

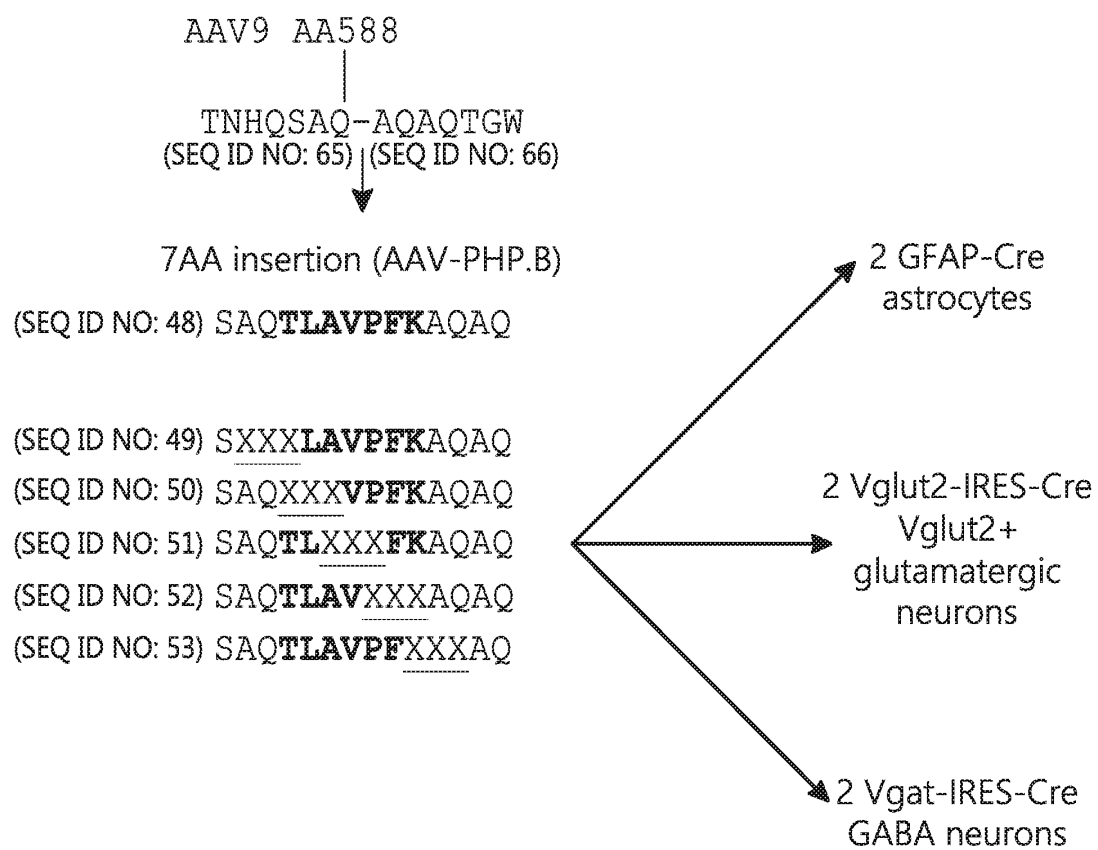


FIG. 1

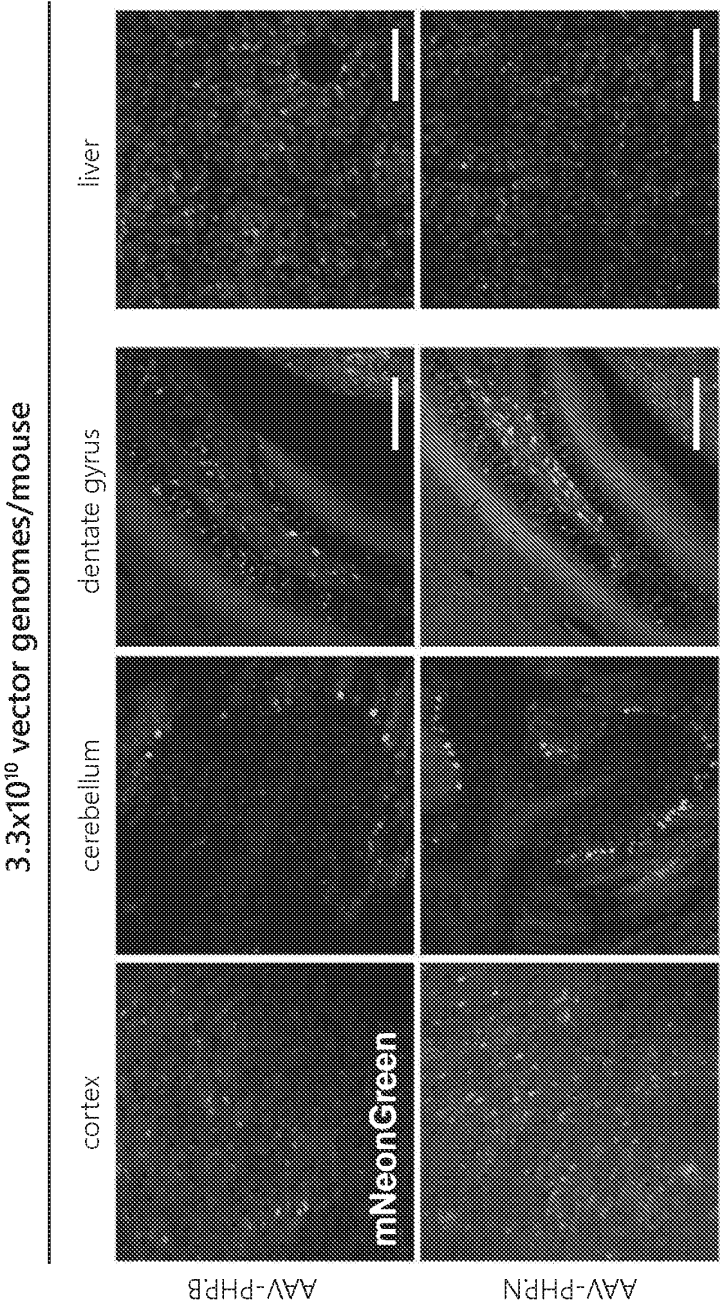


FIG. 2

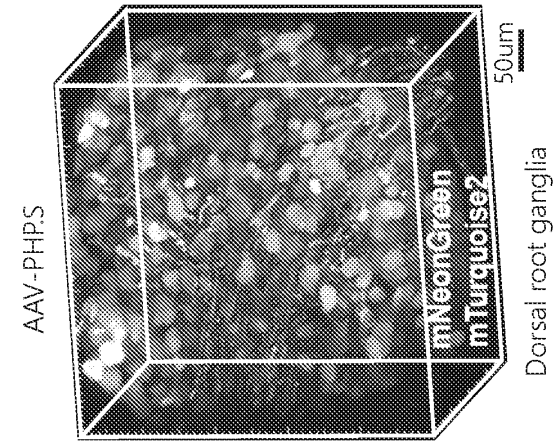


FIG. 3C

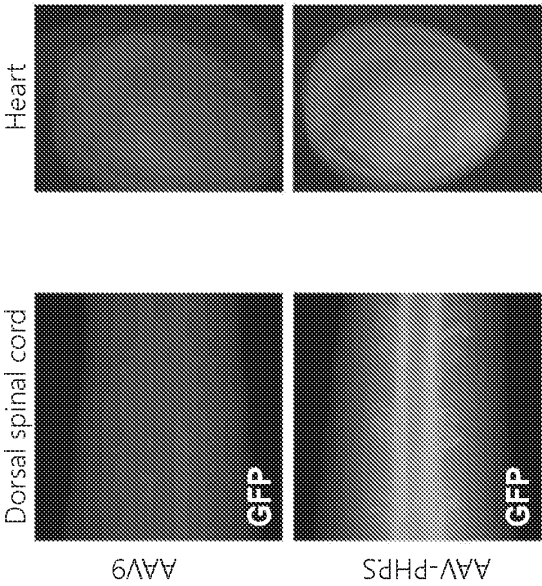


FIG. 3B

FIG. 3A

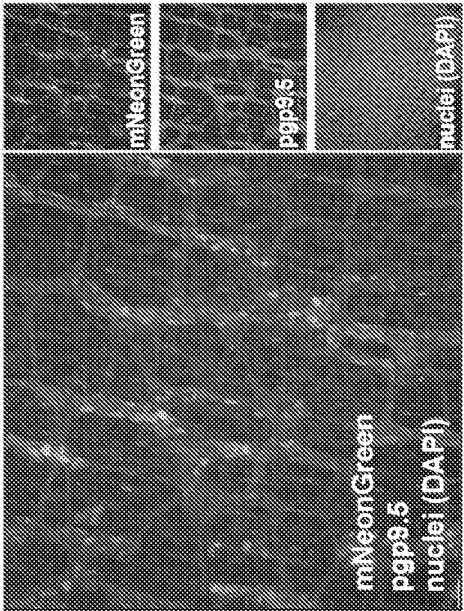


FIG. 3D

FIG. 4A

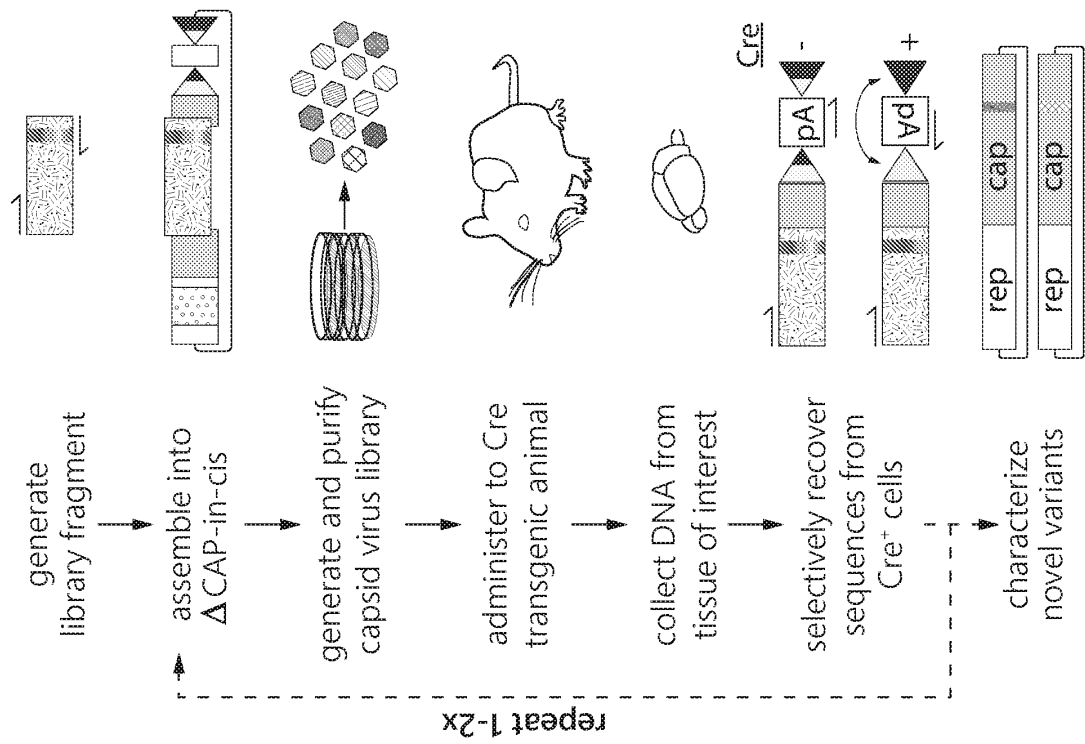
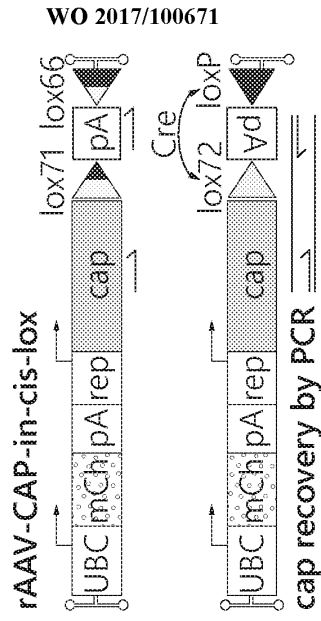


FIG. 4B

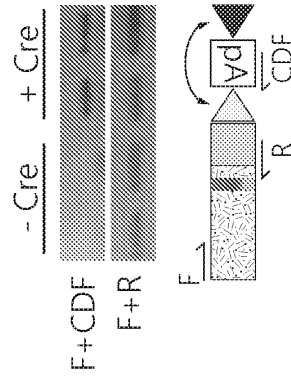


FIG. 4C

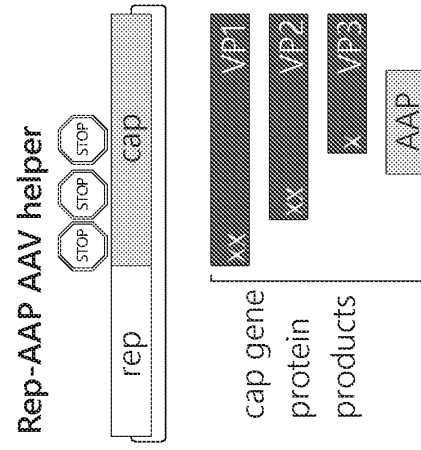


FIG. 4D

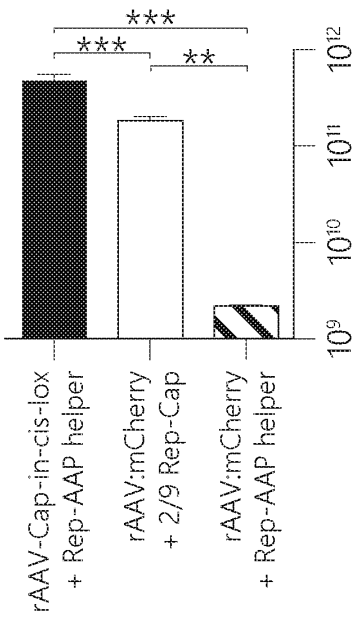


FIG. 4E

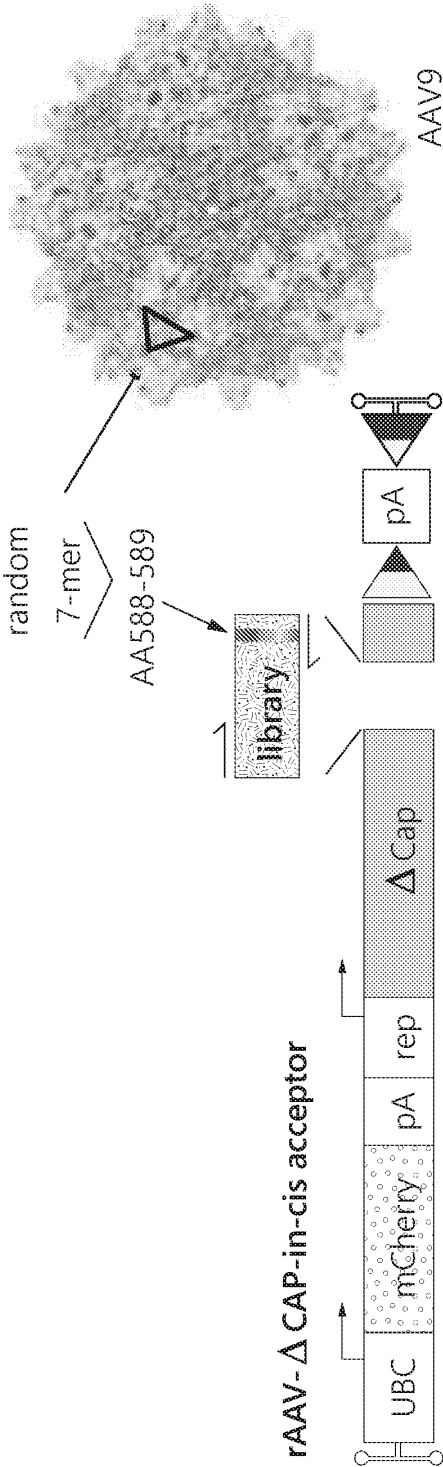


FIG. 4F

FIG. 4G

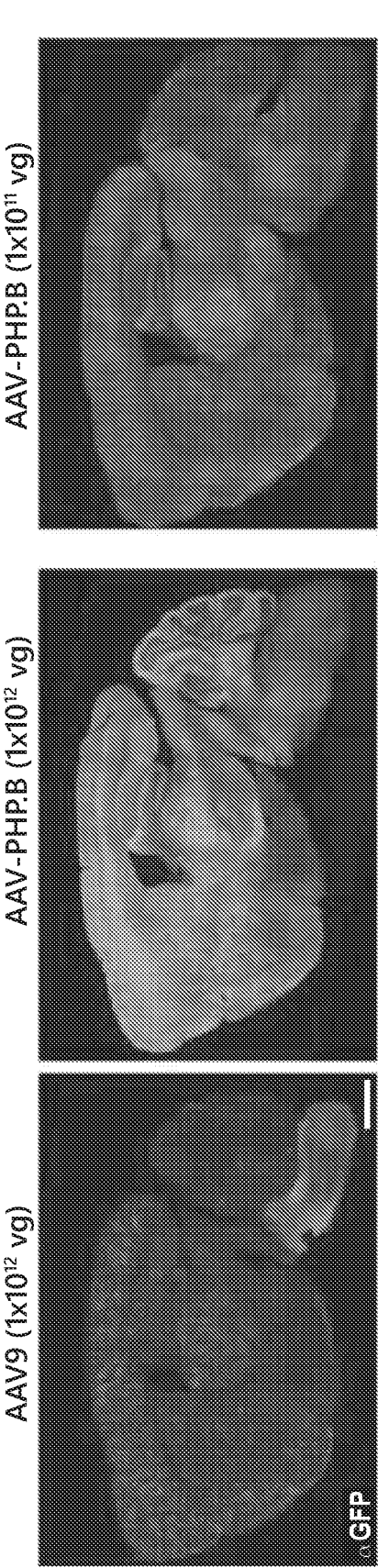


FIG. 5A

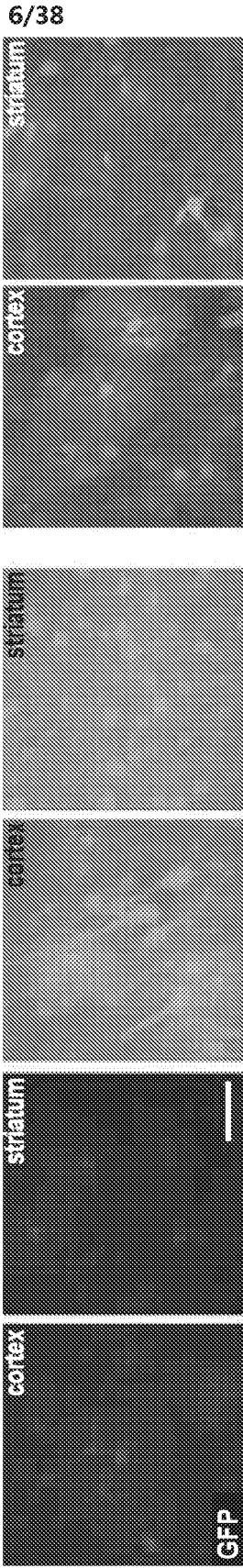


FIG. 5B

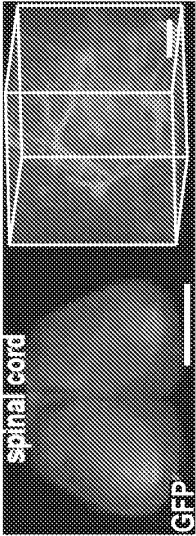


FIG. 5C

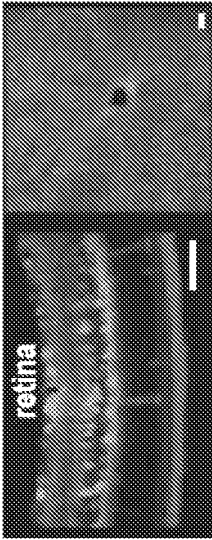


FIG. 5D

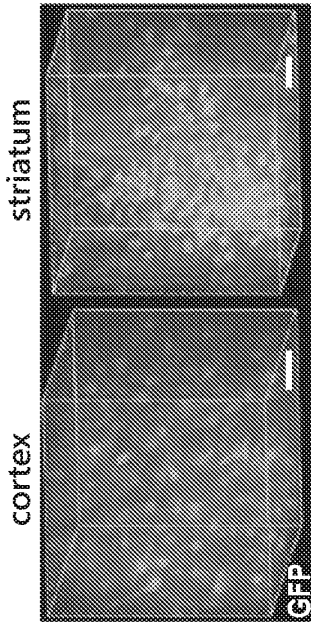


FIG. 5E

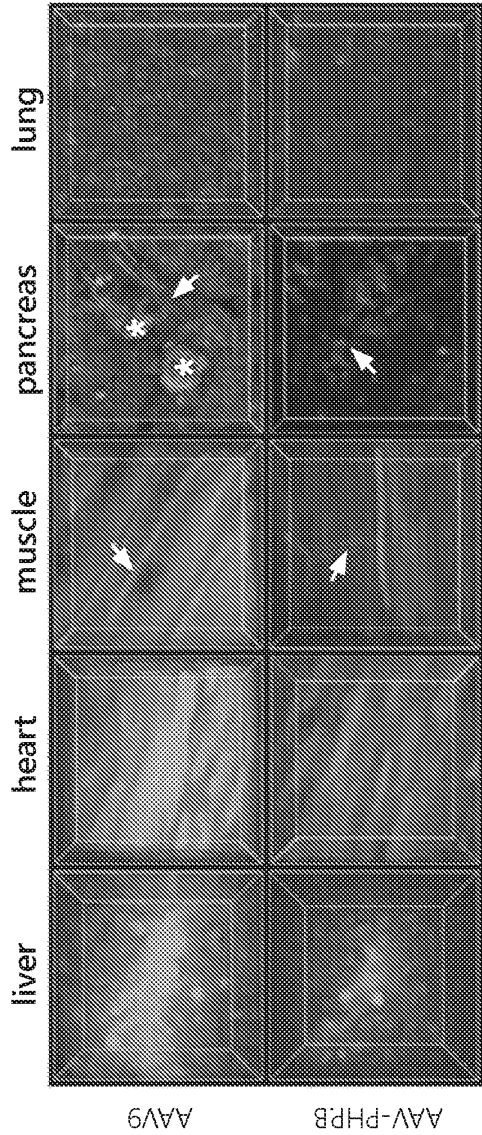


FIG. 5F

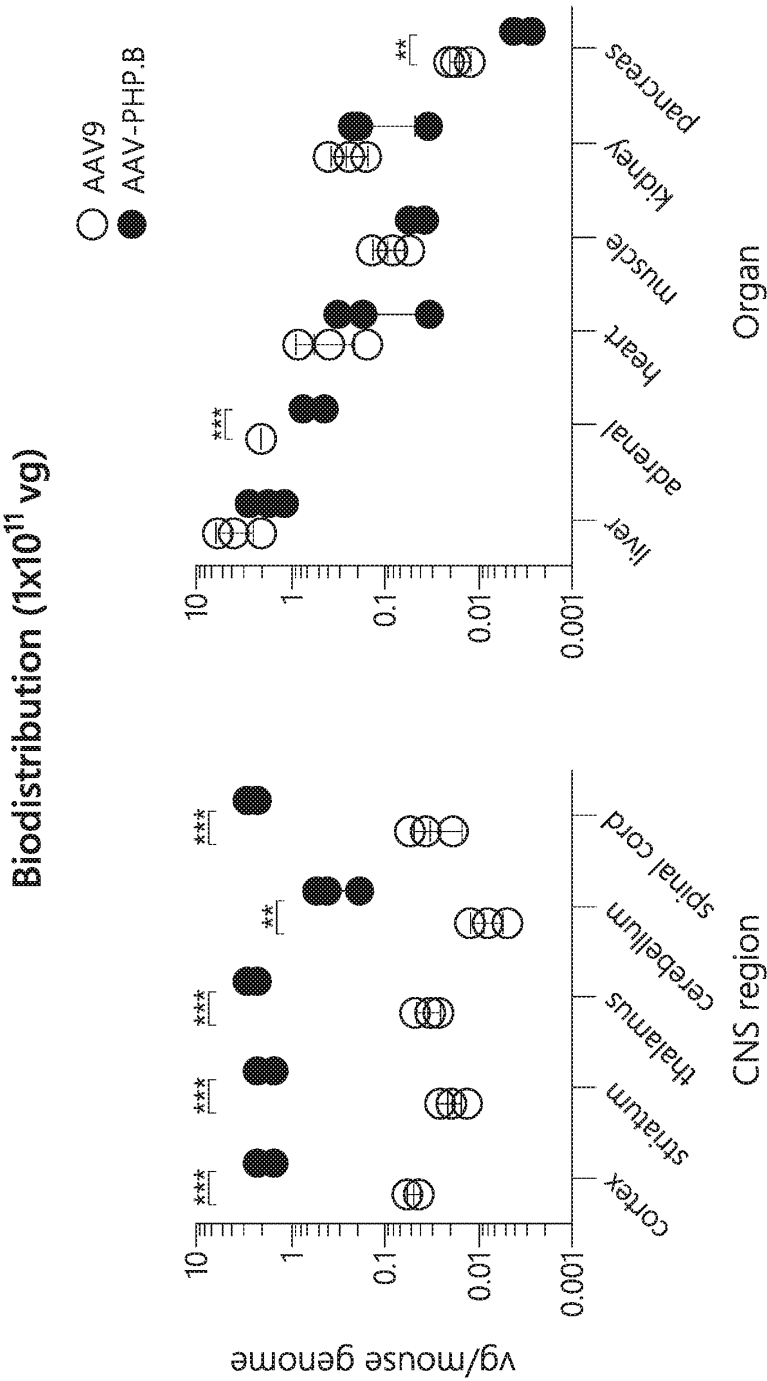


FIG. 5G

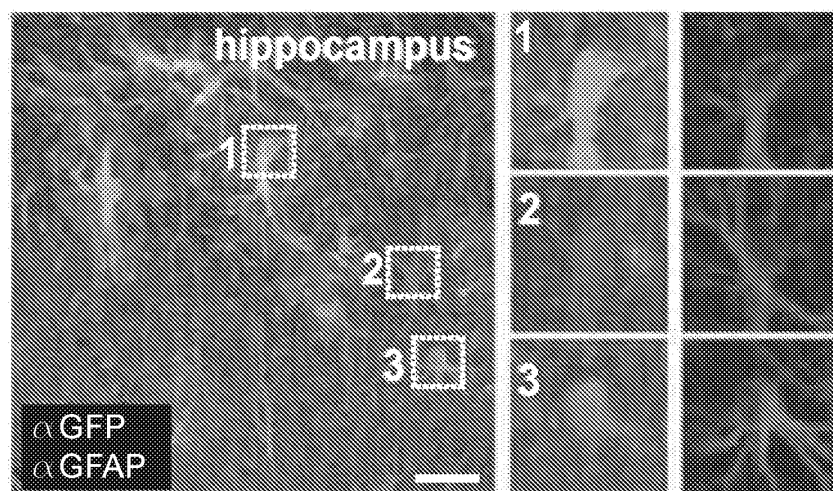


FIG. 6A

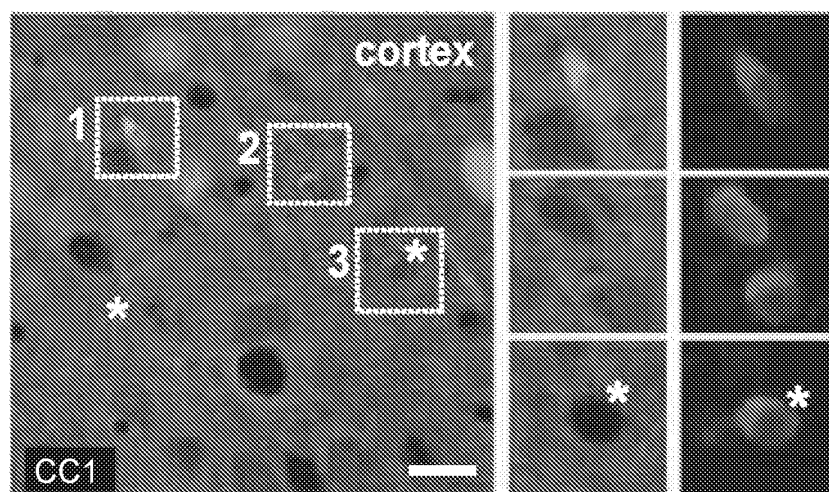


FIG. 6B

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AAV-PHP.B:CAG-GFP

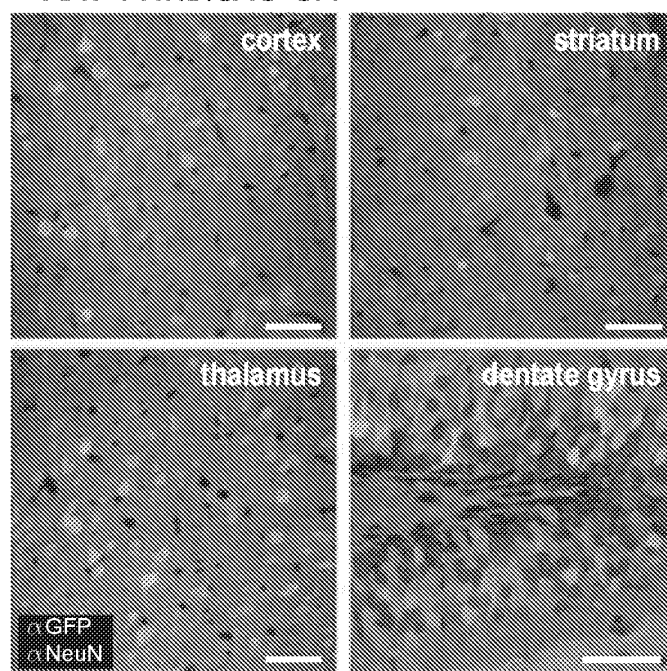


FIG. 6C

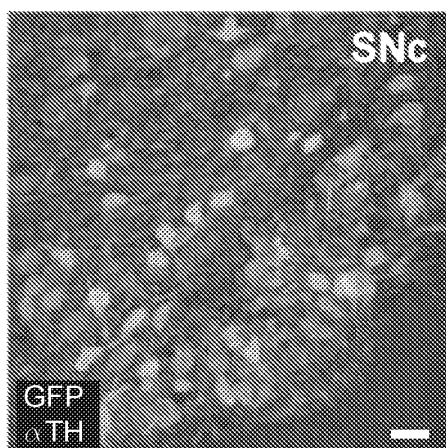


FIG. 6D

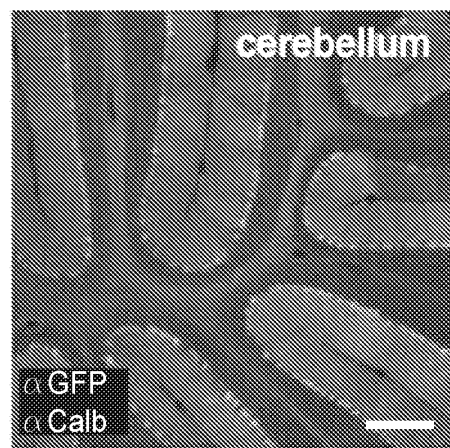


FIG. 6E

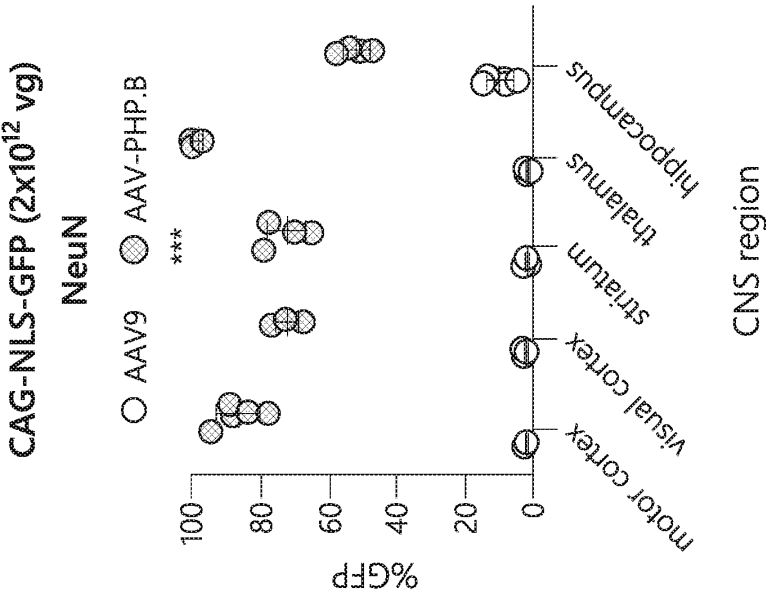


FIG. 6G

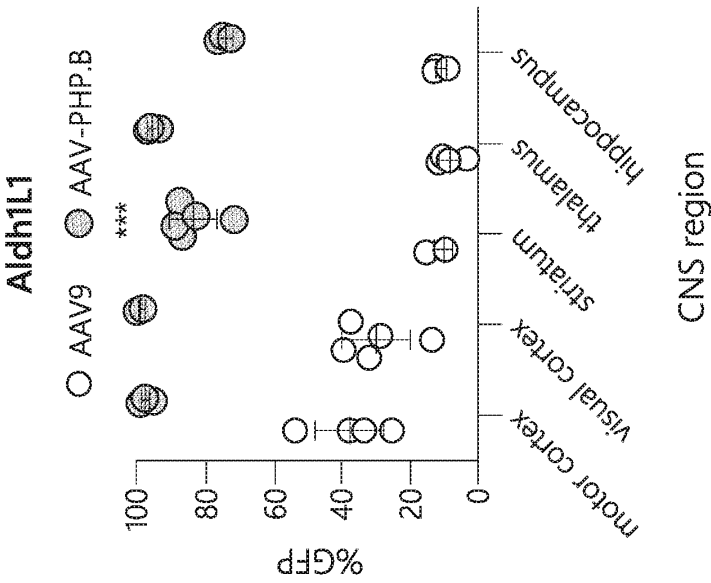


FIG. 6F

FIG. 6H

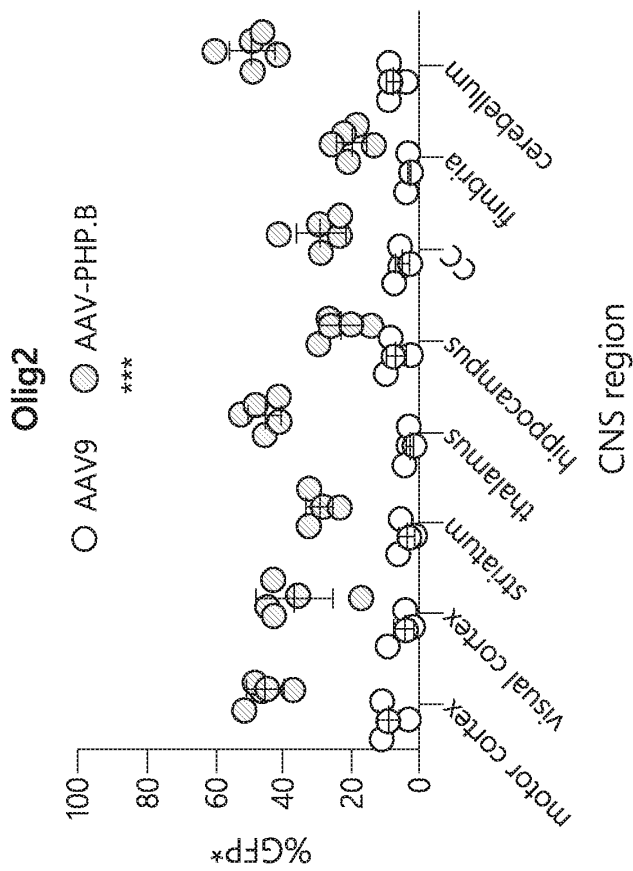
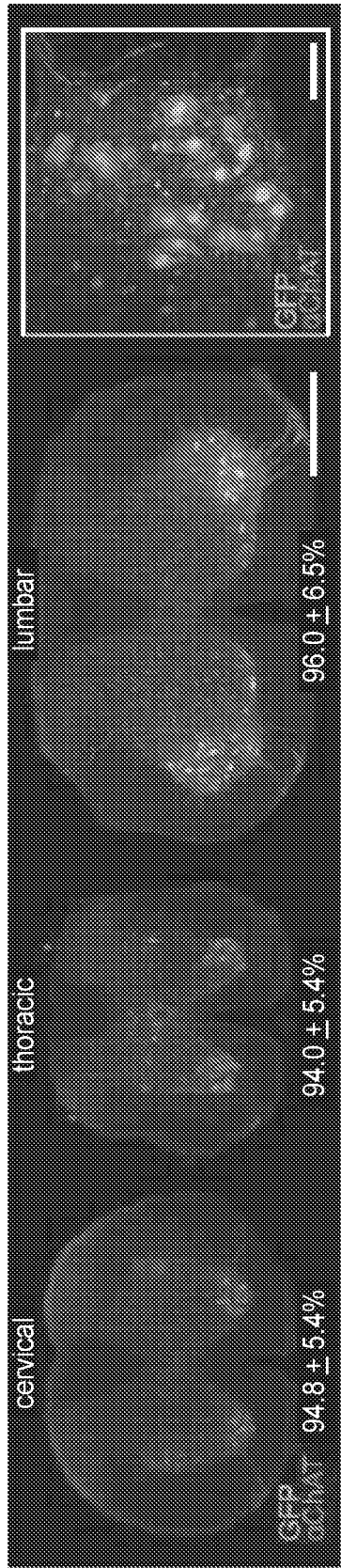


FIG. 6I

AAV-PHP.B:CAG-NLS-GFP (2x10¹² vg)



AAV9 (3×10^{11} vg)

AAV-PHPA (3×10^{11} vg)

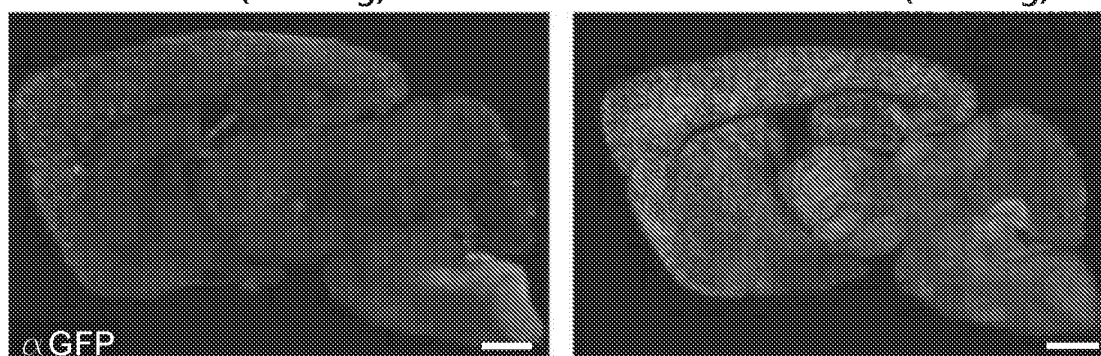


FIG. 7A

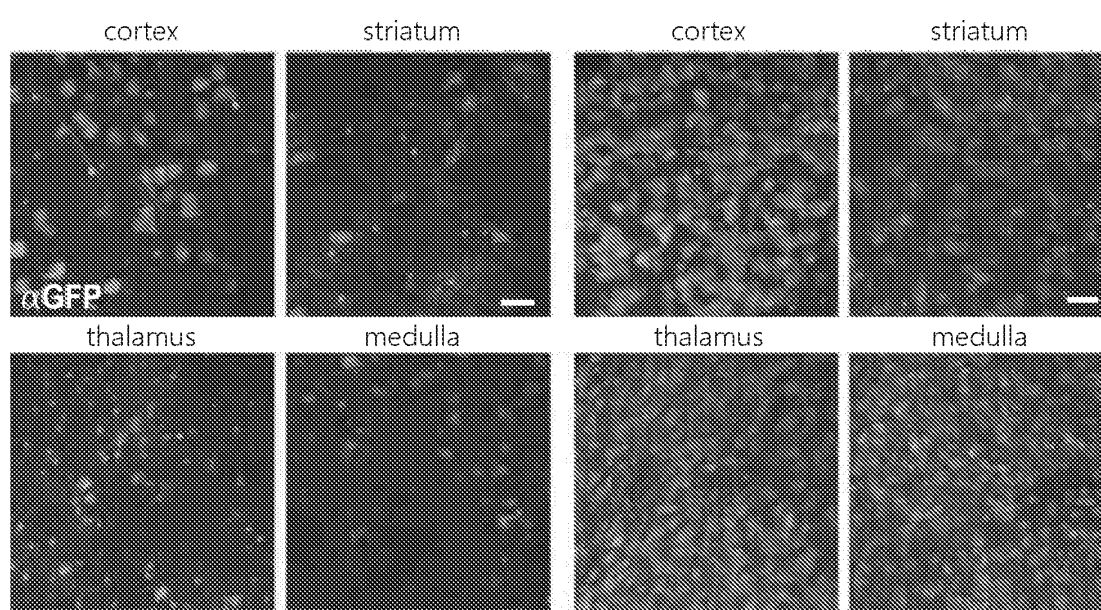


FIG. 7B

hippocampus

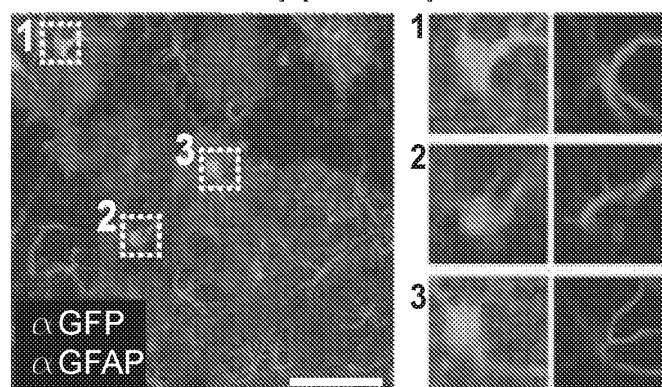


FIG. 7C

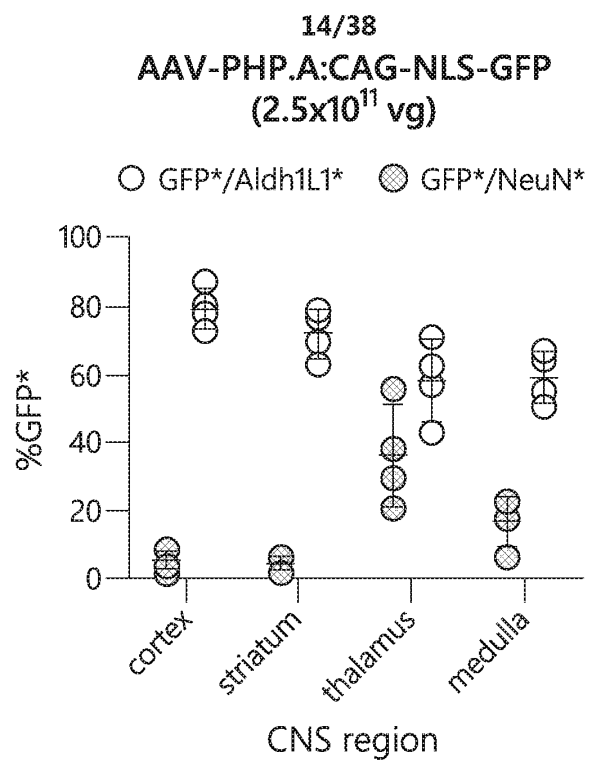


FIG. 7D

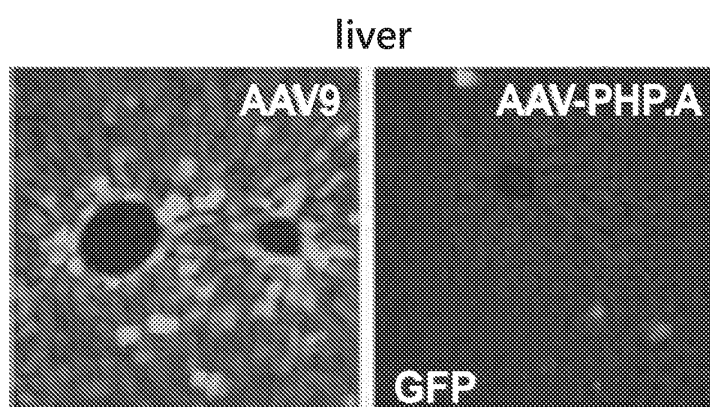


FIG. 7E

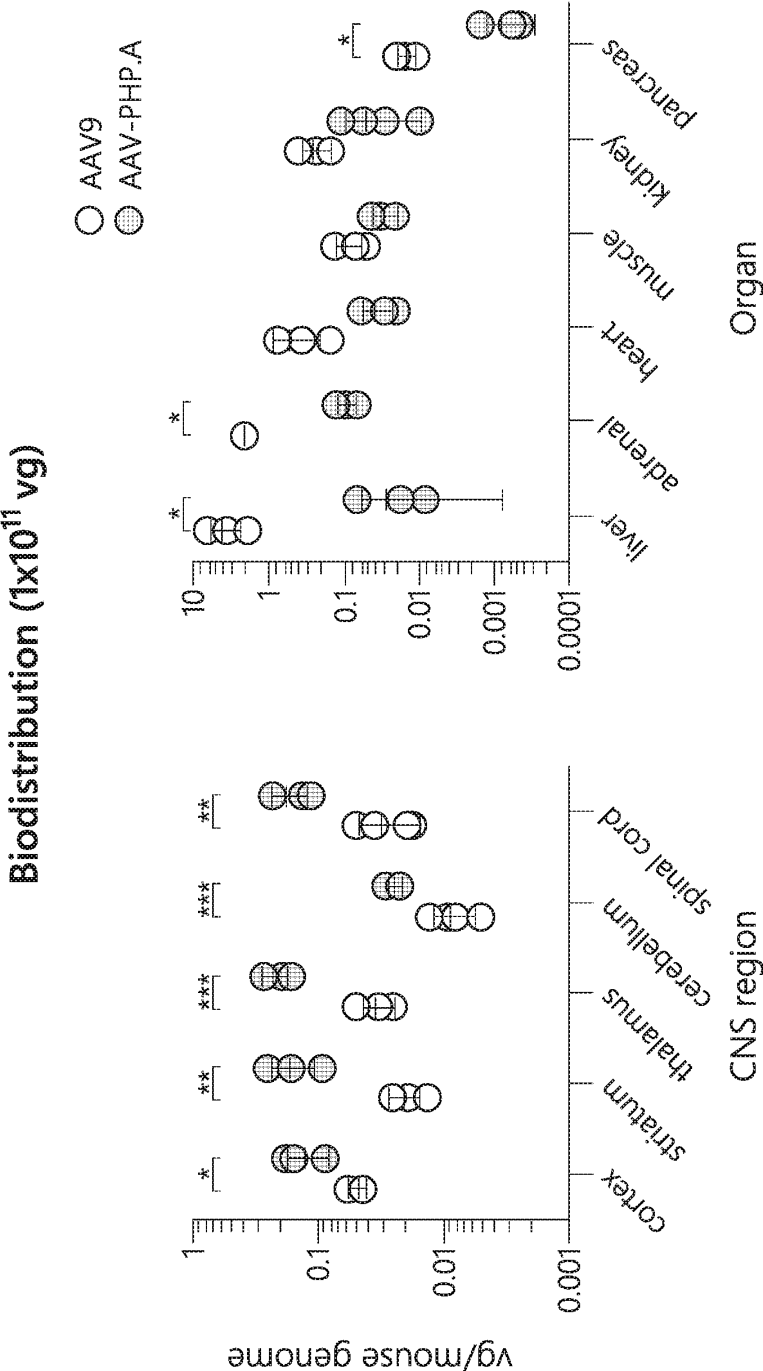


FIG. 7F

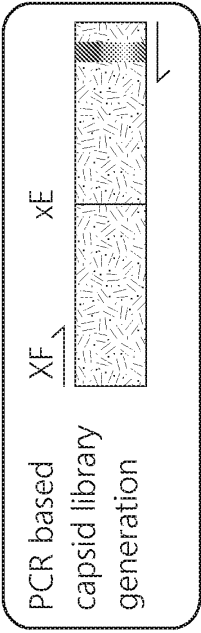


FIG. 8A

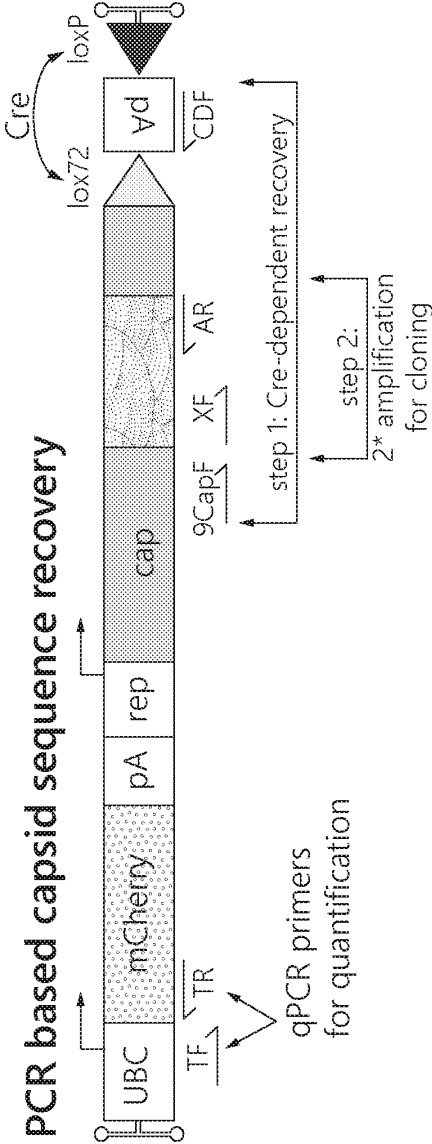


FIG. 8B

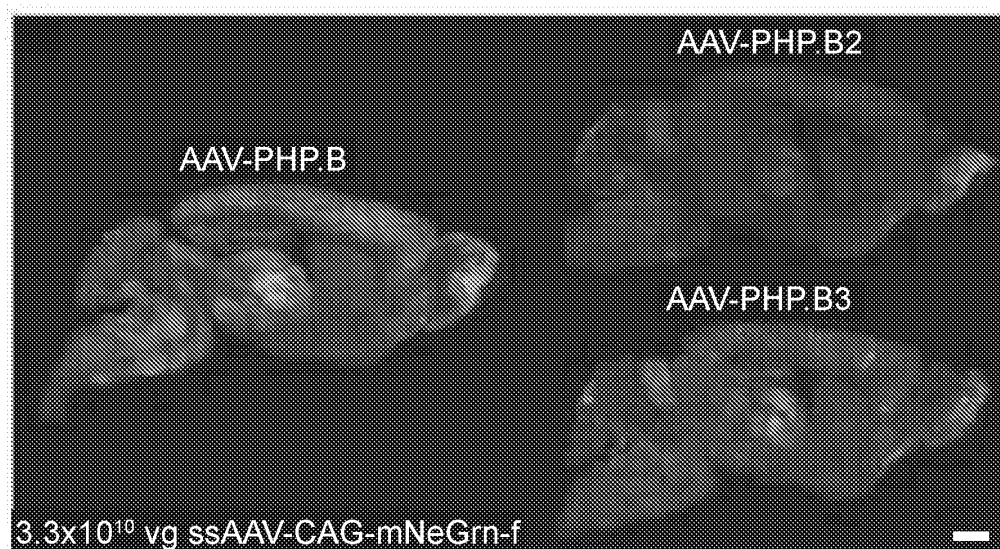


FIG. 9A

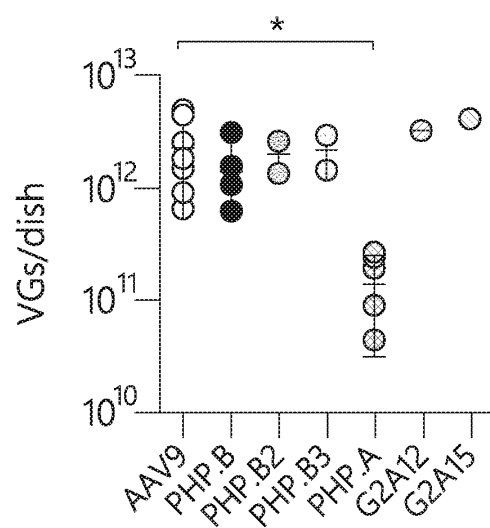


FIG. 9B

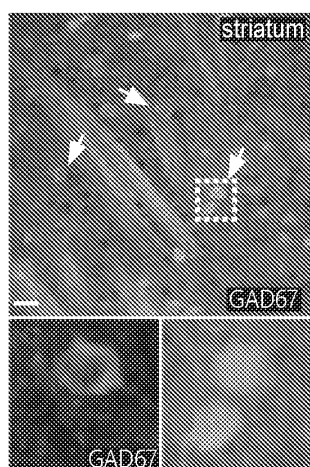


FIG. 10A

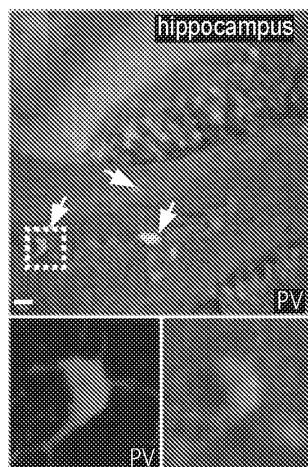


FIG. 10B

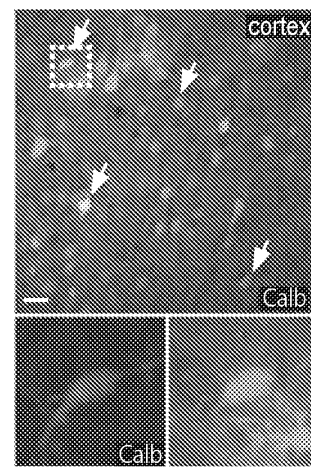


FIG. 10C

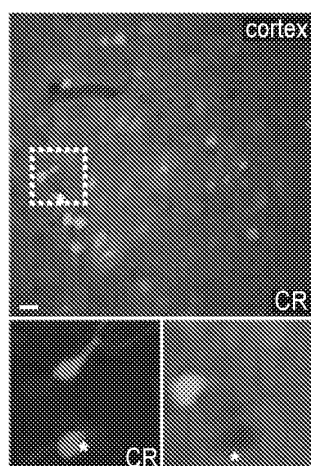


FIG. 10D

3.3×10^{10} vg ssAAV-CAG-mNeGrn-f

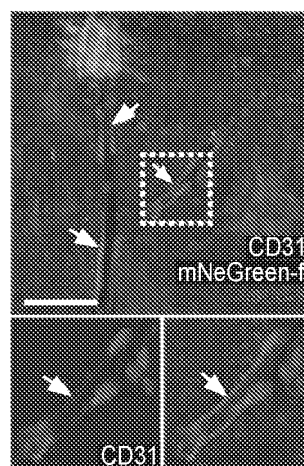


FIG. 10E

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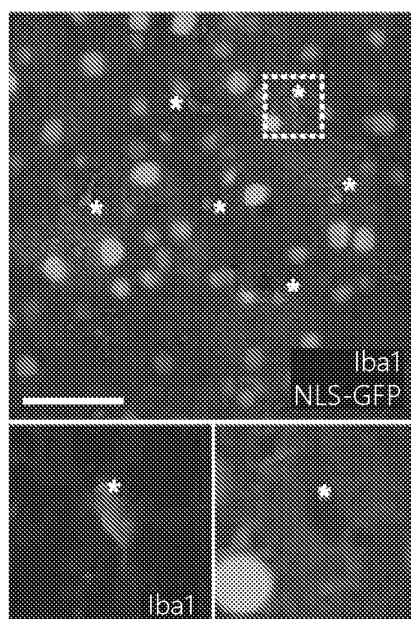


FIG. 10F

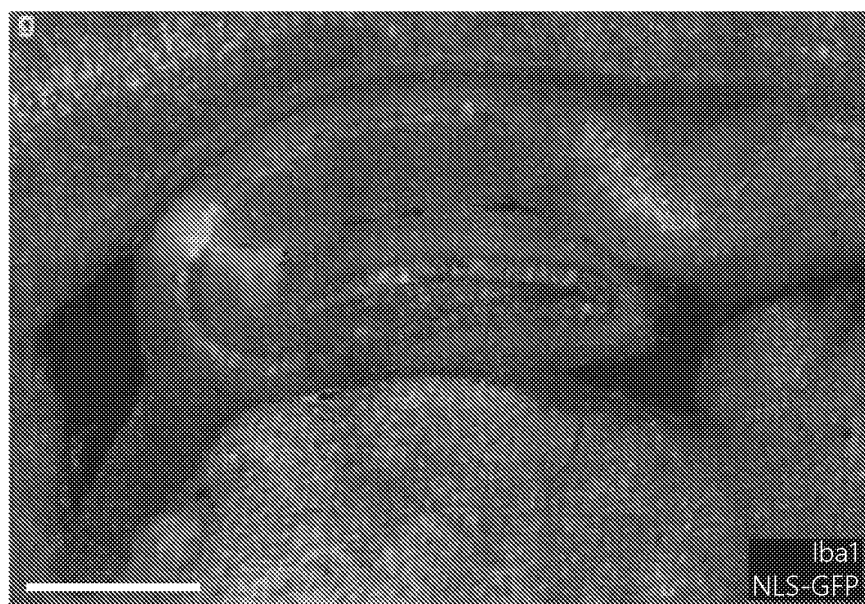


FIG. 10G

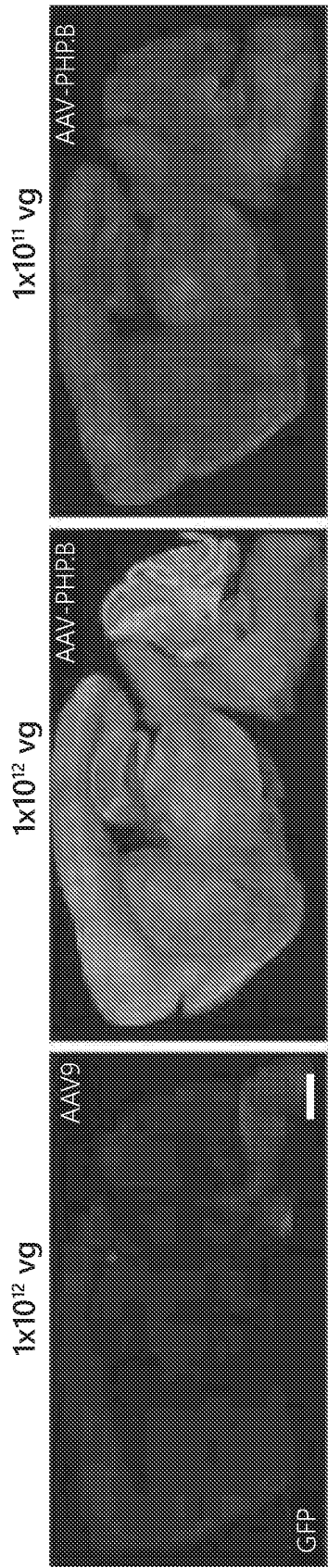


FIG. 11

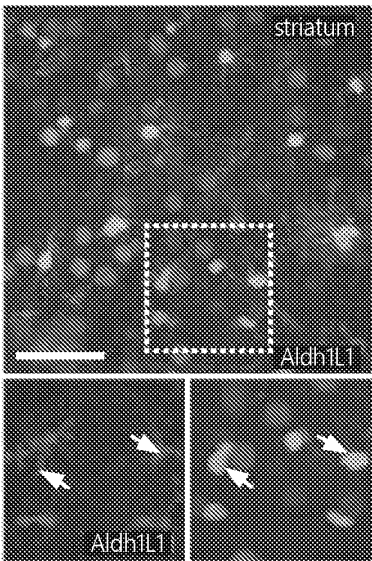


FIG. 12A

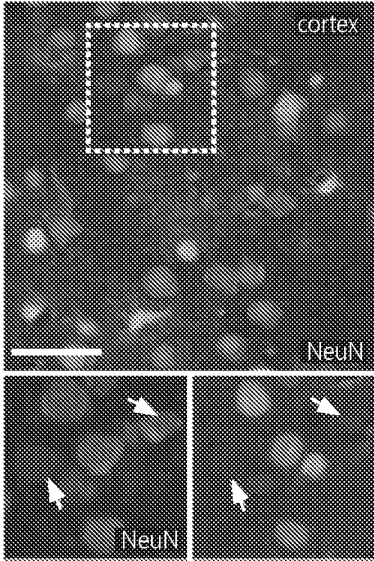


FIG. 12B

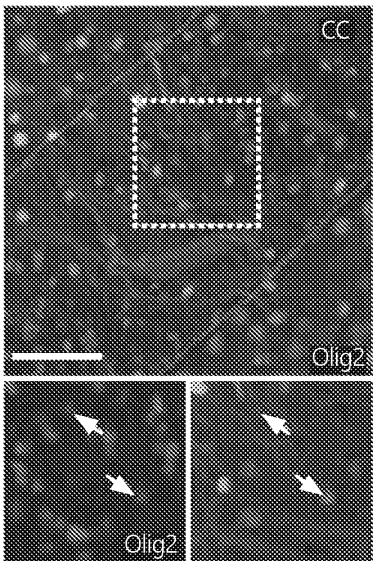


FIG. 12C

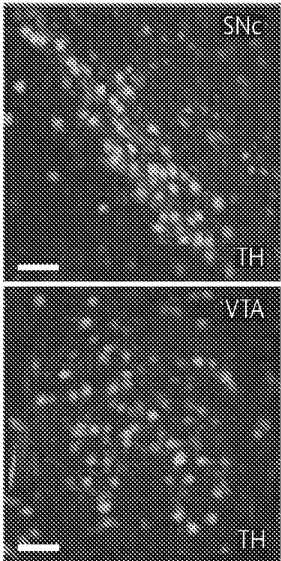


FIG. 12D

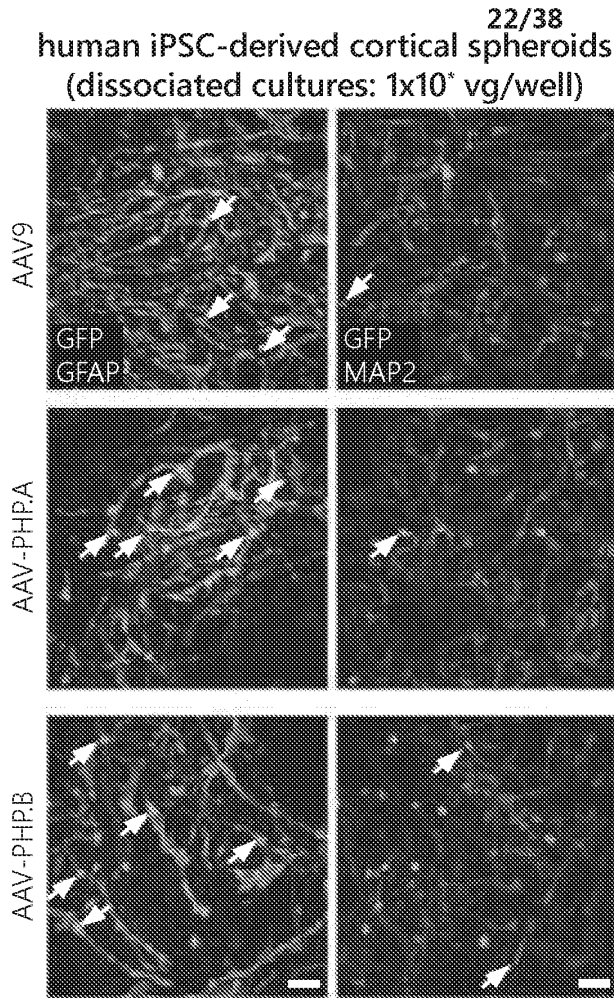


FIG. 13A

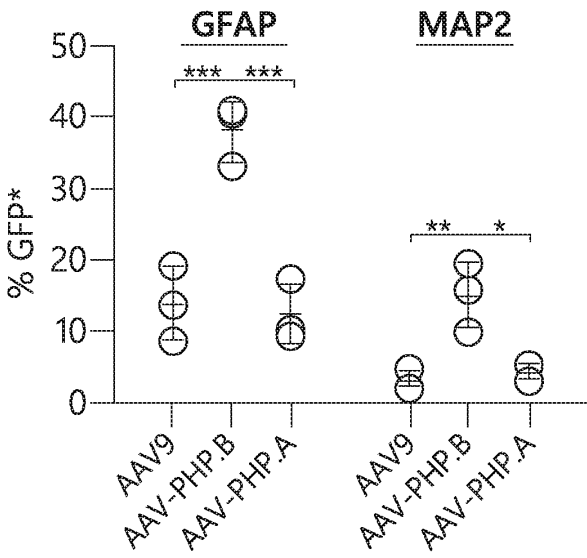


FIG. 13B

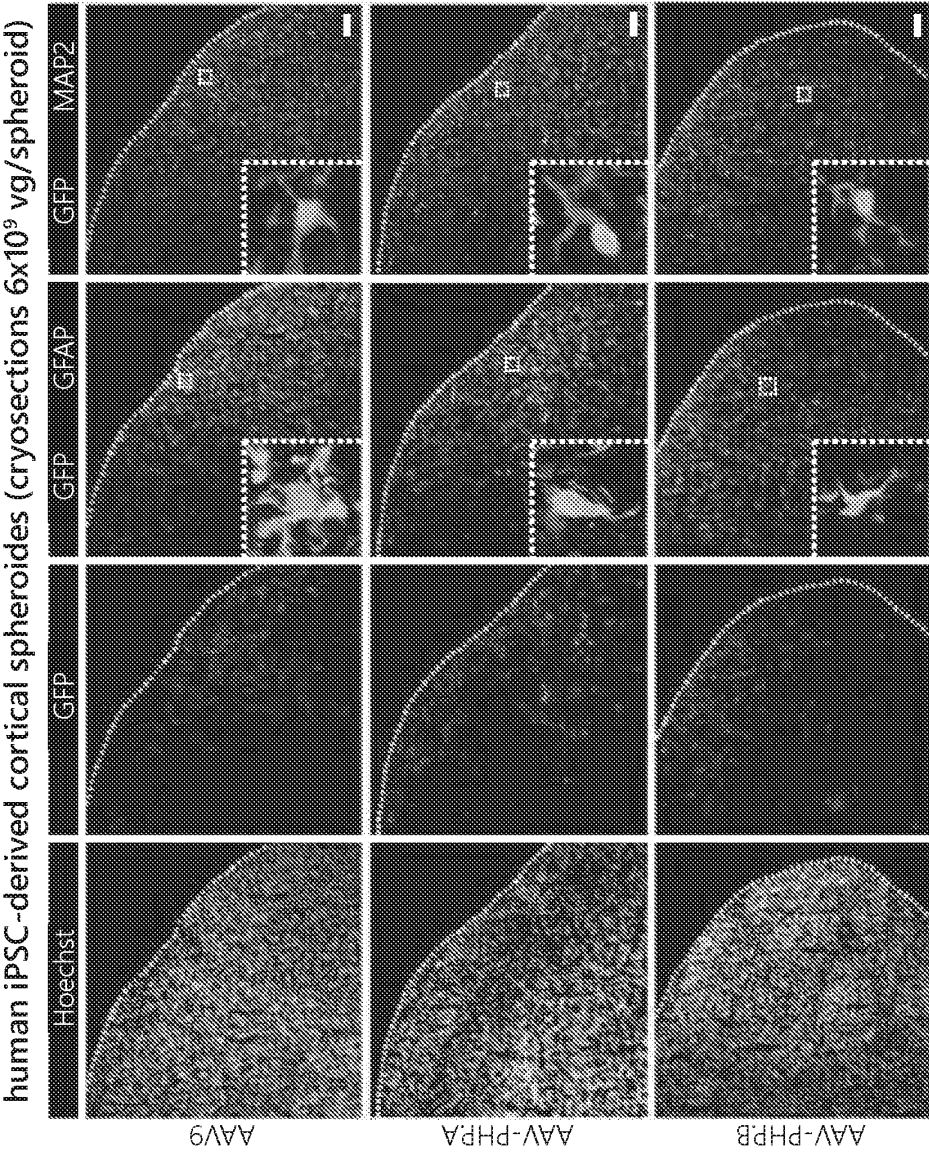


FIG. 13C

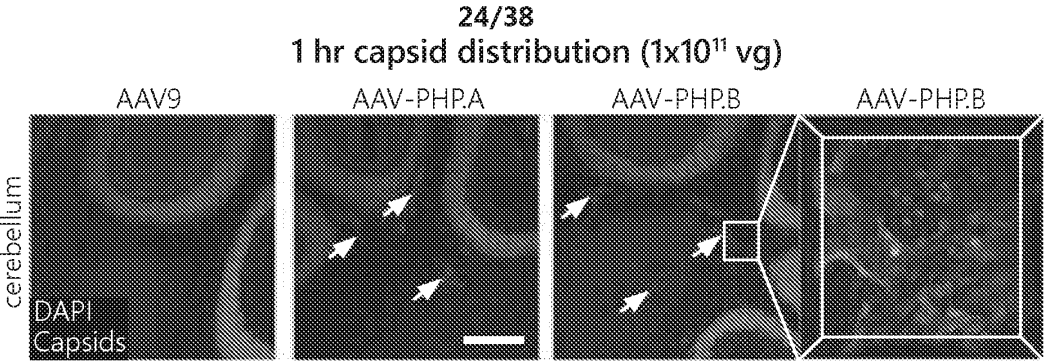


FIG. 14A

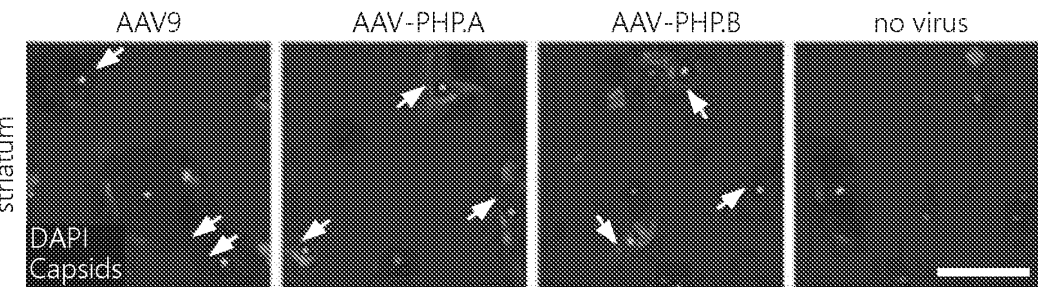


FIG. 14B

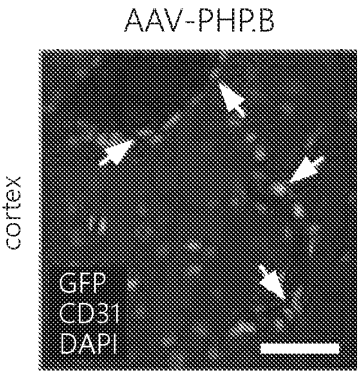
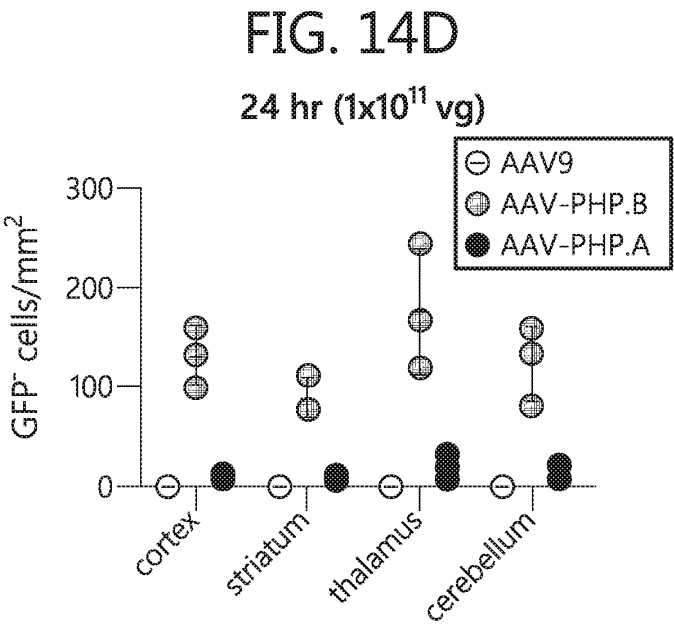


FIG. 14C



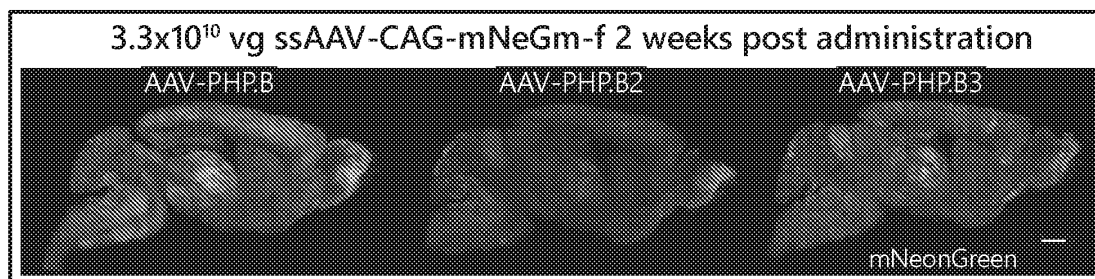


FIG. 15A

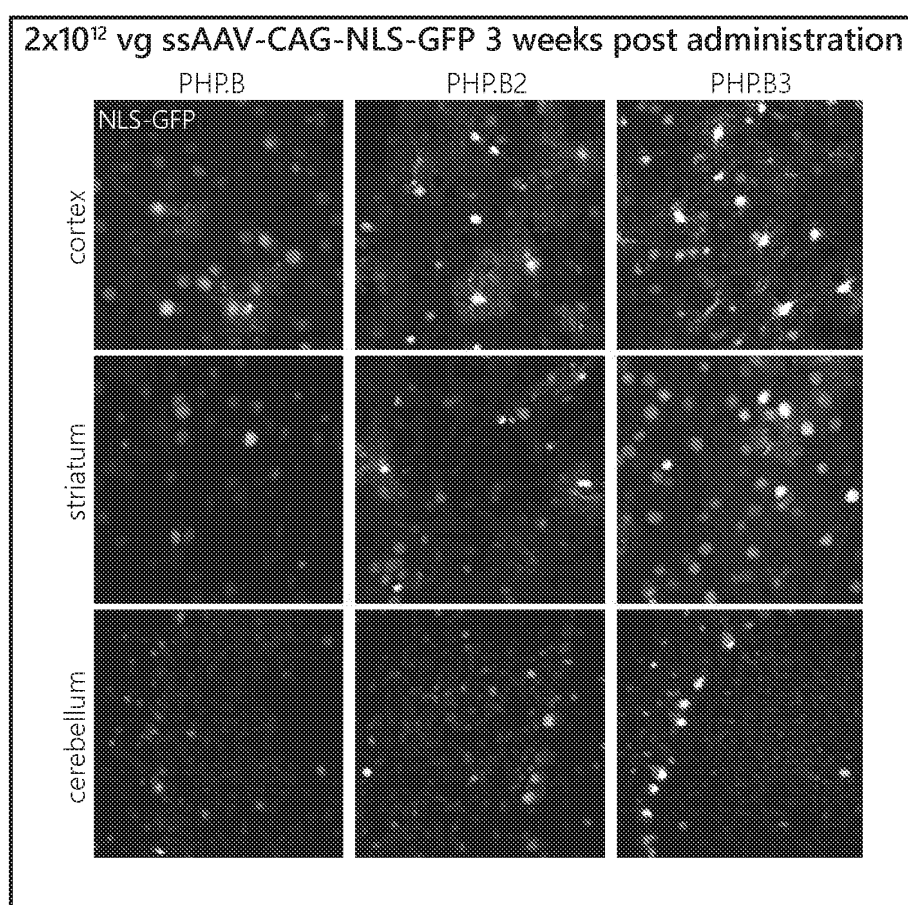


FIG. 15B

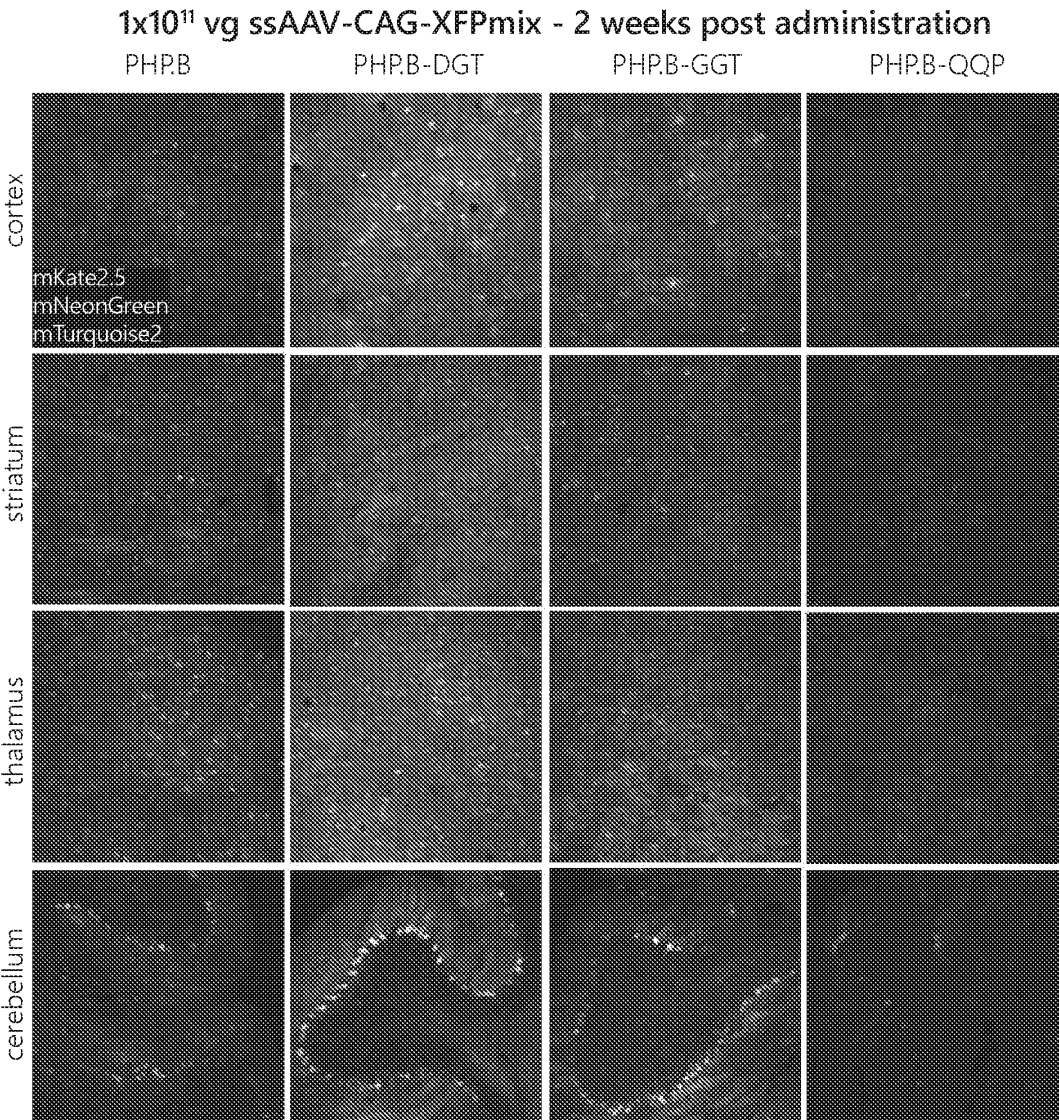


FIG. 16

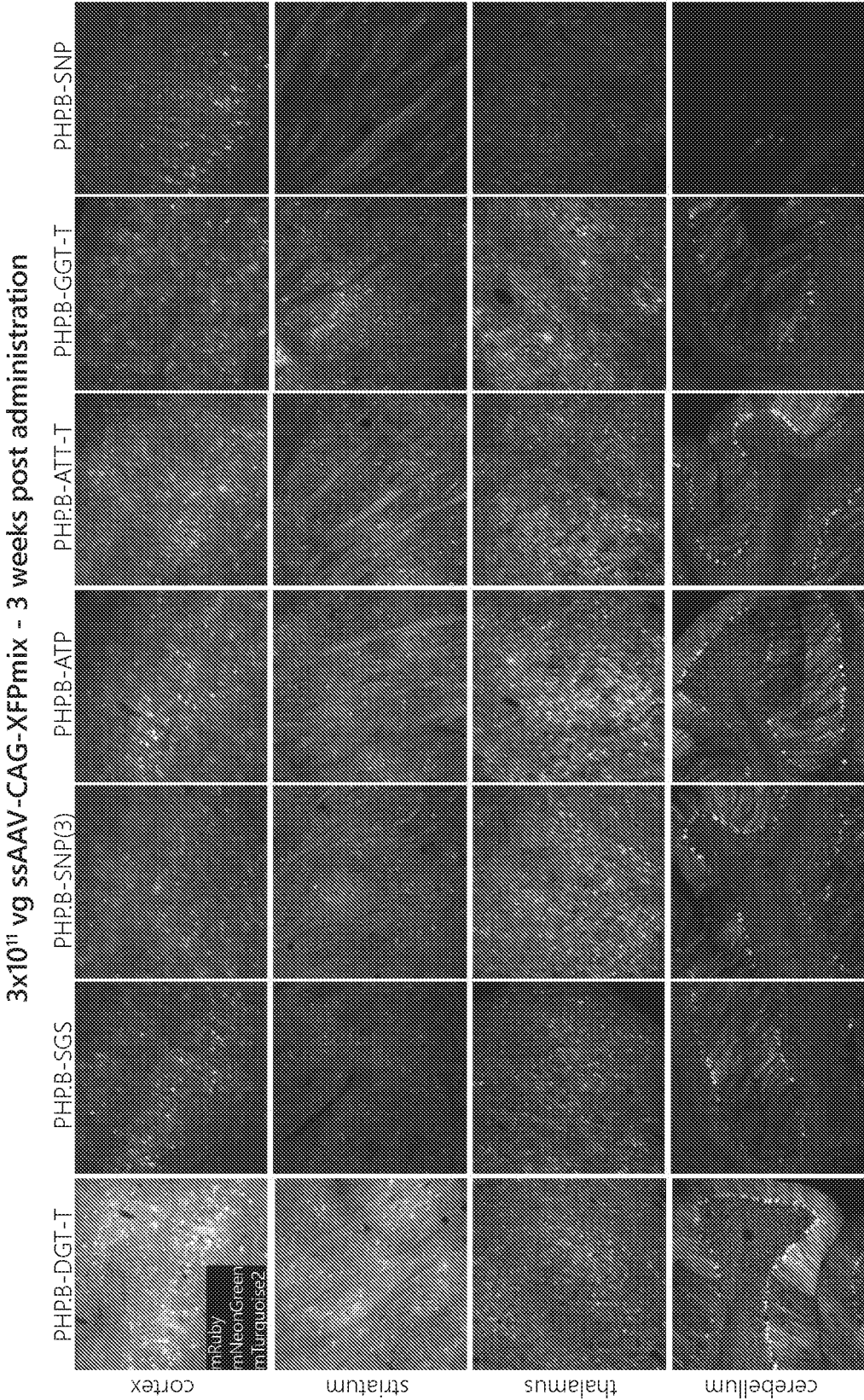


FIG. 17

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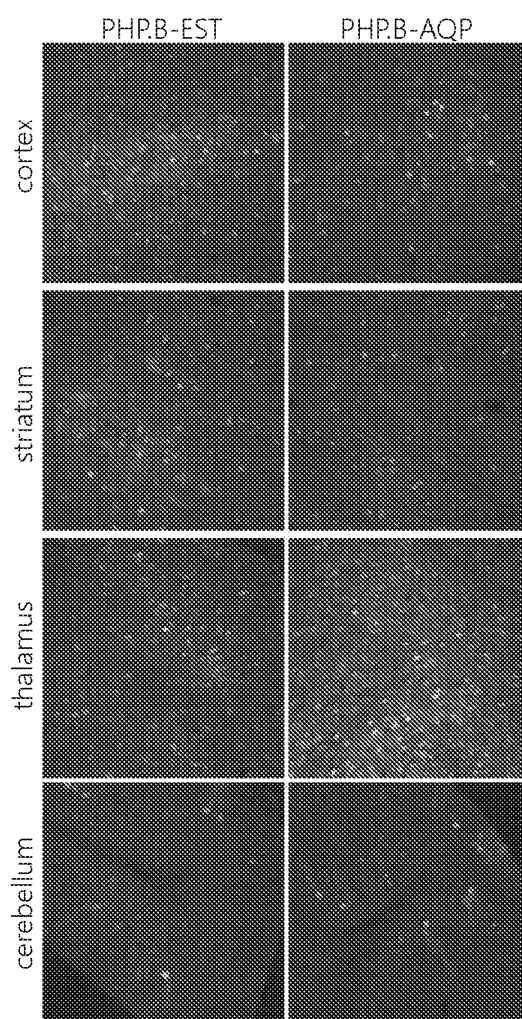


FIG. 18

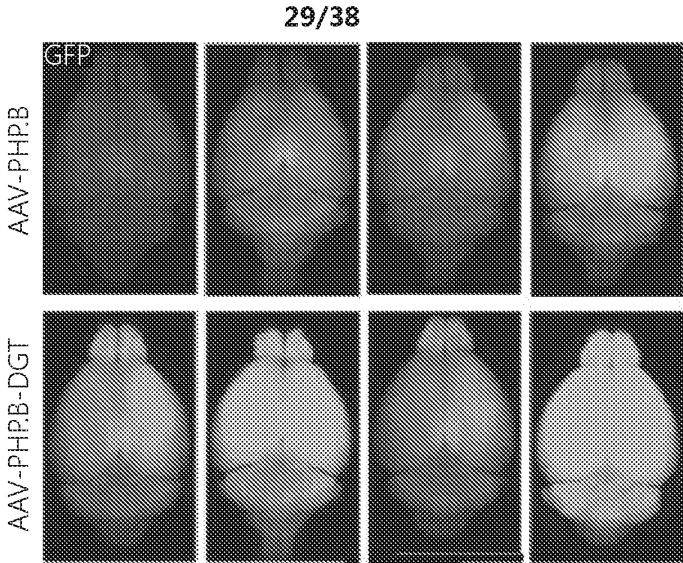


FIG. 19A

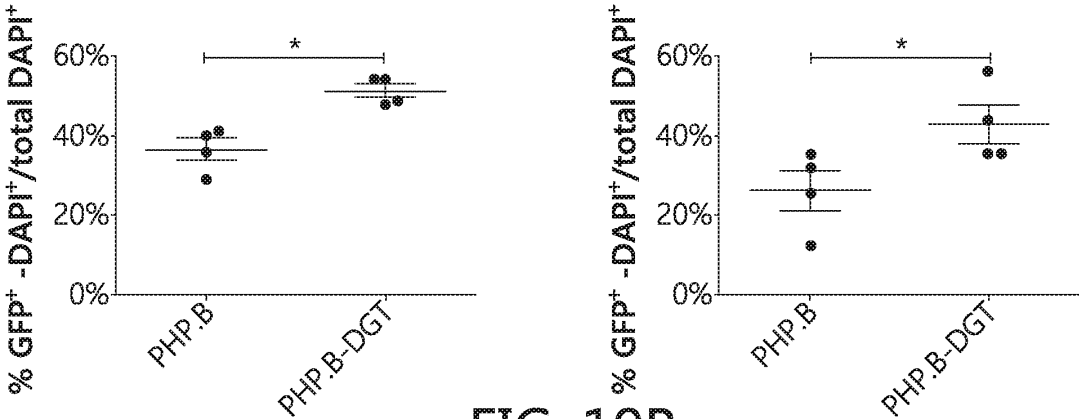


FIG. 19B

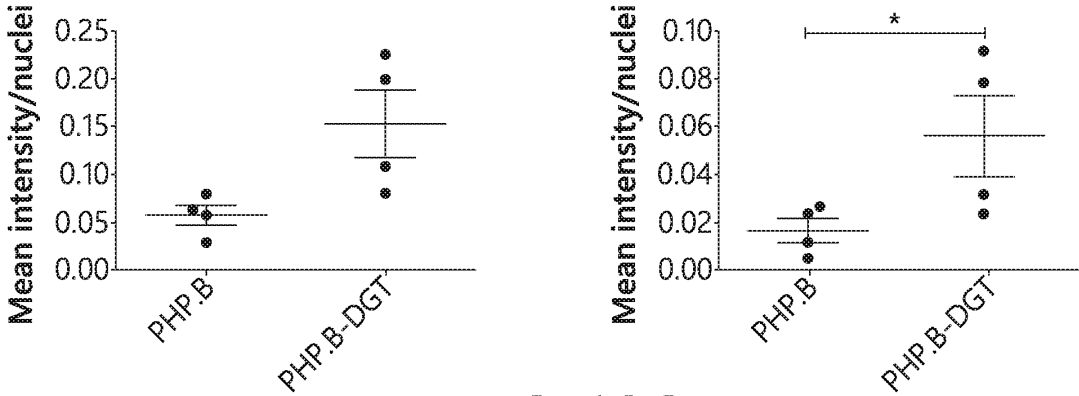
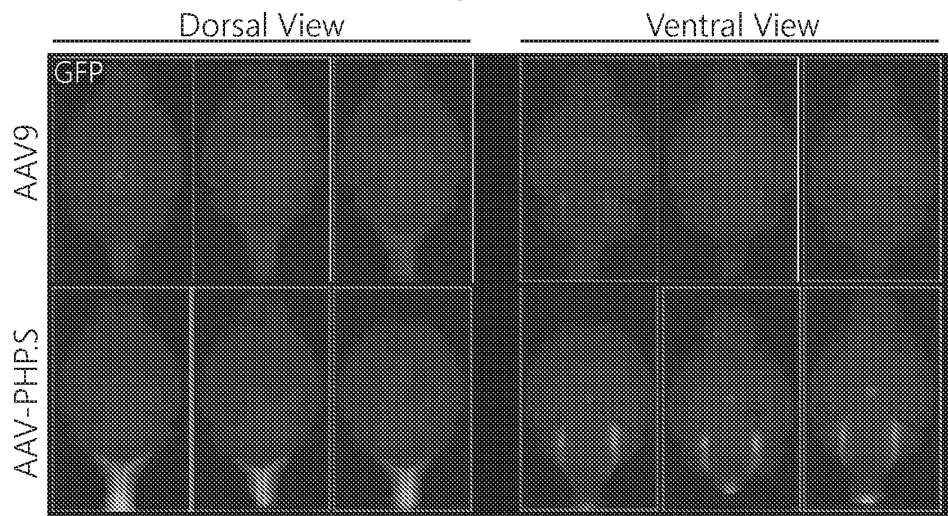


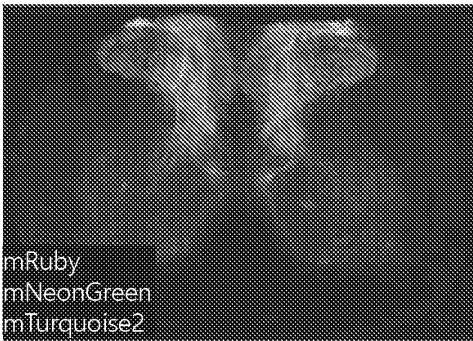
FIG. 19C

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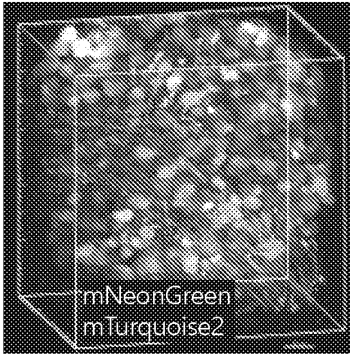


GFP fluorescence - whole brain images

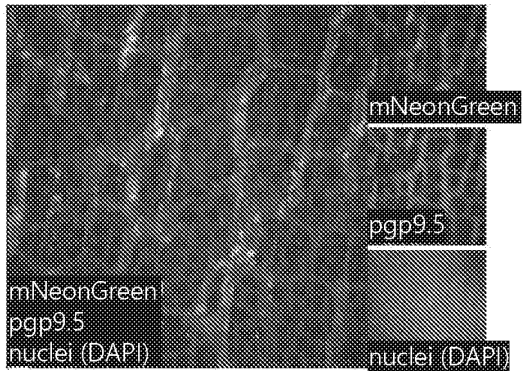
FIG. 20A



Spinal Cord
FIG. 20B



Dorsal root ganglia
FIG. 20C



Intestine
FIG. 20D

XXXX1	SAQ TLAVPF KAQAQ (SEQ ID NO: 49)
XXXX2	SAQ TLAVPF KAQAQ (SEQ ID NO: 50)
XXXX3	SAQ TLAVPF KAQAQ (SEQ ID NO: 51)
XXXX4	SAQ TLAVPF KAQAQ (SEQ ID NO: 52)
XXXX5	SAQ TLAVPF KAQAQ (SEQ ID NO: 53)

FIG. 21

FIG. 22A

AAV-PHP.N VP1 Capsid Sequence
SEQ ID NO: 46

MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLPGNGLDKGEP
VNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQAKKRLLLEP
LGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKGAQPAKKRLNFGQTDGESVPDPQPIGEPP
AAPSGVGSITMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGLDRVITTTSTRTWALPTYNNHL
YKQISNSTSGSSNDNAYFGYSTPWGYFDNRFHCHFSRPDWQRLINNNWGRFPRKRLNFKLFNI
QVKEVTDNNGVKTIANNLTSTVQVFTDSYQLPYVLGSAHEGCLPPFPADVMI PQYGYLTND
GSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPHSSYAHSQSLDRLMNPPLIDQYLYLS
RTINGSGQNQQTILKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFAWPGASSWALN
GRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATES
YGQVATNHQSSITLAVPFKAQAQTGWVQNQGILPGMVWQDRDVYLQGPiWAKI PHTDGNFHPSP
LMGGFGMKHPPPPQILIKNTVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNP
EIQYTSNYKYKSNNVEFAVNTGVSEPRPIGTRYLTRNL

FIG. 22B

AAV-PHP.S VP1 Capsid Sequence
SEQ ID NO: 47

MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLPGNGLDKGEP
VNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQAKKRLLLEP
LGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKGAQPAKKRLNFGQTDGESVPDPQPIGEPP
AAPSGVGSITMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGLDRVITTTSTRTWALPTYNNHL
YKQISNSTSGSSNDNAYFGYSTPWGYFDNRFHCHFSRPDWQRLINNNWGRFPRKRLNFKLFNI
QVKEVTDNNGVKTIANNLTSTVQVFTDSYQLPYVLGSAHEGCLPPFPADVMI PQYGYLTND
GSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPHSSYAHSQSLDRLMNPPLIDQYLYLS
RTINGSGQNQQTILKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFAWPGASSWALN
GRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATES
YGQVATNHQSAQAQAVRTSLAQAQTGWVQNQGILPGMVWQDRDVYLQGPiWAKI PHTDGNFHPSP
LMGGFGMKHPPPPQILIKNTVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNP
EIQYTSNYKYKSNNVEFAVNTGVSEPRPIGTRYLTRNL

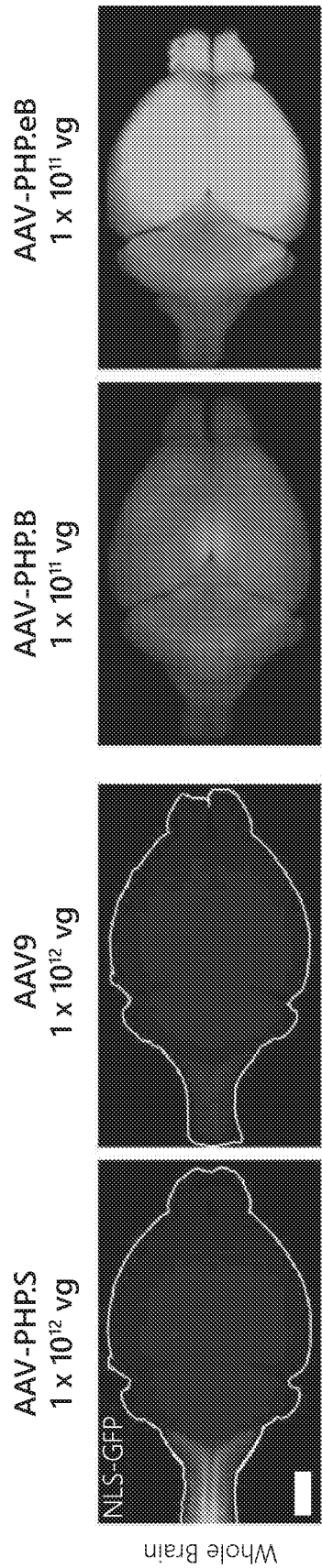


FIG. 23A

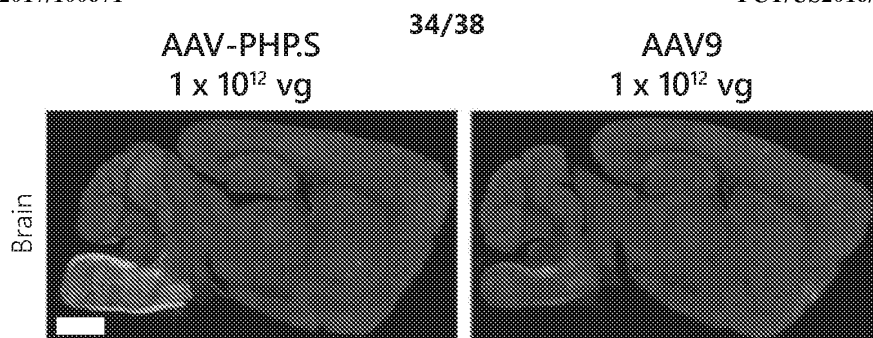


FIG. 23B

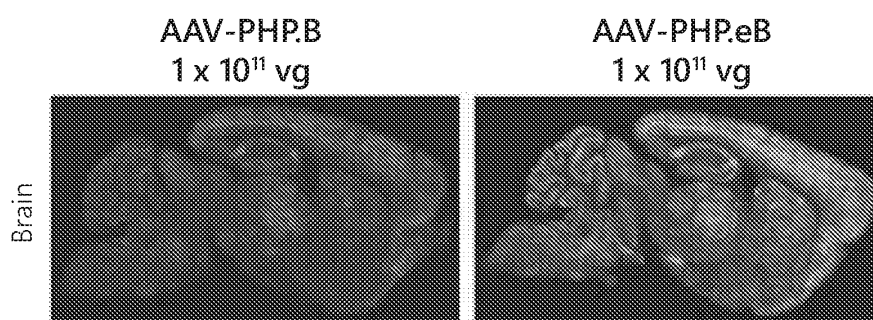


FIG. 23C

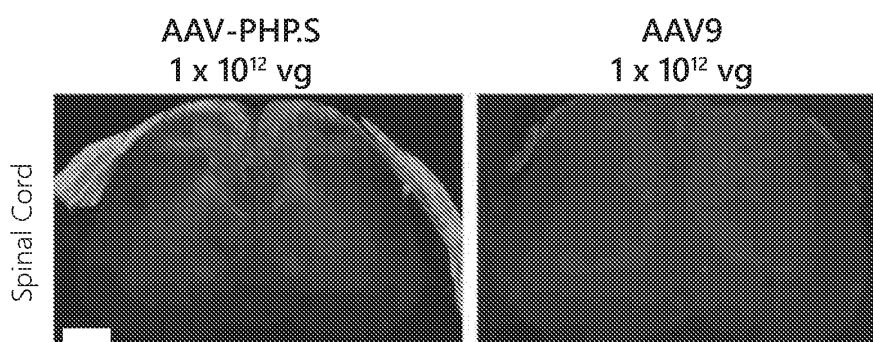


FIG. 23D

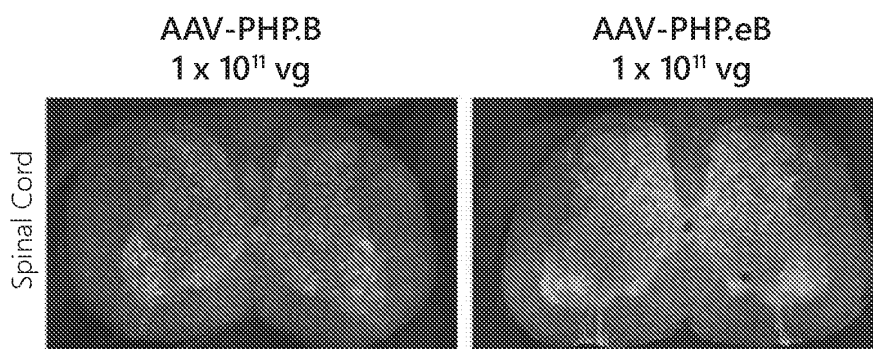


FIG. 23E

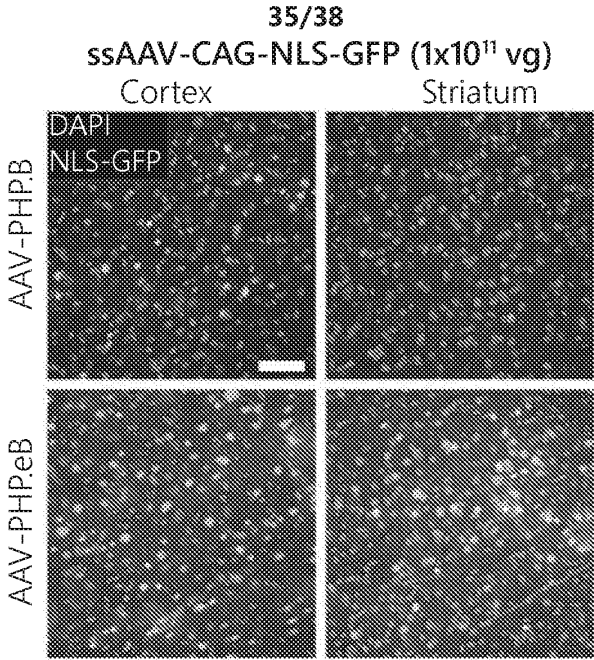


FIG. 24A

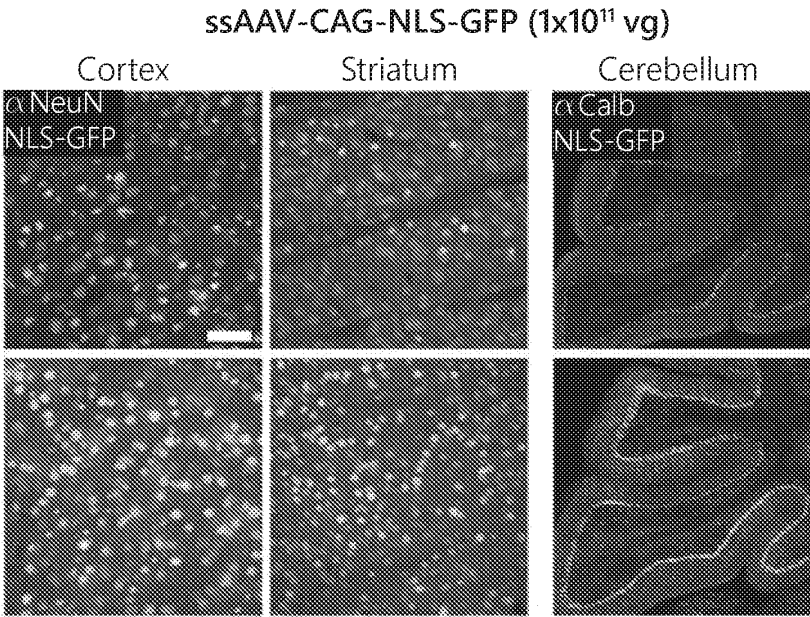


FIG. 24B

FIG. 24C

○ PHP.B ● PHP.eB

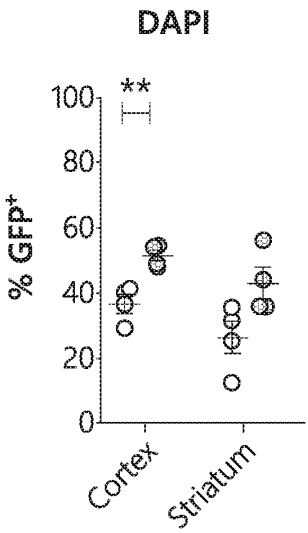


FIG. 24D

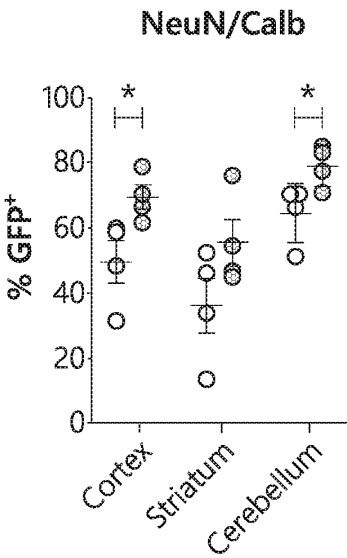


FIG. 24E

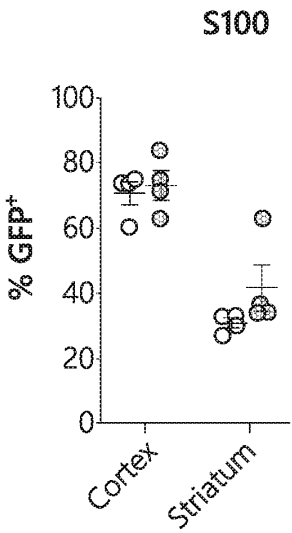


FIG. 24F

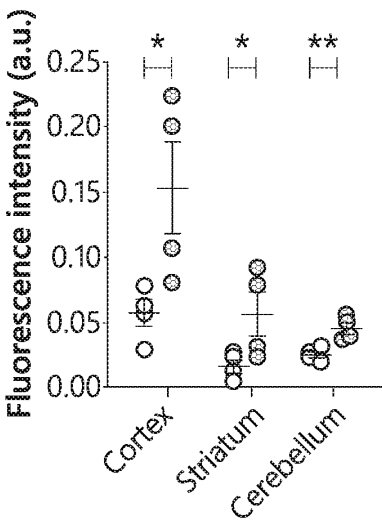


FIG. 24G

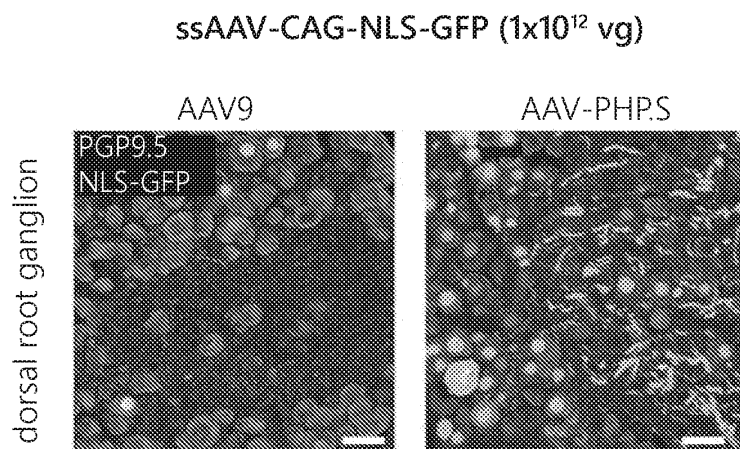


FIG. 25A

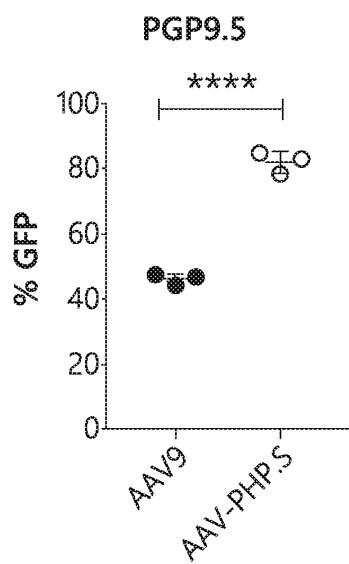


FIG. 25B

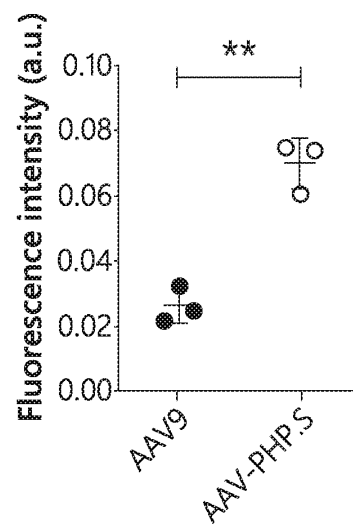


FIG. 25C

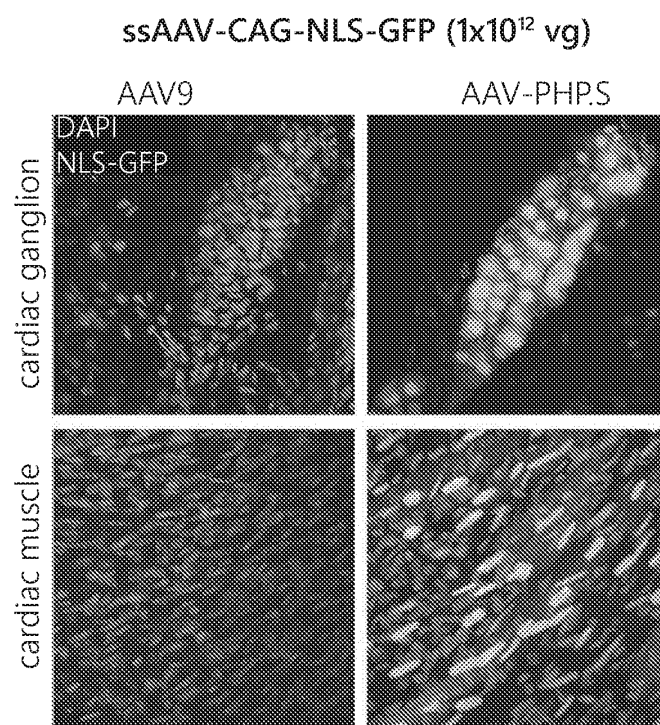


FIG. 25D