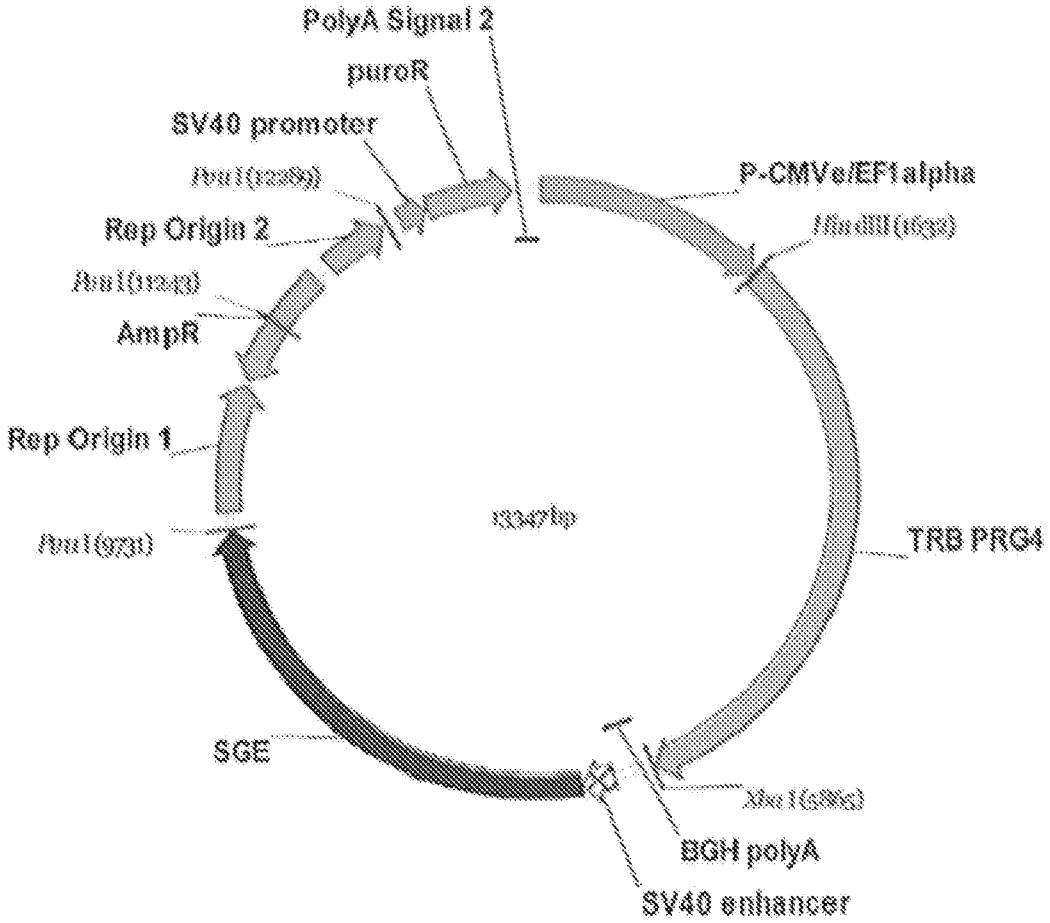

PolyA Signal 2
puroR
SV40 promoter
P-CMVe/EF1alpha
Rep Origin 2
AmpR
Rep Origin 1
TRB PRG4
SGE
BGH polyA
SV40 enhancer

FIG. 1

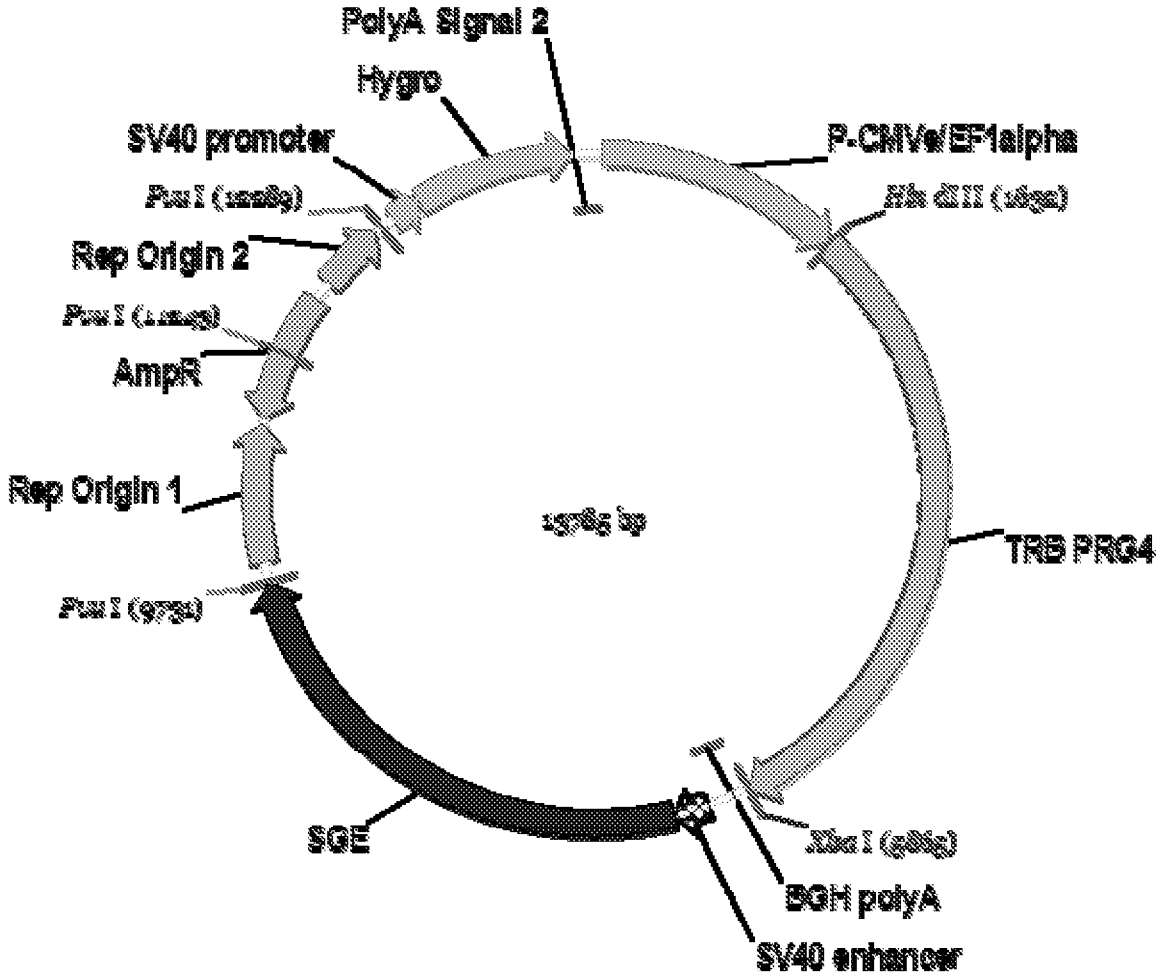

PolyA Signal 2
Hygro
SV40 promoter
P-CMVe/EF1alpha
Rep Origin 2
AmpR
Rep Origin 1
TRB PRG4
SGE
BGH polyA
SV40 enhancer

FIG. 2

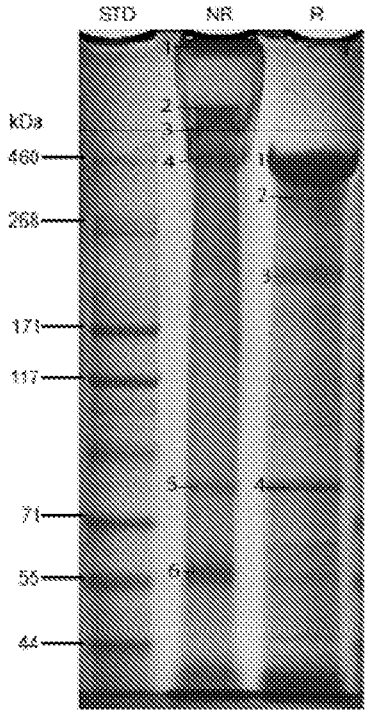


FIG. 3

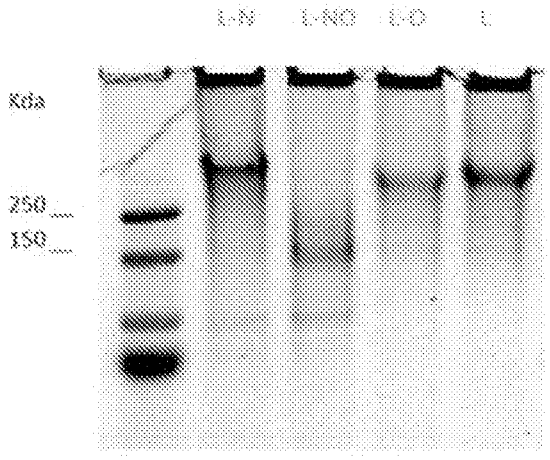
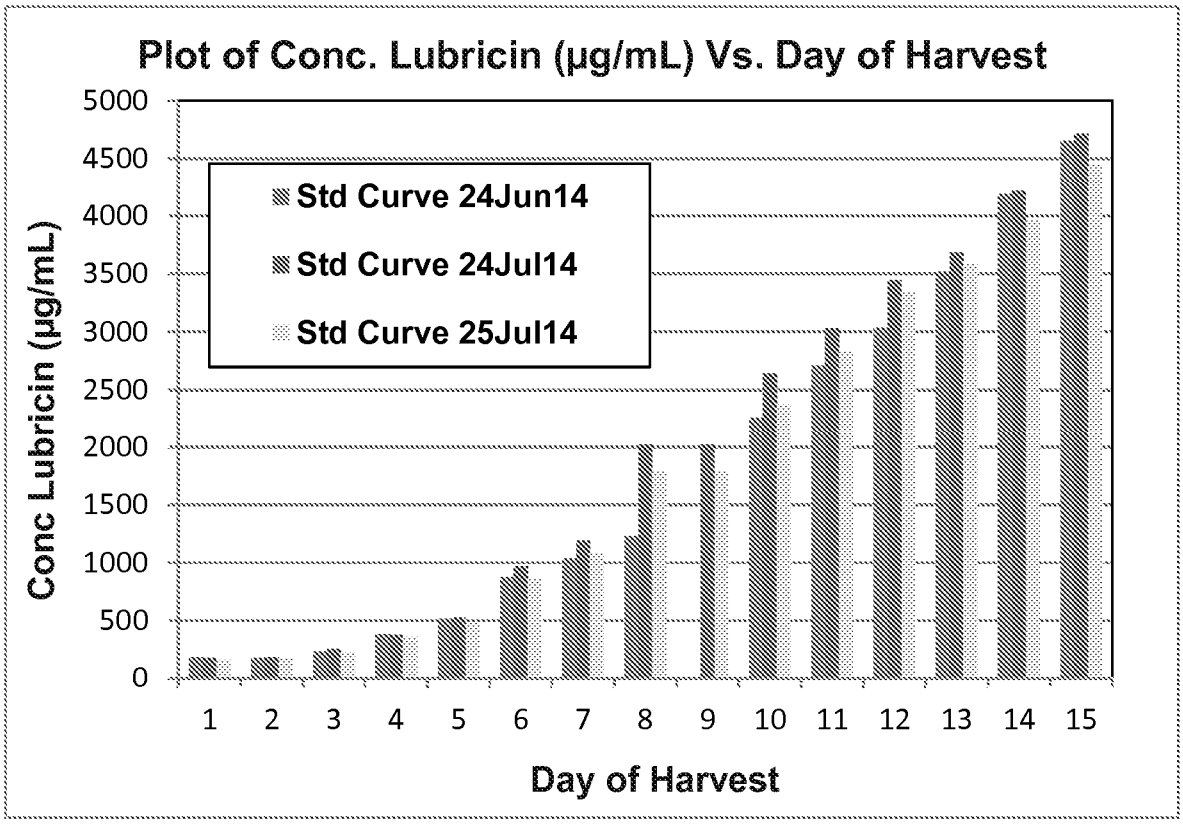


FIG. 4

FIG. 5


Plot of Conc. Lubricin (µg/mL) Vs. Day of Harvest
Conc Lubricin (µg/mL)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Std Curve 24Jun14
Std Curve 24Jul14
Std Curve 25Jul14
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Day of Harvest

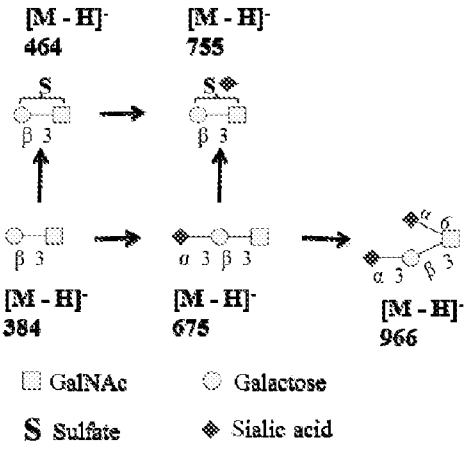


FIG. 6 - glycosylation (recombinant)

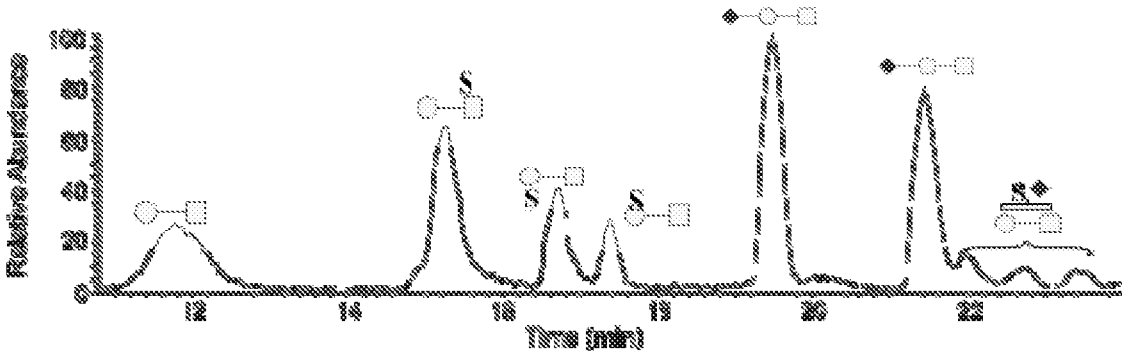


FIG. 7 - glycosylation (recombinant)

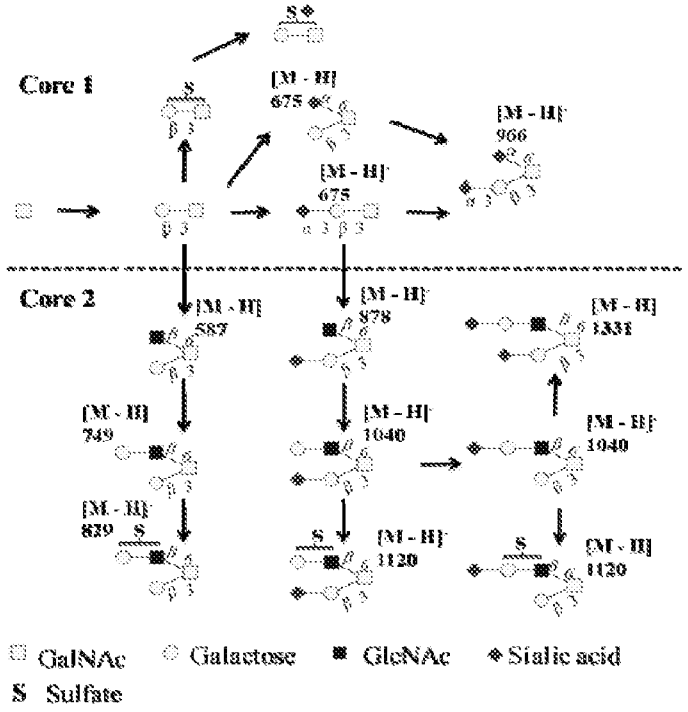


FIG. 8 - glycosylation (native)

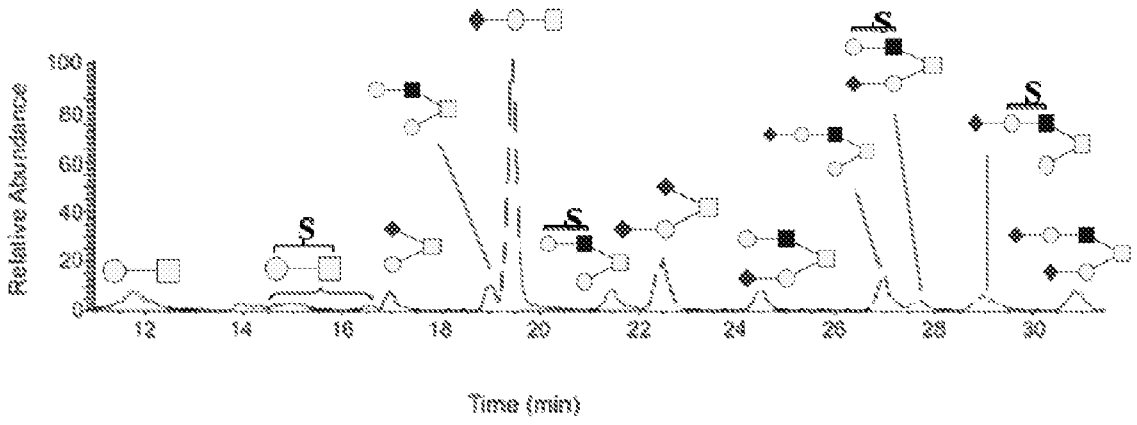


FIG. 9 - glycosylation (native)

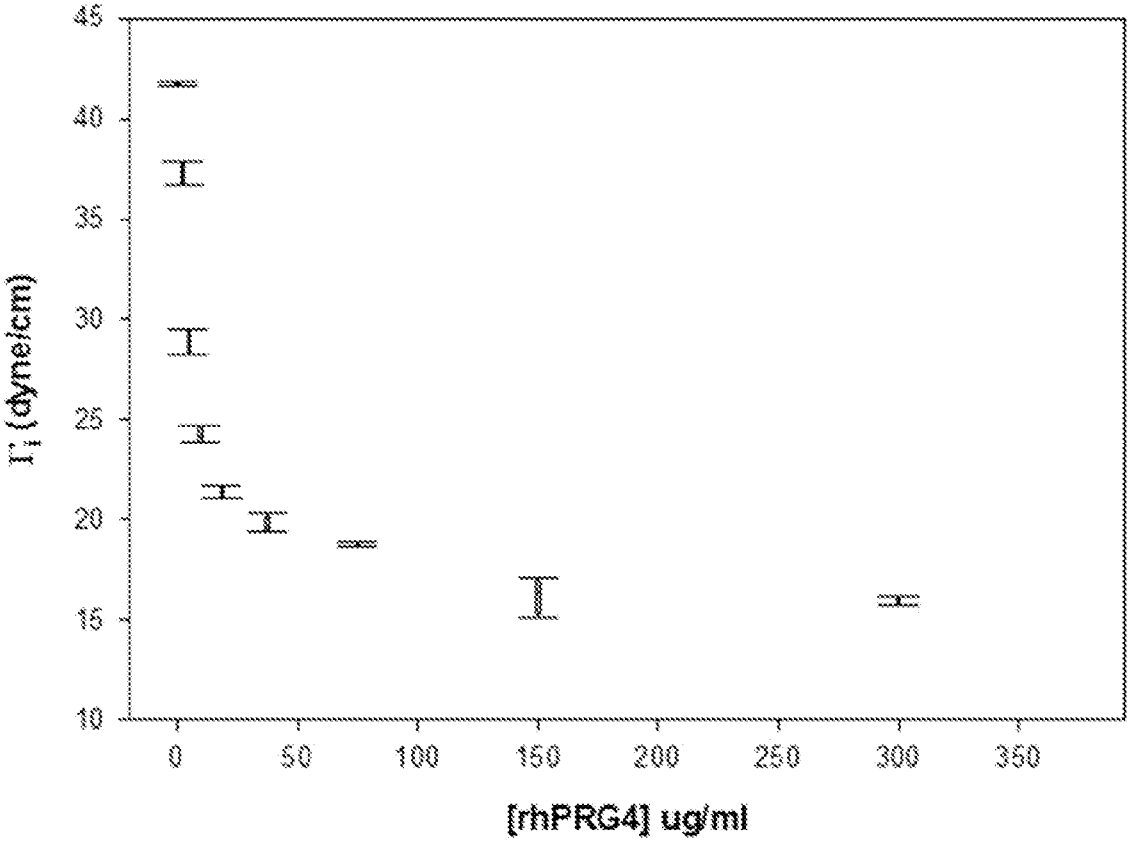


FIG. 10A rhPRG4 Surfactant Properties

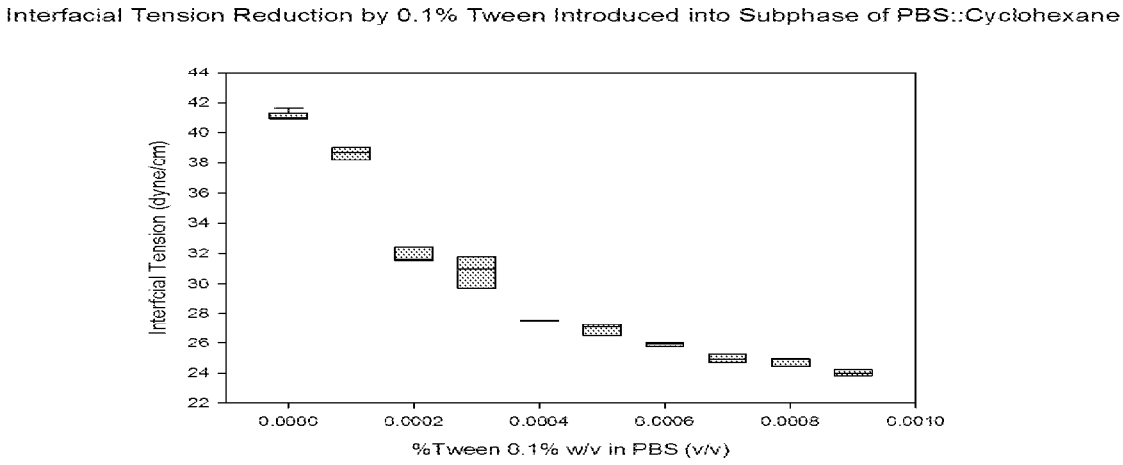

Interfacial Tension Reduction by 0.1% Tween Introduced into Subphase of PBS::Cyclohexane
Interfcial Tension (dyne/cm)
44
42
40
38
36
34
32
30
28
26
24
22
0.0000
0.0002
0.0004
0.0006
0.0008
0.0010
%Tween 0.1% w/v in PBS (v/v)

FIG. 10B

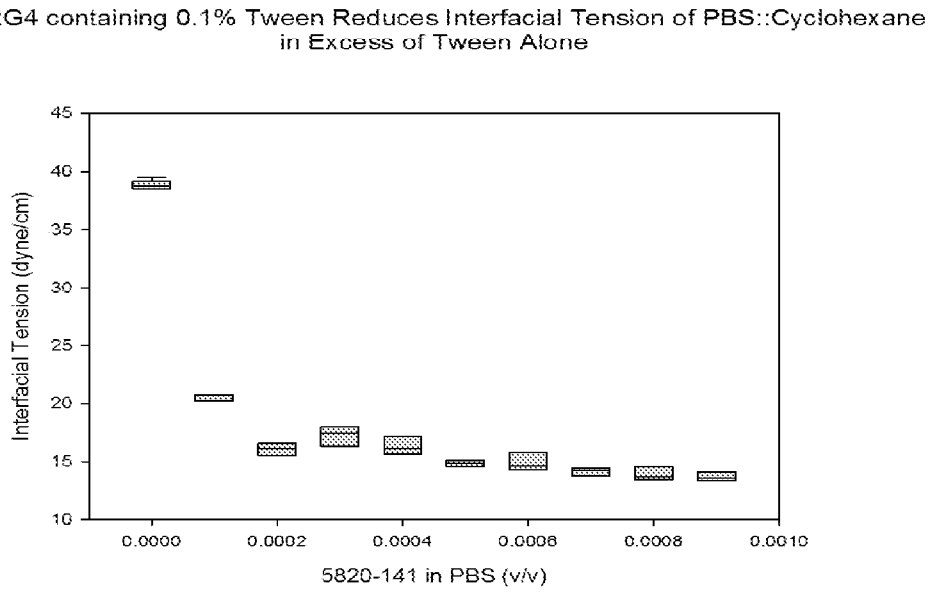
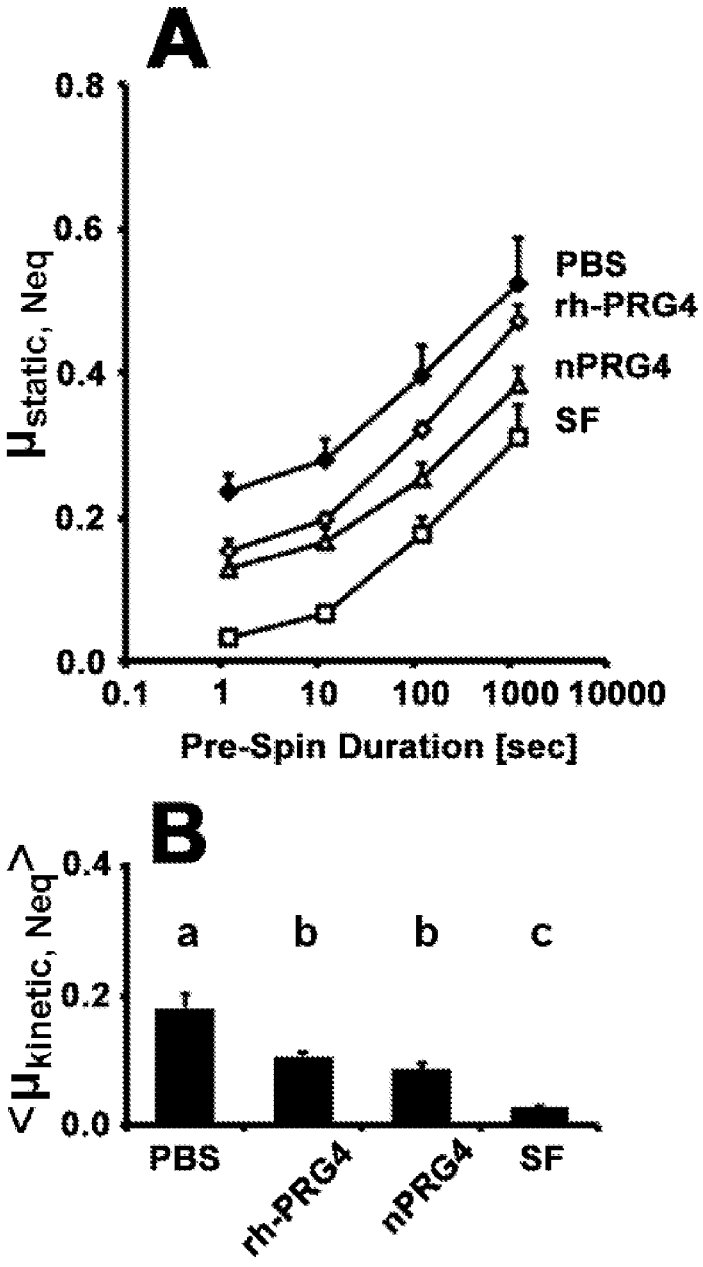
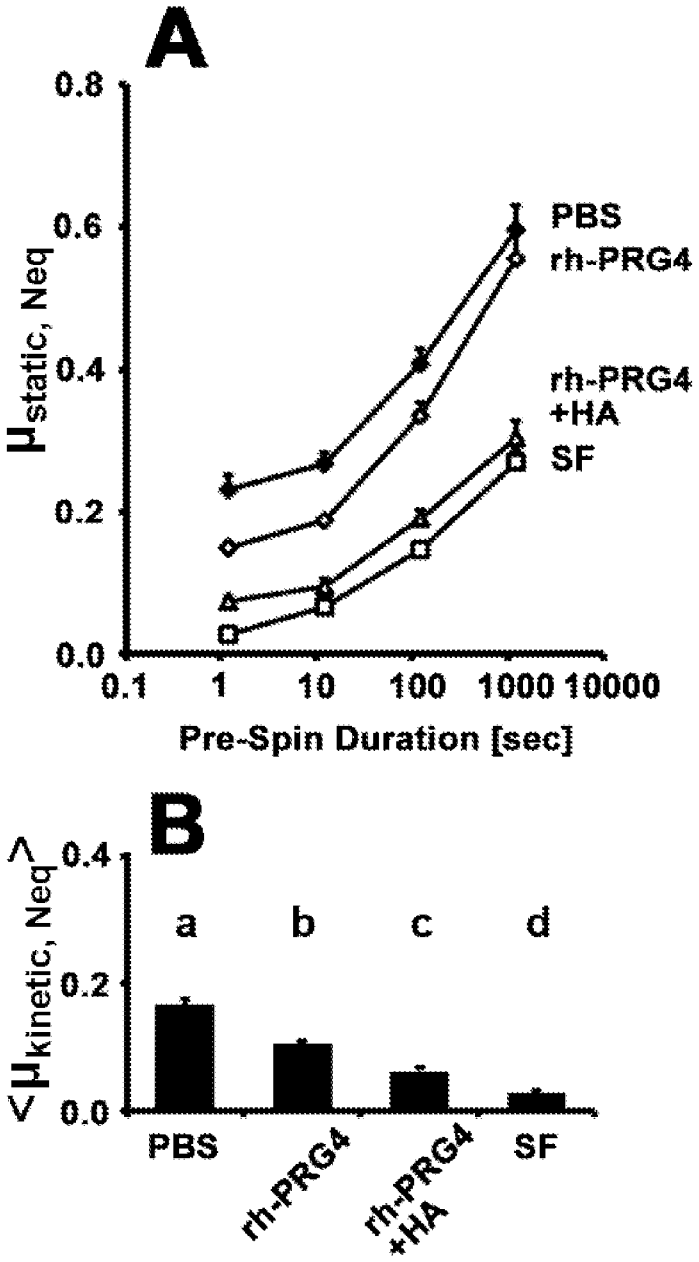

rhPRG4 containing 0.1% Tween Reduces Interfacial Tension of PBS::Cyclohexane in Excess of Tween Alone
Interfacial Tension (dyne/cm)
45
40
35
30
25
20
15
10
0.0000
0.0002
0.0004
0.0006
0.0008
0.0010
5820-141 in PBS (v/v)

FIG. 10C



FIGS. 11A-B. Recombinant vs. Native PRG4



FIGS. 12A-B. rhPRG4 + HA vs. rhPRG4 alone

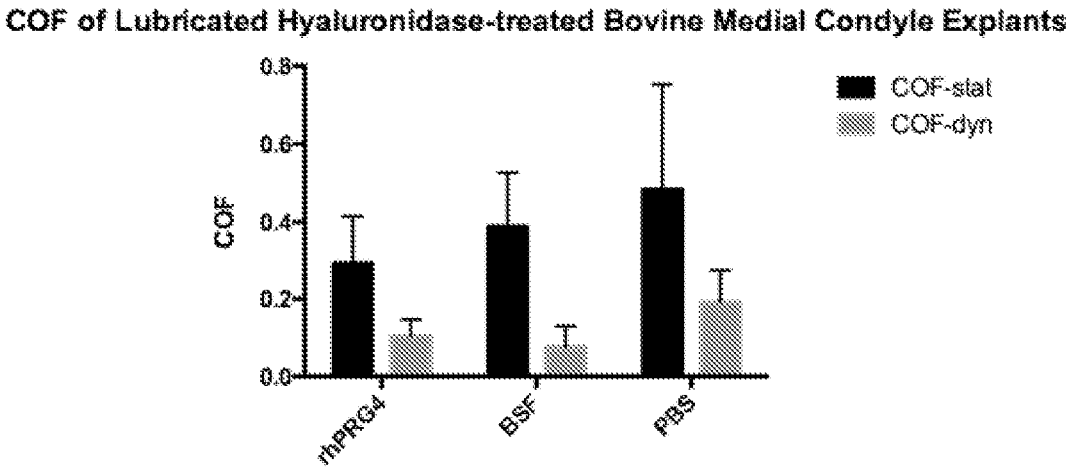
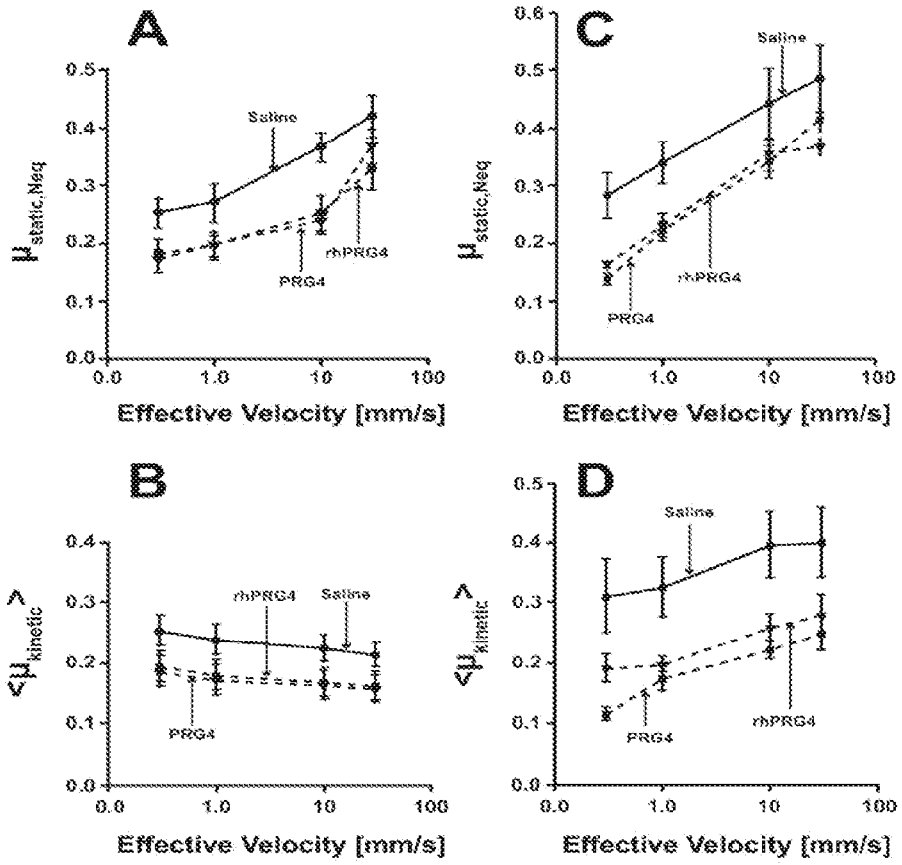

COF of Lubricated Hyaluronidase-treated Bovine Medial Condyle Explants
COF
0.8
0.6
0.4
0.2
0.0
rhPRG4
BSF
PBS
COF-stat
COF-dyn

FIG. 13



FIGS. 14A-D - Ocular Surface Lubrication

FIG. 15

SEQ ID NO: 1, LENGTH: 1404, ORGANISM: Homo sapiens, UniProt Accession No. Q92954:

MAWKTLPIYL LLLLSVFVIQ QVSSQDLSSC AGRCGEGYSR DATCNCDYNC QHYMECCPDF
KRVCTAELSC KGRCFESFER GRECDCDAQC KKYDKCCPDY ESFCAEVHNP TSPPSSKKAP
PPSGASQTIK STTKRSPKPP NKKKTKKVIE SEEITEEHSV SENQESSSSS SSSSSSSTIR
KIKSSKNSAA NRELQKKLKV KDNKKNRTKK KPTPKPPVVD EAGSGLDNGD FKVTTPDTST
TQHNKVSTSP KITTAKPINP RPSLPPNSDT SKETSLTVNK ETTVETKETT TTNKQTSTDG
KEKTTSAKET QSIEKTSAKD LAPTSKVLAK PTPKAETTTK GPALTTPKEP TPTTPKEPAS
TTPKEPTPTT IKSAPTTPKE PAPTTTKSAP TTPKEPAPTT TKEPAPTTPK EPAPTTTKEP
APTTTKSAPT TPKEPAPTTP KKPAPTTPKE PAPTTPKEPT PTTPKEPAPT TKEPAPTTPK
EPAPTAPKKP APTTPKEPAP TTPKEPAPTT TKEPSPTTPK EPAPTTTKSA PTTTKEPAPT
TTKSAPTTPK EPSPTTTKEP APTTPKEPAP TTPKKPAPTT PKEPAPTTPK EPAPTTTKKP
APTTPKEPAP TTPKETAPTT PKKLTPTTPE KLAPTTPEKP APTTPEELAP TTPEEPTPTT
PEEPAPTTPK AAAPNTPKEP APTTPKEPAP TTPKEPAPTT PKETAPTTPK GTAPTTLKEP
APTTPKKPAP KELAPTTTKE PTSTTCDKPA PTTPKGTAPT TPKEPAPTTP KEPAPTTPKG
TAPTTLKEPA PTTPKKPAPK ELAPTTTKGP TSTTSDKPAP TTPKETAPTT PKEPAPTTPK
KPAPTTPETP PPTTSEVSTP TTTKEPTTIH KSPDESTPEL SAEPTPKALE NSPKEPGVPT
TKTPAATKPE MTTTAKDKTT ERDLRTTPET TTAAPKMTKE TATTTEKTTE SKITATTTQV
TSTTTQDTTP FKITTLKTTT LAPKVTTTKK TITTTEIMNK PEETAKPKDR ATNSKATTPK
PQKPTKAPKK PTSTKKPKTM PRVRKPKTTP TPRKMTSTMP ELNPTSRIAE AMLQTTTRPN
QTPNSKLVEV NPKSEDAGGA EGETPHMLLR PHVFMPEVTP DMDYLPRVPN QGIIINPMLS
DETNICNGKP VDGLTTLRNG TLVAFRGHYF WMLSPFSPPS PARRITEVWG IPSPIDTVFT
RCNCEGKTFF FKDSQYWRFT NDIKDAGYPK PIFKGFGGLT GQIVAALSTA KYKNWPESVY
FFKRGGSIQQ YIYKQEPVQK CPGRRPALNY PVYGETTQVR RRRFERAIGP SQTHTIRIQY
SPARLAYQDK GVLHNEVKVS ILWRGLPNVV TSAISLPNIR KPDGYDYYAF SKDQYYNIDV
PSRTARAITT RSGQTLSKVW YNCP

FIG. 16

SEQ ID NO: 2 LENGTH: 5041, TYPE: DNA, ORGANISM: Homo sapiens, GenBank Accession No. U70136.1:

GCGGCCGCGACTATTCGGTACCTGAAAACAACGATGGCATGGAAAACACTTCCCATTTACCT
GTTGTTGCTGCTGTCTGTTTTCGTGATTCAGCAAGTTTCATCTCAAGATTTATCAAGCTGTG
CAGGGAGATGTGGGGAAGGGTATTCTAGAGATGCCACCTGCAACTGTGATTATAACTGTCAA
CACTACATGGAGTGCTGCCCTGATTTCAAGAGAGTCTGCACTGCGGAGCTTTCCTGTAAAGG
CCGCTGCTTTGAGTCCTTCGAGAGAGGGAGGGAGTGTGACTGCGACGCCCAATGTAAGAAGT
ATGACAAGTGCTGTCCCGATTATGAGAGTTTCTGTGCAGAAGTGCATAATCCCACATCACCA
CCATCTTCAAAGAAAGCACCTCCACCTTCAGGAGCATCTCAAACCATCAAATCAACAACCAA
ACGTTCACCCAAACCACCAAACAAGAAGAAGACTAAGAAAGTTATAGAATCAGAGGAAATAA
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ACGTCTACCACCCAACACAATAAAGTCAGCACATCTCCCAAGATCACAACAGCAAAACCAAT
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ATAAAGAGACAACAGTTGAAACTAAAGAAACTACTACAACAAATAAACAGACTTCAACTGAT
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GCCCTGCTCTCACCACTCCCAAGGAGCCCACGCCCACCACTCCCAAGGAGCCTGCATCTACC
ACACCCAAAGAGCCCACACCTACCACCATCAAGTCTGCACCCACCACCCCCAAGGAGCCTGC
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CCAAGTCTGCACCCACCACTACCAAGGAGCCTGCACCCACCACTACCAAGTCTGCACCCACC
ACTCCCAAGGAGCCTTCACCCACCACCACCAAGGAGCCTGCACCCACCACTCCCAAGGAGCC
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CCAACTACCCCCAAGGAGACTGCACCCACCACCCCCAAGAAGCTCACGCCCACCACCCCCGA
GAAGCTCGCACCCACCACCCCTGAGAAGCCCGCACCCACCACCCCTGAGGAGCTCGCACCCA
CCACCCCTGAGGAGCCCACACCCACCACCCCTGAGGAGCCTGCTCCCACCACTCCCAAGGCA
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GCACCCACCACCACCAAGGAGCCCACATCCACCACCTCTGACAAGCCCGCTCCAACTACCCC
TAAGGGGACTGCTCCAACTACCCCTAAGGAGCCTGCTCCAACTACCCCTAAGGAGCCTGCTC
CAACTACCCCTAAGGGGACTGCTCCAACTACCCTCAAGGAACCTGCACCCACTACTCCCAAG
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TTAAAAAAAAAAAAAAAAA