FIG. 1A

pENN.AAV.TBG.PI. 6863 bp DNA circular

FEATURES	Location/Qualifiers
misc_structure	complement(5566..6381)
	/vntifkey="88"
	/label=Kan-r
rep_origin	4249..4891
	/vntifkey="33"
	/label=pUC\origin\of\replication
promoter	442..901
	/vntifkey="29"
	/label=TBG
TATA_signal	885..888
	/vntifkey="41"
	/label=TATA
enhancer	221..320
	/vntifkey="9"
	/label=Alpha\mic/bik
enhancer	327..426
	/vntifkey="9"
	/label=Alpha\mic/bik
intron	1027..1159
	/vntifkey="15"
	/label=Intron_1
	/note="chimeric intron"
polyA_signal	3261..3387
	/vntifkey="25"
	/label=Rabbit\globin\poly\A
repeat_region	1..130
	/vntifkey="34"
	/label=5'\ITR
repeat_region	complement(3476..3605)
	/vntifkey="34"
	/label=3'\ITR
rep_origin	complement(3782..4220)
	/vntifkey="33"
	/label=f1\ori
CDS	1251..3212
	/vntifkey="4"
	/label=Human\alpha-L-IDUA

FIG. 1B

BASE COUNT 1584 a 1971 c 1702 g 1606 t
ORIGIN

```
   1 ctgcgcgctc gctcgctcac tgaggccgcc cgggcaaagc ccgggcgtcg ggcgaccttt
  61 ggtcgcccgg cctcagtgag cgagcgagcg cgcagagagg gagtggccaa ctccatcact
 121 aggggttcct tgtagttaat gattaacccg ccatgctact tatctaccag ggtaatgggg
 181 atcctctaga actatagcta gaattcgccc ttaagctagc aggttaattt ttaaaaagca
 241 gtcaaaagtc caagtggccc ttggcagcat ttactctctc tgtttgctct ggttaataat
 301 ctcaggagca caaacattcc agatccaggt taatttttaa aaagcagtca aaagtccaag
 361 tggcccttgg cagcatttac tctctctgtt tgctctggtt aataatctca ggagcacaaa
 421 cattccagat ccggcgcgcc agggctggaa gctacctttg acatcatttc ctctgcgaat
 481 gcatgtataa tttctacaga acctattaga aaggatcacc cagcctctgc ttttgtacaa
 541 ctttccctta aaaaactgcc aattccactg ctgtttggcc caatagtgag aacttttttcc
 601 tgctgcctct tggtgctttt gcctatggcc cctattctgc ctgctgaaga cactcttgcc
 661 agcatggact taaacccctc cagctctgac aatcctcttt ctcttttgtt ttacatgaag
 721 ggtctggcag ccaaagcaat cactcaaagt tcaaacctta tcatttttg ctttgttcct
 781 cttggccttg gttttgtaca tcagctttga aaataccatc ccagggttaa tgctggggtt
 841 aatttataac taagagtgct ctagttttgc aatacaggac atgctataaa aatggaaaga
 901 tgttgctttc tgagagacag ctttattgcg gtagtttatc acagttaaat tgctaacgca
 961 gtcagtgctt ctgacacaac agtctcgaac ttaagctgca gaagttggtc gtgaggcact
1021 gggcaggtaa gtatcaaggt tacaagacag gtttaaggag accaatagaa actgggcttg
1081 tcgagacaga gaagactctt gcgtttctga taggcaccta ttggtcttac tgacatccac
1141 tttgcctttc tctccacagg tgtccactcc cagttcaatt acagctctta aggctagagt
1201 acttaatacg actcactata ggctagcctc gagaattcac gcgtgccacc atgcggcccc
1261 tgaggcctag agctgctctg ctggcactgc tggccagtct gctggctgcc cctcctgtgg
1321 cccctgccga agcccctcac ctggtgcatg tggatgccgc cagagccctg tggcctctgc
1381 ggagattctg gcggagcacc ggcttttgcc ccccactgcc tcacagccag gccgaccagt
1441 acgtgctgag ctgggaccag cagctgaacc tggcctacgt gggcgccgtg ccccacagag
1501 gcatcaaaca ggtgagaacc cactggctgc tggaactggt gacaacccgg ggctccaccg
1561 gcagaggcct gagctacaac ttcacccacc tggacggcta cctggacctg ctgagagaga
1621 accagctgct gcccggcttc gagctgatgg gcagcgccag cggccacttc accgacttcg
1681 aggacaagca gcaagtcttt gagtggaagg acctggtgtc cagcctggcc agacggtaca
1741 tcggcagata cggactggcc cacgtgtcca agtggaactt cgagacatgg aacgagcccg
1801 accaccacga cttcgacaac gtgtcaatga ccatgcaggg ctttctgaac tactacgacg
1861 cctgctccga gggcctgaga gccgccagtc ctgccctgag actgggcgga cccggcgata
1921 gcttccacac ccccccccaga agcccccctga gctggggcct gctgagacac tgccacgacg
1981 gcaccaattt cttcaccggc gaggccggcg tgcggctgga ctacatcagc ctgcaccgga
2041 agggcgccag aagcagcatc agcatcctgg aacaggaaaa ggtcgtcgcc cagcagatcc
2101 ggcagctgtt ccccaagttc gccgacaccc ccatctacaa cgacgaggcc gacccccctgg
2161 tgggatggtc actgcctcag ccttggagag ccgacgtgac ctacgccgct atggtggtga
2221 aagtgatcgc ccagcatcag aacctgctgc tggccaacac caccagcgcc ttcccttacg
2281 ccctgctgag caacgacaac gccttcctga gctaccaccc ccacccccttc gcccagagaa
2341 ccctgaccgc ccggttccag gtgaacaaca ccagaccccc ccacgtgcag ctgctgagaa
2401 agcccgtgct gaccgctatg ggactgctgg ctctgctgga cgaggaacag ctgtgggccg
2461 aagtgtccca ggccggcacc gtgctggaca gcaatcatac agtgggcgtg ctggcctccg
2521 cccacagacc tcagggaccc gccgatgctt ggcgggctgc cgtgctgatc tacgccagcg
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2701 acggcgaatg gcgcagactg ggcagacctg tgttccccac cgccgagcag ttccggcgga
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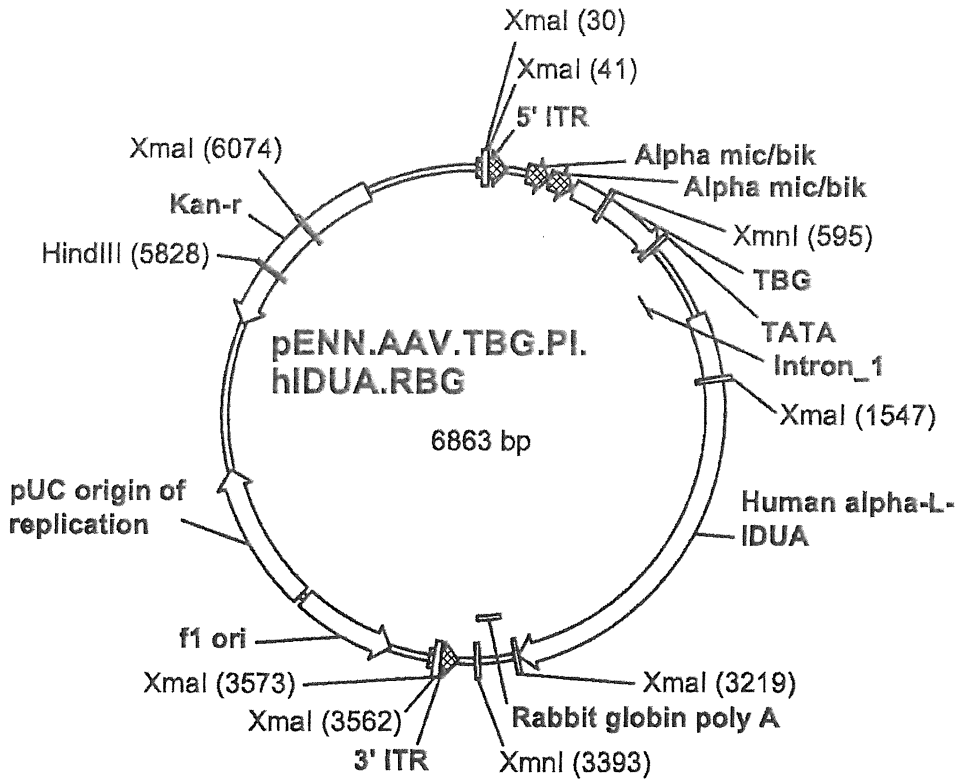
FIG. 1C

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2881 ccgagaagcc tcccggccag gtgacaagac tgagagccct gcccctgacc cagggccagc
2941 tggtgctggt gtggtccgat gagcacgtgg gcagcaagtg cctgtggacc tacgagatcc
3001 agttcagcca ggacggcaag gcctacaccc ccgtgtcccg gaagcccagc accttcaacc
3061 tgttcgtgtt cagccccgat acaggcgccg tgtccggctc ttatagagtg cgggccctgg
3121 actactgggc cagacccggc cctttcagcg accccgtgcc ctacctggaa gtgcccgtgc
3181 ctagaggccc ccctagcccc ggcaaccctt gagtcgaccc gggcggcctc gaggacgggg
3241 tgaactacgc ctgaggatcc gatcttttc cctctgccaa aaattatggg gacatcatga
3301 agccccttga gcatctgact tctggctaat aaaggaaatt tattttcatt gcaatagtgt
3361 gttggaattt tttgtgtctc tcactcggaa gcaattcgtt gatctgaatt tcgaccaccc
3421 ataataccca ttaccctggt agataagtag catggcgggt taatcattaa ctacaaggaa
3481 cccctagtga tggagttggc cactccctct ctgcgcgctc gctcgctcac tgaggccggg
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3601 cgcagcctta attaacctaa ttcactggcc gtcgttttac aacgtcgtga ctgggaaaac
3661 cctggcgtta cccaacttaa tcgccttgca gcacatcccc ctttcgccag ctggcgtaat
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5581 gagcatcaaa tgaaactgca atttattcat atcaggatta tcaataccat atttttgaaa
5641 aagccgtttc tgtaatgaag gagaaaactc accgaggcag ttccatagga tggcaagatc
```

FIG. 1D

```
5701 ctggtatcgg tctgcgattc cgactcgtcc aacatcaata caacctatta atttcccctc
5761 gtcaaaaata aggttatcaa gtgagaaatc accatgagtg acgactgaat ccggtgagaa
5821 tggcaaaagc ttatgcattt ctttccagac ttgttcaaca ggccagccat tacgctcgtc
5881 atcaaaatca ctcgcatcaa ccaaaccgtt attcattcgt gattgcgcct gagcgagacg
5941 aaatacgcga tcgctgttaa aaggacaatt acaaacagga atcgaatgca accggcgcag
6001 gaacactgcc agcgcatcaa caatattttc acctgaatca ggatattctt ctaatacctg
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6121 aaaatgcttg atggtcggaa gaggcataaa ttccgtcagc cagtttagtc tgaccatctc
6181 atctgtaaca tcattggcaa cgctaccttt gccatgtttc agaaacaact ctggcgcatc
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6481 catgttcttt cctgcgttat cccctgattc tgtggataac cgtattaccg cctttgagtg
6541 agctgatacc gctcgccgca gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc
6601 ggaagagcgc ccaatacgca aaccgcctct ccccgcgcgt tggccgattc attaatgcag
6661 ctggcacgac aggtttcccg actggaaagc gggcagtgag cgcaacgcaa ttaatgtgag
6721 ttagctcact cattaggcac cccaggcttt acactttatg cttccggctc gtatgttgtg
6781 tggaattgtg agcggataac aatttcacac aggaaacagc tatgaccatg attacgccag
6841 atttaattaa ggccttaatt agg
```

FIG. 2


XmaI (30)
XmaI (41)
5' ITR
Alpha mic/bik
Alpha mic/bik
XmnI (595)
TBG
TATA
Intron_1
XmaI (1547)
Human alpha-L-IDUA
XmaI (3219)
Rabbit globin poly A
XmnI (3393)
3' ITR
XmaI (3562)
XmaI (3573)
f1 ori
pUC origin of replication
HindIII (5828)
Kan-r
XmaI (6074)
pENN.AAV.TBG.PI.hIDUA.RBG
6863 bp