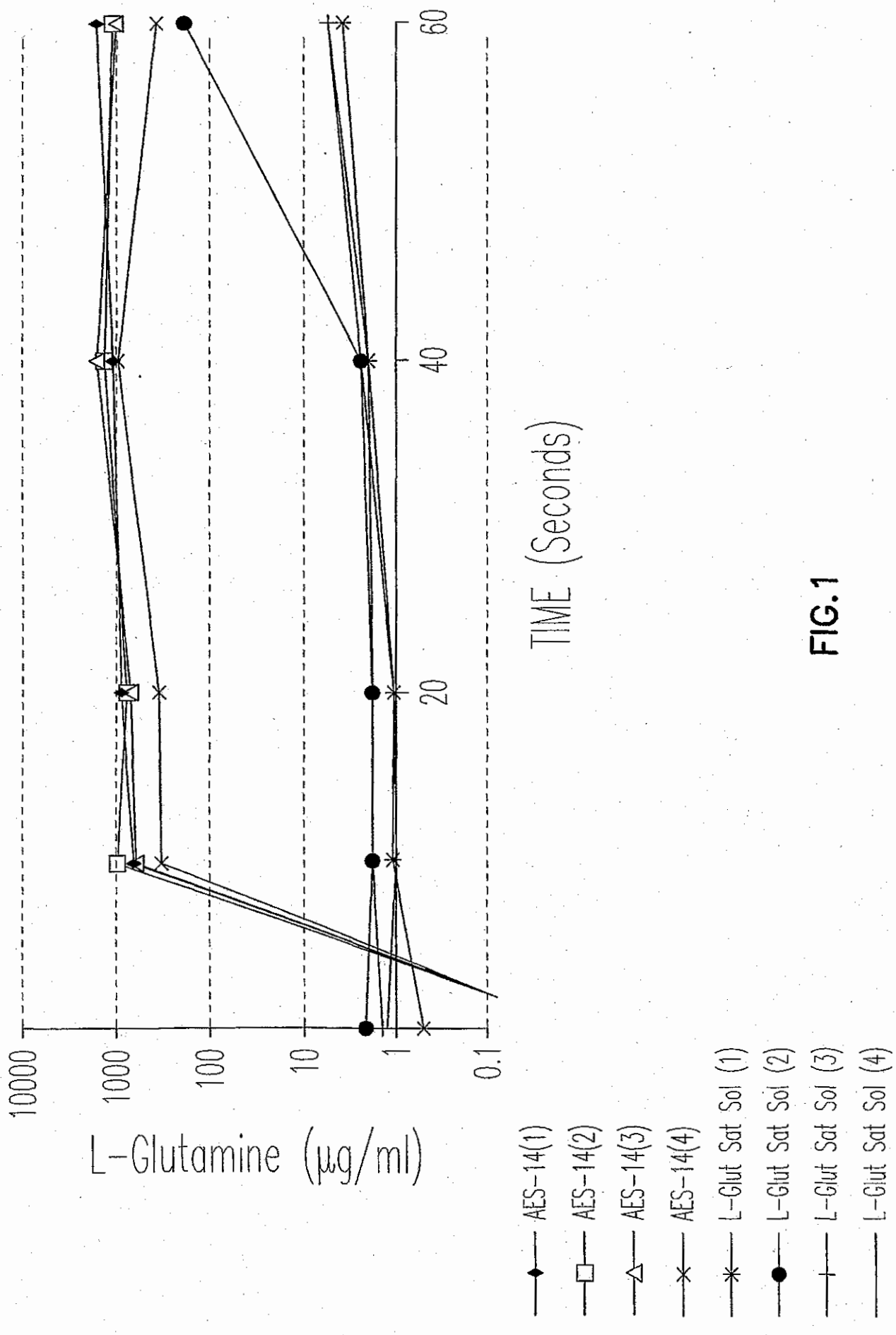

10000
1000
100
10
1
0.1
L-Glutamine (µg/ml)
0
20
40
60
TIME (Seconds)
AES-14(1)
AES-14(2)
AES-14(3)
AES-14(4)
L-Glut Sat Sol (1)
L-Glut Sat Sol (2)
L-Glut Sat Sol (3)
L-Glut Sat Sol (4)

FIG. 1

L-Glutamine (µg/ml)
10000
1000
100
10
1
0.1
TIME (Seconds)
0
10
20
30
40
50
60
AES-14(1)
AES-14(2)
AES-14(3)
AES-14(4)
L-Glut Sat Sol (1)
L-Glut Sat Sol (2)
L-Glut Sat Sol (3)
L-Glut Sat Sol (4)

FIG.2

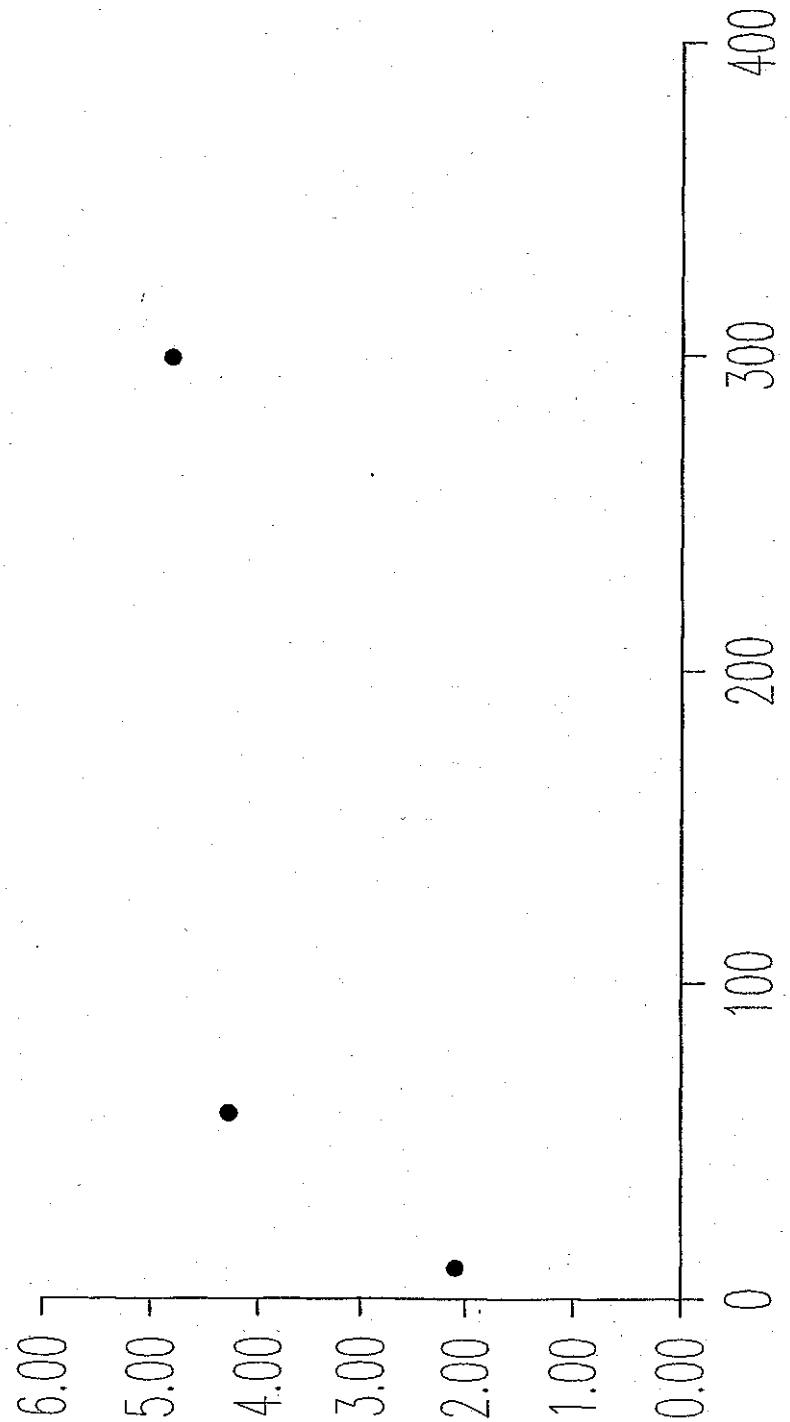

400
300
200
100
0
TIME (Seconds)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
RELATIVE L-GLUTAMINE UPTAKE
INTO CELL MONOLAYER FROM
VEHICLE vs NON-VEHICLE

FIG.3

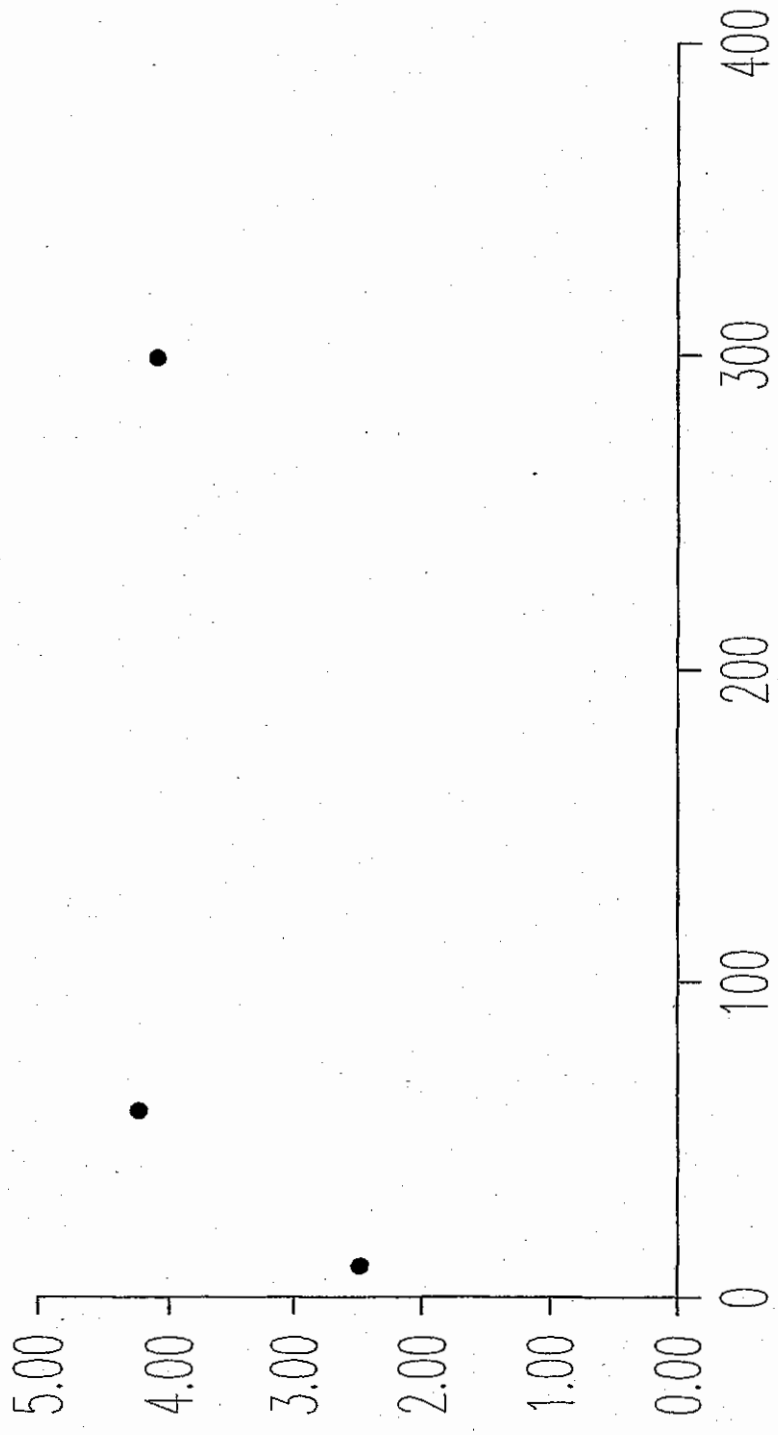

400
300
200
100
0
TIME (Seconds)
5.00
4.00
3.00
2.00
1.00
0.00
RELATIVE GLCYLSARCOSINE
UPTAKE INTO CELL MONOLAYER
FROM VEHICLE vs NON-VEHICLE

FIG.4

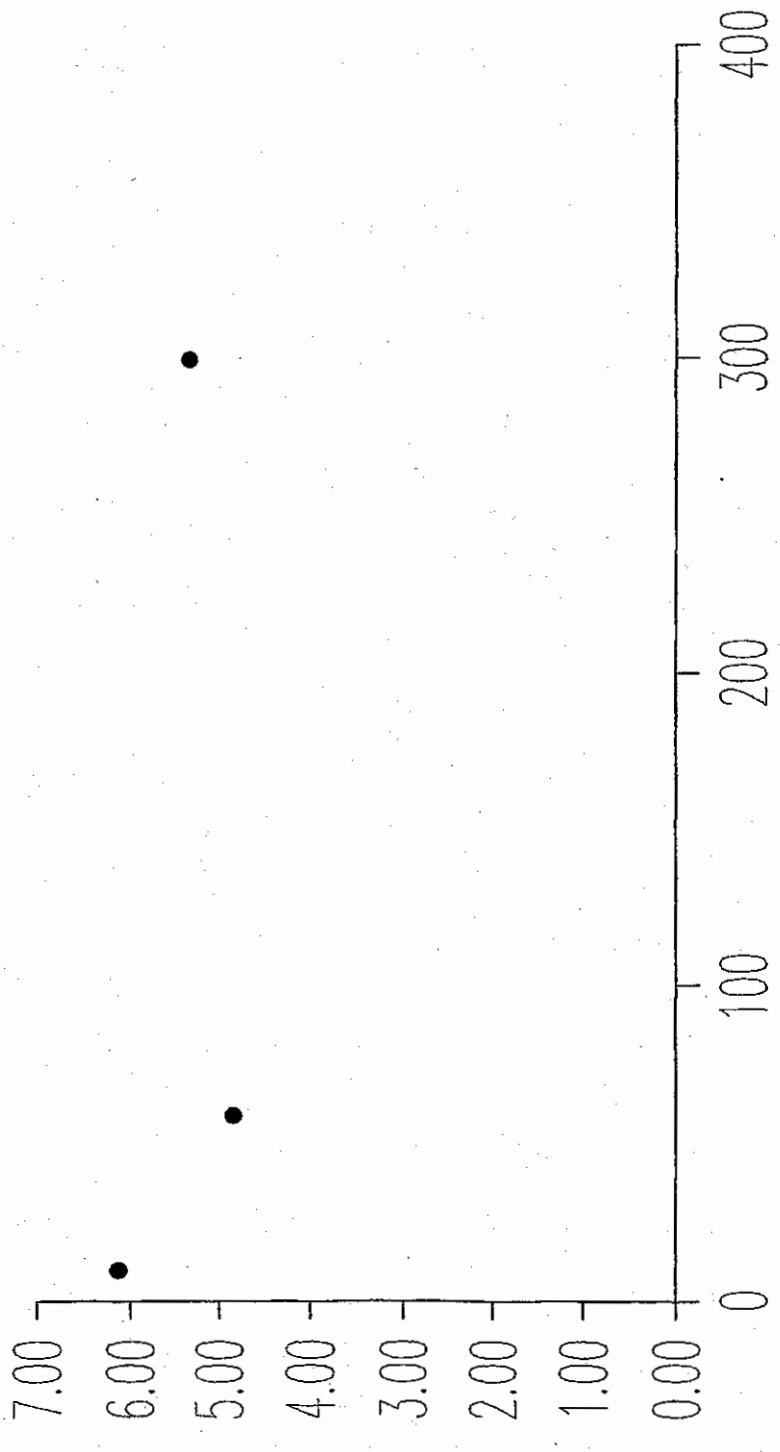
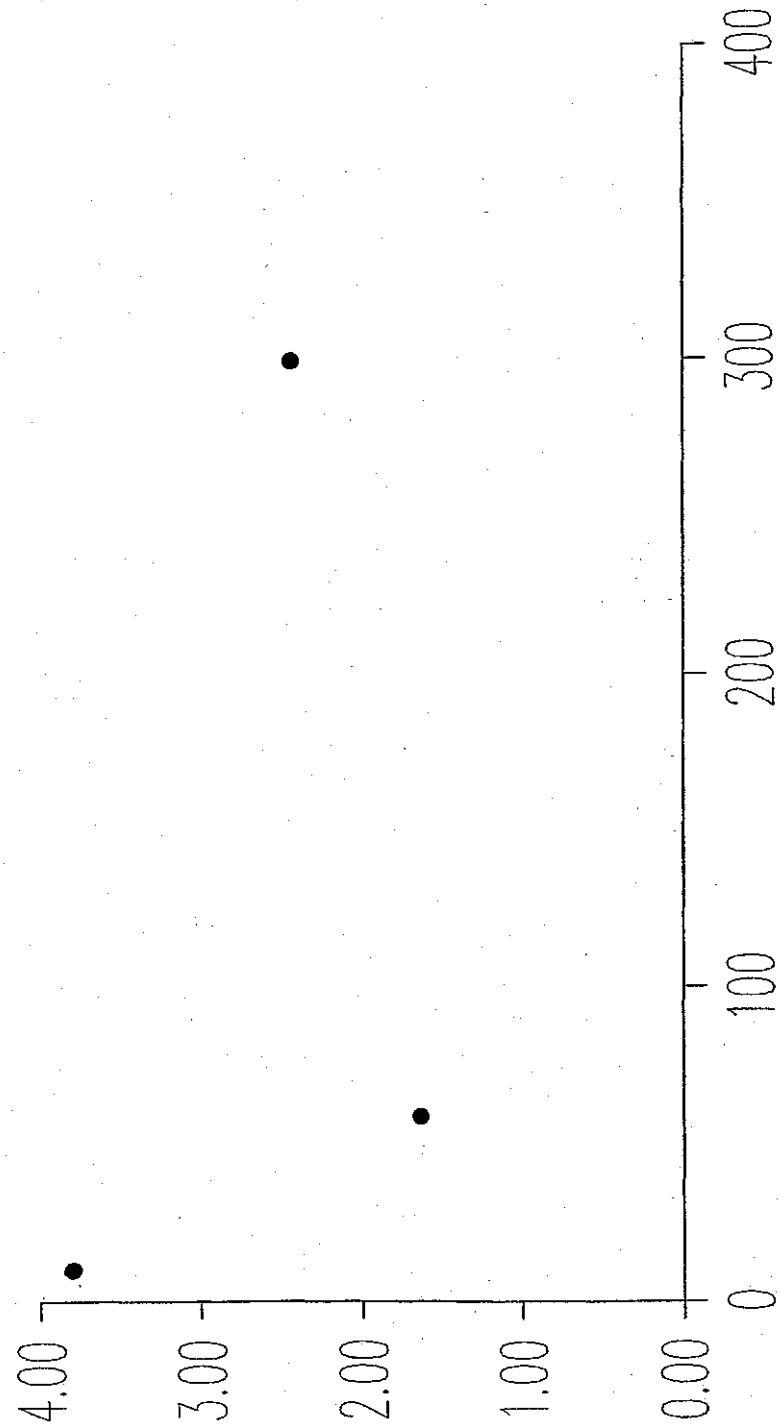

RELATIVE L-ASPARAGINE
UPTAKE INTO CELL MONOLAYER
FROM VEHICLE vs NON-VEHICLE
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0
100
200
300
400
TIME (Seconds)

FIG.5



RELATIVE ACYCLOVIR UPTAKE INTO CELL MONOLAYER FROM VEHICLE vs NON-VEHICLE

FIG.6

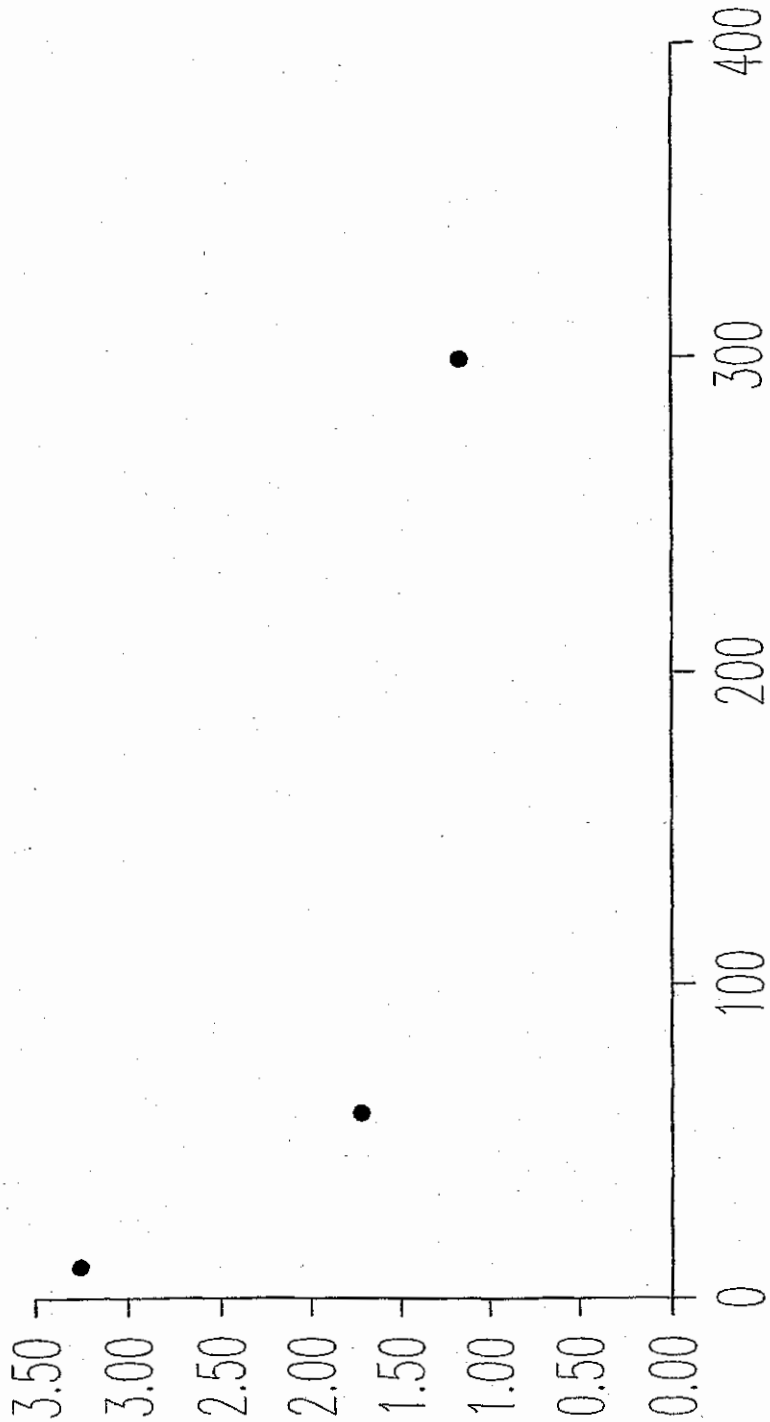

400
300
200
100
0
TIME (Seconds)
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
RELATIVE L-GLUTAMINE UPTAKE
INTO CELL MONOLAYER FROM
VEHICLE vs NON-VEHICLE

FIG.7

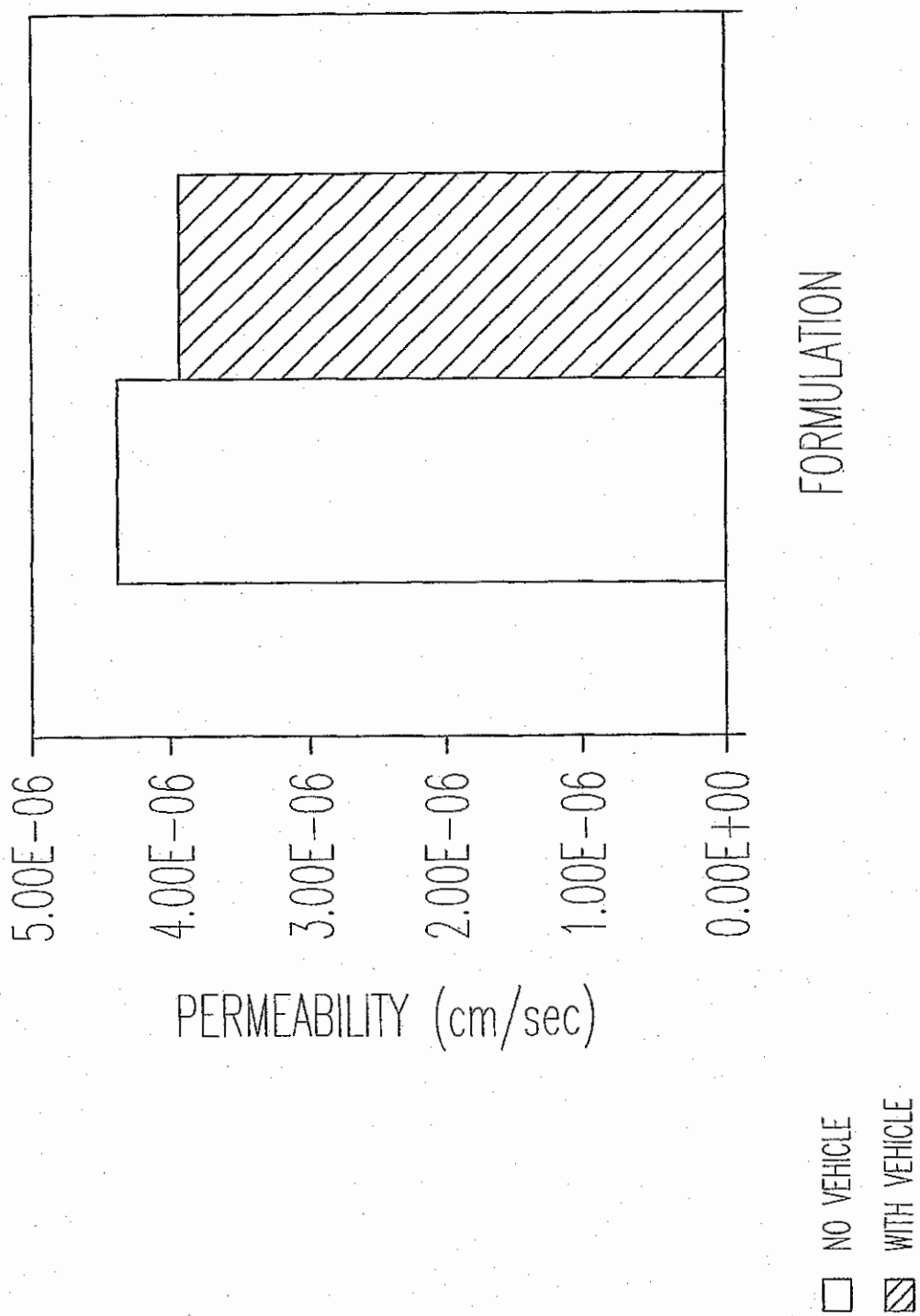

5.00E-06
4.00E-06
3.00E-06
2.00E-06
1.00E-06
0.00E+00
PERMEABILITY (cm/sec)
FORMULATION
NO VEHICLE
WITH VEHICLE

FIG.8

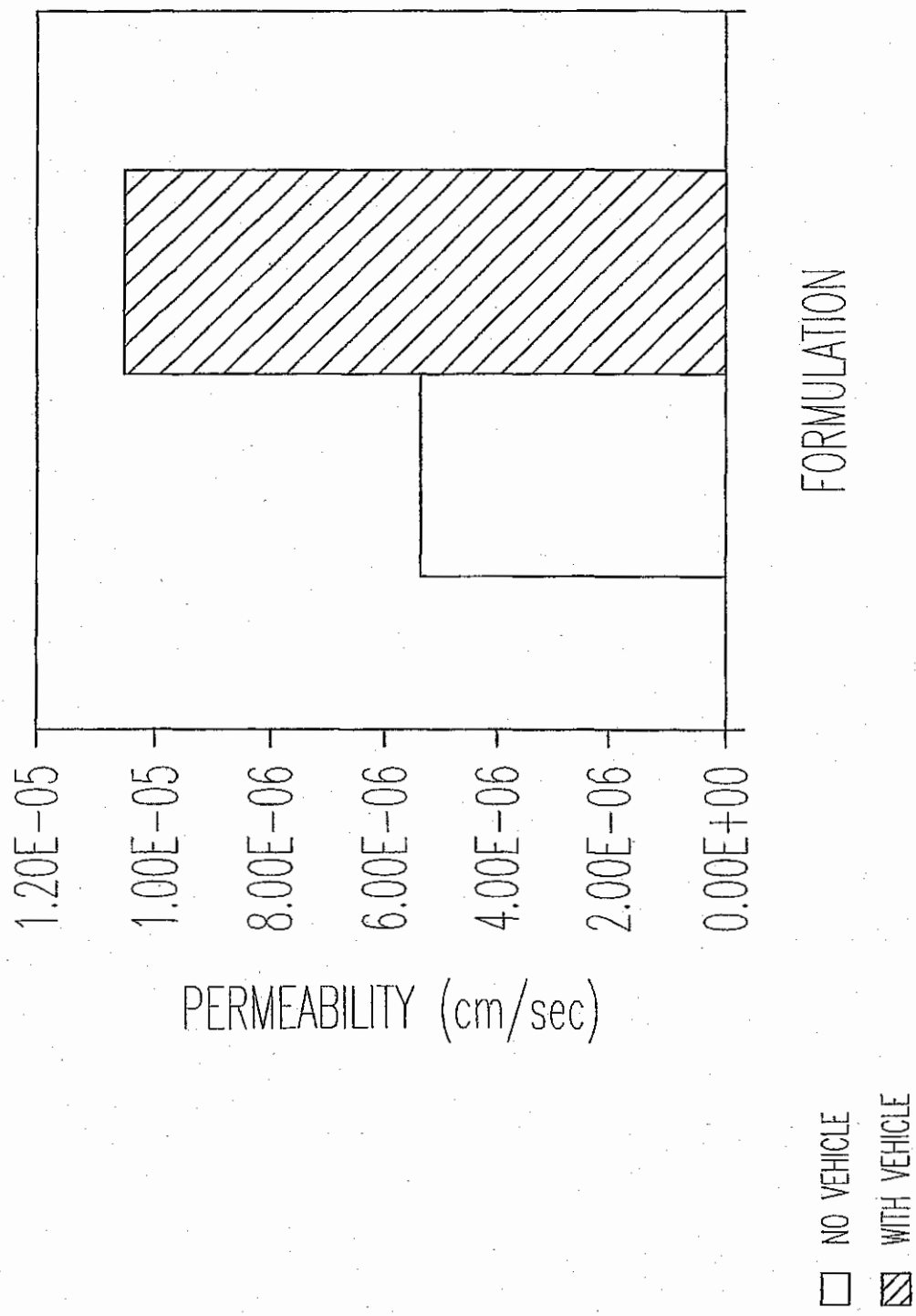

1.20E-05
1.00E-05
8.00E-06
6.00E-06
4.00E-06
2.00E-06
0.00E+00
PERMEABILITY (cm/sec)
FORMULATION
NO VEHICLE
WITH VEHICLE

FIG.9

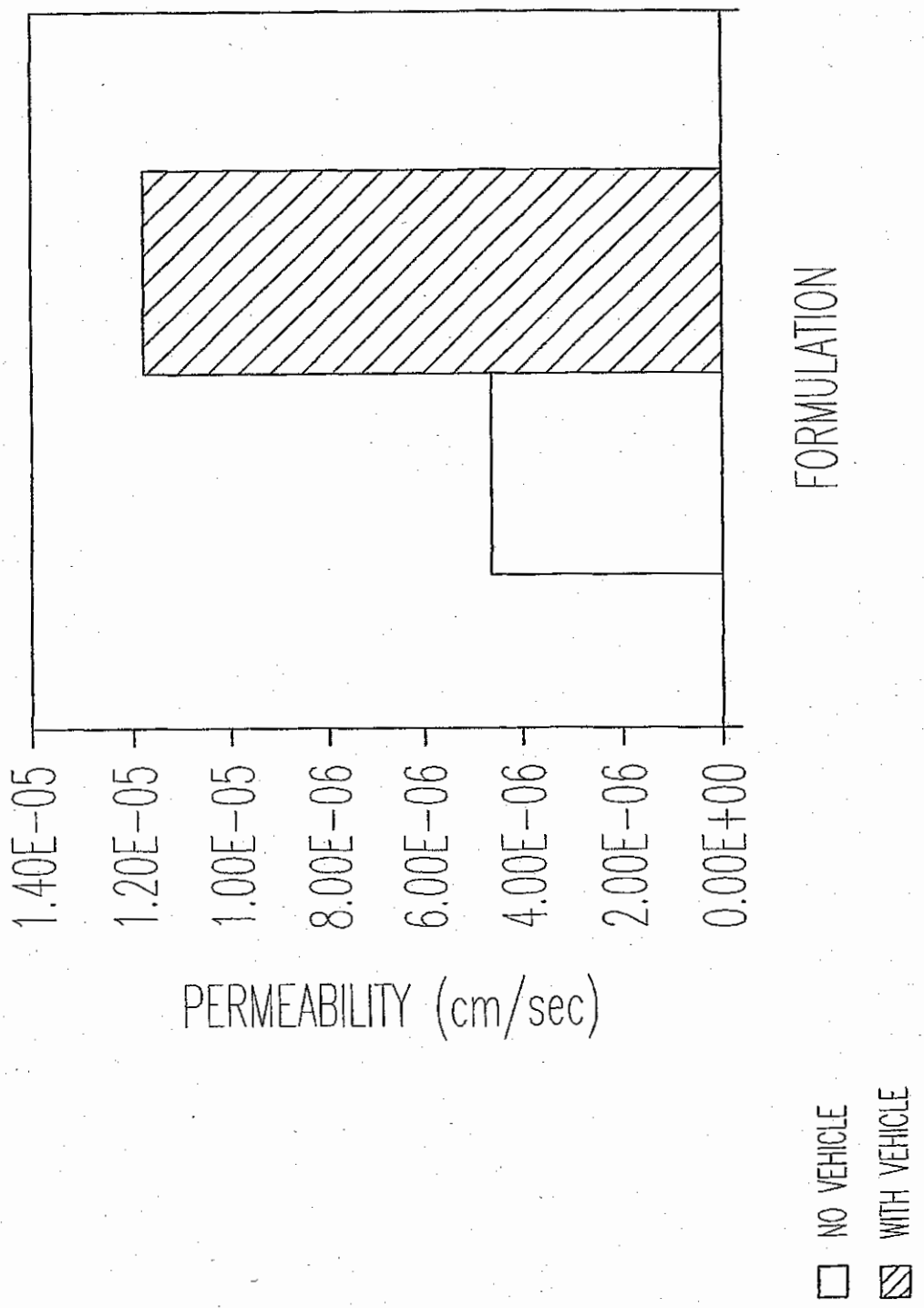

1.40E-05
1.20E-05
1.00E-05
8.00E-06
6.00E-06
4.00E-06
2.00E-06
0.00E+00
PERMEABILITY (cm/sec)
FORMULATION
NO VEHICLE
WITH VEHICLE

FIG. 10

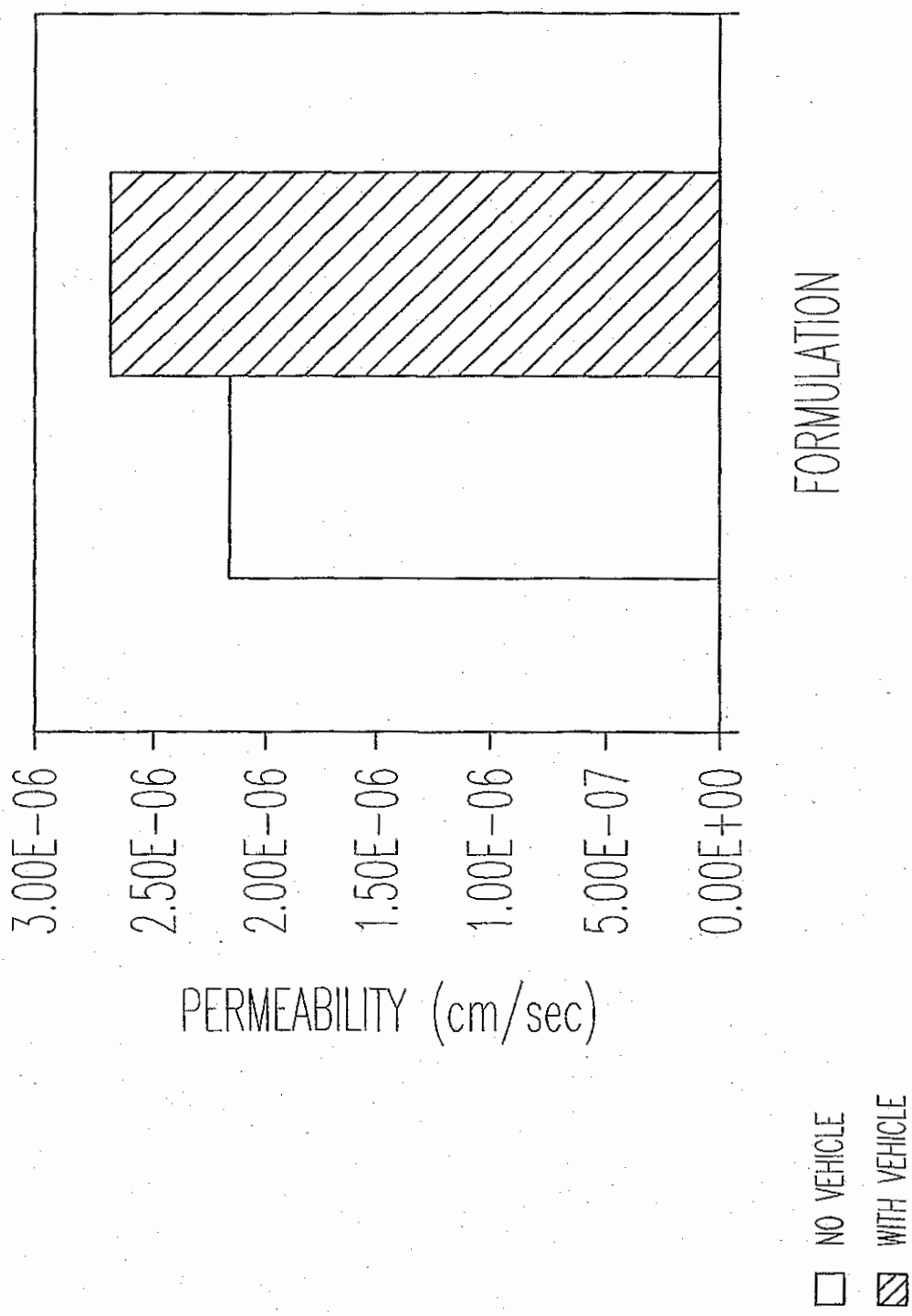

3.00E-06
2.50E-06
2.00E-06
1.50E-06
1.00E-06
5.00E-07
0.00E+00
PERMEABILITY (cm/sec)
FORMULATION
NO VEHICLE
WITH VEHICLE

FIG. 11

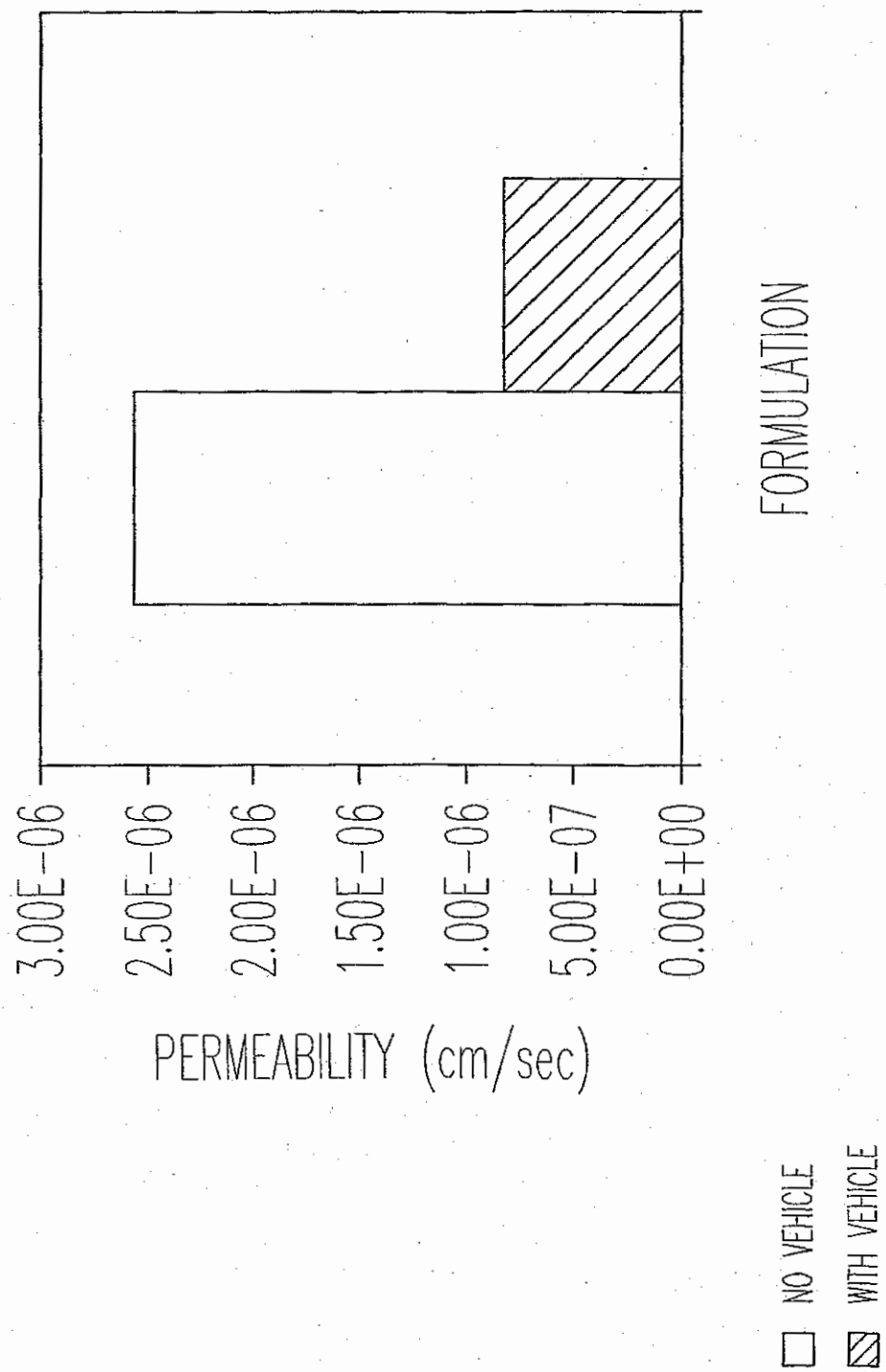

3.00E-06
2.50E-06
2.00E-06
1.50E-06
1.00E-06
5.00E-07
0.00E+00
PERMEABILITY (cm/sec)
FORMULATION
NO VEHICLE
WITH VEHICLE

FIG.12

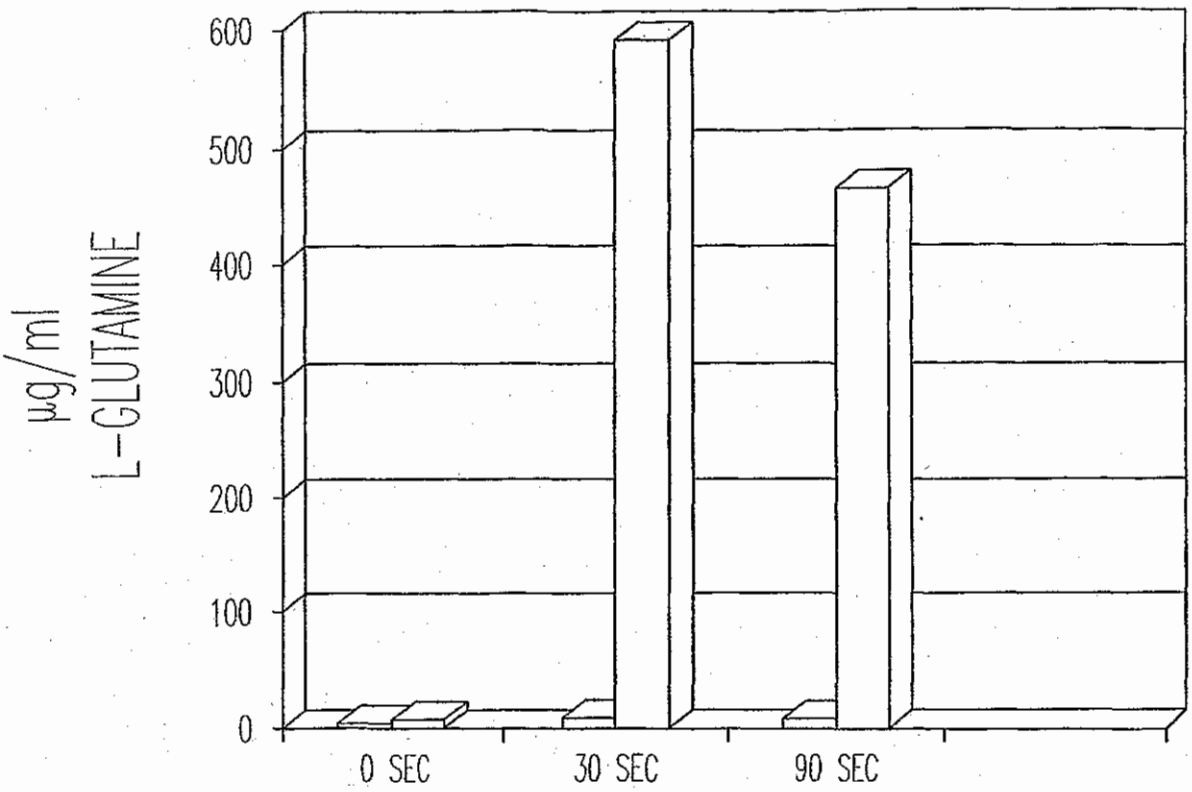

µg/ml
L-GLUTAMINE
600
500
400
300
200
100
0
0 SEC
30 SEC
90 SEC

FIG.13

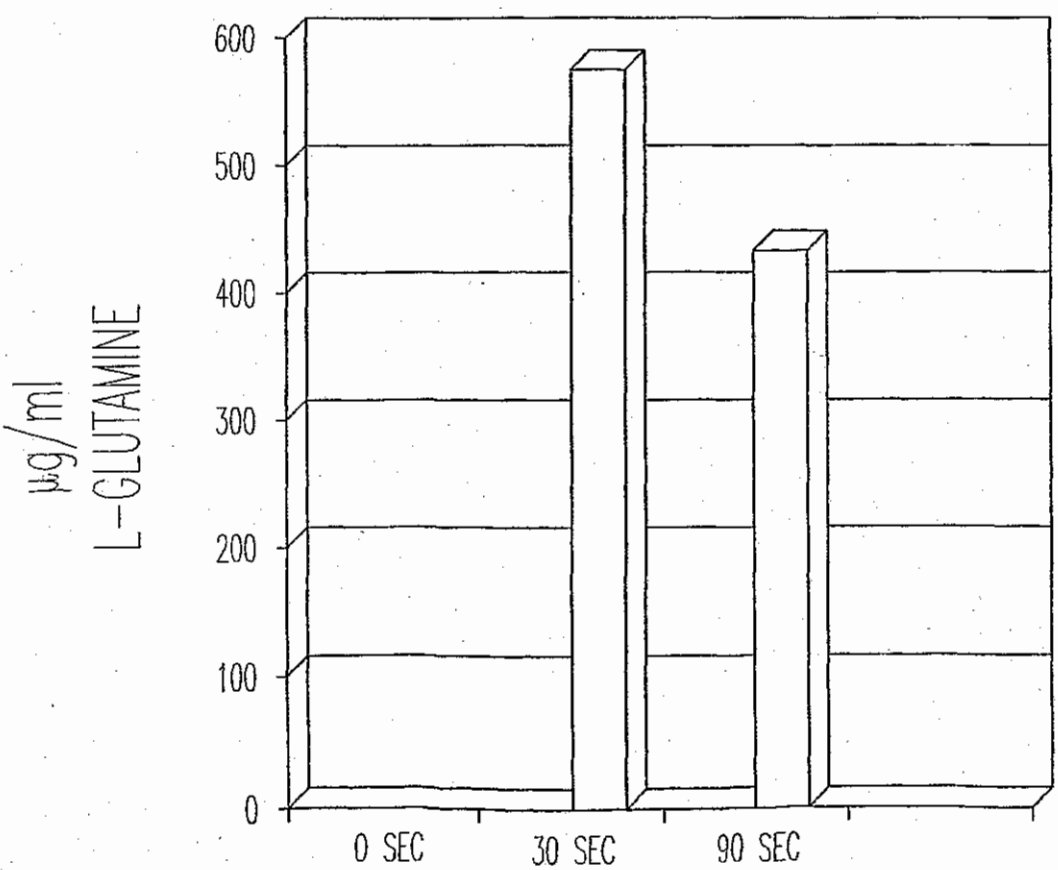

µg/ml
L-GLUTAMINE
600
500
400
300
200
100
0
0 SEC
30 SEC
90 SEC

FIG.14

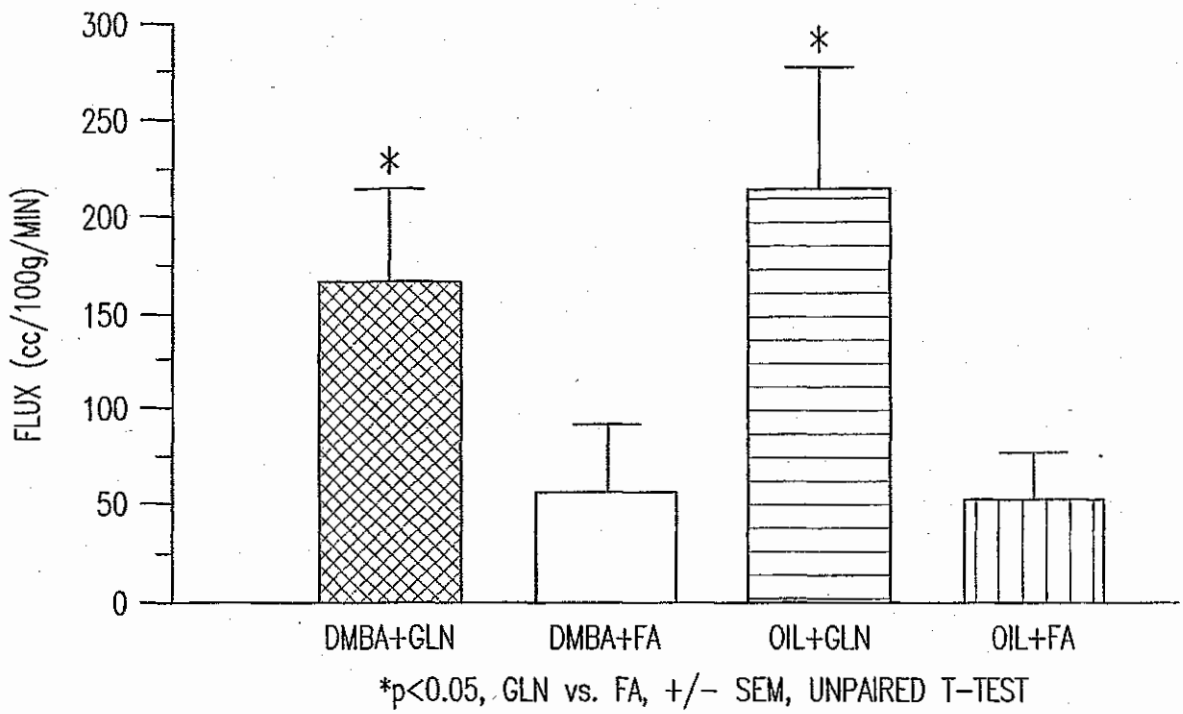


FIG. 15A

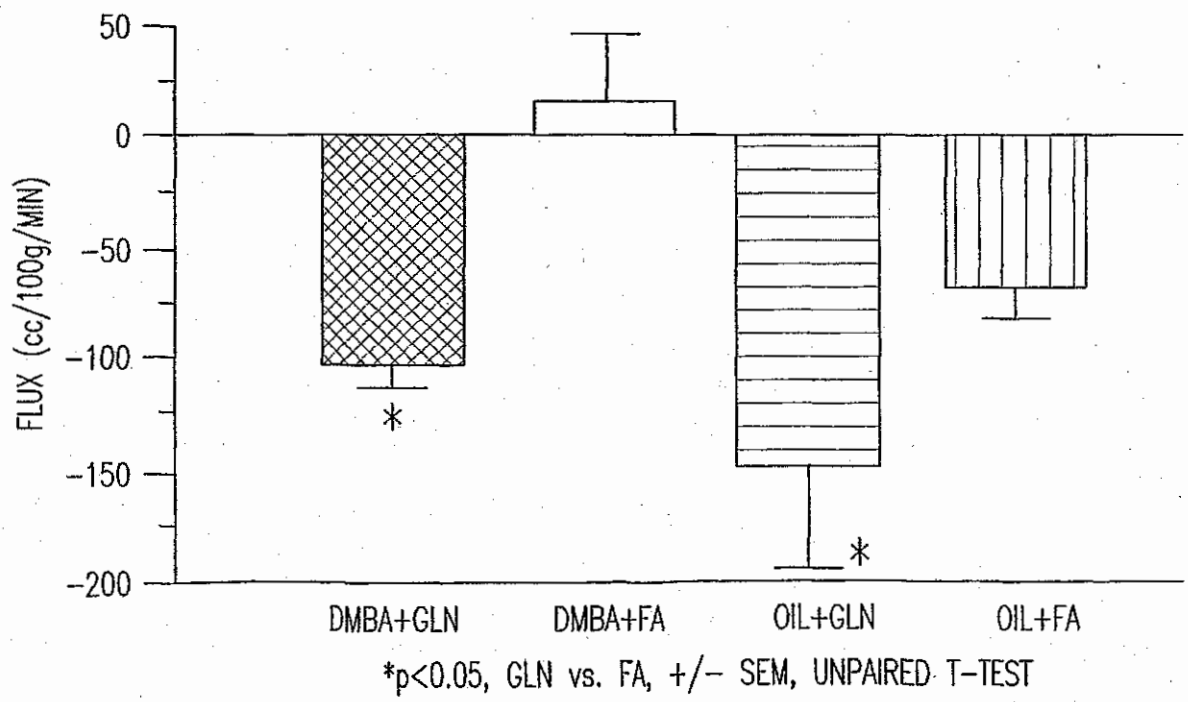
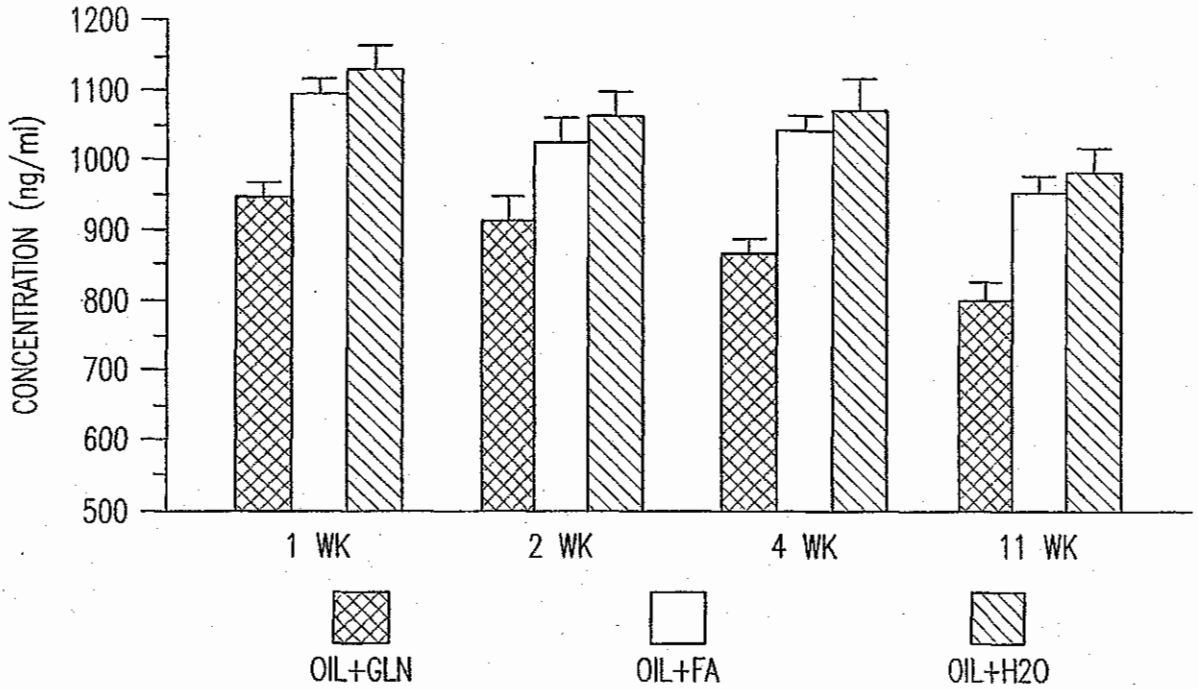
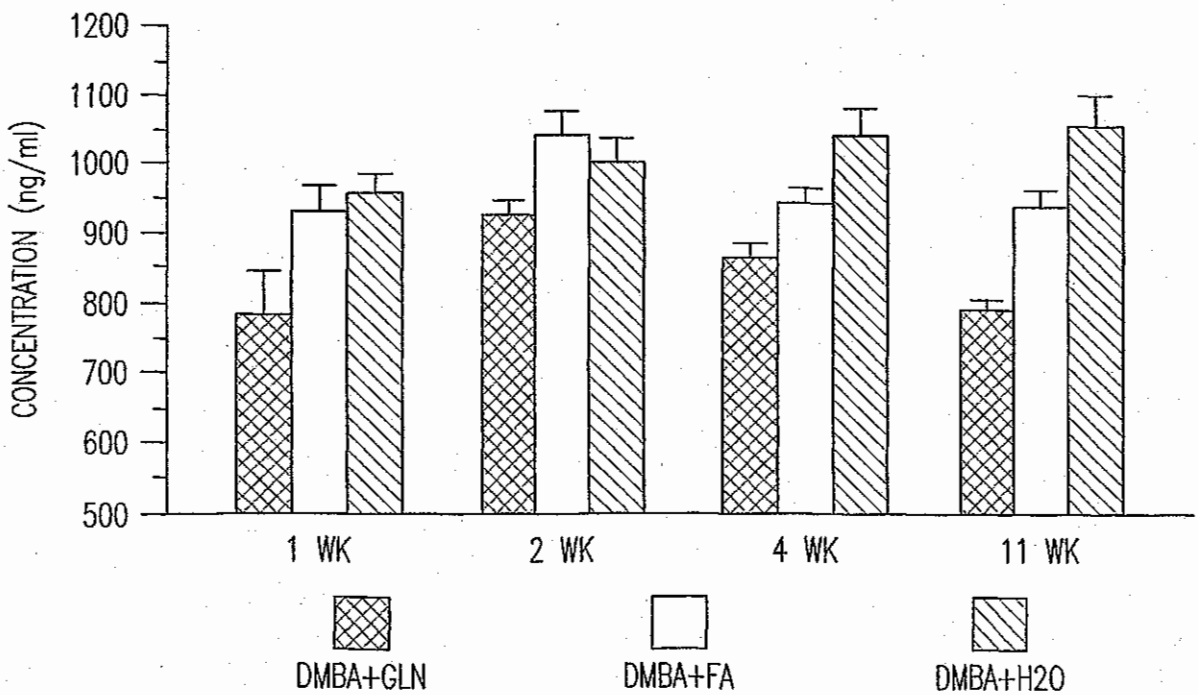


FIG. 15B



*p<0.05, ANOVA, OIL+GLN vs. OIL+FA OR OIL+H2O

FIG. 16



*p<0.05, ANOVA, DMBA+GLN vs. DMBA+FA OR DMBA+H2O

FIG. 17

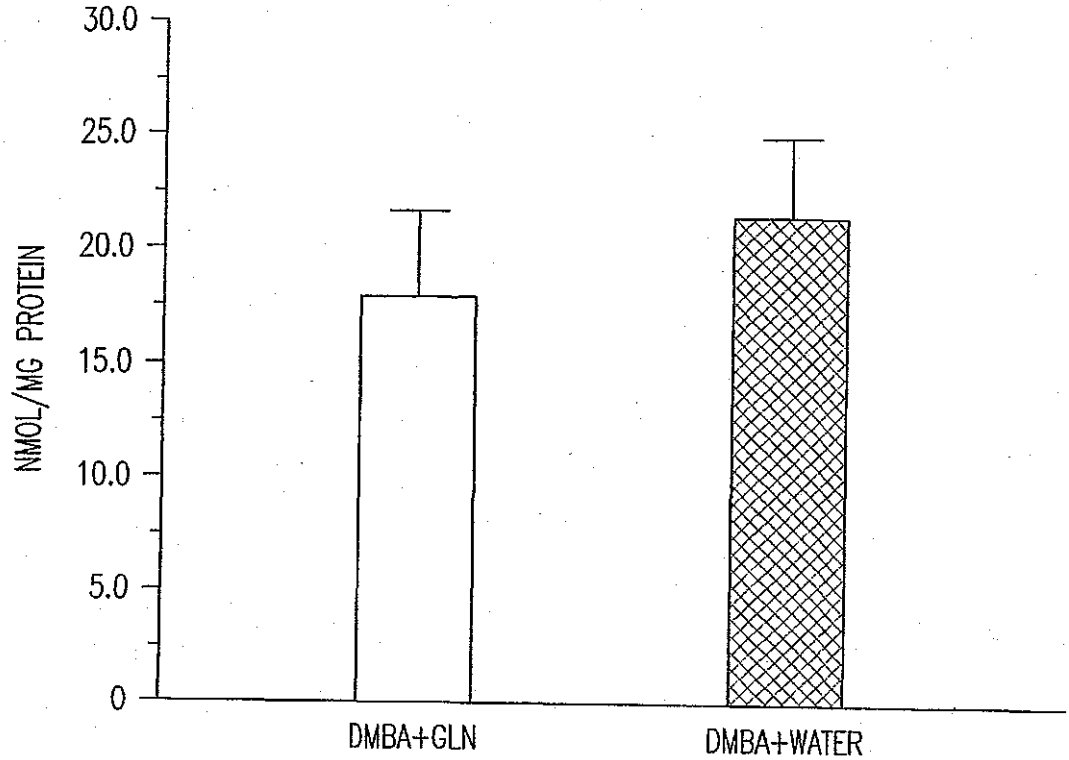


FIG. 18A

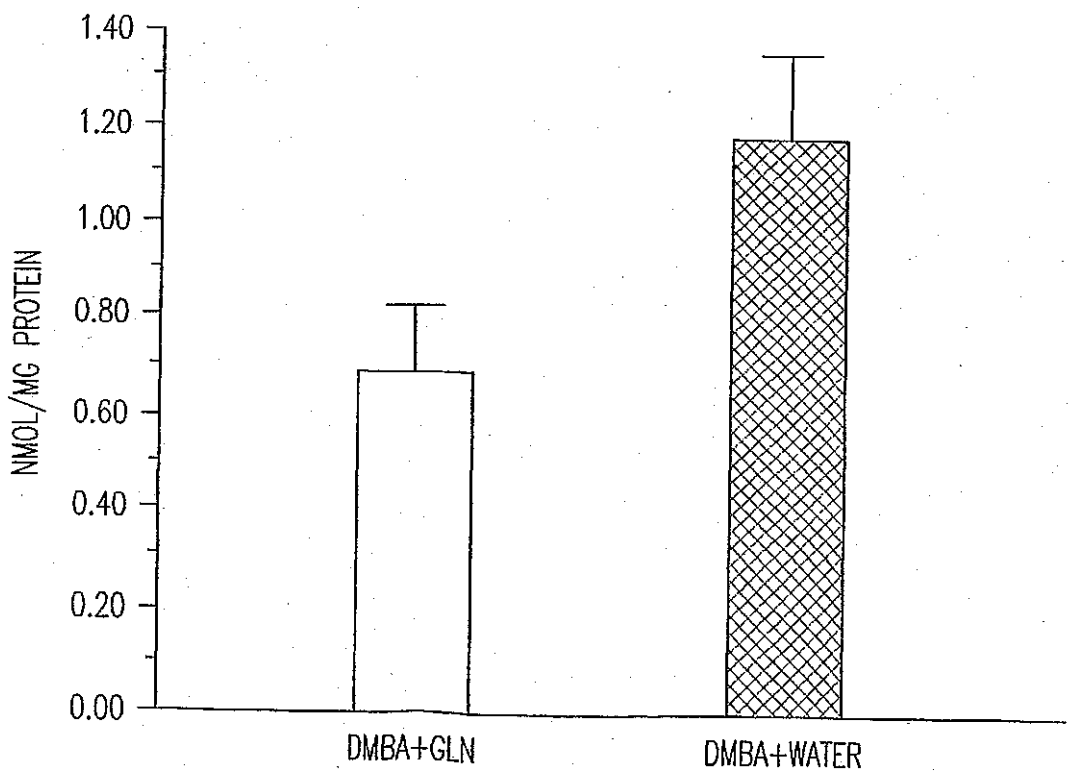


FIG. 18B

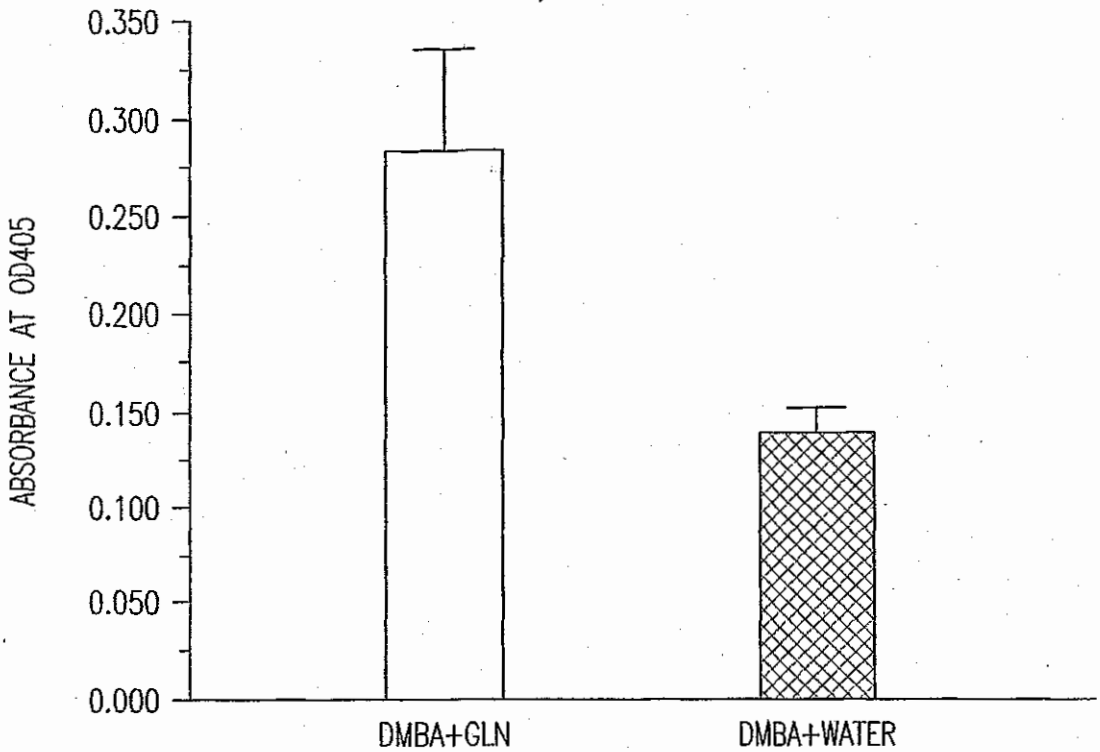

ABSORBANCE AT OD405
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
DMBA+GLN
DMBA+WATER

FIG. 19

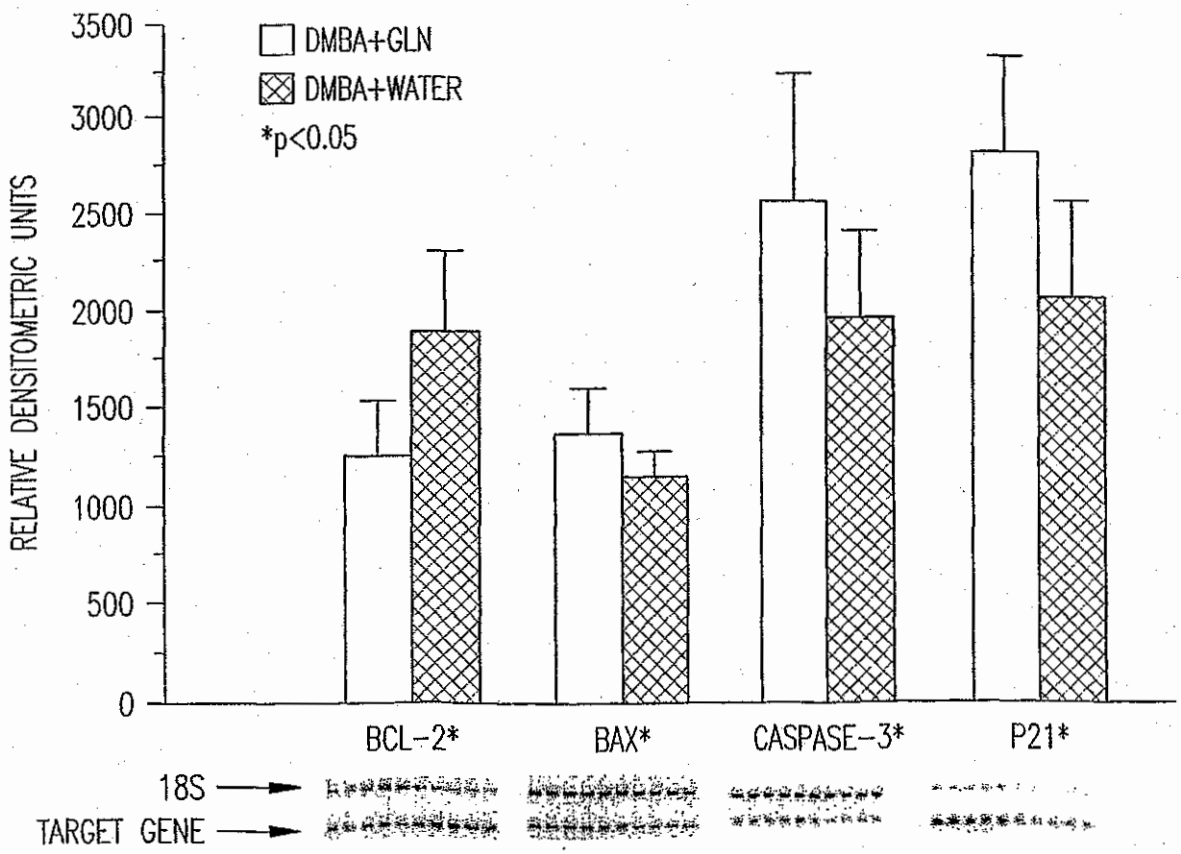

RELATIVE DENSITOMETRIC UNITS
3500
3000
2500
2000
1500
1000
500
0
DMBA+GLN
DMBA+WATER
*p<0.05
BCL-2*
BAX*
CASPASE-3*
P21*
18S
TARGET GENE

FIG. 20

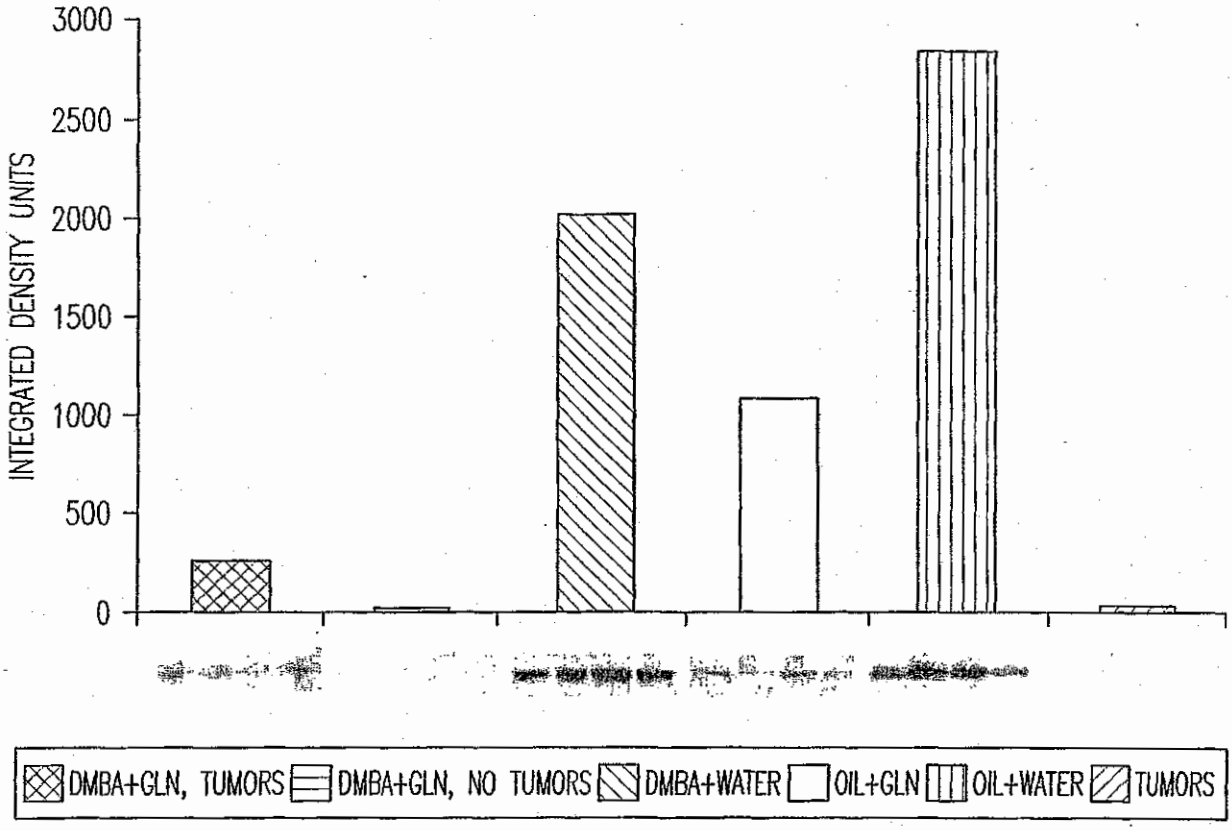

INTEGRATED DENSITY UNITS
3000
2500
2000
1500
1000
500
0
DMBA+GLN, TUMORS
DMBA+GLN, NO TUMORS
DMBA+WATER
OIL+GLN
OIL+WATER
TUMORS

FIG. 21

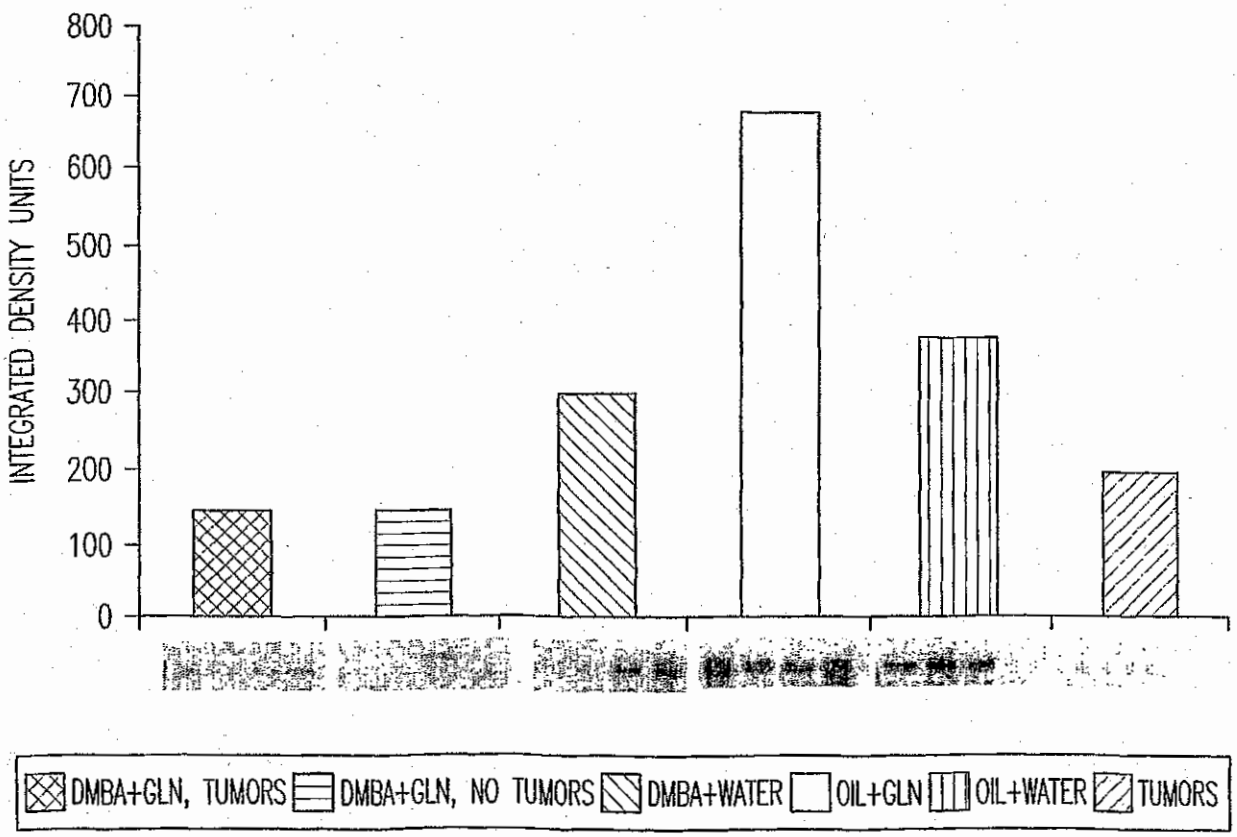

INTEGRATED DENSITY UNITS
800
700
600
500
400
300
200
100
0
DMBA+GLN, TUMORS
DMBA+GLN, NO TUMORS
DMBA+WATER
OIL+GLN
OIL+WATER
TUMORS

FIG. 22

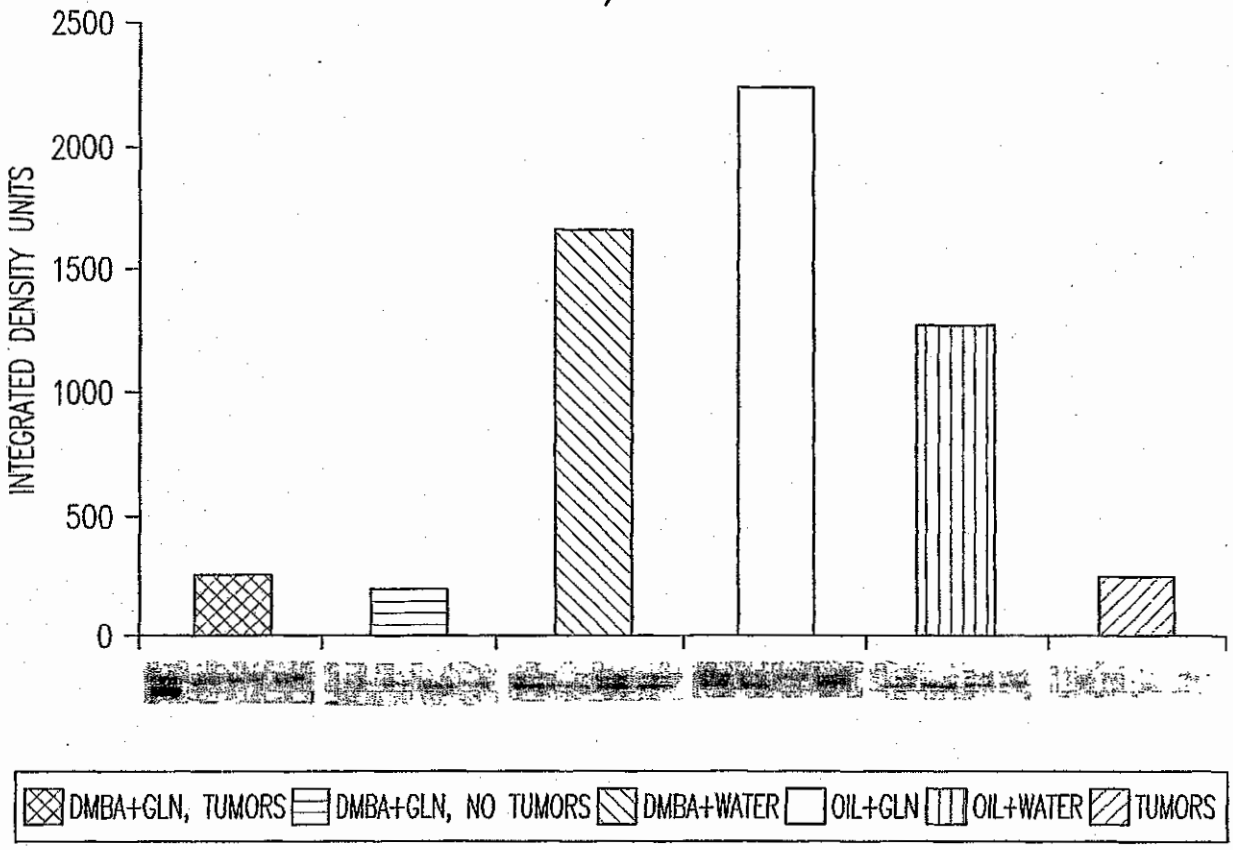

2500
2000
1500
1000
500
0
INTEGRATED DENSITY UNITS
DMBA+GLN, TUMORS
DMBA+GLN, NO TUMORS
DMBA+WATER
OIL+GLN
OIL+WATER
TUMORS

FIG. 23

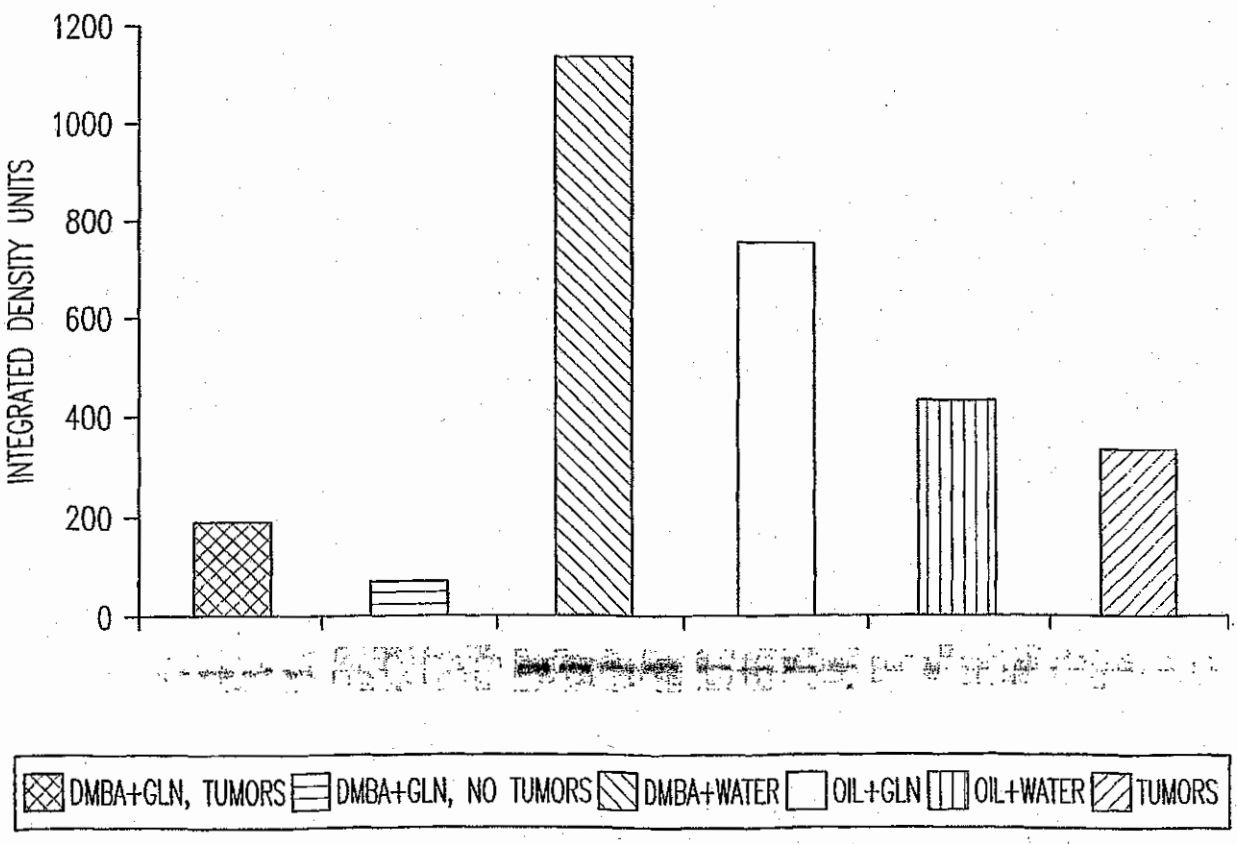

1200
1000
800
600
400
200
0
INTEGRATED DENSITY UNITS
DMBA+GLN, TUMORS
DMBA+GLN, NO TUMORS
DMBA+WATER
OIL+GLN
OIL+WATER
TUMORS

FIG. 24

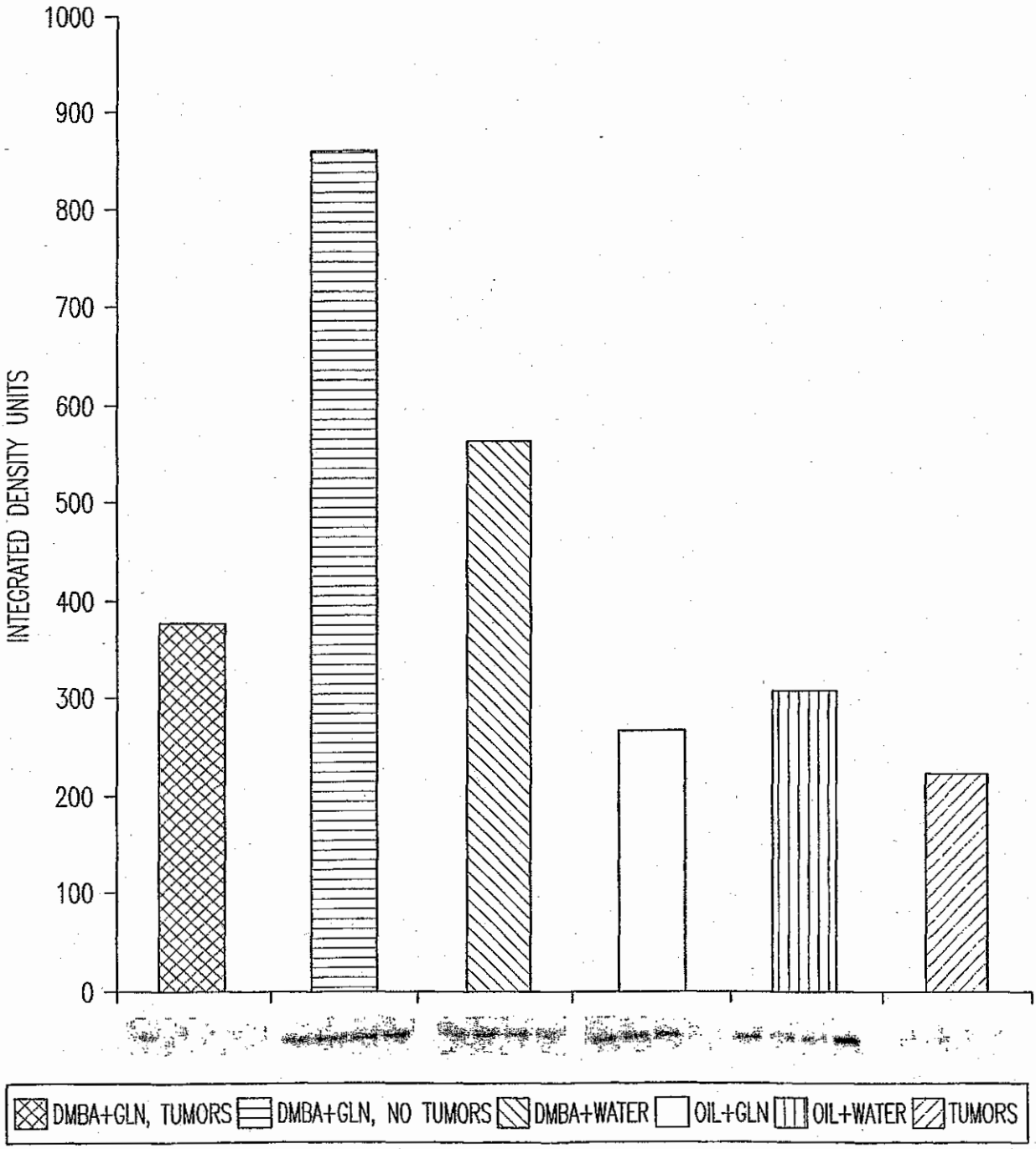

1000
900
800
700
600
500
400
300
200
100
0
INTEGRATED DENSITY UNITS
DMBA+GLN, TUMORS
DMBA+GLN, NO TUMORS
DMBA+WATER
OIL+GLN
OIL+WATER
TUMORS

FIG. 25

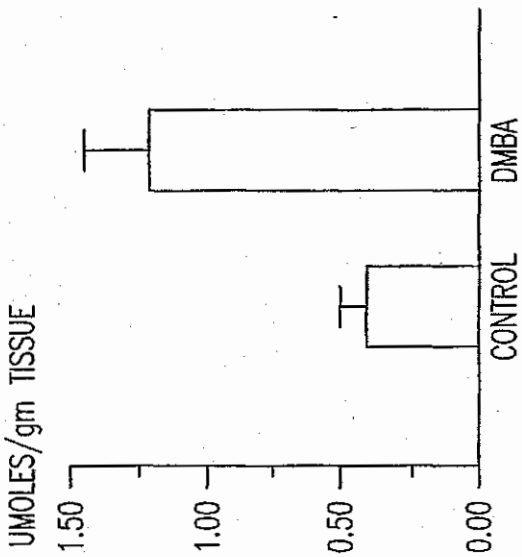


FIG. 28

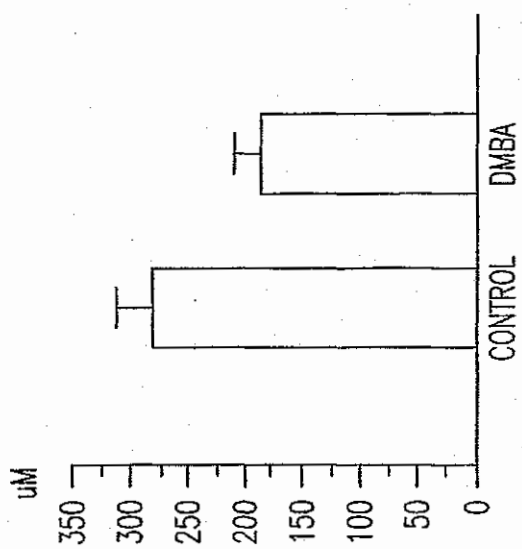


FIG. 27

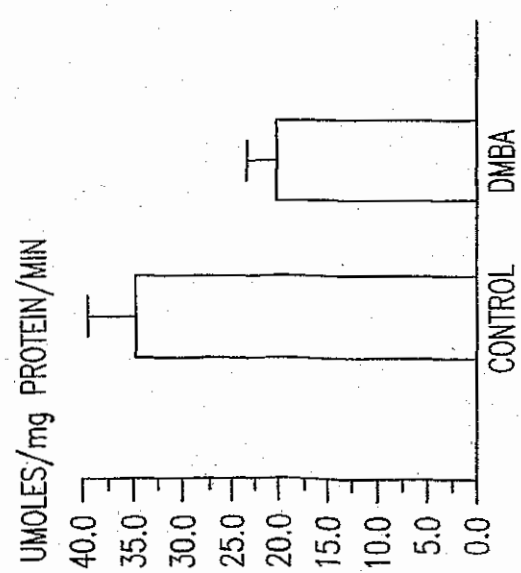


FIG. 26

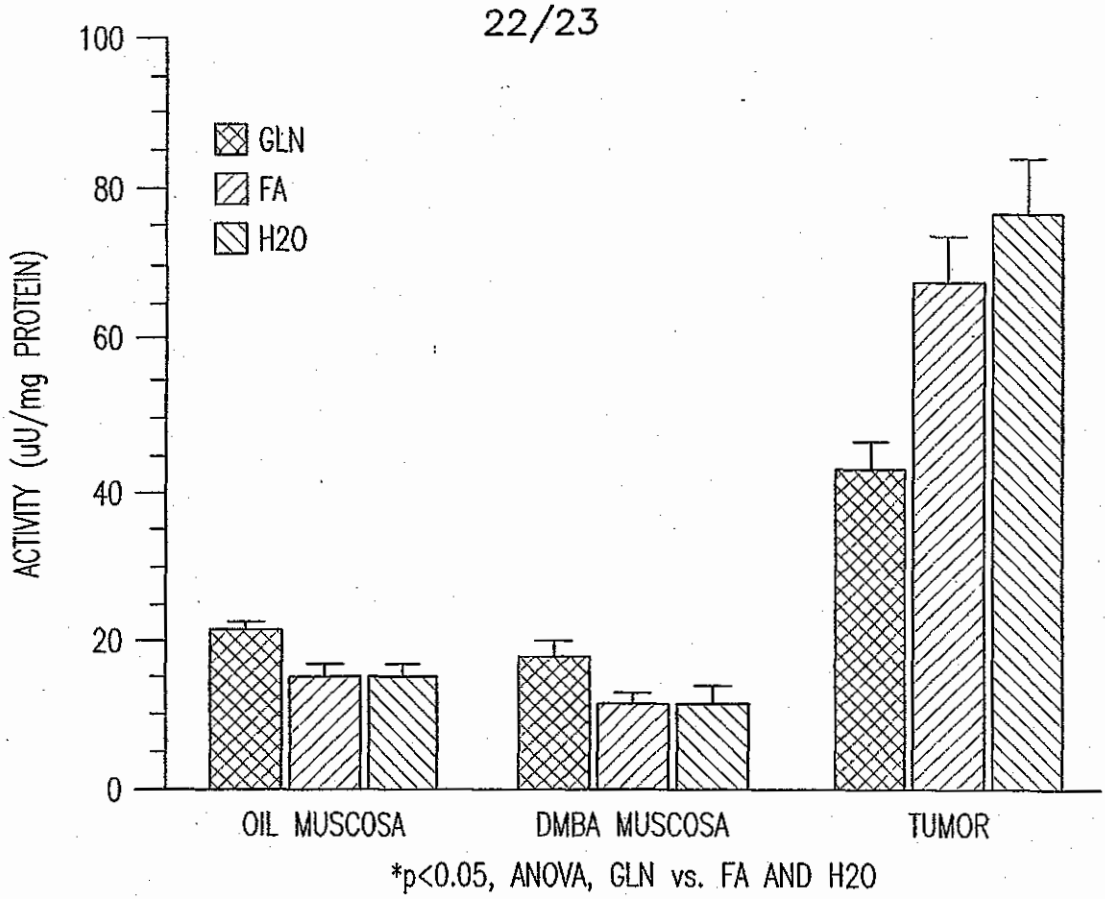

100
80
60
40
20
0
ACTIVITY (uU/mg PROTEIN)
GLN
FA
H2O
OIL MUSCOSA
DMBA MUSCOSA
TUMOR
*p<0.05, ANOVA, GLN vs. FA AND H2O

FIG. 29

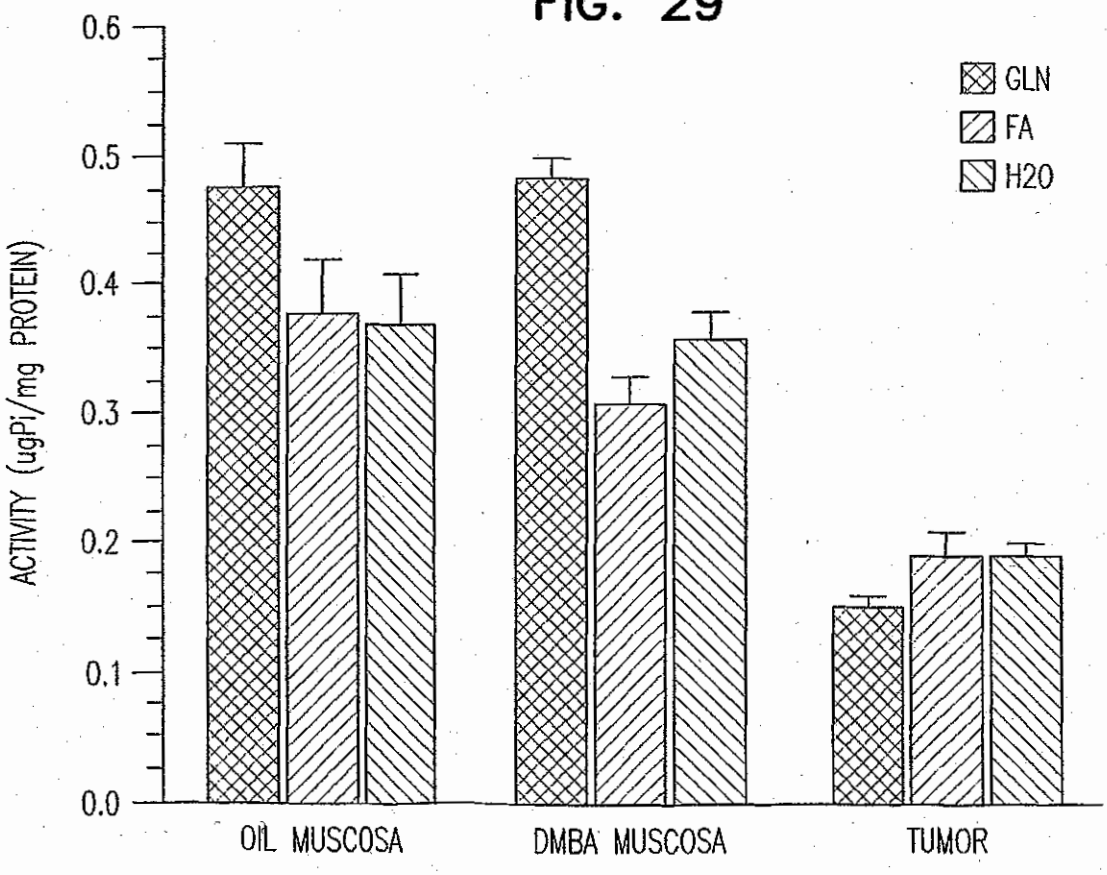

0.6
0.5
0.4
0.3
0.2
0.1
0.0
ACTIVITY (ugPi/mg PROTEIN)
GLN
FA
H2O
OIL MUSCOSA
DMBA MUSCOSA
TUMOR
*p<0.05, ANOVA, GLN vs. FA AND H2O

FIG. 30

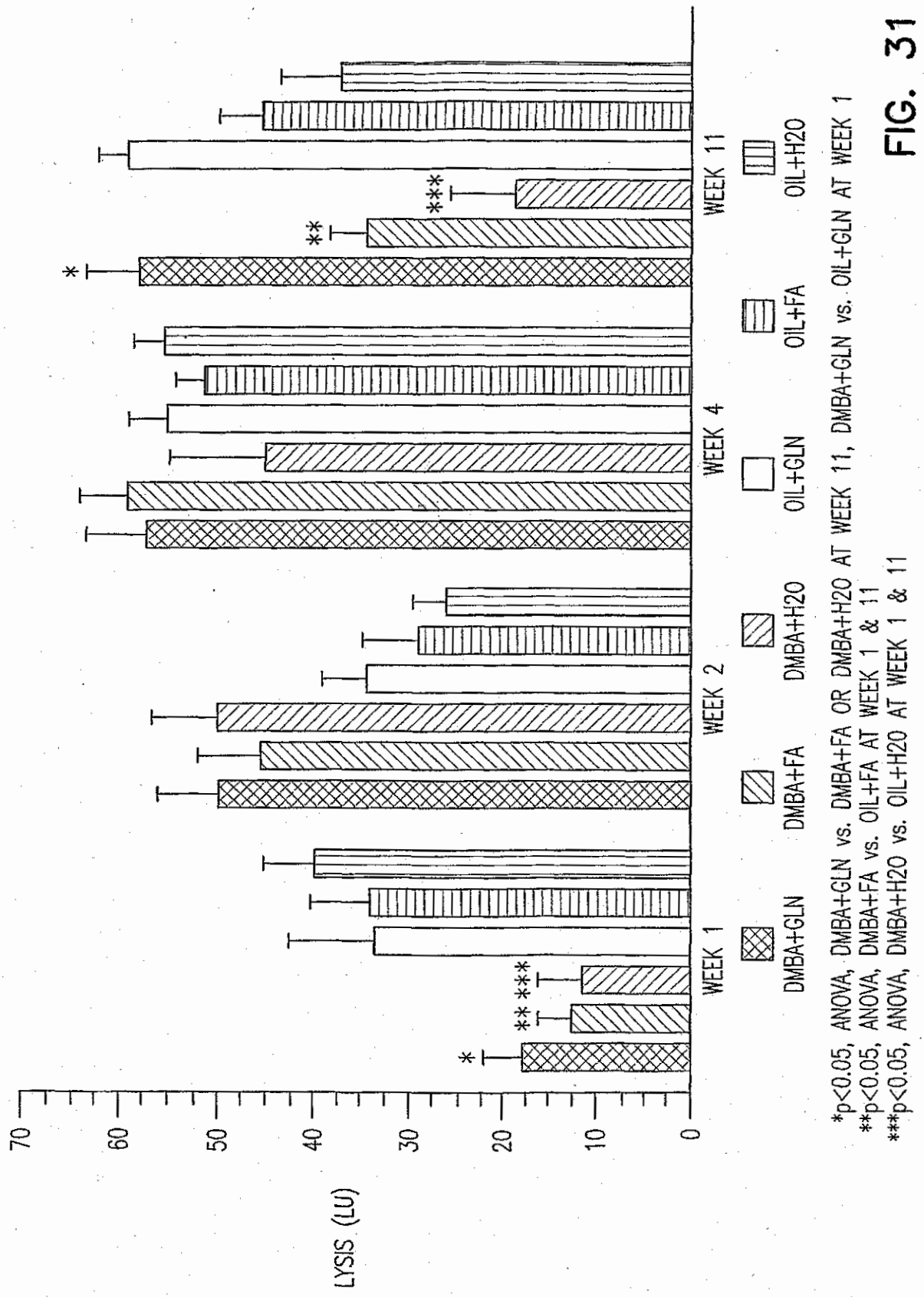

LYSIS (LU)
70
60
50
40
30
20
10
0
WEEK 1
WEEK 2
WEEK 4
WEEK 11
DMBA+GLN
DMBA+FA
DMBA+H2O
OIL+GLN
OIL+FA
OIL+H2O
*
**
***
*p<0.05, ANOVA, DMBA+GLN vs. DMBA+FA OR DMBA+H2O AT WEEK 11, DMBA+GLN vs. OIL+GLN AT WEEK 1
**p<0.05, ANOVA, DMBA+FA vs. OIL+FA AT WEEK 1 & 11
***p<0.05, ANOVA, DMBA+H2O vs. OIL+H2O AT WEEK 1 & 11

FIG. 31

SEQUENCE LISTING

<110> Klimberg, V.S.
Petit, R.G.
Shinal, E.C.

<120> Improved treatment of cancer with glutamine

<130> 781.020WO1

<150> US 60/400,446
<151> 2002-08-01

<160> 4

<210> 1
<211> 21
<212> DNA
<213> Rattus norvegicus

<400> 1
cgatgcagct aacctcagag a 21

<210> 2
<211> 21
<212> DNA
<213> Rattus norvegicus

<400> 2
ccttccggtt aacacgagtg a 21

<210> 3
<211> 21
<212> DNA
<213> Rattus norvegicus

<400> 3
gatcctggtg atgtccgacc t 21

<210> 4
<211> 22
<212> DNA
<213> Rattus norvegicus

<400> 4
ggaactttga cttcgccact ga 22