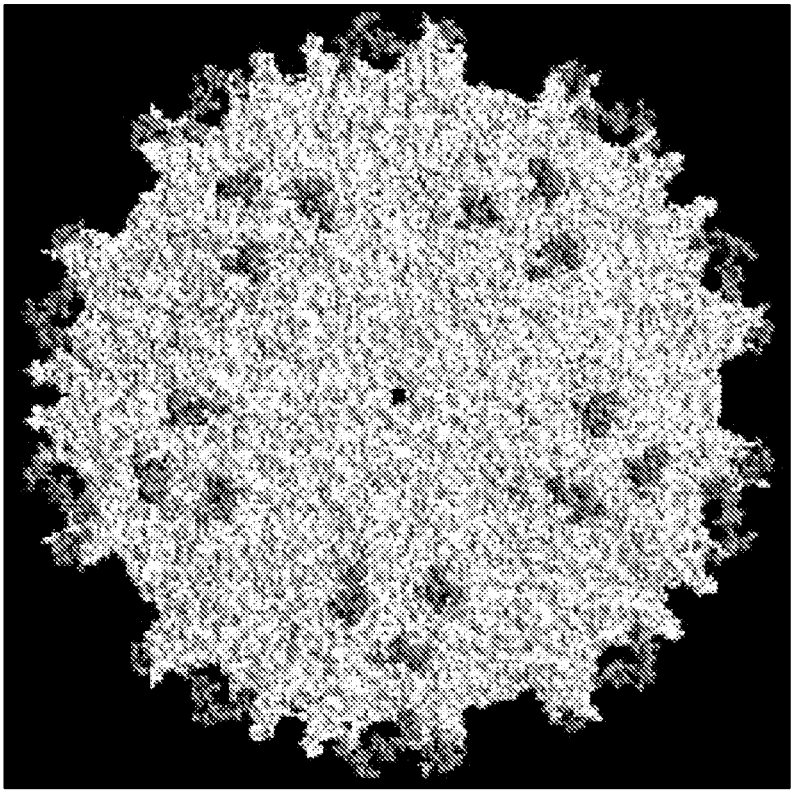
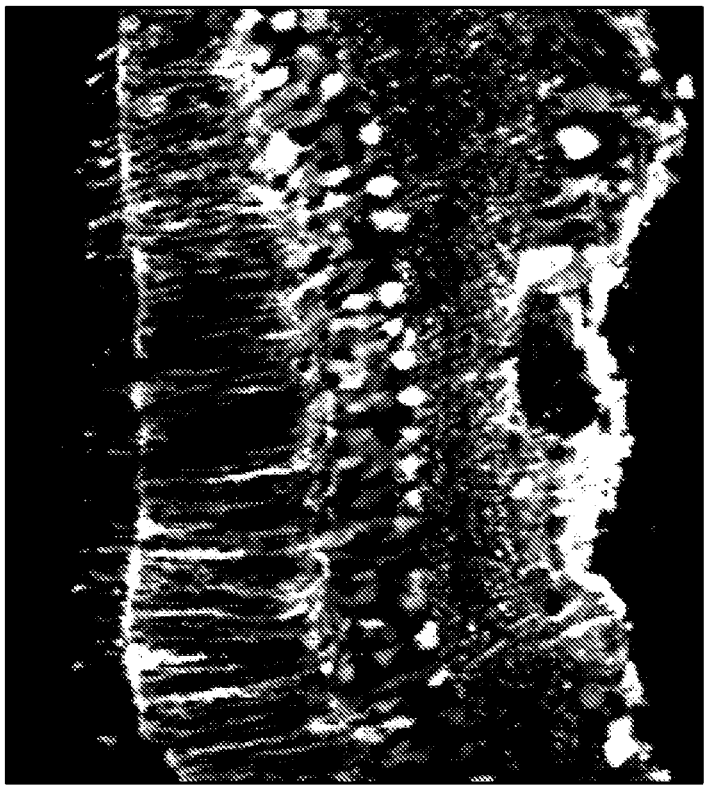
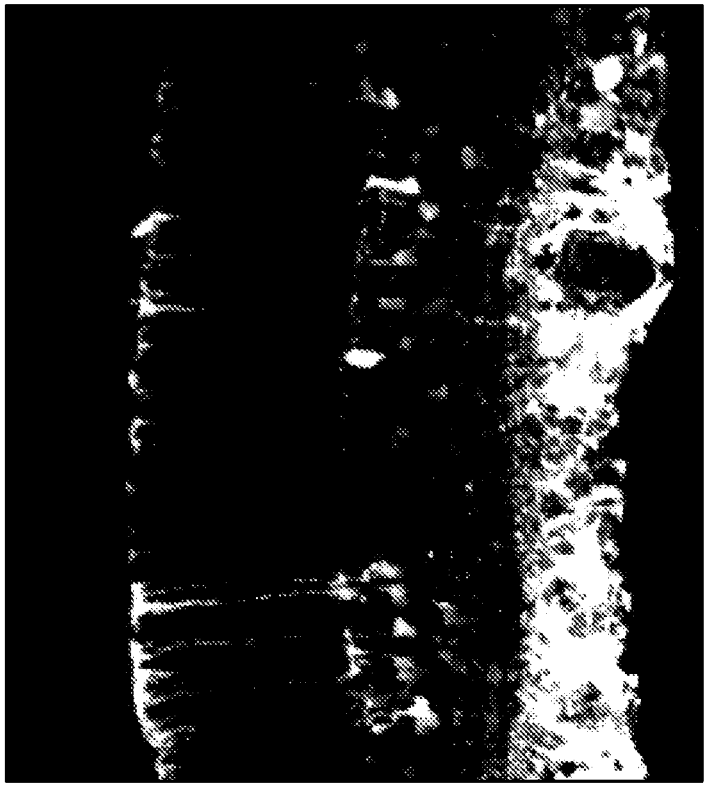


FIG. 1



7m8.CAG.GFP
(variant enhanced for PR transduction by directed evolution)



AAV2.CAG.GFP
(parental serotype)

FIG. 2

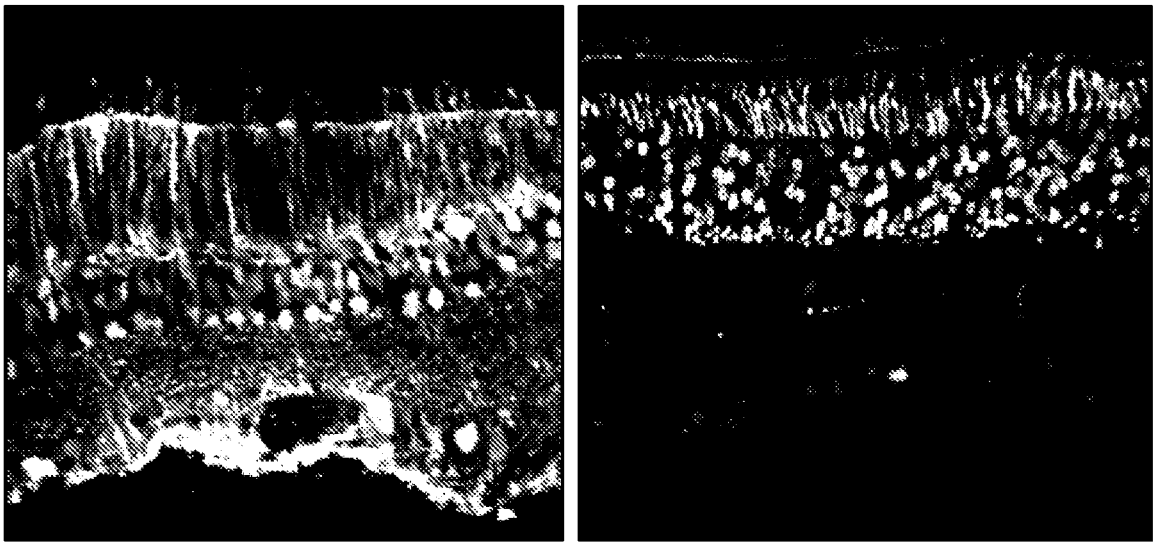

7m8.CAG.GFP
7m8.Rho.GFP

FIG. 3

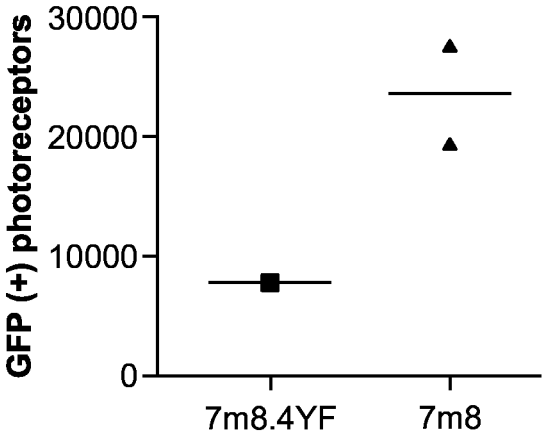

GFP (+) photoreceptors
30000
20000
10000
0
7m8.4YF
7m8

FIG. 4

AAV2 VP1 1 MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD

AAV2 VP1 61 KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ

AAV2 VP1 121 AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD

AAV2 VP1 181 SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI

AAV2 VP1 241 TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI

AAV2 VP1 301 NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG

AAV2 VP1 361 CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF

AAV2 VP1 421 HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG

AAV2 VP1 481 PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL

AAV2 VP1 541 IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRG**NR**QAATADVNTQGV

AAV2 VP1 601 LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT

AAV2 VP1 661 FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY

AAV2 VP1 721 SEPRPIGTRYLTR (SEQ ID NO:1)

FIG. 5

AAV-2 570 PVATEQYGSVSTNLQRG**NR**QAATADVNTQGVLPGMVWQDRDV 611 (SEQ ID NO:2)

AAV-1 571 PVATERFGTVAVNFQSSST**DP**ATGDVHAMGALPGMVWQDRDV 612 (SEQ ID NO:3)

AAV-5 560 RVAYNVGGQMATNNQ**SS**TTAPATGTYNLQEIVPGSVWMERDV 601 (SEQ ID NO:4)

AAV-6 571 PVATERFGTVAVNLQSSST**DP**ATGDVHVMGALPGMVWQDRDV 612 (SEQ ID NO:5)

AAV-7 572 PVATEEYGIVSSNLQAA**NT**AAQTQVVNNQGALPGMVWQNRDV 613 (SEQ ID NO:6)

AAV-8 573 PVATEEYGIVADNLQQQ**NT**APQIGTVNSQGALPGMVWQNRDV 614 (SEQ ID NO:7)

AAV-9 571 PVATESYGQVATNHQSA**QA**QAQTGWVQNQGILPGMVWQDRDV 612 (SEQ ID NO:8)

AAV-10 573 PVATEQYGVVADNLQ**QA**NTGPIVGNVNSQGALPGMVWQNRDV 614 (SEQ ID NO:9)

FIG. 6

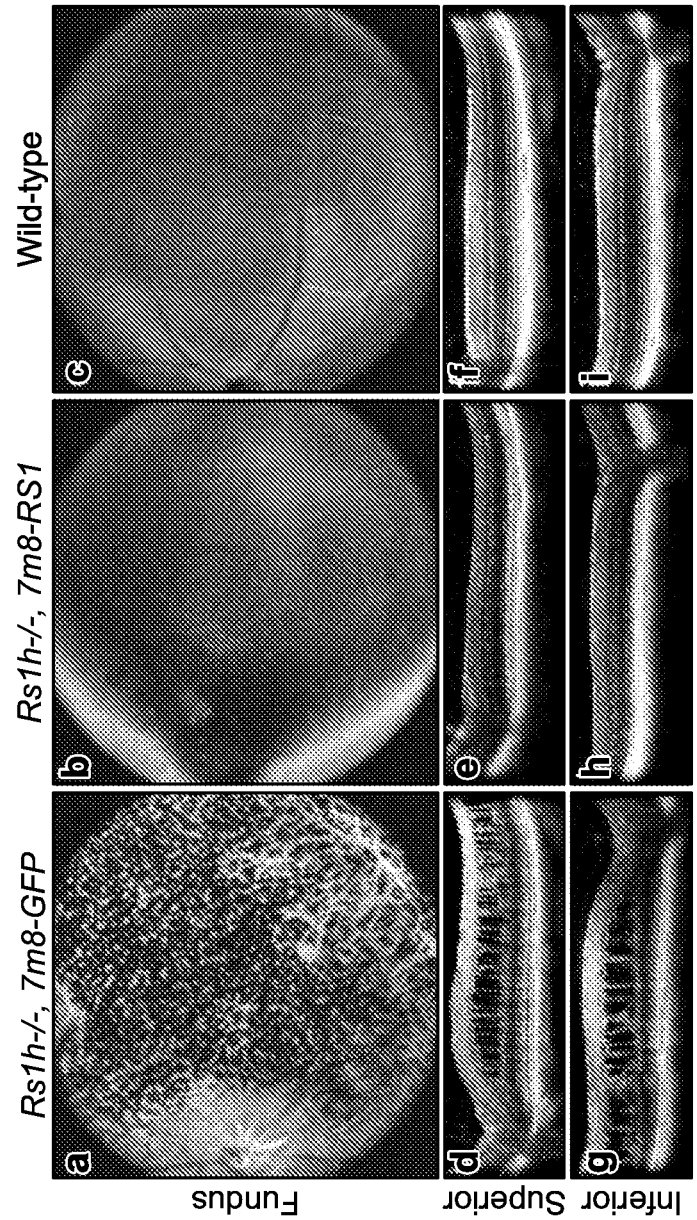

Rs1h-/-, 7m8-GFP
Rs1h-/-, 7m8-RS1
Wild-type
Fundus
Superior
Inferior
a
b
c
d
e
f
g
h
i

FIG. 7

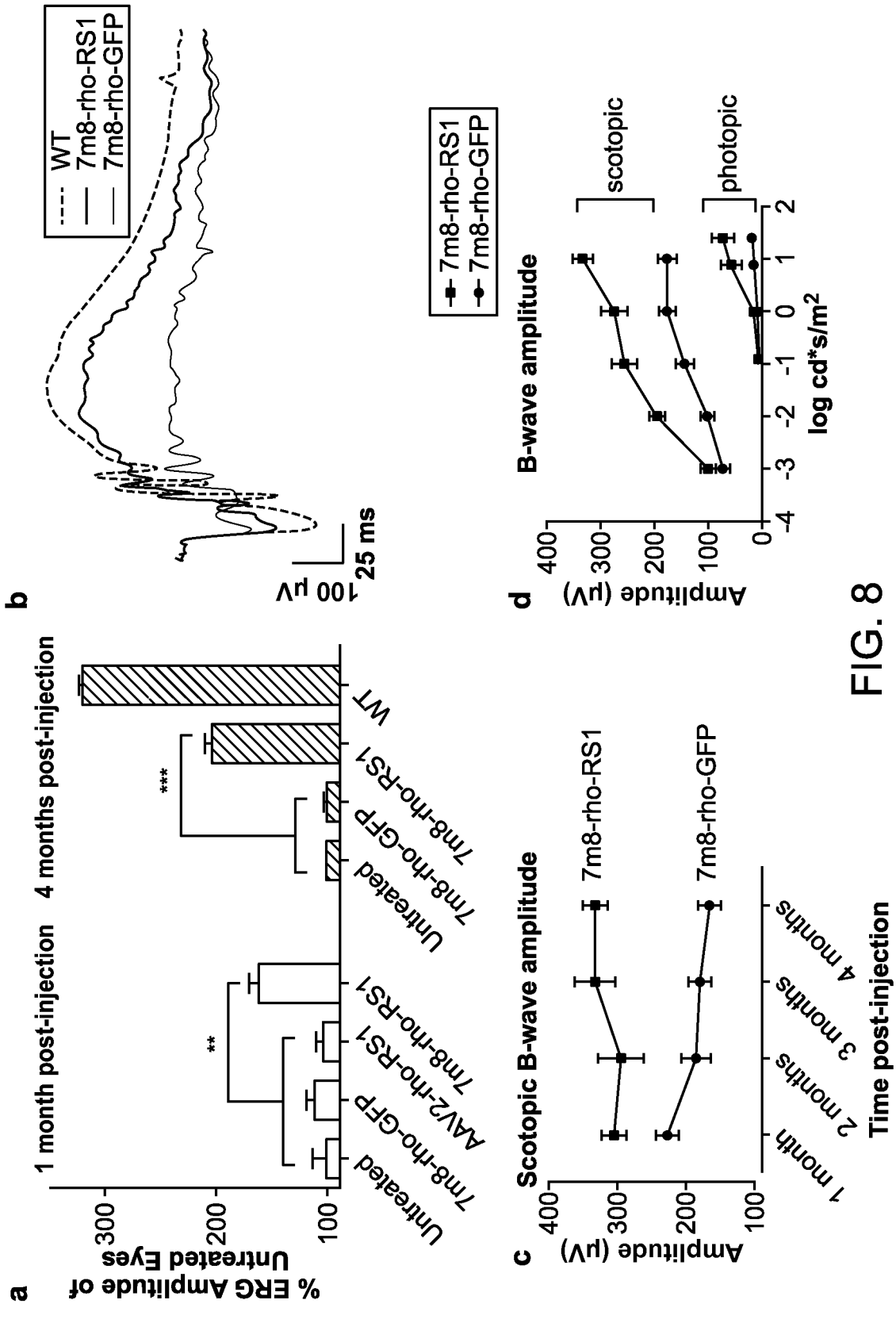

a
% ERG Amplitude of Untreated Eyes
1 month post-injection
4 months post-injection
Untreated
7m8-rho-GFP
AAV2-rho-RS1
7m8-rho-RS1
Untreated
7m8-rho-GFP
7m8-rho-RS1
WT
**
***
b
WT
7m8-rho-RS1
7m8-rho-GFP
100 µV
25 ms
c
Scotopic B-wave amplitude
Amplitude (µV)
7m8-rho-RS1
7m8-rho-GFP
1 month
2 months
3 months
4 months
Time post-injection
d
7m8-rho-RS1
7m8-rho-GFP
B-wave amplitude
scotopic
photopic
Amplitude (µV)
log cd*s/m2

FIG. 8

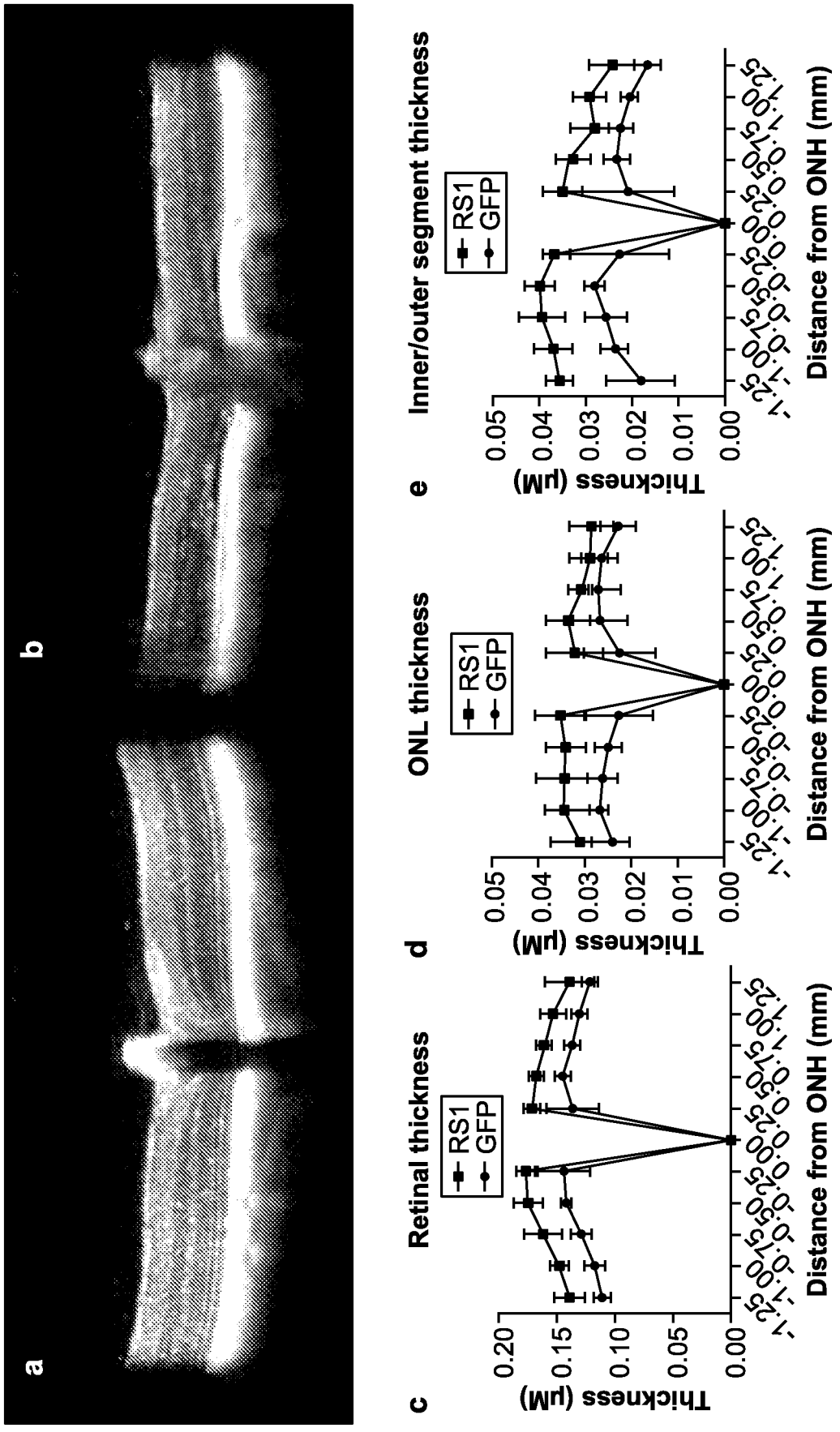

a
b
c
Retinal thickness
RS1
GFP
Thickness (μM)
0.20
0.15
0.10
0.05
0.00
-1.25
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
1.25
Distance from ONH (mm)
d
ONL thickness
RS1
GFP
Thickness (μM)
0.05
0.04
0.03
0.02
0.01
0.00
Distance from ONH (mm)
e
Inner/outer segment thickness
RS1
GFP
Thickness (μM)
0.05
0.04
0.03
0.02
0.01
0.00
Distance from ONH (mm)

FIG. 9

Retinoschisin-1
Homo sapiens
GenBank CAI42483

```
  1 msrkiegfll lllfgyeatl glsstedege dpwyqkackc dcqggpnalw sagatsldci
 61 pecpyhkplg fesgevtpdq itcsnpeqyv gwysswtank arlnsqgfgc awlskfqdss
121 qwlqidlkei kvisgiltqg rcdidewmtk ysvqyrtder lnwiyykdqt gnnrvfygns
181 drtstvqnll rppiisrfir liplgwhvri airmellecv skca (SEQ ID NO:10)
```

FIG. 10

Brain-derived neurotrophic factor
Homo sapiens
GenBank CAA62632

```
  1 mtilfltmvi syfgcmkaap mkeanirgqg glaypgvrth gtlesvngpk agsrgltsla
 61 dtfehvieel ldedhkvrpn eennkdadly tsrvmlssqv pleppllfll eeyknyldaa
121 nmsmmvlrhs dparrgelsv cdsisewvta adkktavdms ggtvtvlekv pvskgqlkqy
181 fyetkcnpmg ytkegcrgid krhwnsqcrt tqsyvraltm dskkrigwrf iridtscvct
241 ltikrgr (SEQ ID NO:11)
```

FIG. 11

RPE65
Homo sapiens
GenBank AAC39660

```
  1 msiqvehpag gykklfetve elsspltahv tgriplwltg sllrcgpglf evgsepfyhl
 61 fdgqallhkf dfkeghvtyh rrfirtdayv ramtekrivi tefgtcafpd pcknifsrff
121 syfrgvevtd nalvnvypvg edyyactetn fitkinpetl etikqvdlcn yvsvngatah
181 phiendgtvy nigncfgknf siaynivkip plqadkedpi skseivvqfp csdrfkpsyv
241 hsfgltpnyi vfvetpvkin lfkflsswsl wganymdcfe snetmgvwlh iadkkrkkyl
301 nnkyrtspfn lfhhintyed ngflivdlcc wkgfefvyny lylanlrenw eevkknarka
361 pqpevrryvl plnidkadtg knlvtlpntt atailcsdet iwlepevlfs gprqafefpq
421 inyqkycgkp ytyayglgln hfvpdrlckl nvktketwvw qepdsypsep ifvshpdale
481 eddgvvlsvv vspgagqkpa yllilnakdl sevaraevei nipvtfhglf kks (SEQ ID NO:12)
```

FIG. 12

```
   1 agcttggatc caatcaacct ctggattaca aaatttgtga aagattgact ggtattctta
  61 actatgttgc tccttttacg ctatgtggat acgctgcttt aatgcctttg tatcatgcta
 121 ttgcttcccg tatggctttc attttctcct cctttataa atcctggttg ctgtctcttt
 181 atgaggagtt gtggcccgtt gtcaggcaac gtggcgtggt gtgcactgtg ttgctgacg
 241 caacccccac tggttggggc attgccacca cctgtcagct cctttccggg actttcgctt
 301 tccccctccc tattgccacg gcggaactca tcgccgcctg ccttgcccgc tgctggacag
 361 gggctcggct gttgggcact gacaattccg tggtgttgtc ggggaagctg acgtcctttc
 421 catggctgct cgcctgtgtt gccacctgga ttctgcgcgg gacgtccttc tgctacgtcc
 481 cttcggccct caatccagcg gaccttcctt cccgcggcct gctgccggct ctgcggcctc
 541 ttccgcgtct tcgagatctg cctcgactgt gccttctagt tgccagccat ctgttgtttg
 601 cccctccccc gtgccttcct tgaccctgga aggtgccact cccactgtcc ttcctaata
 661 aaatgaggaa attgcatcgc attgtctgag taggtgtcat tctattctgg ggggtggggt
 721 ggggcaggac agcaaggggg aggattggga agacaatagc aggcatgctg gggactcgag
 781 ttaagggcga attcccgatt aggatcttcc tagagcatgg ctacgtagat aagtagcatg
 841 gcgggttaat cattaactac aaggaacccc tagtgatgga gttgggccact ccctctctgc
 901 gcgctcgctc gctcactgag gccgggcgac caaaggtcgc ccgacgcccg ggctttgccc
 961 gggcggcctc agtgagcgag cgagcgcgca gccttaatta acctaattca ctggccgtcg
1021 tttacaacgt tcgtgactgg gaaaaccctg gcgttaccca acttaatcgc cttgcagcac
1081 atccccctttt cgccagctgg cgtaatagcg aagaggcccg caccgatcgc cctcccaac
1141 agttgcgcag cctgaatggc gaatgggacg cgccctgtag cggcgcatta agcgcggcgg
1201 gtgtggtggt tacgcgcagc gtgaccgcta cacttgccag cgccctagcg cccgctcctt
1261 tcgctttctt cccttcctt ctcgccacgt tcgccggctt tccccgtcaa gctctaaatc
1321 ggggctcccc tttagggttc cgatttagtg ctttacggca cctcgacccc aaaaaacttg
1381 attagggtga tggttcacgt agtgggccat cgccccgata gacggtttt cgccctttga
1441 cgctggagtt cacgttcctc aatagtggac tcttgttcca aactggaaca acactcaacc
1501 ctatctcggt ctattcttt gatttataag ggatttttcc gatttcggcc tattggttaa
1561 aaaatgagct gatttaacaa aaatttaacg cgaatttaa caaaatatta acgtttataa
1621 ttcaggtgg catcttcgg ggaaatgtgc gcggaacccc tatttgttta ttttctaaa
1681 tacattcaaa tatgtatccg ctcatgagac aataaccctg ataaatgctt caataatatt
1741 gaaaaaggaa gagtatgagt attcaacatt tccgtgtcgc cttattccc ttttttgcgg
1801 catttgcct tcctgttttt gctcacccag aaacgctggt gaaagtaaaa gatgctgaag
```

FIG. 13A

```
1861 atcagttggg tgcacgagtg ggttacatcg aactggatct caatagtggt aagatccttg
1921 agagttttcg ccccgaagaa cgttttccaa tgatgagcac tttaaagttt ctgctatgtg
1981 gcgcggtatt atcccgtatt gacgccgggc aagagcaact cggtcgccgc atacactatt
2041 ctcagaatga cttggttgag tactcaccag tcacagaaaa gcatcttacg gatggcatga
2101 cagtaagaga attatgcagt gctgccataa ccatgagtga taacactgcg gccaacttac
2161 ttctgacaac gatcggagga ccgaaggagc taaccgcttt ttgcacaac atgggggatc
2221 atgtaactcg ccttgatcgt tgggaaccgg agctgaatga agccatacca aacgacgagc
2281 gtgacaccac gatgcctgta gtaatggtaa caacgttgcg caaactatta actggcgaac
2341 tacttactct agcttcccgg caacaattaa tagactggat ggaggcggat aaagttgcag
2401 gaccacttct gcgctcggcc cttccggctg gctggtttat tgctgataaa tctggagccg
2461 gtgagcgtgg gtctcgcggt atcattgcag cactggggcc agatggtaag ccctcccgta
2521 tcgtagttat ctacacgacg gggagtcagg caactatgga tgaacgaaat agacagatcg
2581 ctgagatagg tgcctcactg attaagcatt ggtaactgtc agaccaagtt tactcatata
2641 tactttagat tgatttaaaa cttcattttt aatttaaaag gatctaggtg aagatccttt
2701 ttgataatct catgaccaaa atcccttaac gtgagttttc gttccactga gcgtcagacc
2761 ccgtagaaaa gatcaaagga tcttcttgag atccttttt tctgcgcgta atctgctgct
2821 tgcaaacaaa aaaaccaccg ctaccagcgg tggtttgttt gccggatcaa gagctaccaa
2881 ctctttttcc gaaggtaact ggcttcagca gagcgcagat accaaatact gtccttctag
2941 tgtagccgta gttaggccac acttcaaaga actctgtagc accgcctaca tacctcgctc
3001 tgctaatcct gttaccagtg gctgctgcca gtggcgataa gtcgtgtctt accgggttgg
3061 actcaagacg atagttaccg gataaggcgc agcggtcggg ctgaacgggg ggttcgtgca
3121 cacagcccag cttggagcga acgacctaca ccgaactgag atacctacag cgtgagctat
3181 gagaaagcgc cacgcttccc gaagggagaa aggcggacag gtatccggta agcggcaggg
3241 tcggaacagg agagcgcacg agggagcttc cagggggaaa cgcctggtat ctttatagtc
3301 ctgtcgggtt tcgccacctc tgacttgagc gtcgatttt gtgatgctcg tcaggggggc
3361 ggagcctatg gaaaaacgcc agcaacgcgg cctttttacg gttcctggcc tttgctggcg
3421 gtttgctca catgttcttt cctgcgttat cccctgattc tgtggataac cgtattaccg
3481 cctttgagtg agctgatacc gctcgccgca gccgaacgac cgagcgcagc gagtcagtga
3541 gcgaggaagc ggaagagcgc ccaatacgca aaccgcctct ccccgcgcgt tggccgattc
3601 attaatgcag ctggcacgac aggtttcccg actggaaagc gggcagtgag cgcaacgcaa
3661 ttaatgtgag ttagctcact cattaggcac ccaggctttt acactttatg cttccggctc
```

FIG. 13B

3721 gtatgttgtg tggaattgtg agcggataac aatttcacac aggaaacagc tatgaccatg
3781 attacgccag atttaattaa ggctgcgcgc tcgctcgctc actgaggccg cccgggcaaa
3841 gcccgggcgt cgggcgacct ttggtcgccc ggcctcagtg agcgagcgag cgcgcagaga
3901 gggagtggcc aactccatca ctaggggttc cttgtagtta atgattaacc cgccatgcta
3961 cttatctacg tagccatgct ctaggaagat cggaattcgc ccttaagcta gc**agatcttc**
4021 **cccacctagc cacctggcaa actgctcctt ctctcaaagg cccaaacatg gcctcccaga**
4081 **ctgcaacccc caggcagtca ggccctgtct ccacaacctc acagccaccc tggacggaat**
4141 **ctgcttcttc ccacatttga gtcctcctca gcccctgagc tcctctgggc agggctgttt**
4201 **ctttccatct ttgtattccc aggggcctgc aaataaatgt ttaatgaacg aacaagagag**
4261 **tgaattccaa ttccatgcaa caaggattgg gctcctgggc cctaggctat gtgtctggca**
4321 **ccagaaacgg aagctgcagg ttgcagcccc tgccctcatg gagctcctcc tgtcagagga**
4381 **gtgtggggac tggatgactc cagaggtaac ttgtggggga acgaacaggt aaggggctgt**
4441 **gtgacgagat gagagactgg gagaataaac cagaaagtct ctagctgtcc agaggacata**
4501 **gcacagaggc ccatggtccc tatttcaaac ccaggccacc agactgagct gggaccttgg**
4561 **gacagacaag tcatgcagaa gttaggggac cttctcctcc cttttcctgg atggatcctg**
4621 **agtaccttct cctccctgac ctcaggcttc ctcctagtgt caccttggcc cctcttagaa**
4681 **gccaattagg ccctcagttt ctgcagcggg gattaatatg attatgaaca cccccaatct**
4741 **cccagatgct gattcagcca ggagcttagg agggggaggt cactttataa gggtctgggg**
4801 **gggtcagaac ccagagtcat cccctgaatt ctgcagatat ccatcacact g**gcggccgcg
4861 ccacc**atg**tc acgcaagata gaaggctttt tgttattact tctctttggc tatgaagcca
4921 cattgggatt atcgtctacc gaggatgaag gcgaggaccc ctggtaccaa aaagcatgca
4981 agtgcgattg ccaaggagga cccaatgctc tgtggtctgc aggtgccacc tccttggact
5041 gtataccaga atgcccatat cacaagcctc tgggtttcga gtcaggggag gtcacaccgg
5101 accagatcac ctgctctaac ccggagcagt atgtgggctg gtattcttcg tggactgcaa
5161 acaaggcccg gctcaacagt caaggctttg ggtgtgcctg gctctccaag ttccaggaca
5221 gtagccagtg gttacagata gatctgaagg agatcaaagt gatttcaggg atcctcaccc
5281 aggggcgctg tgacatcgat gagtggatga ccaagtacag cgtgcagtac aggaccgatg
5341 agcgcctgaa ctggatttac tacaaggacc agactggaaa caaccgggtc ttctatggca
5401 actcggaccg cacctccacg gttcagaacc tgctgcggcc ccccatcatc tcccgcttca
5461 tccgcctcat cccgctgggc tggcacgtcc gcattgccat ccggatggag ctgctggagt
5521 gcgtcagcaa gtgtgcc**tga** a (SEQ ID NO:18)

FIG. 13C

Peripherin-2

```
  1 mallkvkfdq kkrvklaqgl wlmnwfsvla giiifslglf lkielrkrsd vmnnseshfv
 61 pnsligmgvl scvfnslagk icydaldpak yarwkpwlkp ylaicvlfni ilflvalccf
121 llrgslentl gqglkngmky yrdtdtpgrc fmkktidmlq iefkccgnng frdwfeiqwi
181 snryldfssk evkdriksnv dgrylvdgvp fsccnpsspr pciqyqitnn sahysydhqt
241 eelnlwvrgc raallsyyss lmnsmgvvtl liwlfevtit iglrylqtsl dgvsnpeese
301 sesqgwller svpetwkafl esvkklgkgn qveaegadag qapeag (SEQ ID NO:19)
```

FIG. 14

Peripherin

```
  1 mshhpsglra gfsstsyrrt fgpppslspg afsysssrf sssrllgsas psssvrlgsf
 61 rspragagal lrlpserldf smaealnqef latrsnekqe lqelndrfan fiekvrfleq
121 qnaalrgels qargqepara dqlcqqelre lrrelellgr erdrvqverd glaedlaalk
181 qrleeetrkr edaehnlvlf rkdvddatls rlelerkies lmdeieflkk lheeelrdlq
241 vsvesqqvqq veveatvkpe ltaalrdira qyesiaaknl qeaeewyksk yadlsdaanr
301 nhealrqakq emnesrrqiq sltcevdglr gtneallrql releeqfale aggyqagaar
361 leeelrqlke emarhlreyq ellnvkmald ieiatyrkll egeesrisvp vhsfaslnik
421 ttvpeveppq dshsrktvli ktietrngev vtesqkeqrs eldkssahsy (SEQ ID NO:20)
```

FIG. 15

RPGR-interacting protein-1

```
   1 mshlvdptsg dlpvrdidai plvlpaskgk nmktqpplsr mnreeledsf frlredhmlv
  61 kelswkqqde ikrlrttllr ltaagrdlrv aeeaaplset arrgqkagwr qrlsmhqrpq
 121 mhrlqghfhc vgpasprraq prvqvghrql htagapvpek pkrgprdrls ytappsfkeh
 181 atnenrgeva skpselvsgs nsiisfssvi smakpiglcm pnsahimasn tmqveeppks
 241 pekmwpkden feqrssleca qkaaelrasi kekvelirlk kllhernasl vmtkaqltev
 301 qeayetllqk nqgilsaahe allkqvnelr aelkeeskka vslksqledv silqmtlkef
 361 qervedleke rkllndnydk llesmldssd sssqphwsne liaeqlqqqv sqlqdqldae
 421 ledkrkvlle lsrekaqned lklevtnilq khkqevellq naatisqppd rqsepathpa
 481 vlqentqiep sepknqeekk lsqvlnelqv shaettlele ktrdmlilqr kinvcyqeel
 541 eammtkadnd nrdhkekler ltrlldlknn rikqlegilr shdlptseql kdvaygtrpl
 601 slcletlpah gdedkvdisl lhqgenlfel hihqafltsa alaqagdtqp ttfctysfyd
 661 fethctplsv gpqplydfts qyvmetdslf lhylqeasar ldihqamase hstlaagwic
 721 fdrvletvek vhglatliga ggeefgvley wmrlrfpikp slqacnkrkk aqvylstdvl
 781 ggrkaqeeef rseswepqne lwieitkccg lrsrwlgtqp spyavyrfft fsdhdtaiip
 841 asnnpyfrdq arfpvlvtsd ldhylrreal sihvfddedl epgsylgrar vpllplakne
 901 sikgdfnltd paekpngsiq vqldwkfpyi ppesflkpea qtkgkdtkds skisseeeka
 961 sfpsqdqmas pevpieagqy rskrkpphgg erkekehqvv sysrrkhgkr igvqgknrme
1021 ylslnilngn tpeqvnytew kfsetnsfig dgfknqheee emtlshsalk qkeplhpvnd
1081 kesseqgsev seaqttdsdd vivppmsqky pkadsekmci eivslafype aevmsdenik
1141 qvyveykfyd lplsetetpv slrkpragee ihfhfskvid ldpqeqqgrr rflfdmlngq
1201 dpdqghlkft vvsdpldeek keceevgyay lqlwqilesg rdileqeldi vspedlatpi
1261 grlkvslqaa avlhaiykem tedlfs (SEQ ID NO:21)
```

FIG. 16

```
AAV1            --TFSYTFEEVPFHSSYAHSQSLDRLMNPLIDQYLYYLNRTQ-NQSGSAQNKDLLFSRGS 467
AAV6            --TFSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLNRTQ-NQSGSAQNKDLLFSRGS 467
AAV3            ---FSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLNRTQGTTSGTTNQSRLLFSQAG 467
AAV2            ---FSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTN-TPSGTTTQSRLQFSQAG 466
AAV8            NFQFTYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQTT-GGTANTQTLGFSQGG 469
AAV8.1          NFQFTYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQTT-GGTANTQTLGFSQGG 469
AAV8 rh8         FQFSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLVRTQTTGTGGTQTLAFSQAGPS 469
AAV10           NFEFSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQST-GGTQGTQQLLFSQAG 469
AAV7            -FEFSYSFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNPGGTAGNRELQFYQGG 469
AAV9            -FQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQYLYYLSKTI--NGSGQNQQTLKFSVAG 467
AAV9.1          -FQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQYLYYLSKTI--NGSGQNQQTLKFSVAG 467
AAV5            NFEFTYNFEEVPFHSSFAPSQNLFKLANPLVDQYLYRFVSTN-------NTGGVQFNKNL 453
                   *:* **:******:* **.* :* ***:***** :  *           : *

AAV1            PAGMSVQPKNWLPGPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASH 527
AAV6            PAGMSVQPKNWLPGPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASH 527
AAV3            PQSMSLQARNWLPGPCYRQQRLSKTANDNNNSNFPWTAASKYHLNGRDSLVNPGPAMASH 527
AAV2            ASDIRDQSRNWLPGPCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASH 526
AAV8            PNTMANQAKNWLPGPCYRQQRVSTTTGQNNNSNFAWTAGTKYHLNGRNSLANPGIAMATH 529
AAV8.1          PNTMANQAKNWLPGPCYRQQRVSTTTGQNNNSNFAWTAGTKYHLNGRNSLANPGIAMATH 529
AAV8 rh8        S--MANQARNWVPGPCYRQQRVSTTTNQNNNSNFAWTGAAKFKLNGRDSLMNPGVAMASH 527
AAV10           PANMSAQAKNWLPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATH 529
AAV7            PSTMAEQAKNWLPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATH 529
AAV9            PSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASH 527
AAV9.1          PSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASH 527
AAV5            AGRYANTYKNWFPGPMGRTQGWNLGSGVNRASVSAFATTNRMELEGASYQVPPQPNGMTN 513
                .       :*::***  * *  .     *. *  .:.  .   *:* .    *     ::
```

FIG. 17A

```
AAV1            KDDEDKFFPMSGVMIFGK--ESAGASNTALD-NVMITDEEEIKATNPVATERFGTVAVNF 584
AAV6            KDDKDKFFPMSGVMIFGK--ESAGASNTALD-NVMITDEEEIKATNPVATERFGTVAVNL 584
AAV3            KDDEEKFFPMHGNLIFGK--EGTTASNAELD-NVMITDEEEIRTTNPVATEQYGTVANNL 584
AAV2            KDDEEKFFPQSGVLIFGK--QGSEKTNVDIE-KVMITDEEEIRTTNPVATEQYGSVSTNL 583
AAV8            KDDEERFFPSNGILIFGK--QNAARDNADYS-DVMLTSEEEIKTTNPVATEEYGIVADNL 586
AAV8.1          KDDEERFFPSNGILIFGK--QNAARDNADYS-DVMLTSEEEIKTTNPVATEEYGIVADNL 586
AAV8 rh8        KDDDDRFFPSSGVLIFGK--QGAGNDGVDYS-QVLITDEEEIKATNPVATEEYGAVAINN 584
AAV10           KDDEERFFPSSGVLMFGK--QGAGRDNVDYS-SVMLTSEEEIKTTNPVATEQYGVVADNL 586
AAV7            KDDEDRFFPSSGVLIFGK--TGAT-NKTTLE-NVLMTNEEEIRPTNPVATEEYGIVSSNL 585
AAV9            KEGEDRFFPLSGSLIFGK--QGTGRDNVDAD-KVMITNEEEIKTTNPVATESYGQVATNH 584
AAV9.1          KEGEDRFFPLSGSLIFGK--QGTGRDNVDAD-KVMITNEEEIKTTNPVATESYGQVATNH 584
AAV5            NLQGSNTYALENTMIFNSQPANPGTTATYLEGNMLITSESETQPVNRVAYNVGGQMATNN 573
                :   .. :.  . ::*..   ..    .  . .:::*.*.* :..* ** :  * :: *

AAV1            QSSSTDPATGDVHAMGALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPP 644
AAV6            QSSSTDPATGDVHVMGALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPP 644
AAV3            QSSNTAPTTGTVNHQGALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPP 644
AAV2            QRGNRQAATADVNTQGVLPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPP 643
AAV8            QQQNTAPQIGTVNSQGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP 646
AAV8.1          QGQRQAAQIGTVNSQGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP 646
AAV8 rh8        QAANTQAQTGLVHNQGVIPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP 644
AAV10           QQANTGPIVGNVNSQGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP 646
AAV7            QAANTAAQTQVVNNQGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP 645
AAV9            QSAQAQAQTGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPP 644
AAV9.1          QSGQAQAATGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPP 644
AAV5            QSSTTAPATGTYNLQEIVPGSVWMERDVYLQGPIWAKIPETGAHFHPSPAMGGFGLKHPP 633
                *     .     :    :** ** :**************.*..:***** *****:*:**
```

FIG. 17B

```
AAV1        PQILIK- 650 (SEQ ID NO:22)
AAV6        PQILIK- 650 (SEQ ID NO:23)
AAV3        PQIMIK- 650 (SEQ ID NO:24)
AAV2        PQILIKN 650 (SEQ ID NO:25)
AAV8        PQILIKN 653 (SEQ ID NO:26)
AAV8.1      PQILIKN 653 (SEQ ID NO:27)
AAV8 rh8    PQILIKN 651 (SEQ ID NO:28)
AAV10       PQILIKN 653 (SEQ ID NO:29)
AAV7        PQILIKN 652 (SEQ ID NO:30)
AAV9        PQILIK- 650 (SEQ ID NO:31)
AAV9.1      PQILIK- 650 (SEQ ID NO:32)
AAV5        PMMLIKN 640 (SEQ ID NO:33)
            * ::**
```

FIG. 17C

```
AAV1            --TFSYTFEEVPFHSSYAHSQSLDRLMNPLIDQYLYYLNRTQ-NQSGSAQNKDLLFSRGS 467
AAV6            --TFSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLNRTQ-NQSGSAQNKDLLFSRGS 467
AAV3            ---FSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLNRTQGTTSGTTNQSRLLFSQAG 467
AAV2            ---FSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTN-TPSGTTTQSRLQFSQAG 466
AAV8            NFQFTYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQTT-GGTANTQTLGFSQGG 469
AAV8.1          NFQFTYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQTT-GGTANTQTLGFSQGG 469
AAV8 rh8         FQFSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLVRTQTTGTGGTQTLAFSQAGPS 469
AAV10           NFEFSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQST-GGTQGTQQLLFSQAG 469
AAV7            -FEFSYSFEDVPFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNPGGTAGNRELQFYQGG 469
AAV9            -FQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQYLYYLSKTI--NGSGQNQQTLKFSVAG 467
AAV9.1          -FQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQYLYYLSKTI--NGSGQNQQTLKFSVAG 467
AAV5            NFEFTYNFEEVPFHSSFAPSQNLFKLANPLVDQYLYRFVSTN-------NTGGVQFNKNL 453

AAV1            PAGMSVQPKNWLPGPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASH 527
AAV6            PAGMSVQPKNWLPGPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASH 527
AAV3            PQSMSLQARNWLPGPCYRQQRLSKTANDNNNSNFPWTAASKYHLNGRDSLVNPGPAMASH 527
AAV2            ASDIRDQSRNWLPGPCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASH 526
AAV8            PNTMANQAKNWLPGPCYRQQRVSTTTGQNNNSNFAWTAGTKYHLNGRNSLANPGIAMATH 529
AAV8.1          PNTMANQAKNWLPGPCYRQQRVSTTTGQNNNSNFAWTAGTKYHLNGRNSLANPGIAMATH 529
AAV8 rh8        S--MANQARNWVPGPCYRQQRVSTTTNQNNNSNFAWTGAAKFKLNGRDSLMNPGVAMASH 527
AAV10           PANMSAQAKNWLPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATH 529
AAV7            PSTMAEQAKNWLPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATH 529
AAV9            PSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASH 527
AAV9.1          PSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASH 527
AAV5            AGRYANTYKNWFPGPMGRTQGWNLGSGVNRASVSAFATTNRMELEGASYQVPPQPNGMTN 513
```

FIG. 18A

```
AAV1            KDDEDKFFPMSGVMIFGK--ESAGASNTALD-NVMITDEEEIKATNPVATERFGTVAVNF 584
AAV6            KDDKDKFFPMSGVMIFGK--ESAGASNTALD-NVMITDEEEIKATNPVATERFGTVAVNL 584
AAV3            KDDEEKFFPMHGNLIFGK--EGTTASNAELD-NVMITDEEEIRTTNPVATEQYGTVANNL 584
AAV2            KDDEEKFFPQSGVLIFGK--QGSEKTNVDIE-KVMITDEEEIRTTNPVATEQYGSVSTNL 583
AAV8            KDDEERFFPSNGILIFGK--QNAARDNADYS-DVMLTSEEEIKTTNPVATEEYGIVADNL 586
AAV8.1          KDDEERFFPSNGILIFGK--QNAARDNADYS-DVMLTSEEEIKTTNPVATEEYGIVADNL 586
AAV8 rh8        KDDDDRFFPSSGVLIFGK--QGAGNDGVDYS-QVLITDEEEIKATNPVATEEYGAVAINN 584
AAV10           KDDEERFFPSSGVLMFGK--QGAGRDNVDYS-SVMLTSEEEIKTTNPVATEQYGVVADNL 586
AAV7            KDDEDRFFPSSGVLIFGK--TGAT-NKTTLE-NVLMTNEEEIRPTNPVATEEYGIVSSNL 585
AAV9            KEGEDRFFPLSGSLIFGK--QGTGRDNVDAD-KVMITNEEEIKTTNPVATESYGQVATNH 584
AAV9.1          KEGEDRFFPLSGSLIFGK--QGTGRDNVDAD-KVMITNEEEIKTTNPVATESYGQVATNH 584
AAV5            NLQGSNTYALENTMIFNSQPANPGTTATYLEGNMLITSESETQPVNRVAYNVGGQMATNN 573

AAV1            QSSSTDLALGETTRPAPATGDVHAMGALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPP
AAV6            QSSSTDLALGETTRPAPATGDVHVMGALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPP
AAV3            QSSNTAPTTGTVNHQGALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPP 644
AAV2            QRGNLALGETTRPARQAATADVNTQGVLPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPP
AAV8            QQQNLALGETTRPATAPQIGTVNSQGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP
AAV8.1          QGQRGLGETTRPAQAAQIGTVNSQGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP
AAV8 rh8        QAANLALGETTRPATQAQTGLVHNQGVIPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP
AAV10           QQLALGETTRPAANTGPIVGNVNSQGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP
AAV7            QAANLALGETTRPATAAQTQVVNNQGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPP
AAV9            QSAQLALGETTRPAQAQTGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPP
AAV9.1          QSGQAALGETTRPAQAATGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPP
AAV5            QSLALGETTRPASTTAPATGTYNLQEIVPGSVWMERDVYLQGPIWAKIPETGAHFHPSPAMGGFGLKHPP
```

FIG. 18B

AAV1	PQILIK-	(SEQ ID NO:34)
AAV6	PQILIK-	(SEQ ID NO:35)
AAV3	PQIMIK-	(SEQ ID NO:24)
AAV2	PQILIKN	(SEQ ID NO:36)
AAV8	PQILIKN	(SEQ ID NO:37)
AAV8.1	PQILIKN	(SEQ ID NO:38)
AAV8 rh8	PQILIKN	(SEQ ID NO:39)
AAV10	PQILIKN	(SEQ ID NO:40)
AAV7	PQILIKN	(SEQ ID NO:41)
AAV9	PQILIK-	(SEQ ID NO:42)
AAV9.1	PQILIK-	(SEQ ID NO:43)
AAV5	PMMLIKN	(SEQ ID NO:44)

FIG. 18C

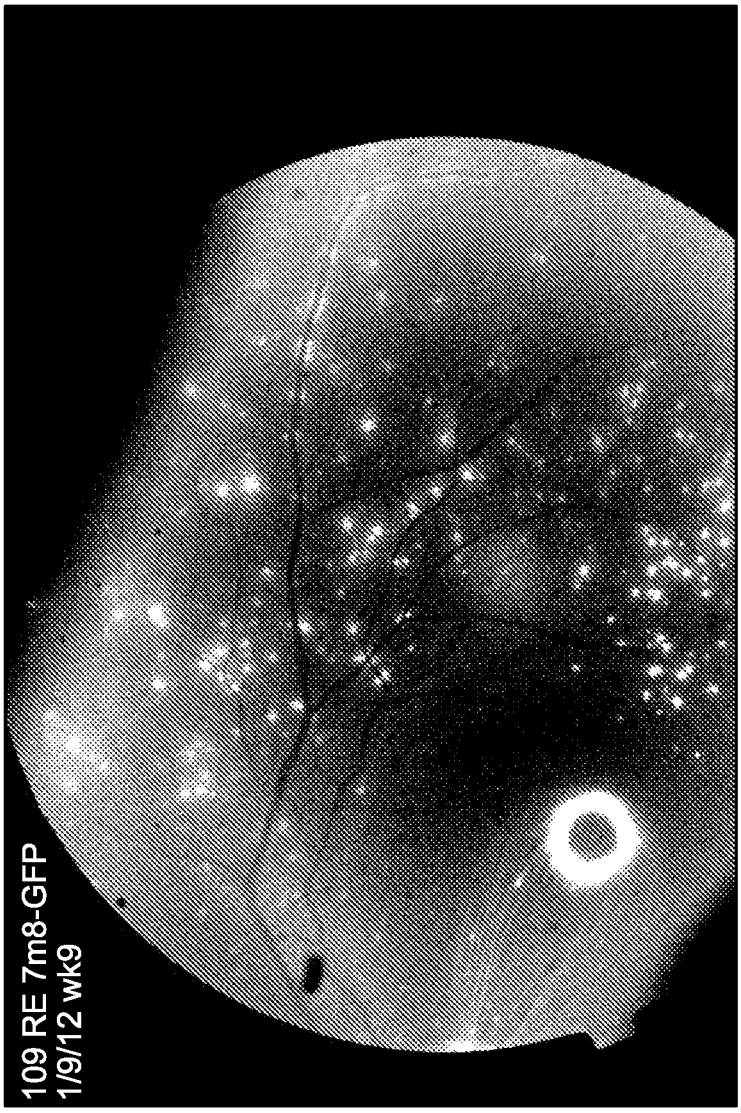


FIG. 19