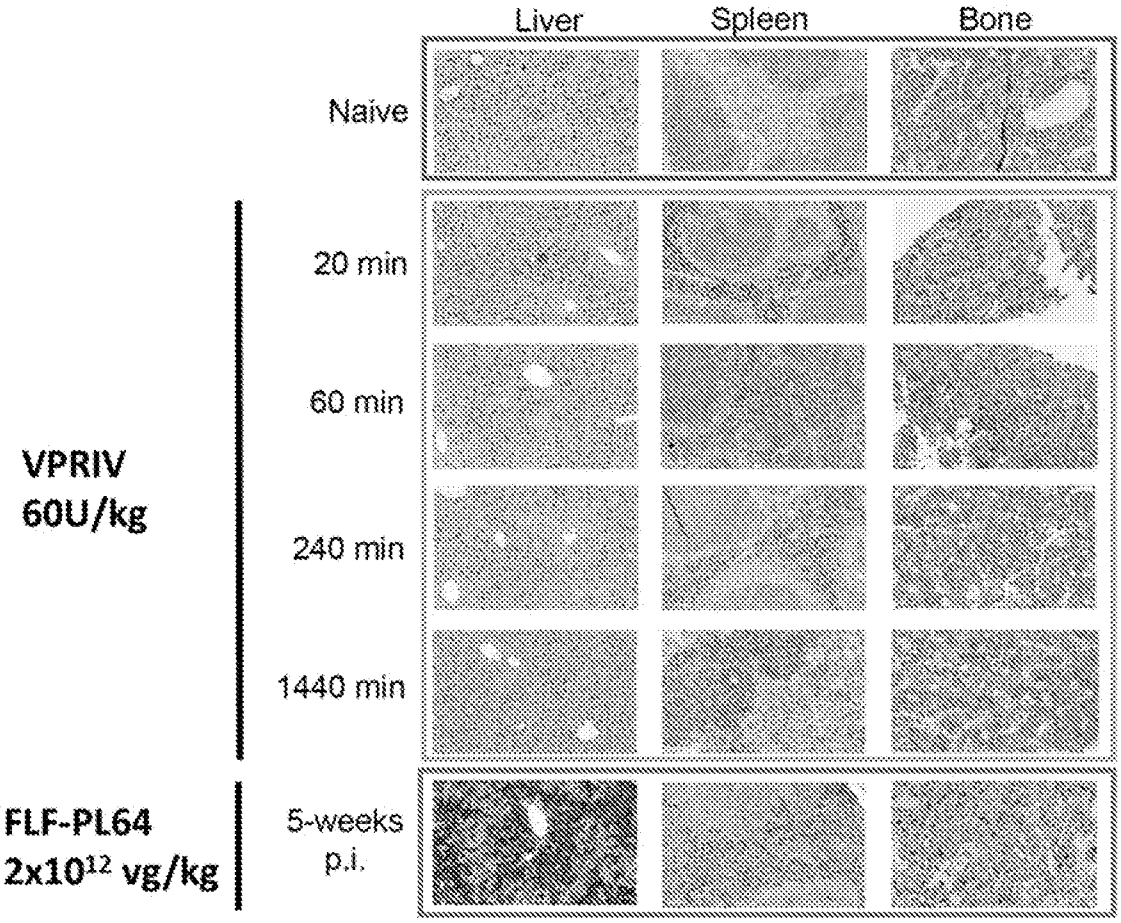

Liver
Spleen
Bone
Naive
20 min
60 min
240 min
1440 min
VPRIV
60U/kg
FLF-PL64
2x10^12 vg/kg
5-weeks
p.i.
GCase (brown); Haematoxylin (blue)

FIGURE 13

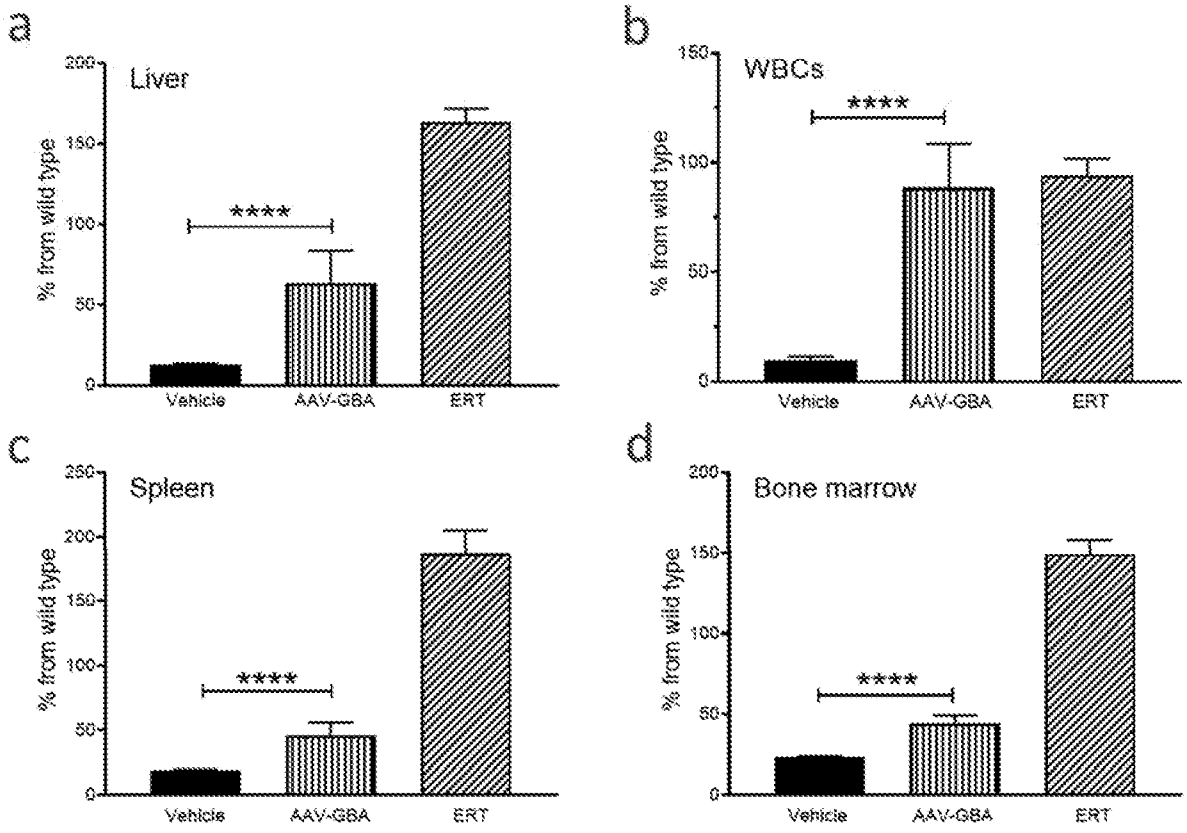

a
Liver
% from wild type
200
150
100
50
0
****
Vehicle
AAV-GBA
ERT
b
WBCs
% from wild type
150
100
50
0
****
Vehicle
AAV-GBA
ERT
c
Spleen
% from wild type
250
200
150
100
50
0
****
Vehicle
AAV-GBA
ERT
d
Bone marrow
% from wild type
200
150
100
50
0
****
Vehicle
AAV-GBA
ERT

FIGURE 14

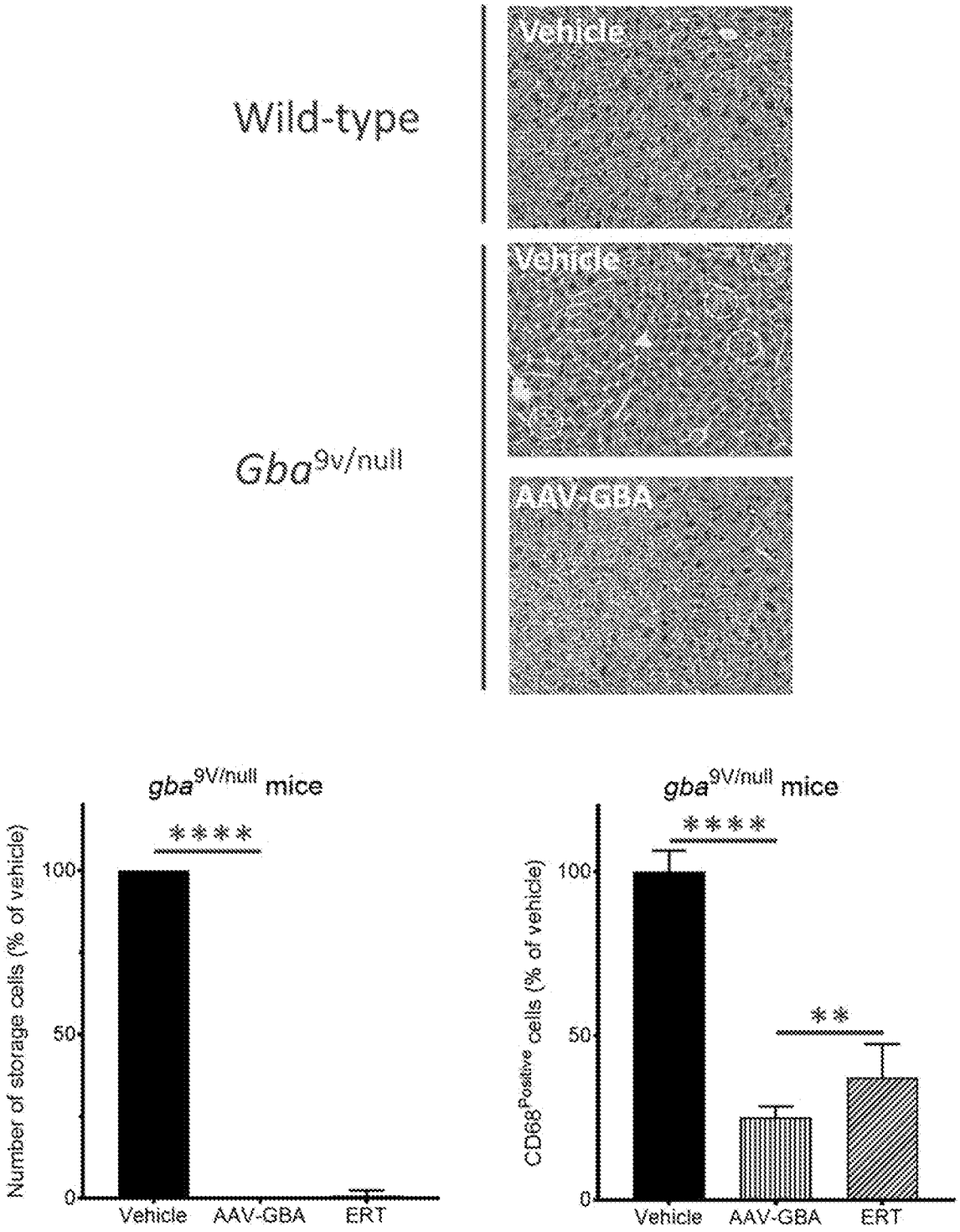
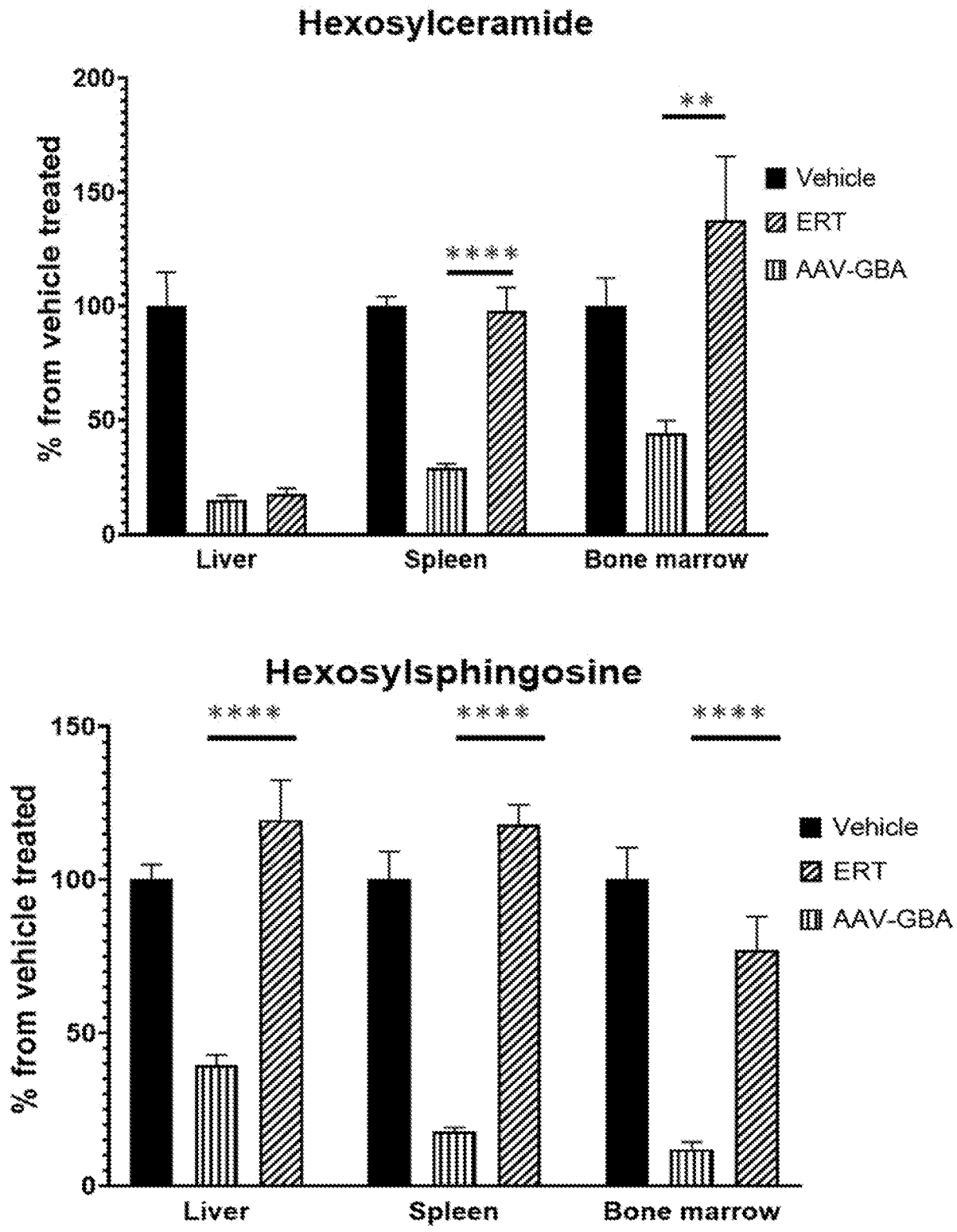

Wild-type
Vehicle
Gba9v/null
Vehicle
AAV-GBA
gba9V/null mice
****
Number of storage cells (% of vehicle)
100
50
0
Vehicle
AAV-GBA
ERT
gba9V/null mice
****
**
CD68Positive cells (% of vehicle)
100
50
0
Vehicle
AAV-GBA
ERT

FIGURE 15


Hexosylceramide
% from vehicle treated
200
150
100
50
0
****
**
Vehicle
ERT
AAV-GBA
Liver
Spleen
Bone marrow
Hexosylsphingosine
% from vehicle treated
150
100
50
0
****
****
****
Vehicle
ERT
AAV-GBA
Liver
Spleen
Bone marrow