

FIG. 1

Vaccines	Advantages	Disadvantages
Viral vectored vaccines	Stimulation of innate immune response; induction of T and B cell immune response.	induction of anti-vector immunity; cell based manufacturing
DNA vaccines	Non-infectious; stimulation of innate immune response; egg and cell free; stable, rapid and scalable production; induction of T and B cell immune response.	Potential integration into human genome; poor immunogenicity in humans.
RNA vaccines	Non-infectious, non-integrating, natural degradation, egg and cell free, rapid and scalable production; stimulation of innate immune response; induction of T and B cell immune response.	Concerns with instability and low immunogenicity.

FIG. 2

- Whole exome or genome sequencing (WES or WGS) of tumor and matched normal DNA samples by Illumina short read sequencing platform.
- Quality control of sequencing reads.
- Alignment to the reference genome.
- Base quality recalibration and indel realignment.
- Comparison of normal and tumor alignments to call somatic mutations.
- Conversion of coding DNA somatic mutations to corresponding mutated peptide sequences.
- HLA-allele typing via optitype
- Assessment of HLA-allele and mutated epitope (9-11mer) affinity to call neoantigens.
- Expression analysis of putative neoantigens via RNAseq

FIG. 3

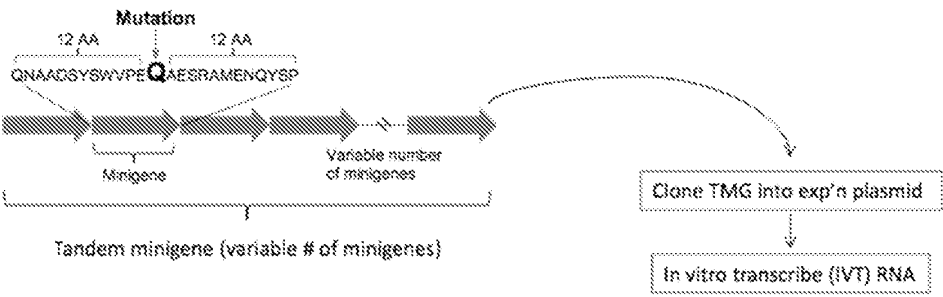


FIG. 4

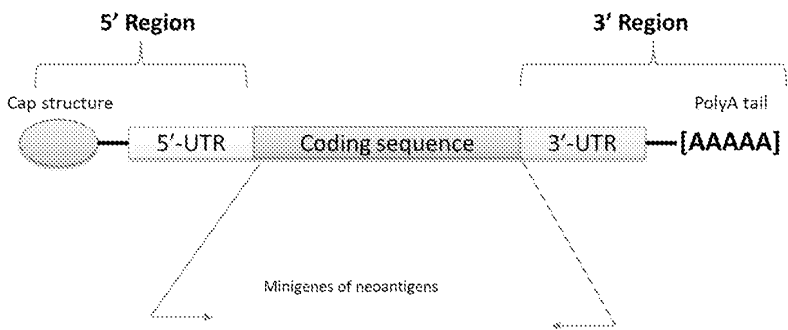


FIG. 5

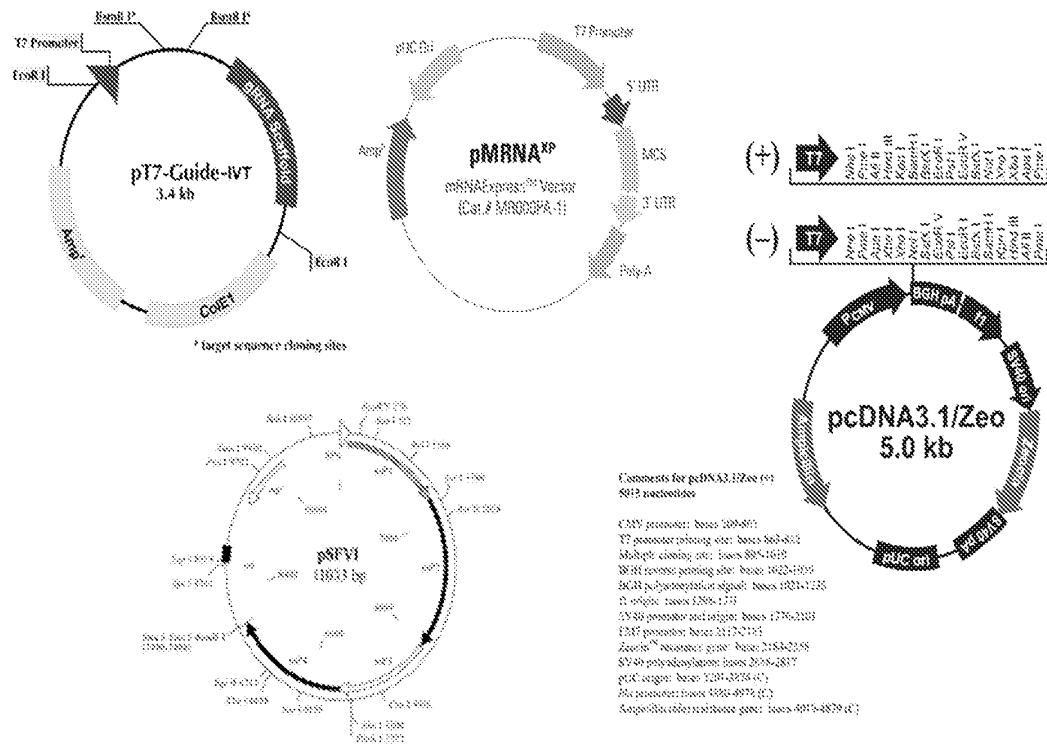


FIG. 6

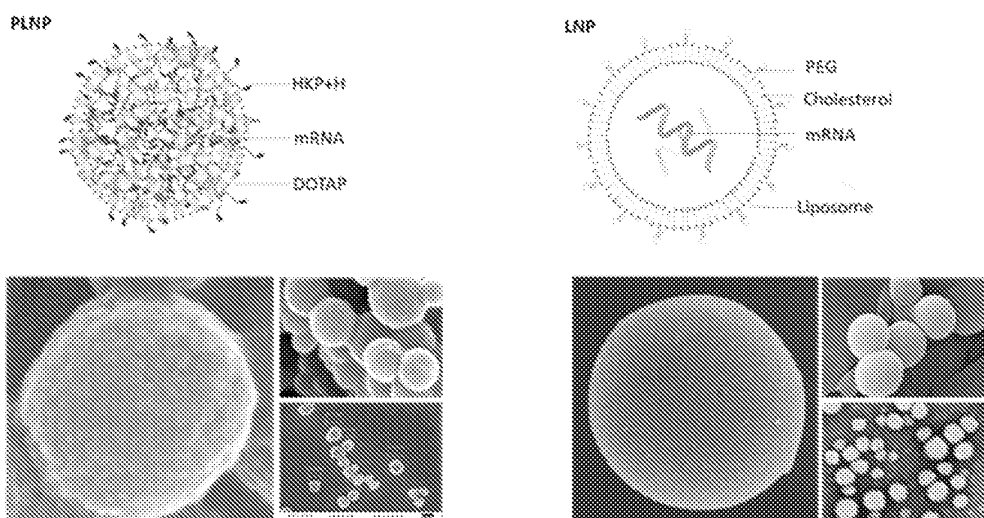


FIG. 7

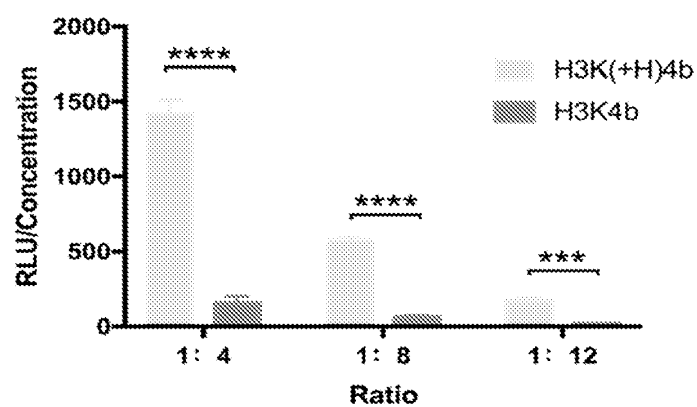


FIG. 8

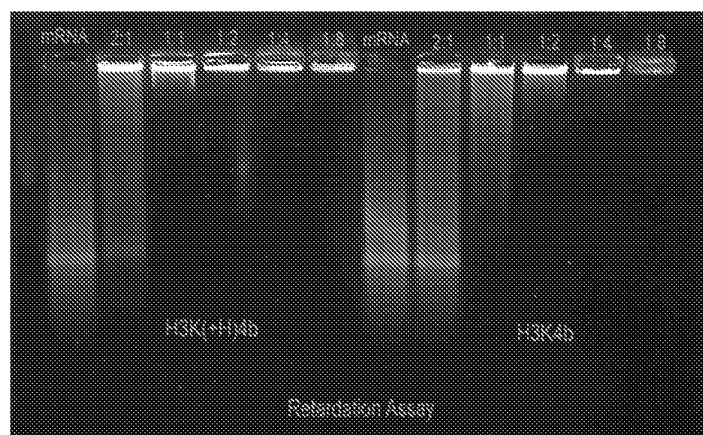


FIG. 9

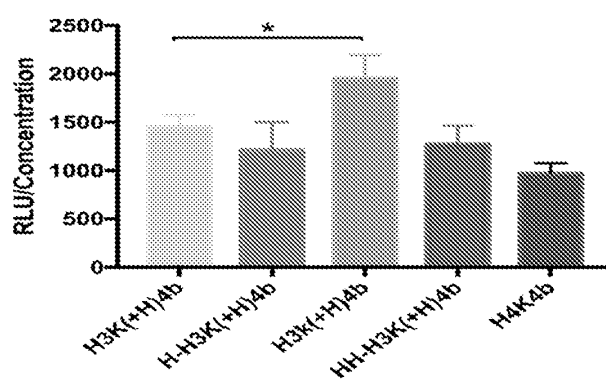


FIG. 10

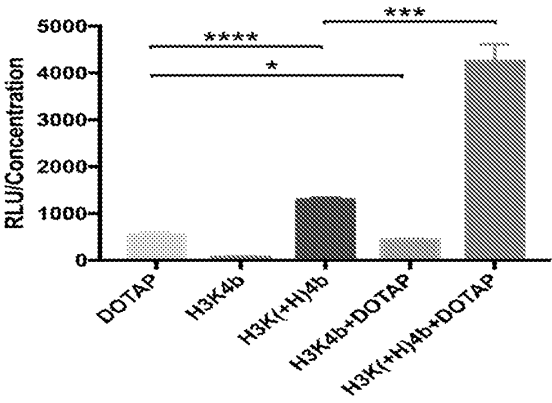


FIG. 11

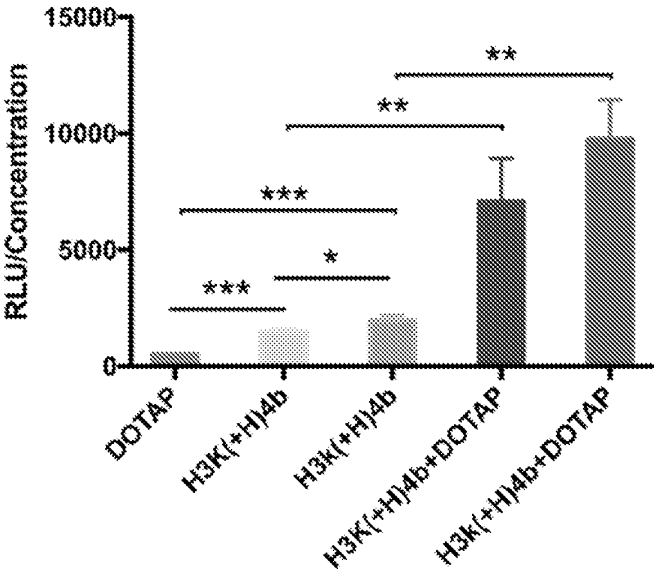


FIG. 12

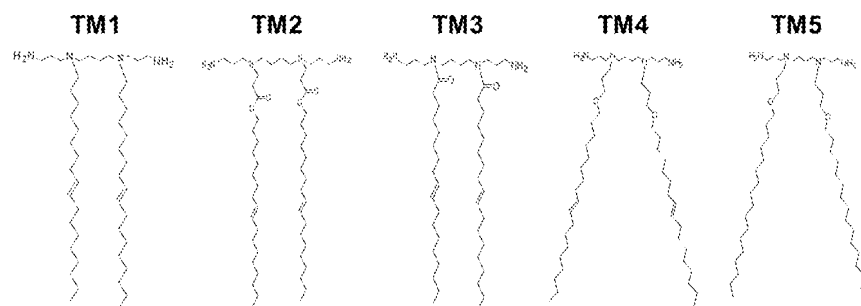


FIG. 13

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SEQ_ID_NO_104      MTEYKLVVVGGAGGVGKSALTIQLIQNHVFVDEYDPTIEDSYRKQVVIDGETCLLDILDTAG 60
SEQ_ID_NO_103      MTEYKLVVVGGAGGVGKSALTIQLIQNHVFVDEYDPTIEDSYRKQVVIDGETCLLDILDTAG 60
SEQ_ID_NO_101      MTEYKLVVVGGAGGVGKSALTIQLIQNHVFVDEYDPTIEDSYRKQVVIDGETCLLDILDTAG 60
SEQ_ID_NO_70       mteyklvvvgaddvgksaftliqlqnhvfdeydpptiedsyrkqvvidgetclldilddt 60
                    *****,.*****,*****.*****.*****.*****,.
SEQ_ID_NO_104      QEEYSAMRDQYNRTGEGFLCVFAINNTKSFEDIHQVREQIKRVKSDSDVPMVLVGNKCDL 120
SEQ_ID_NO_103      QEEYSAMRDQYNRTGEGFLCVFAINNTKSFADINLYREQIKRVKSDSDVPMVLVGNKCDL 120
SEQ_ID_NO_101      QEEYSAMRDQYNRTGEGFLCVFAINNTKSFEDIHHVREQIKRVKSDSDVPMVLVGNKCDL 120
SEQ_ID_NO_70       heeysamrdqymrtgegflcvfainntksfedihhyreqikrvkdsedvpmvlvgnncdl 120
                    ,*****.*****.*****.*** **, *****.*****.*****.***
SEQ_ID_NO_104      AARTVESRQAQDLARSYGIPYIETSAKTRQGVEDAFYTLVREIRQHKLRXLNPPDESQPG 180
SEQ_ID_NO_103      PTRTVDTKQAEHLAKSYGIPFIETSAKTRQGVEDAFYTLVREIRQYRMKKLNSSDGTQG 180
SEQ_ID_NO_101      PSRTVDTKQAQDLARSYGIPFIETSAKTRQGVEDAFYTLVREIRQYRLKKISKEE-KTPG 179
SEQ_ID_NO_70       psrtvdtkqaqdlarsygipfietsktkrqgvedafytlvleirgryrkkiskee-ktpg 179
                    ,***,;*,*,*,*****,***,*** *****.***.***.***
SEQ_ID_NO_104      CMSCK-CVLS      189
SEQ_ID_NO_103      CMGLP-CVVM      189
SEQ_ID_NO_101      CVKIKKCIIM      189
SEQ_ID_NO_70       cvkikkciim      189
                    *,; **,

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FIG. 14

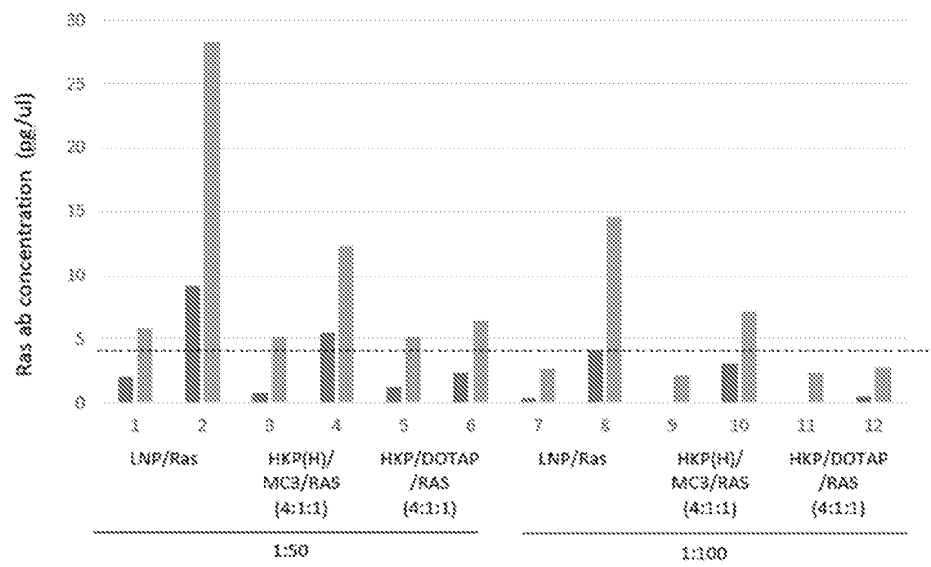


FIG. 15

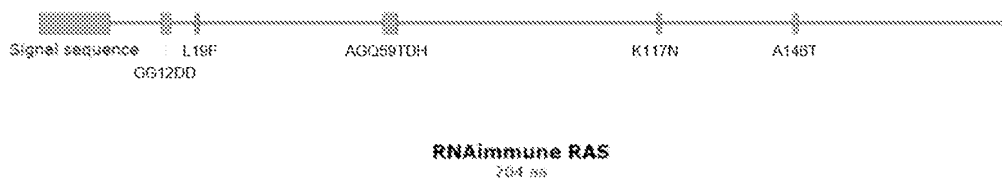


FIG. 16

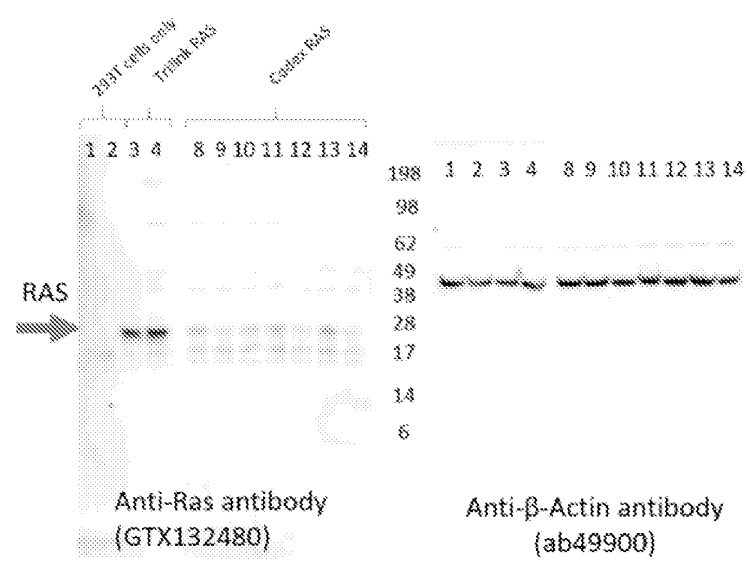
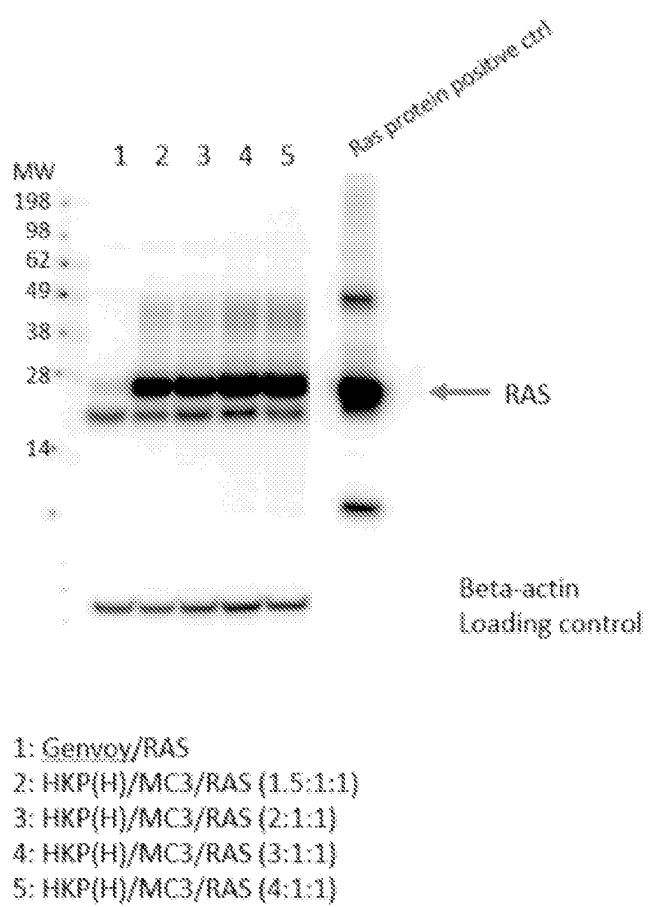
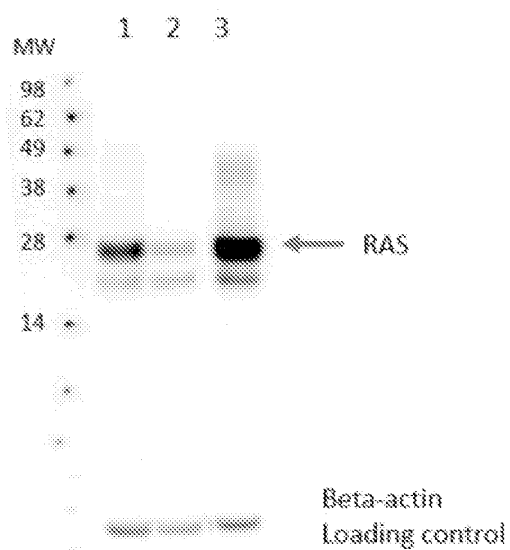


FIG. 17

**FIG. 18**



1. LNP/RAS, 1:2, 20mM citrate buffer
2. LNP/RAS, 1:3, 100mM citrate buffer
3. Positive control for Western blot

FIG. 19

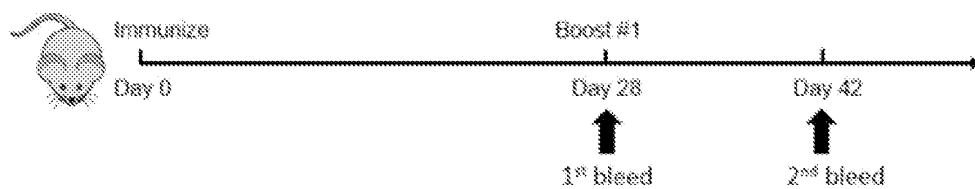


FIG. 20

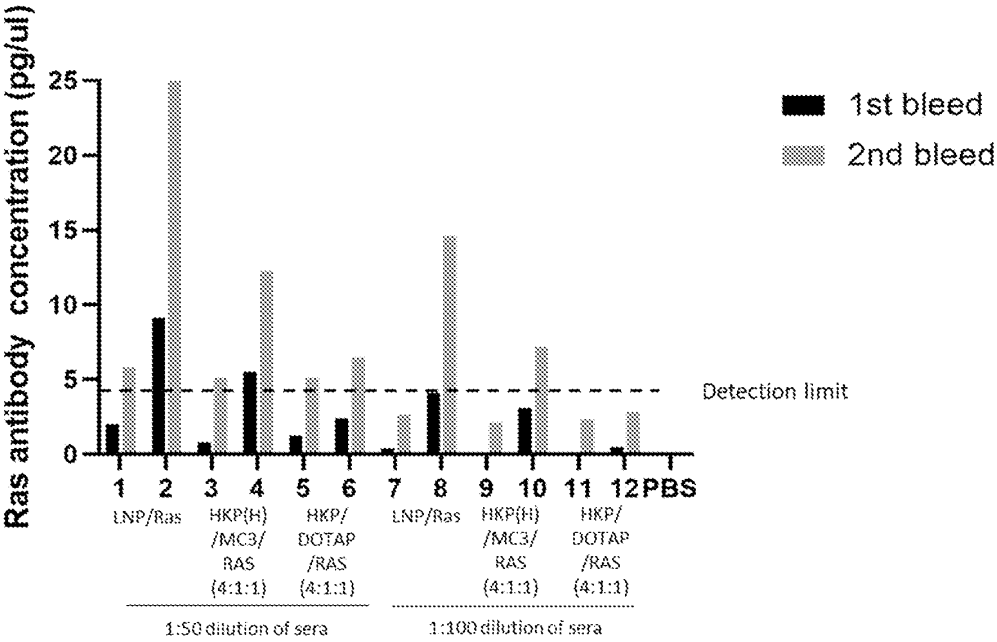


FIG. 21

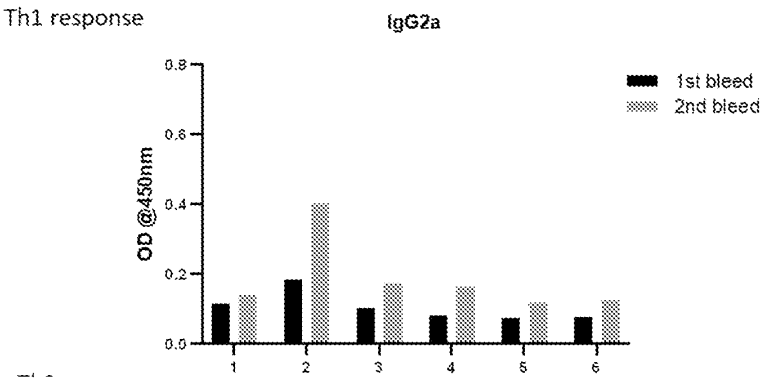


FIG. 22A

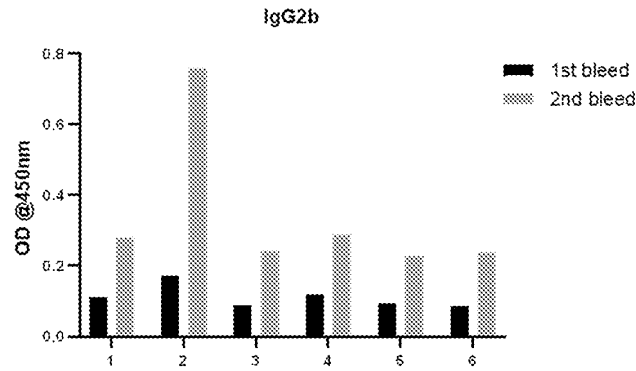


FIG. 22B

Th2 response

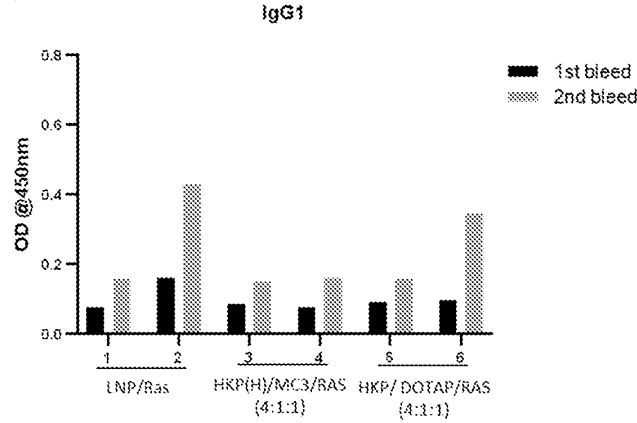


FIG. 22C

early response

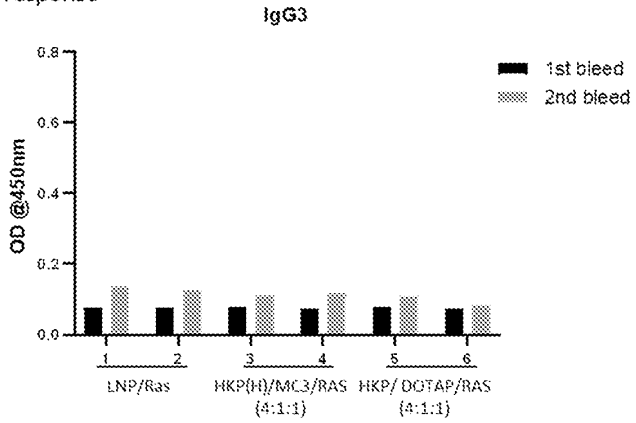


FIG. 22D

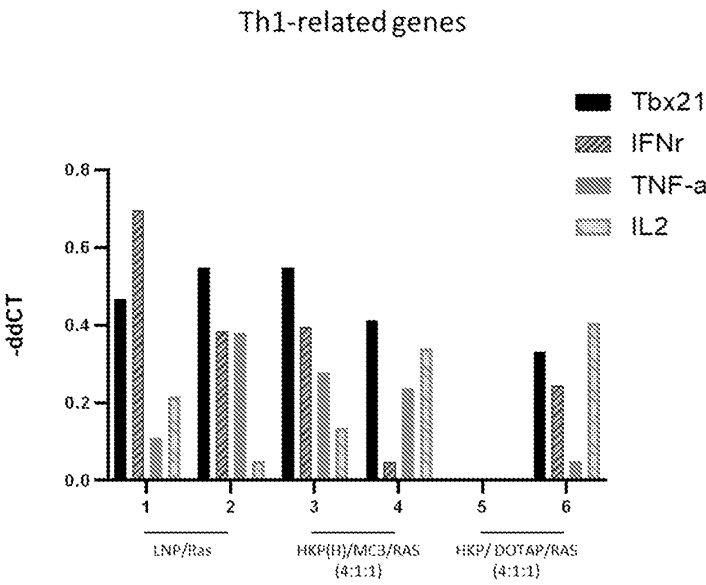


FIG. 23A

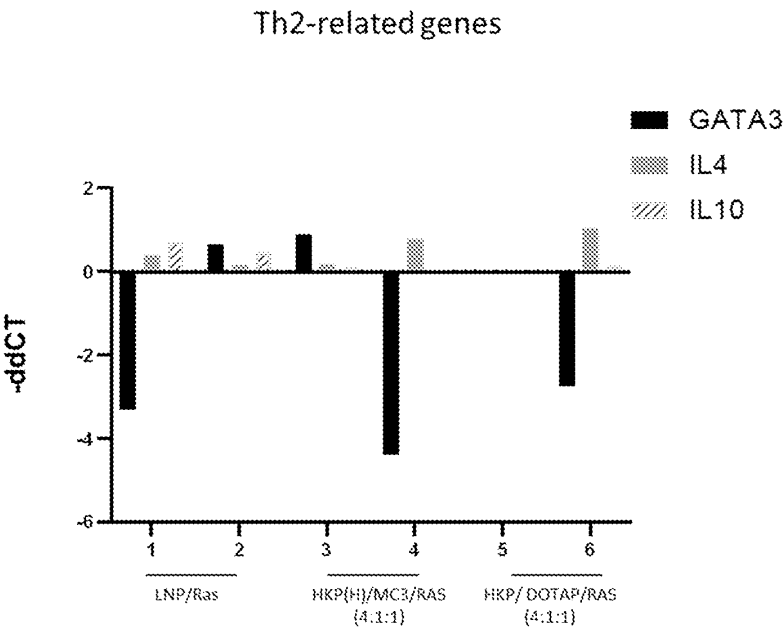
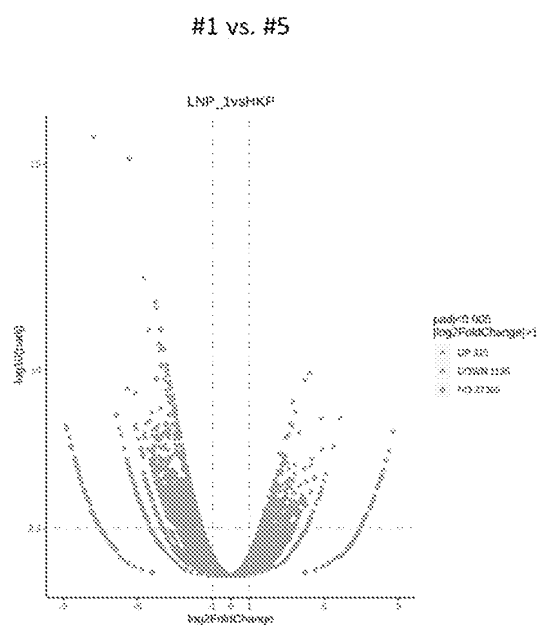


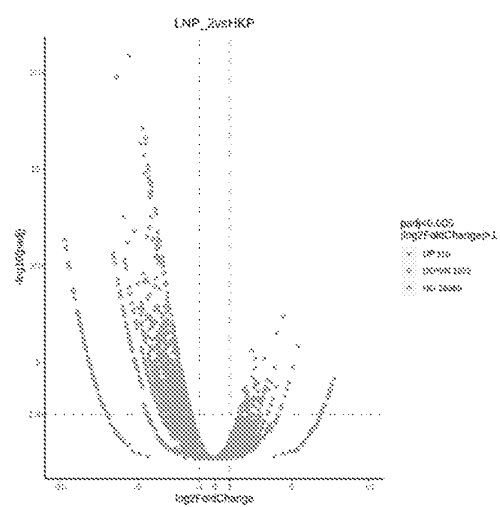
FIG. 23B



Up 315
Down 1136

FIG. 24A

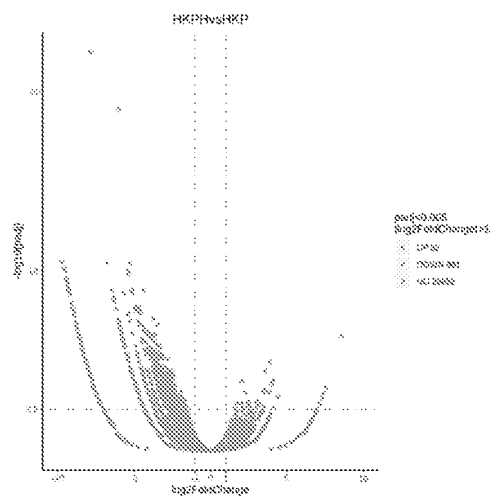
#2 vs. #5



Up 110
Down 1672

FIG. 24B

#3 vs. #5



Up 32
Down 961

FIG. 24C

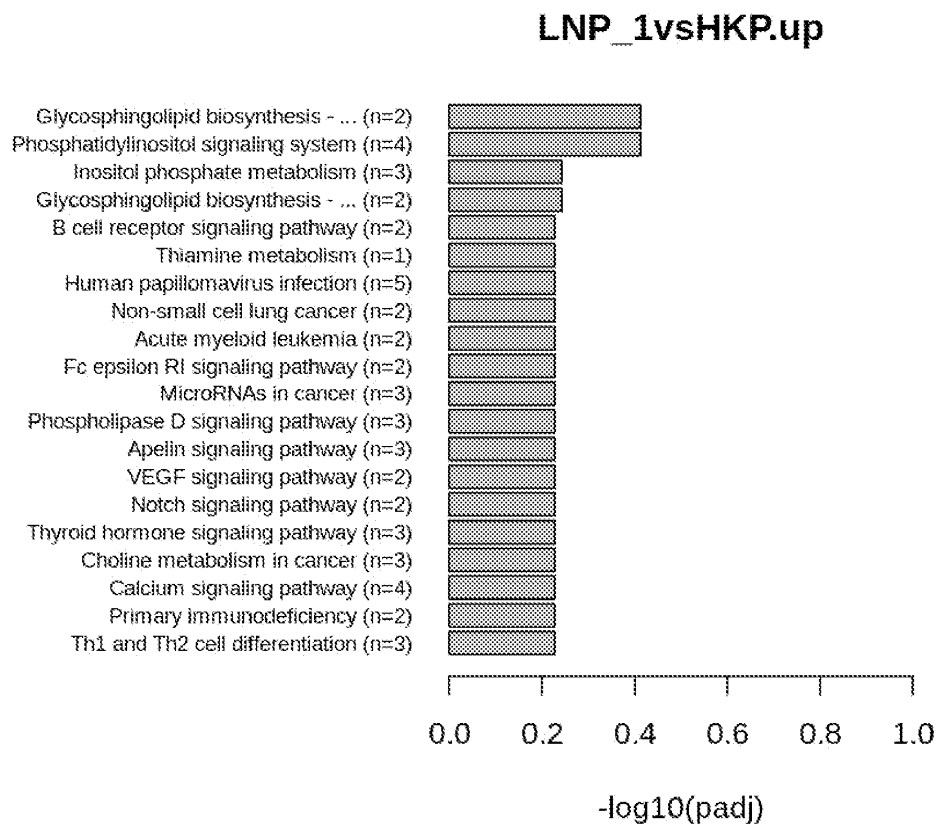


FIG. 25A

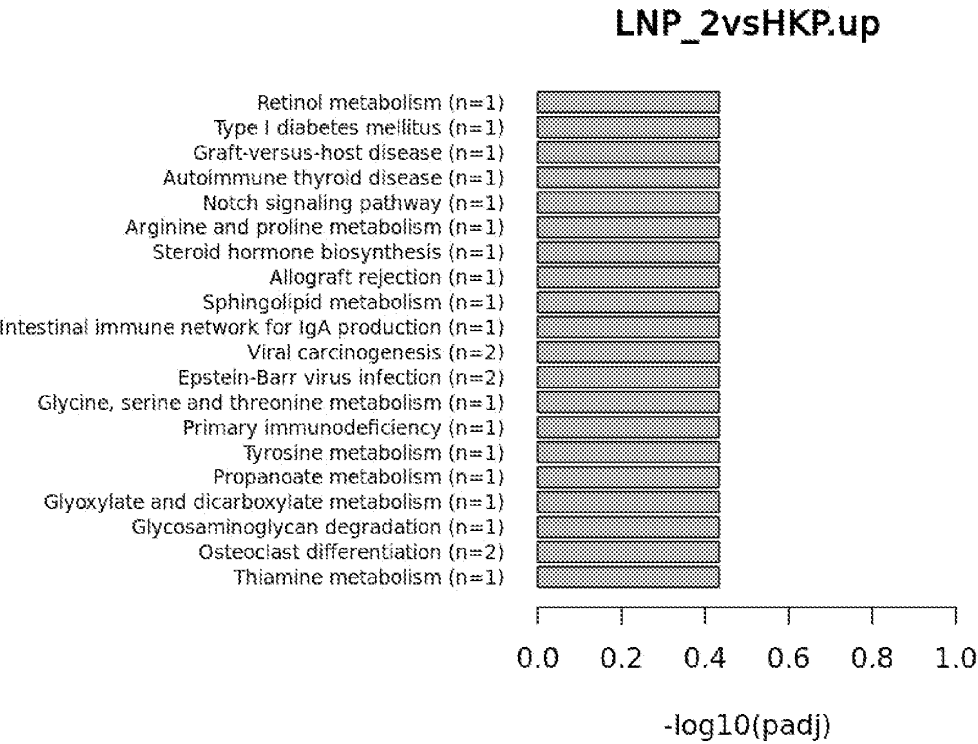


FIG. 25B

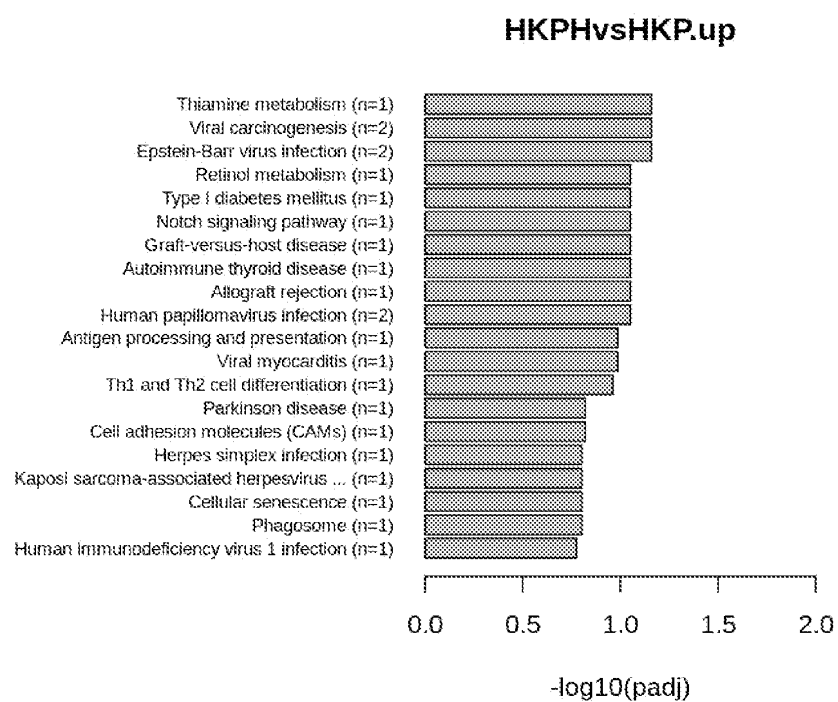
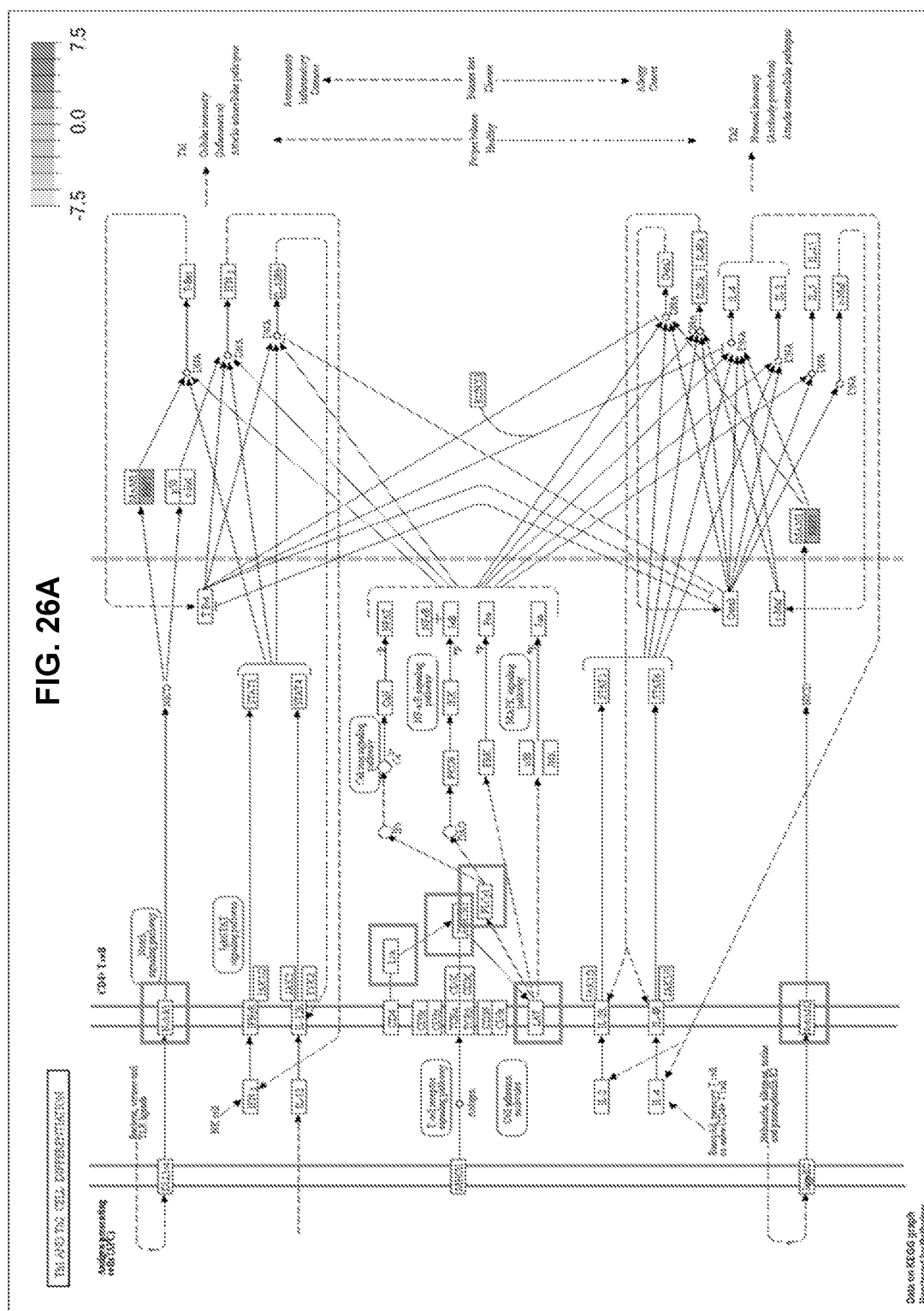
**FIG. 25C**

FIG. 26A



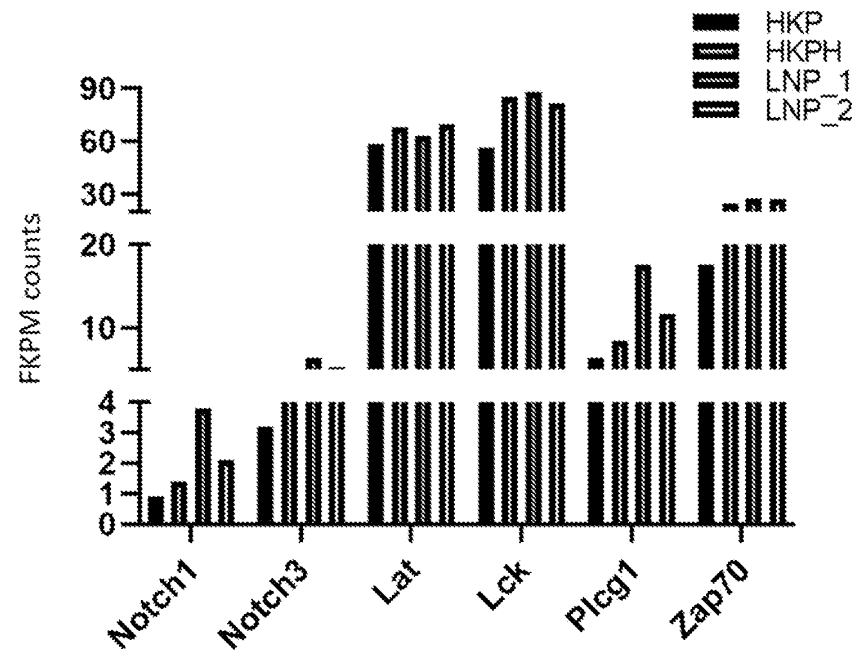


FIG. 26B

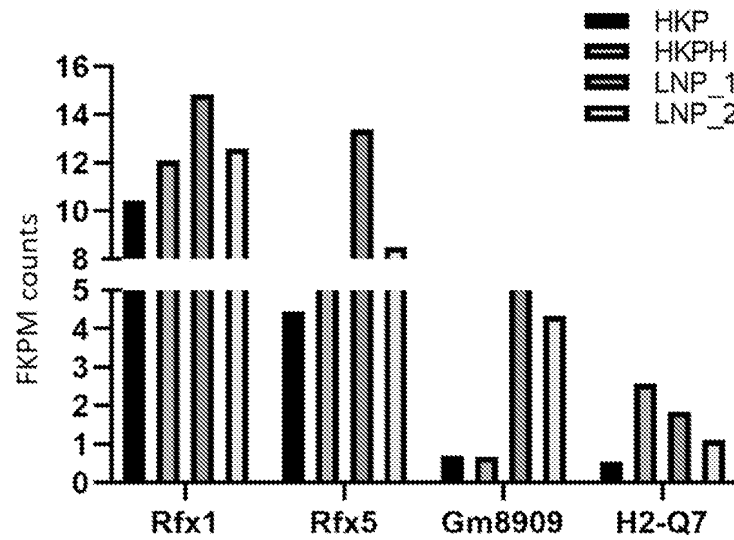
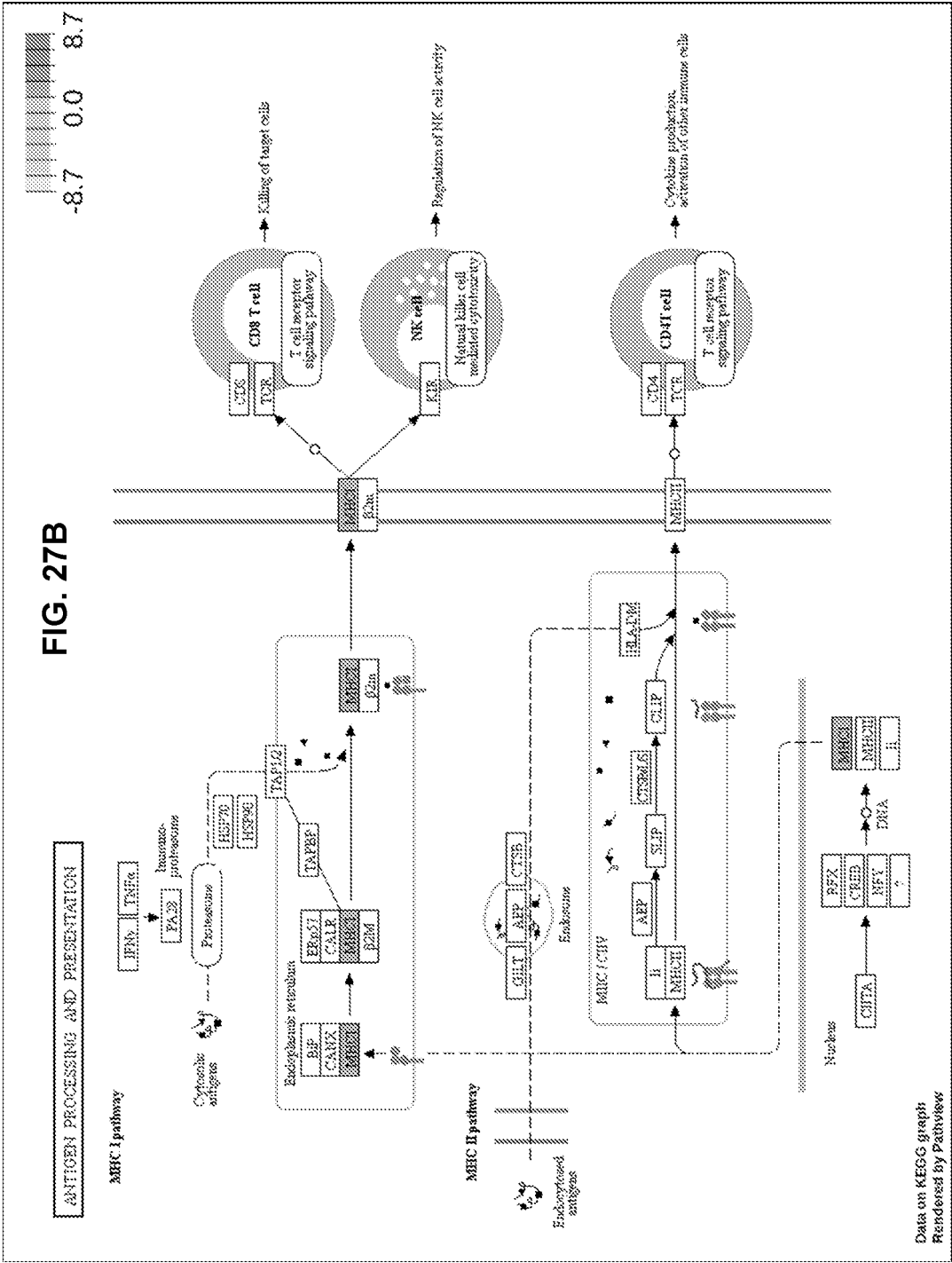


FIG. 27A



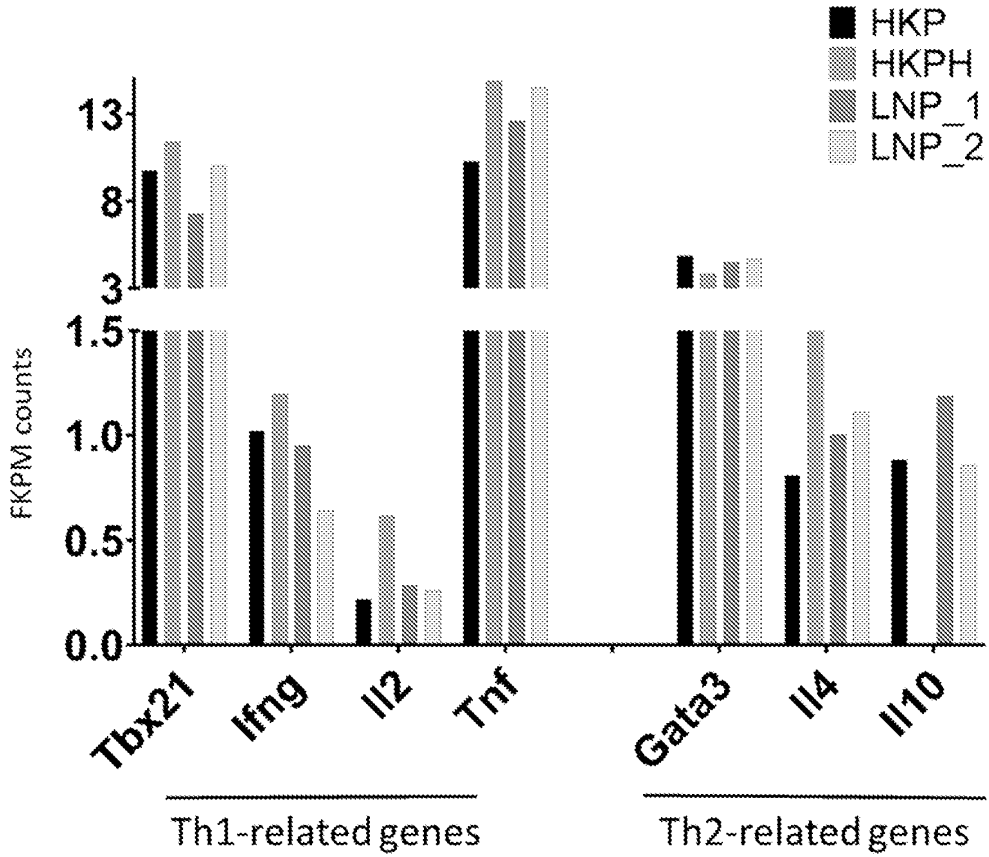


FIG. 28

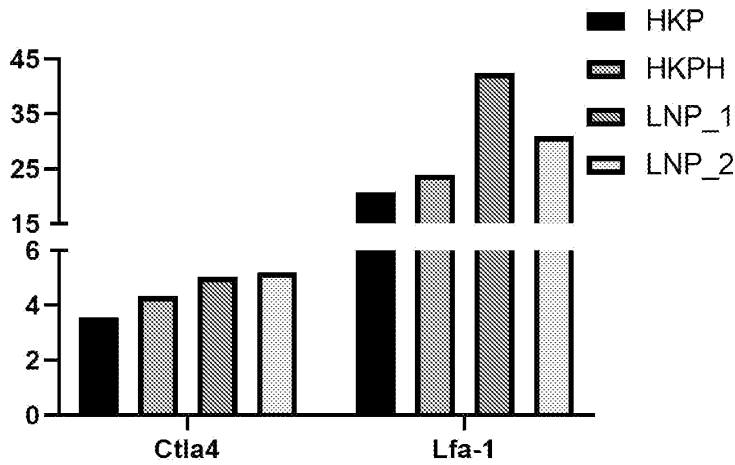


FIG. 29

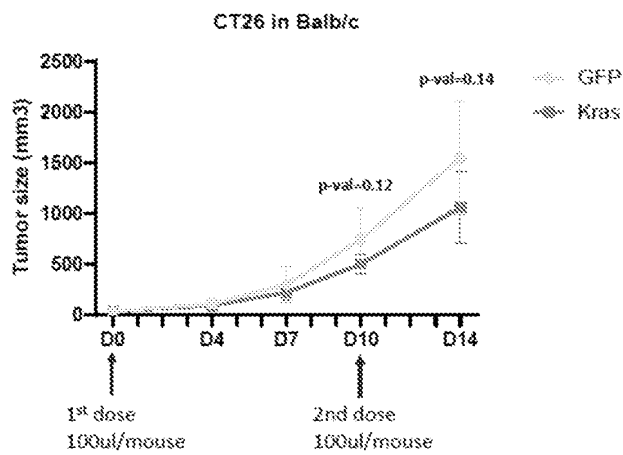


FIG. 30A

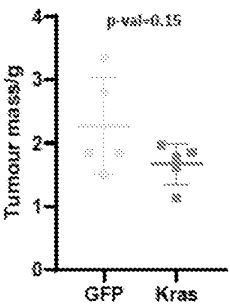


FIG. 30B

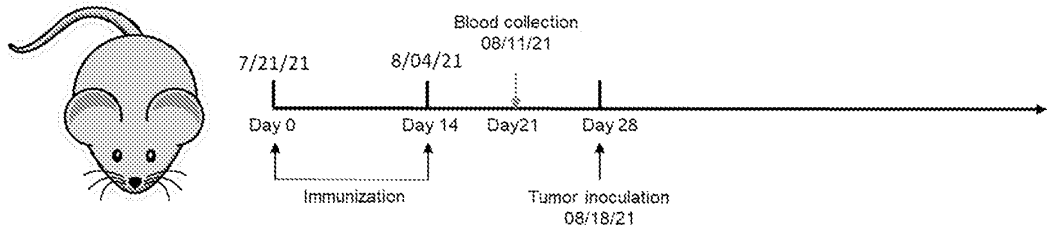


FIG. 31

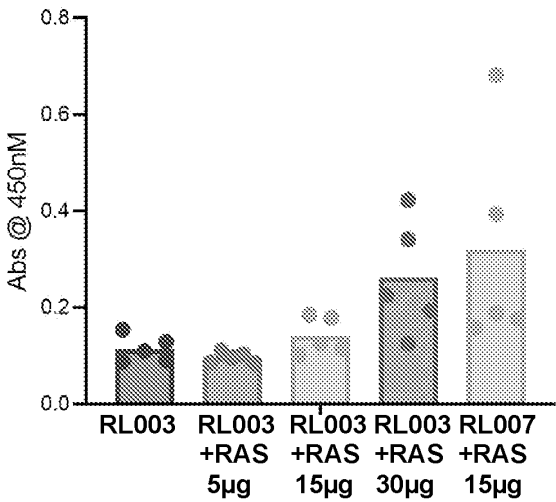


FIG. 32