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PAAP Protein**Primary Amino Acid Sequence:**

MSPSGVRNVIIIGDGMGFSQLQLTKLVYGHLMEDFPYTGIELTDSLSEVET
DSAAAGTAIATGVKTYNRMISTTNVTGKLVNLTTLLEIAQMLGKATGLVTTTRI
THATPAVFASHVPDRDMEEIARQLILHNVTVLMGGGREKFSEEVKLAEY
GYSIVYTREDLEKVKDGKVLGLFAEGHLPYVLDREEDVSLEMTKKAIEILEK
NPNGFFLMIEGGRIDHACHANDVASIVAETKEFDDVVGIVLDYA
RRRGDTLVIVLADHETGGLGIGLNYGHSVDIDSIRRIDASIEEMSKEIKSGDIR
DVIRRHTGLELTDEEVKEIEEAKNSTNKYALGNIIGEIISSKKLGVGFSHKHTGE
PVPLLAYGPAENFVGFKHHVDTAKVIAKLMIFGDRSISFTIKGVSKIKGDVTG
DYRVDERDAYATLMLLLGDLVDTELENIADMDNNGIIDLLDVMAILQASS

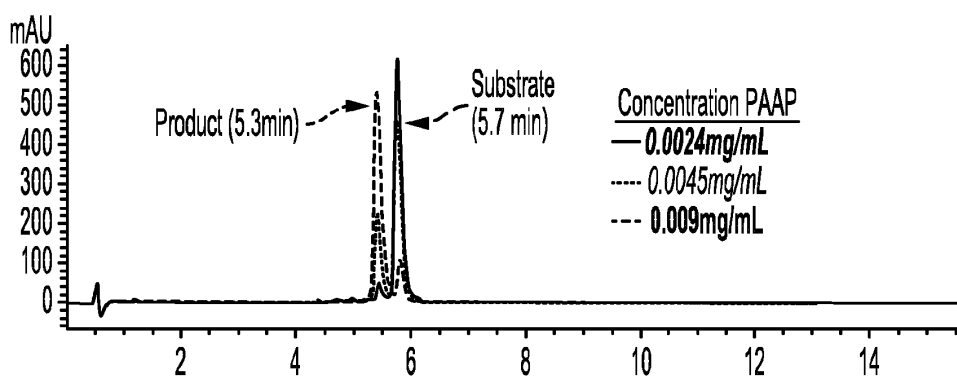
Molecular Weight: ~51kDa

(SEQ ID NO: 1)

Expression Vector: pET15b**FIG. 1**

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Substrate: TCT AGA GCC CGC CTA ATC AGC GGG CTT TTT TTT AT/3Phos/
PAAP reaction: 0.006mg/mL protein to 10uM substrate. Incubate 5min at 60C. (SEQ ID NO: 7)
Product: TCT AGA GCC CGC CTA ATC AGC GGG CTT TTT TTT AT
(SEQ ID NO: 8)



MWD1 A, Sig=260.4 Ref=off (C:\CHEM32\1\DATA\TRINA\2018JUL11_
TOCLARITY 2018-07-11 10-53-59\1DE-0601.D)

MWD1 A, Sig=260.4 Ref=off (C:\CHEM32\1\DATA\TRINA\2018JUL11_
TOCLARITY 2018-07-11 10-53-59\1DF-0701.D)

MWD1 A, Sig=260.4 Ref=off (C:\CHEM32\1\DATA\TRINA\2018JUL11_
TOCLARITY 2018-07-11 10-53-59\1DG-0801.D)

FIG. 2

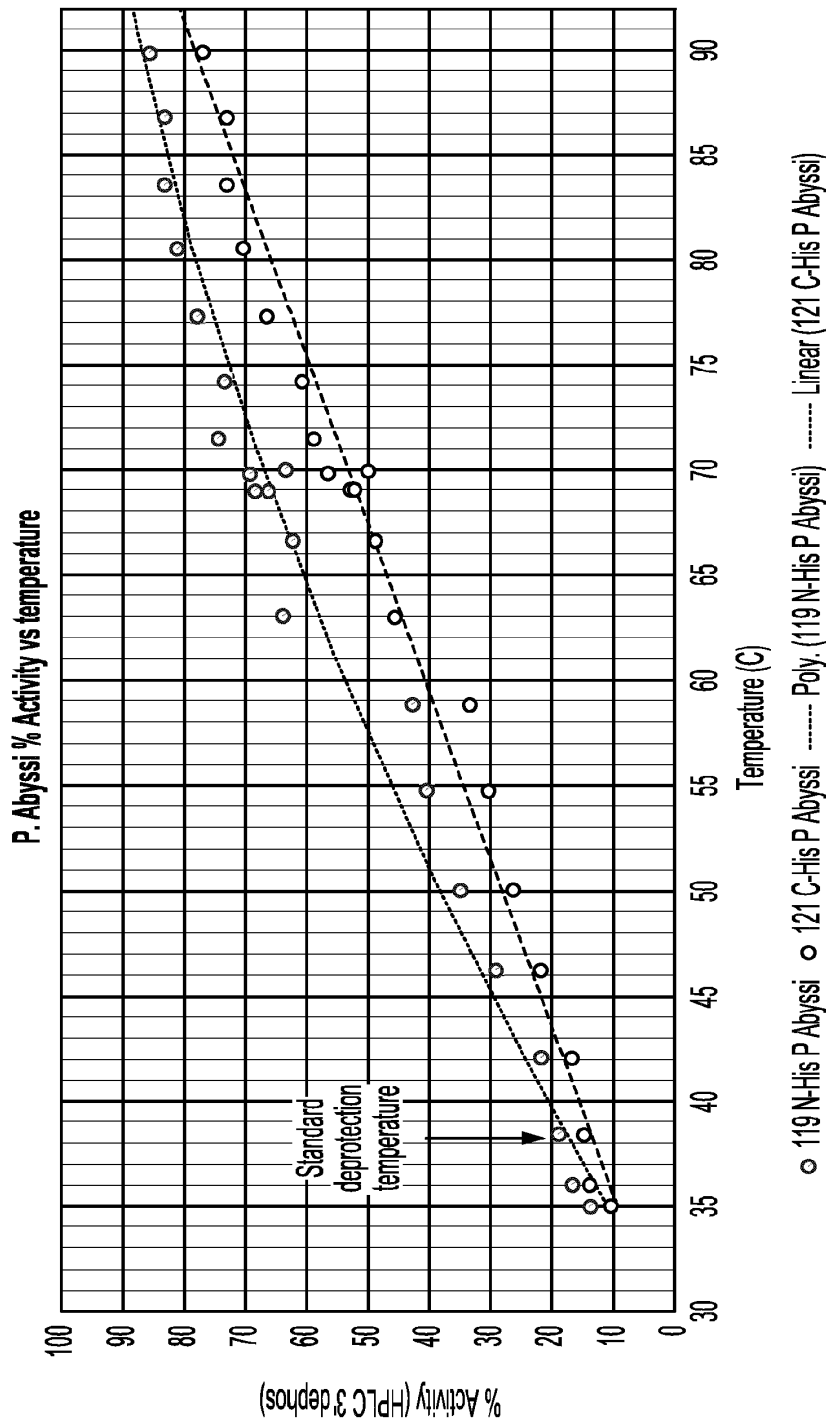


FIG. 3

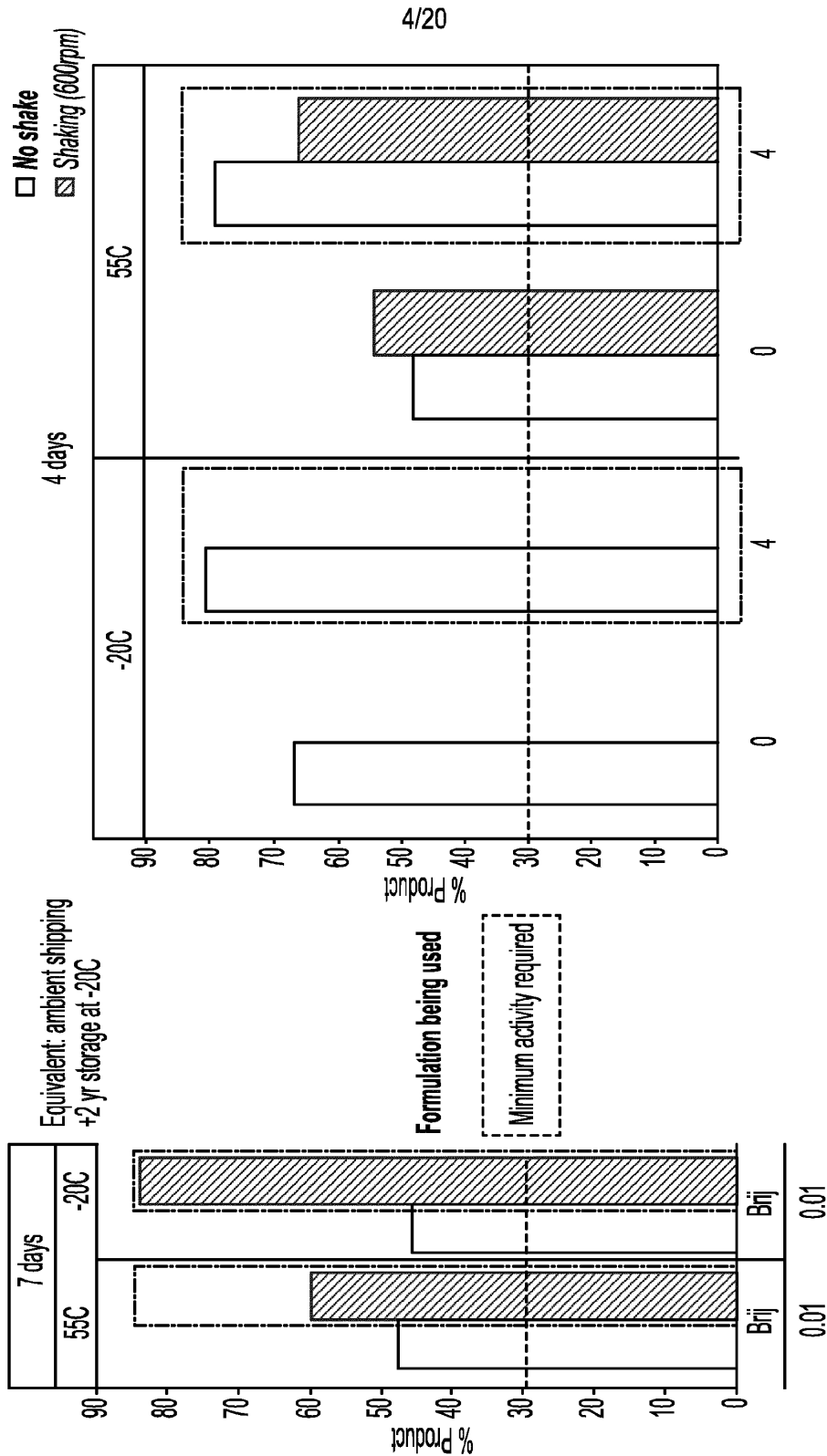


FIG. 4

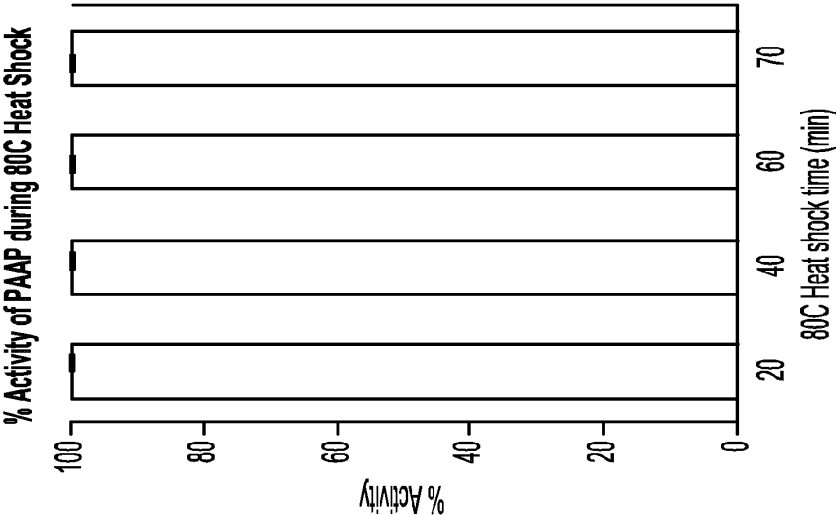


FIG. 5A

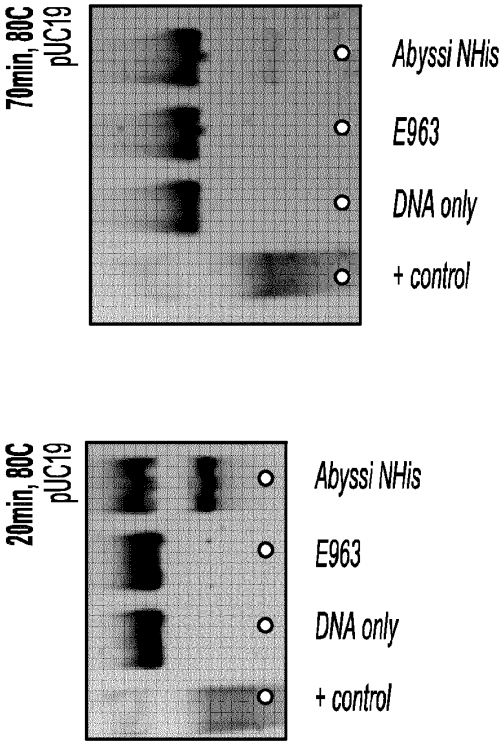


FIG. 5B

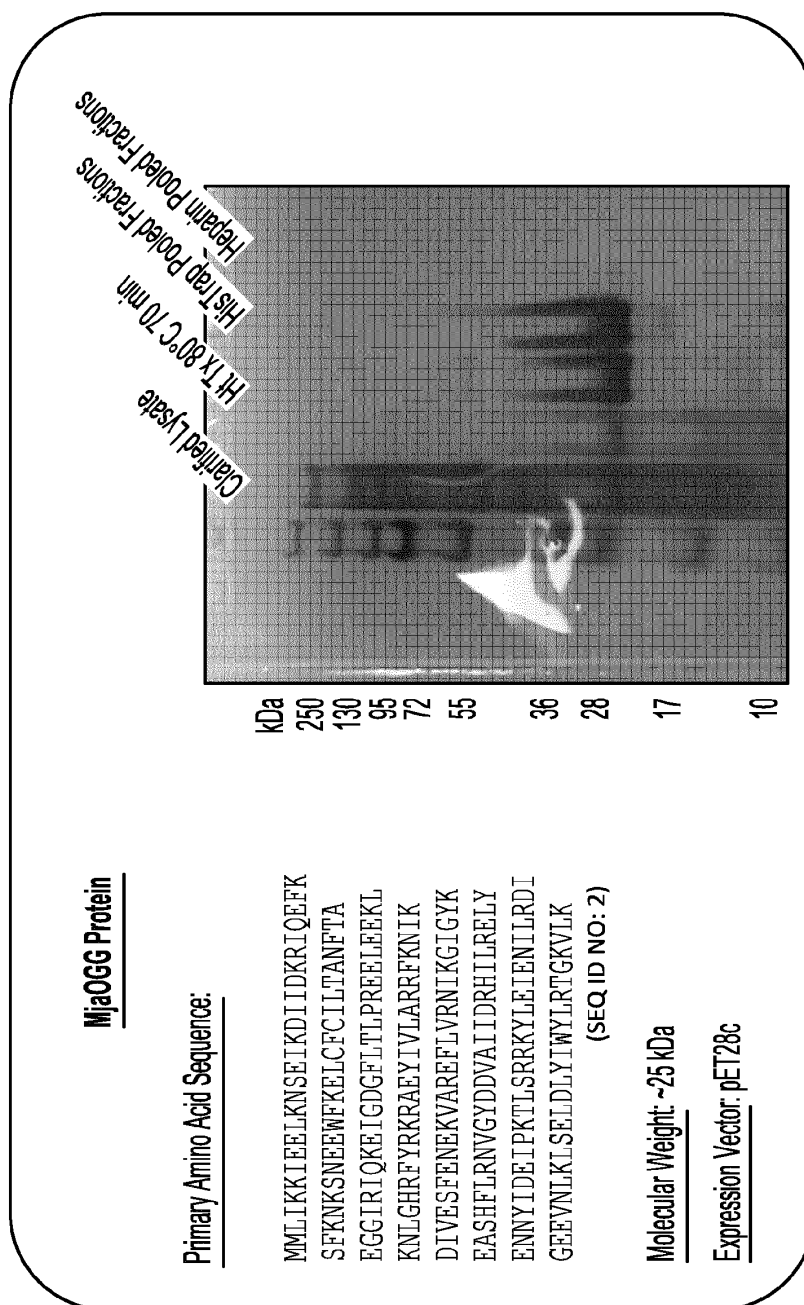
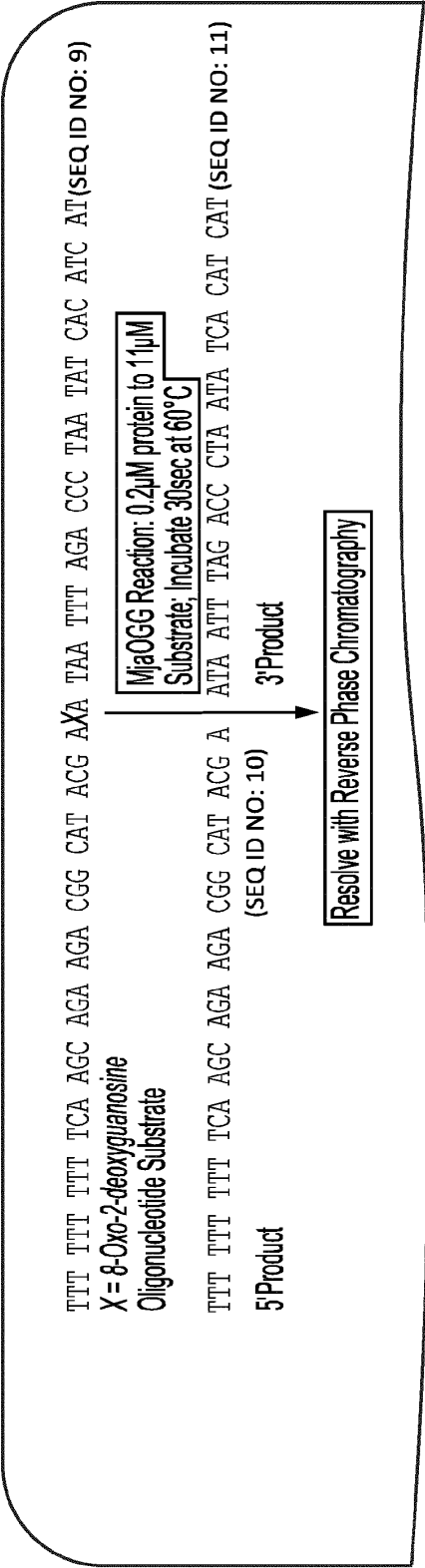


FIG. 6



TO FIG. 7B

FIG. 7A

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FROM FIG. 7A

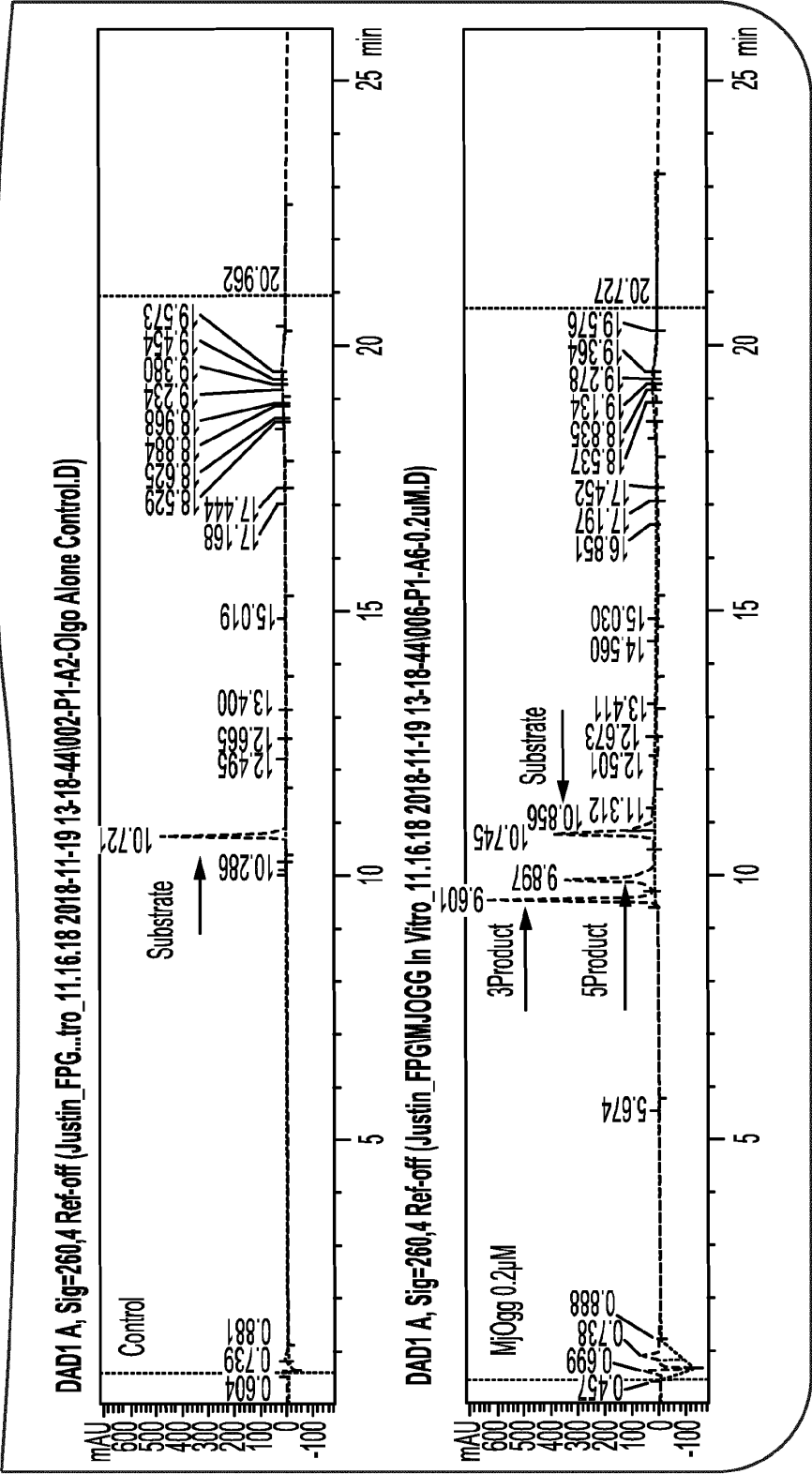


FIG. 7B

MjaOGG Concentration	Percent Cleavage
0.8μM	100%
0.4μM	91.7%
0.2μM	68.7%

FIG. 8

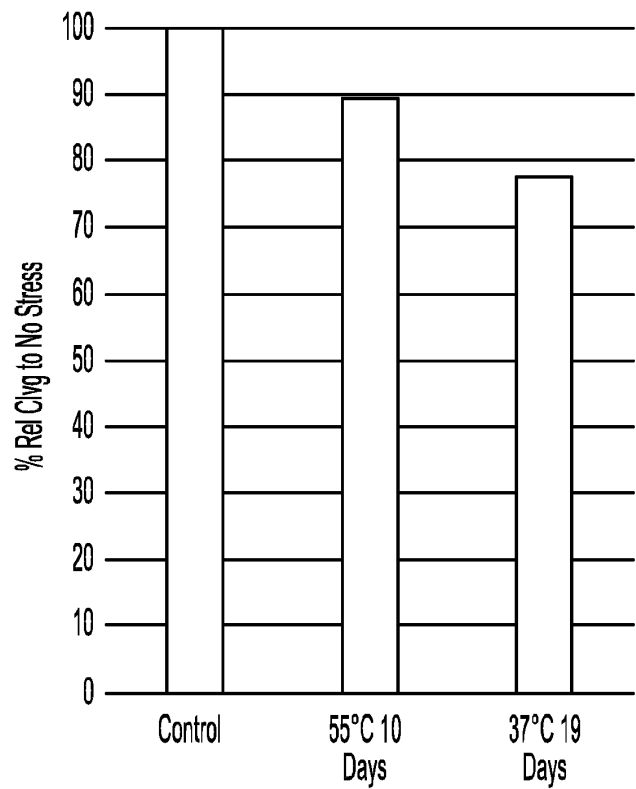


FIG. 9

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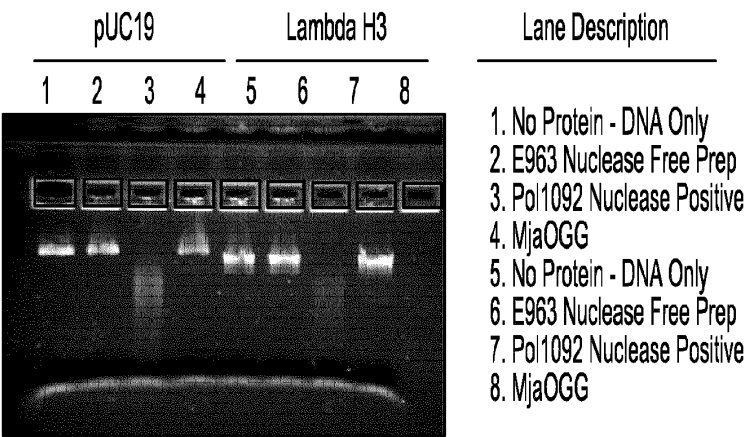


FIG. 10

Enzyme	Thermal Transition (T _m)
T4 Polynucleotide Kinase	40°C*
<i>Pyrococcus abyssi</i> alkaline phosphatase (PAAP)	> 110°C
<i>Escherichia coli</i> Fomamidopyrimidine [fapy]-DNA glycosylase (FPG)	53.3°C#
<i>Methanocaldococcus</i> (<i>Methonococcus</i>) <i>jannaschii</i> oxoguanine glycosylase (MjaOGG)	97.7°C

*Cameron and Uhlenbeck, (1977) 3' Phosphatase activity in T4 polynucleotide kinase. Bioch. Vol. 16 (23) pp. 5120-5126
#Boiteux et al., (1990) Homogenous *Escherichia coli* FPG Protein. JBC Vol. 265, No.7 pp. 3916-3922

FIG. 11

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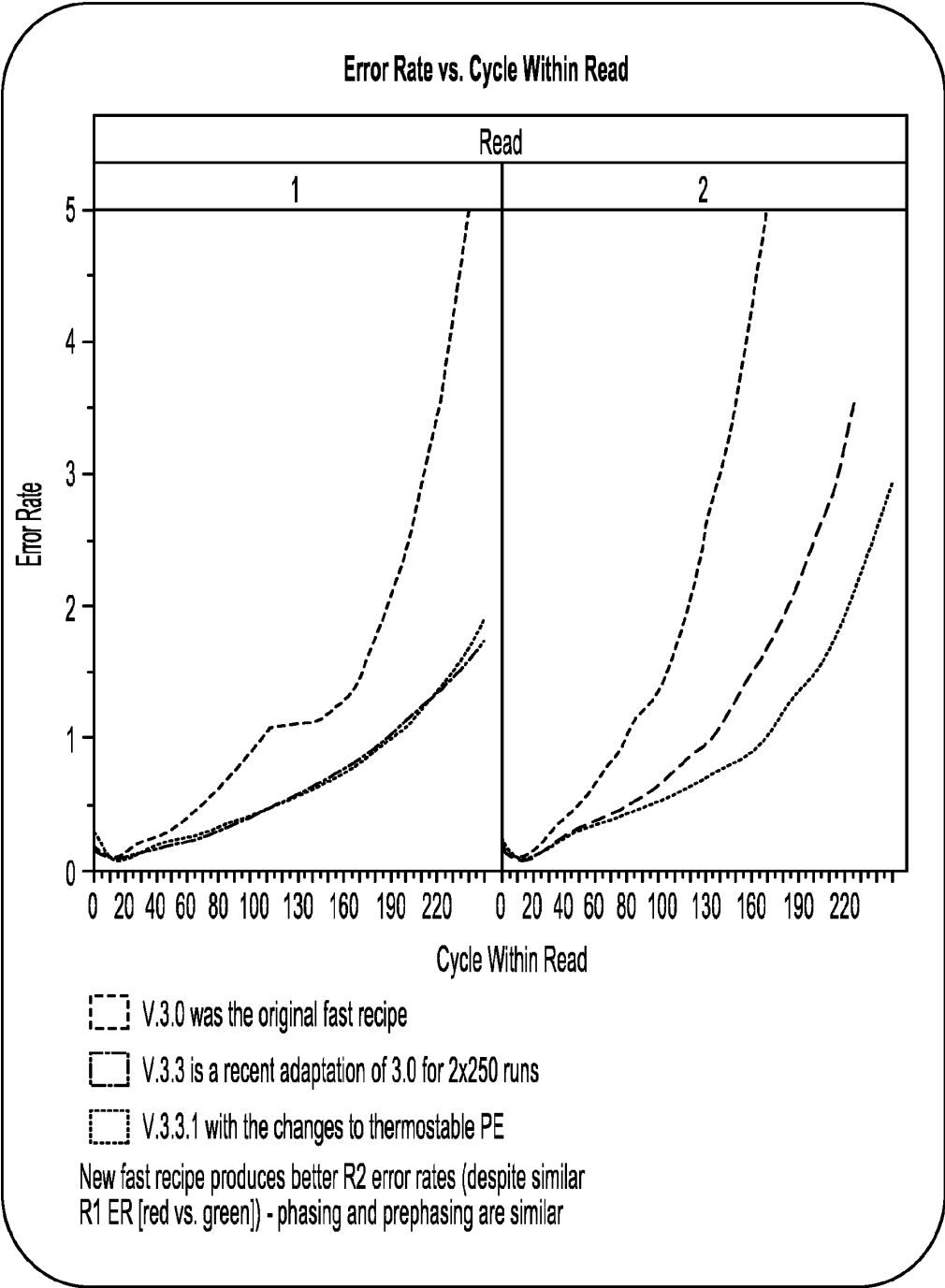


FIG. 12

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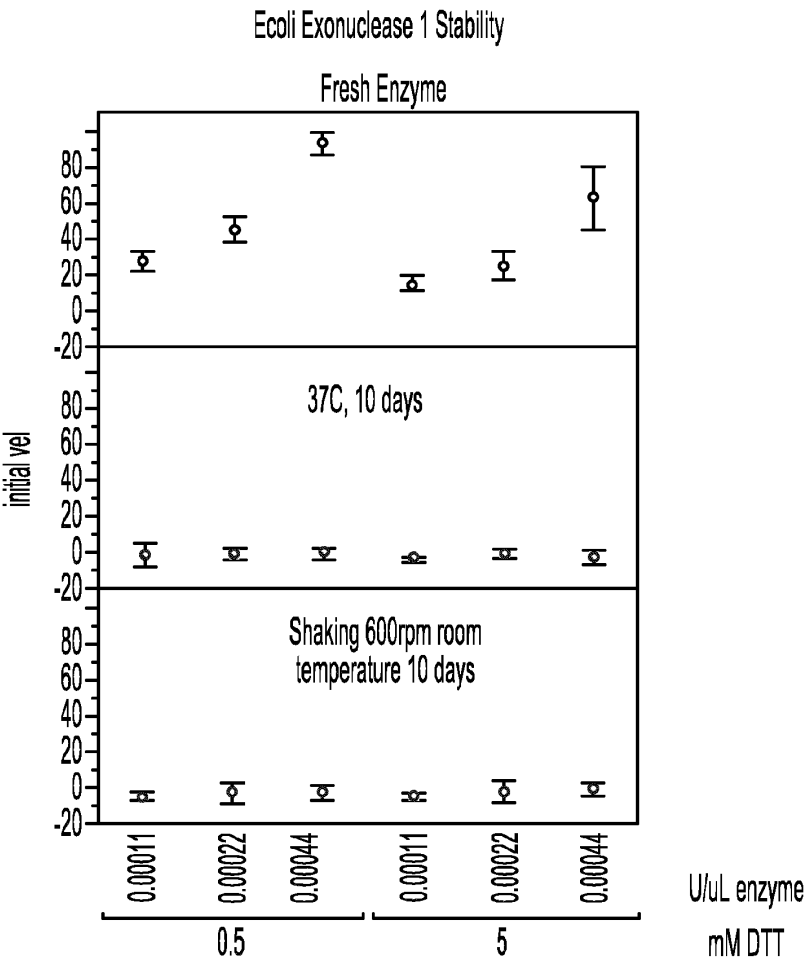


FIG. 13A

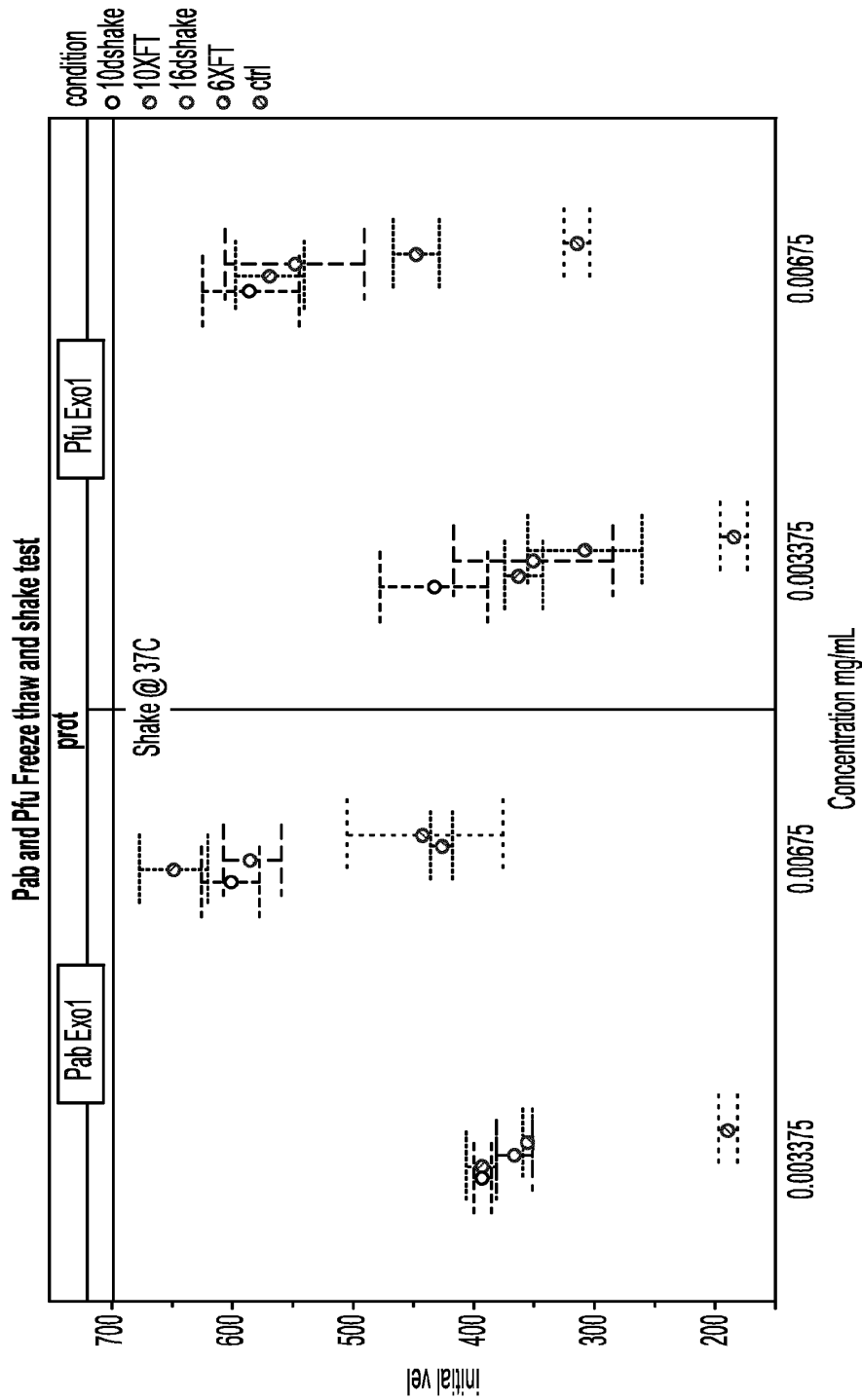
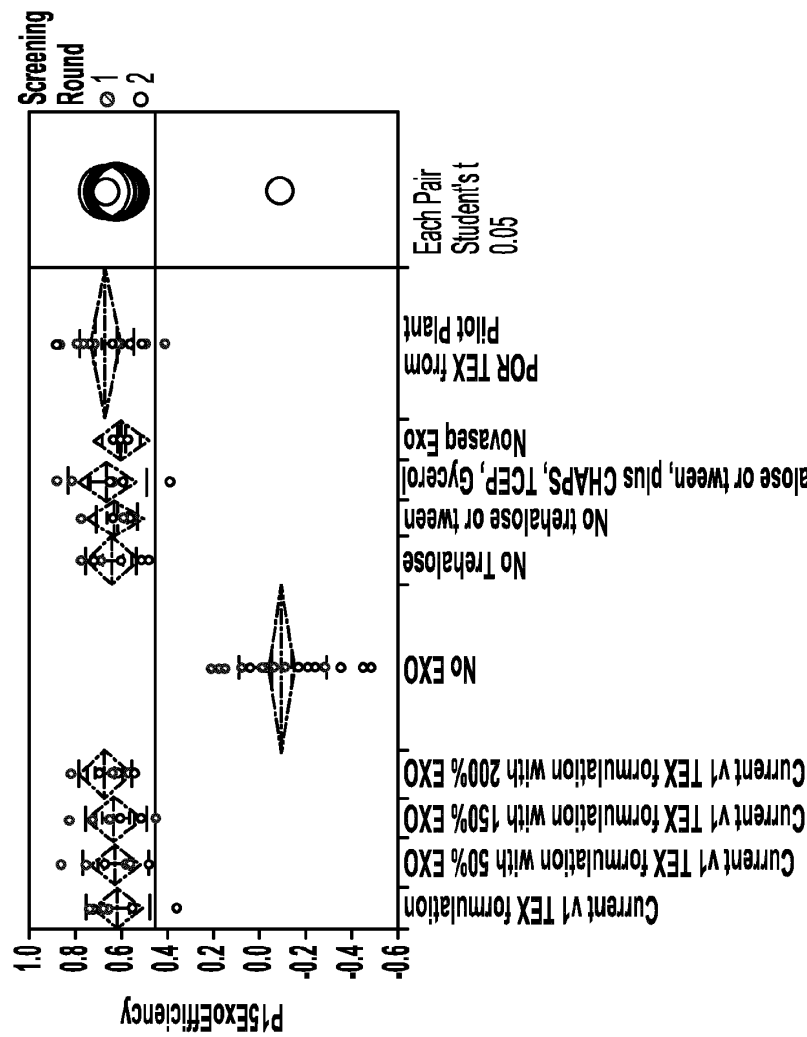


FIG. 13B



Formulation Details

FIG. 14

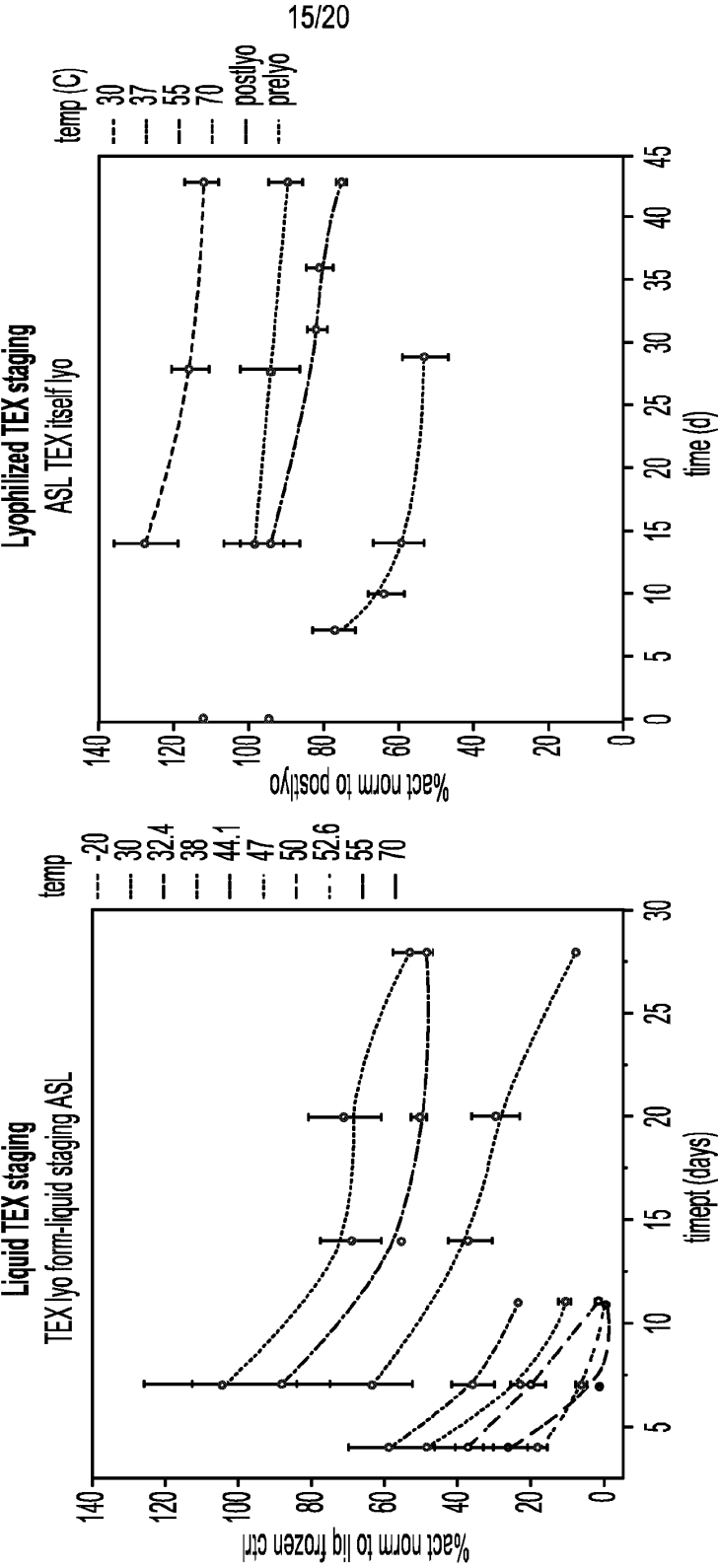


FIG. 15

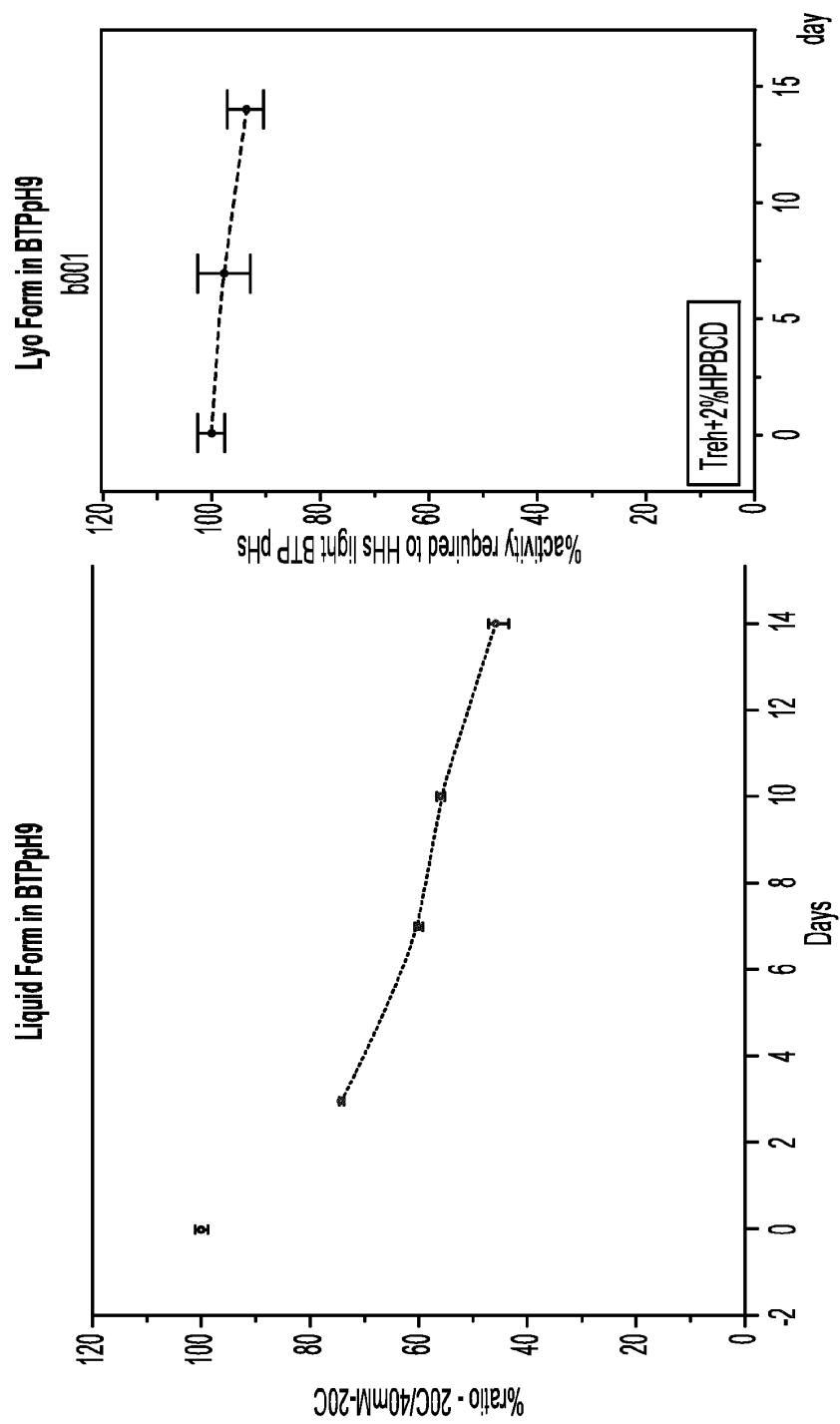


FIG. 16

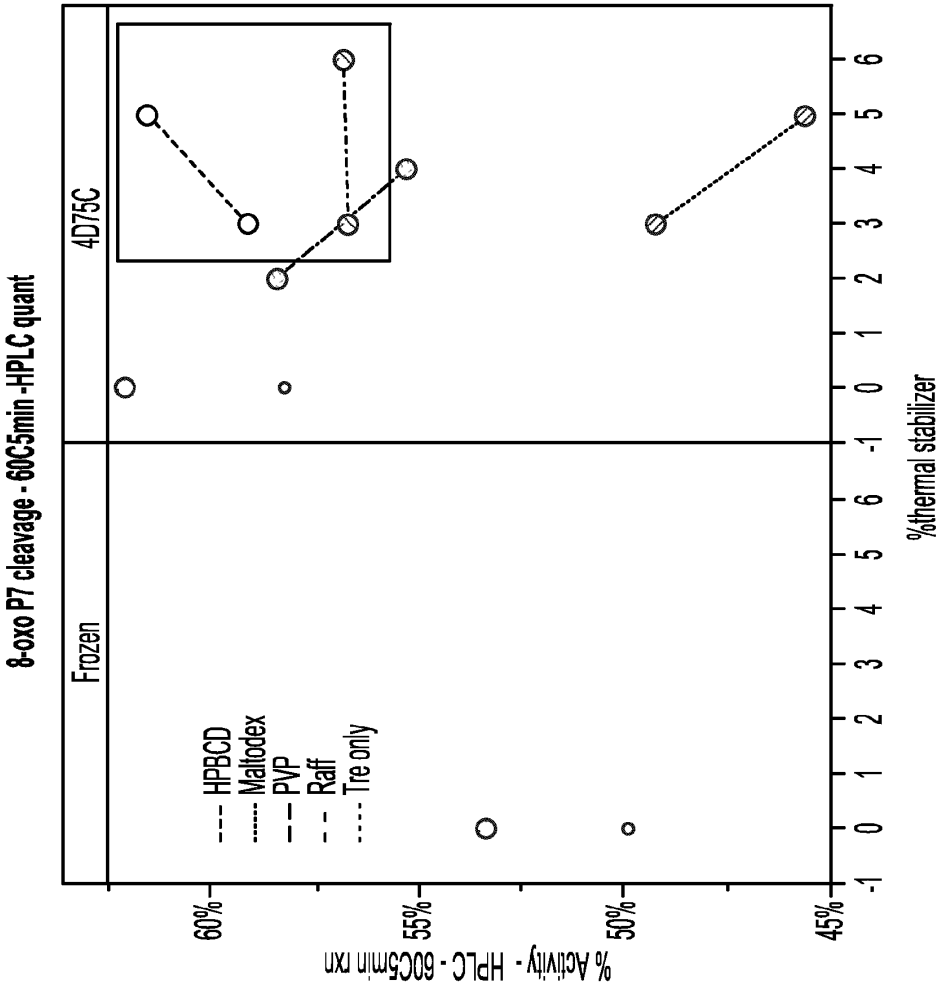


FIG. 17A

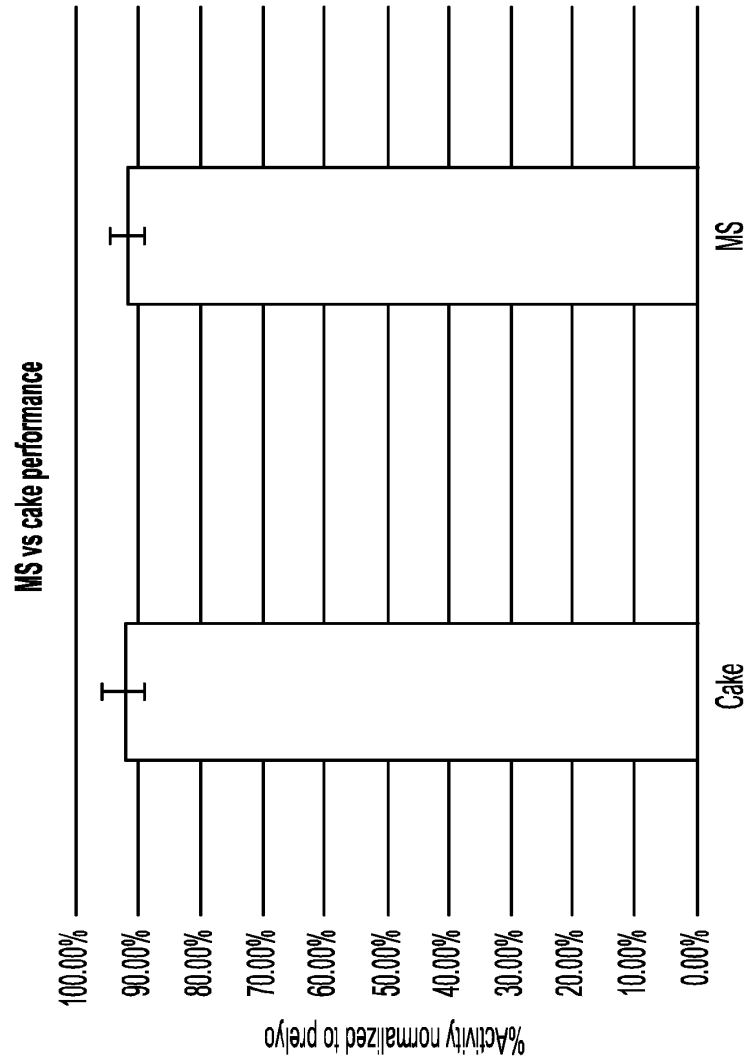


FIG. 17B

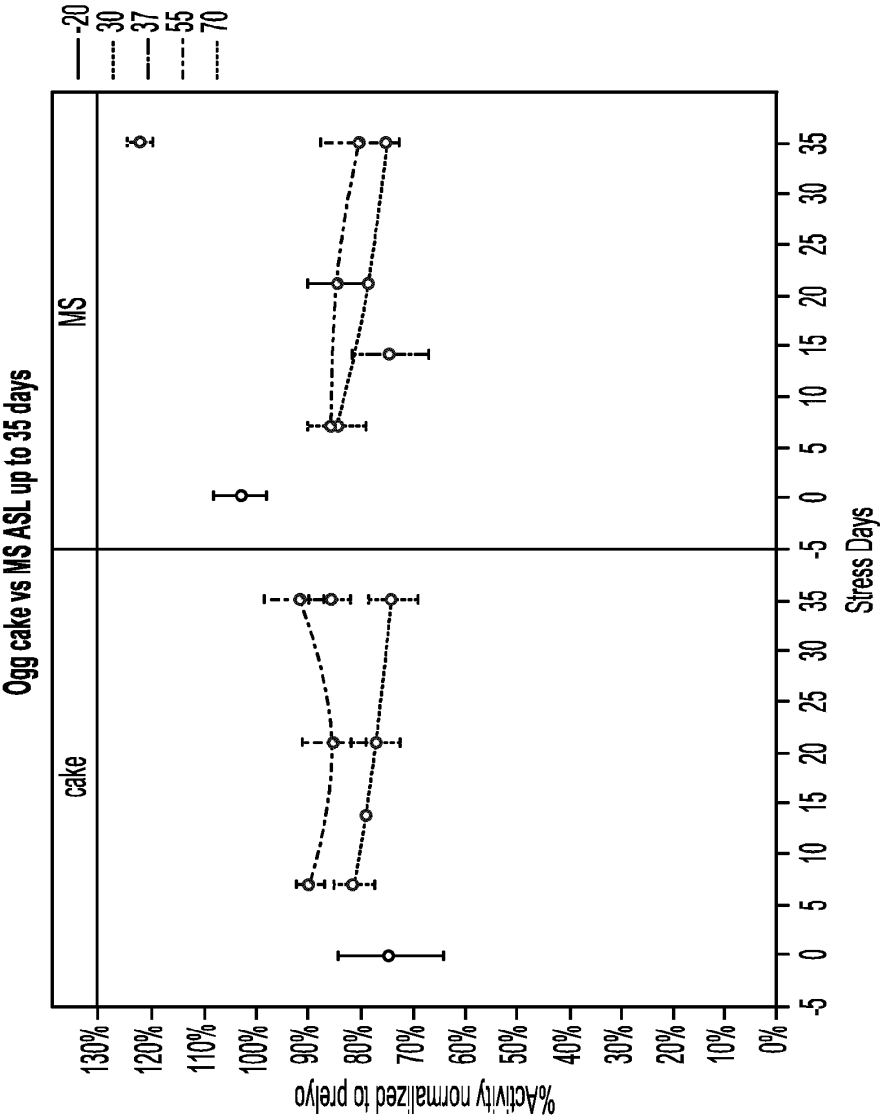


FIG. 17C

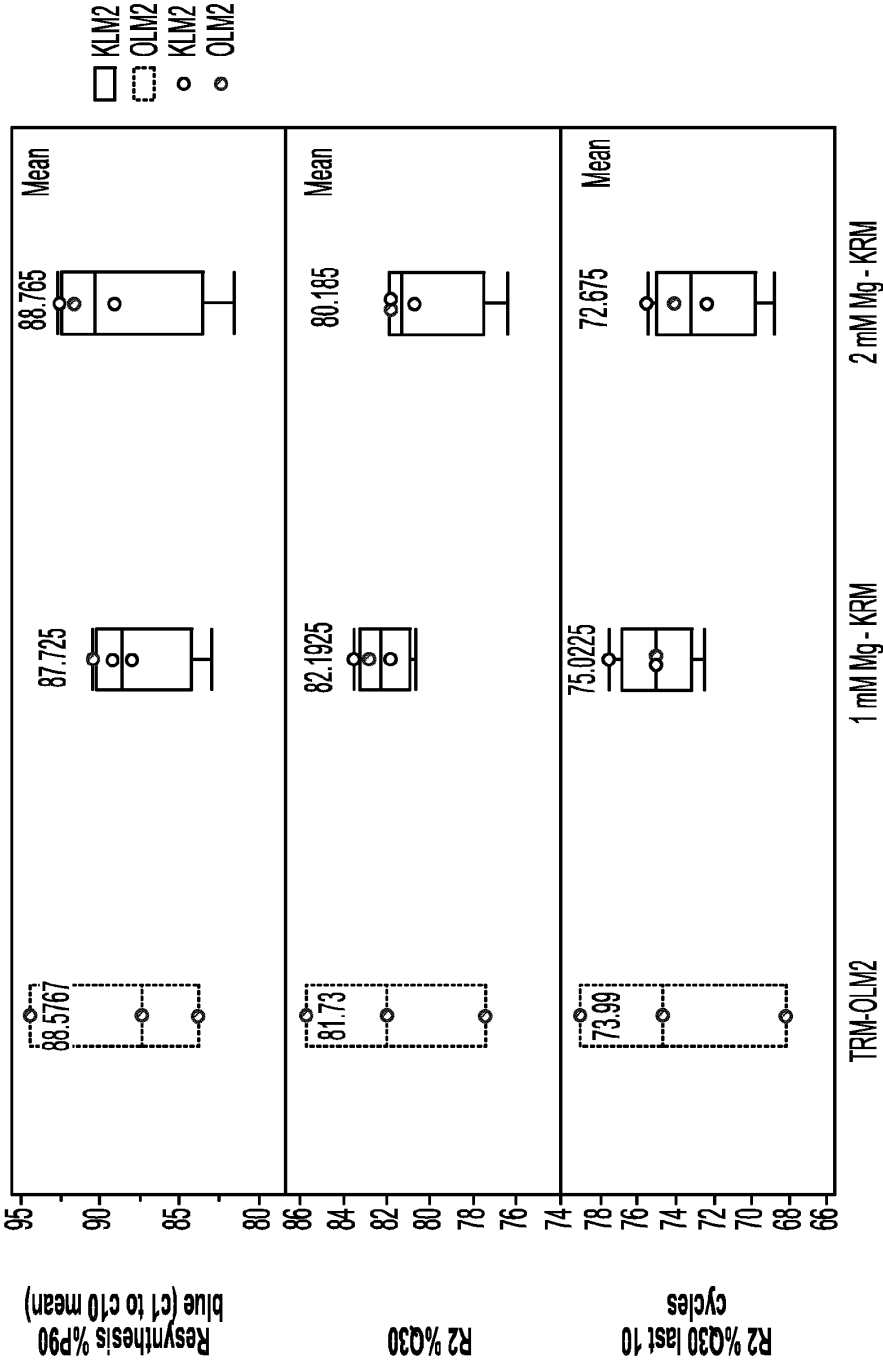


FIG. 18