FIGURE 1

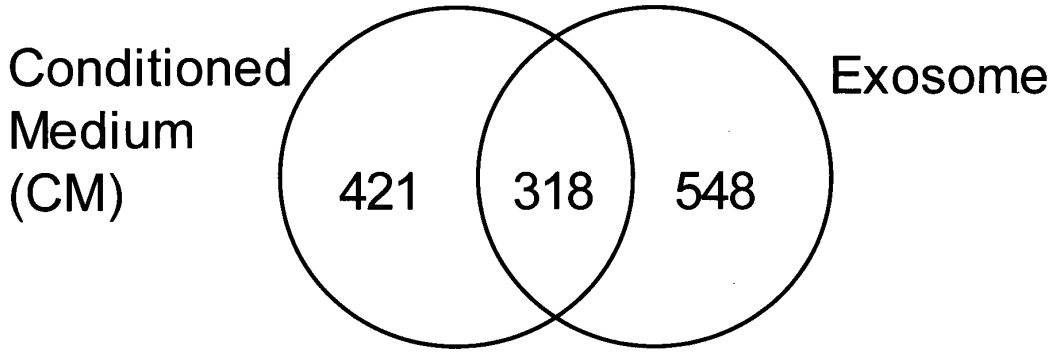


FIGURE 2

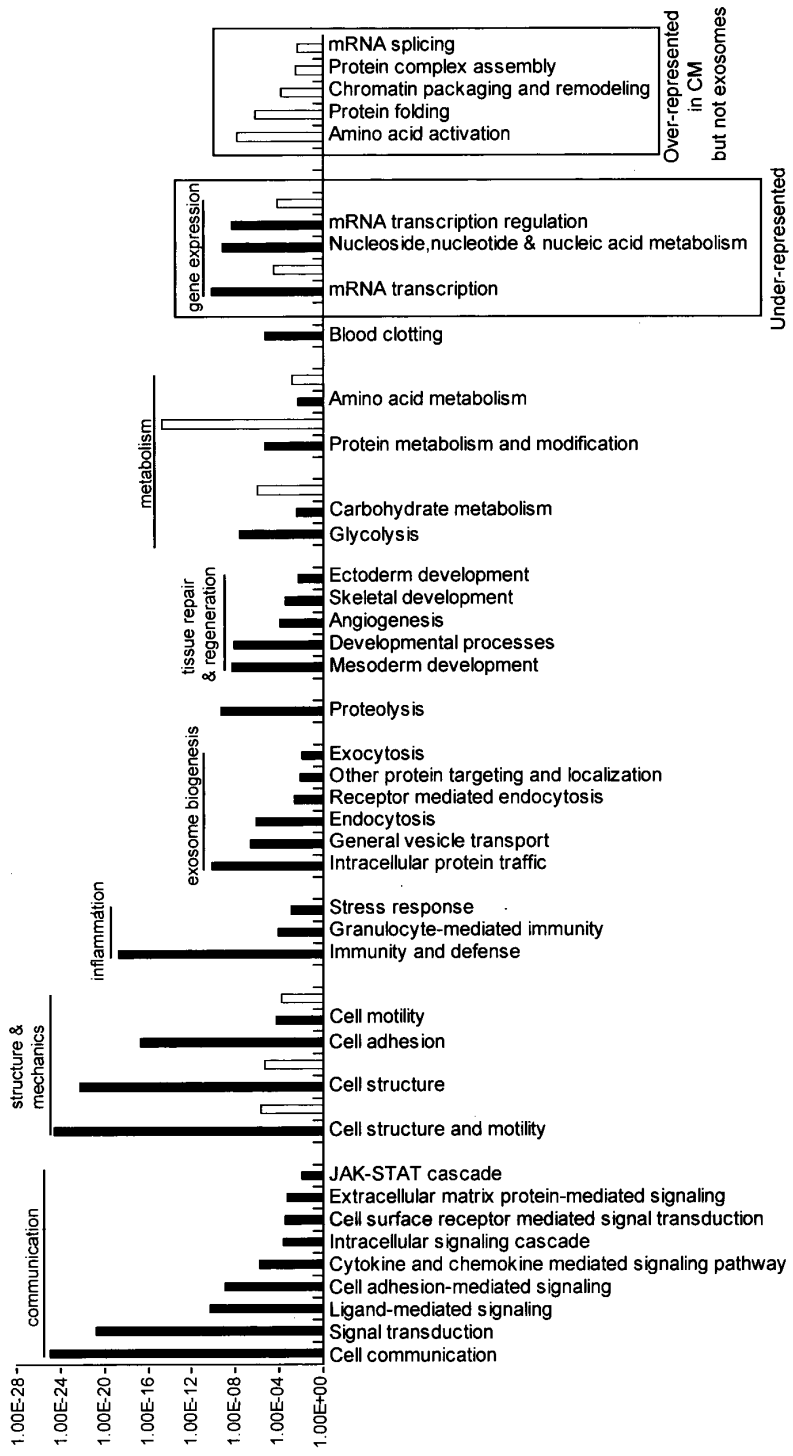

mRNA splicing
Protein complex assembly
Chromatin packaging and remodeling
Protein folding
Amino acid activation
Over-represented in CM but not exosomes
gene expression
mRNA transcription regulation
Nucleoside,nucleotide & nucleic acid metabolism
mRNA transcription
Under-represented
Blood clotting
metabolism
Amino acid metabolism
Protein metabolism and modification
Carbohydrate metabolism
Glycolysis
tissue repair & regeneration
Ectoderm development
Skeletal development
Angiogenesis
Developmental processes
Mesoderm development
Proteolysis
exosome biogenesis
Exocytosis
Other protein targeting and localization
Receptor mediated endocytosis
Endocytosis
General vesicle transport
Intracellular protein traffic
inflammation
Stress response
Granulocyte-mediated immunity
Immunity and defense
structure & mechanics
Cell motility
Cell adhesion
Cell structure
Cell structure and motility
communication
JAK-STAT cascade
Extracellular matrix protein-mediated signaling
Cell surface receptor mediated signal transduction
Intracellular signaling cascade
Cytokine and chemokine mediated signaling pathway
Cell adhesion-mediated signaling
Ligand-mediated signaling
Signal transduction
Cell communication
1.00E-28
1.00E-24
1.00E-20
1.00E-16
1.00E-12
1.00E-08
1.00E-04
1.00E+00

FIGURE 3A

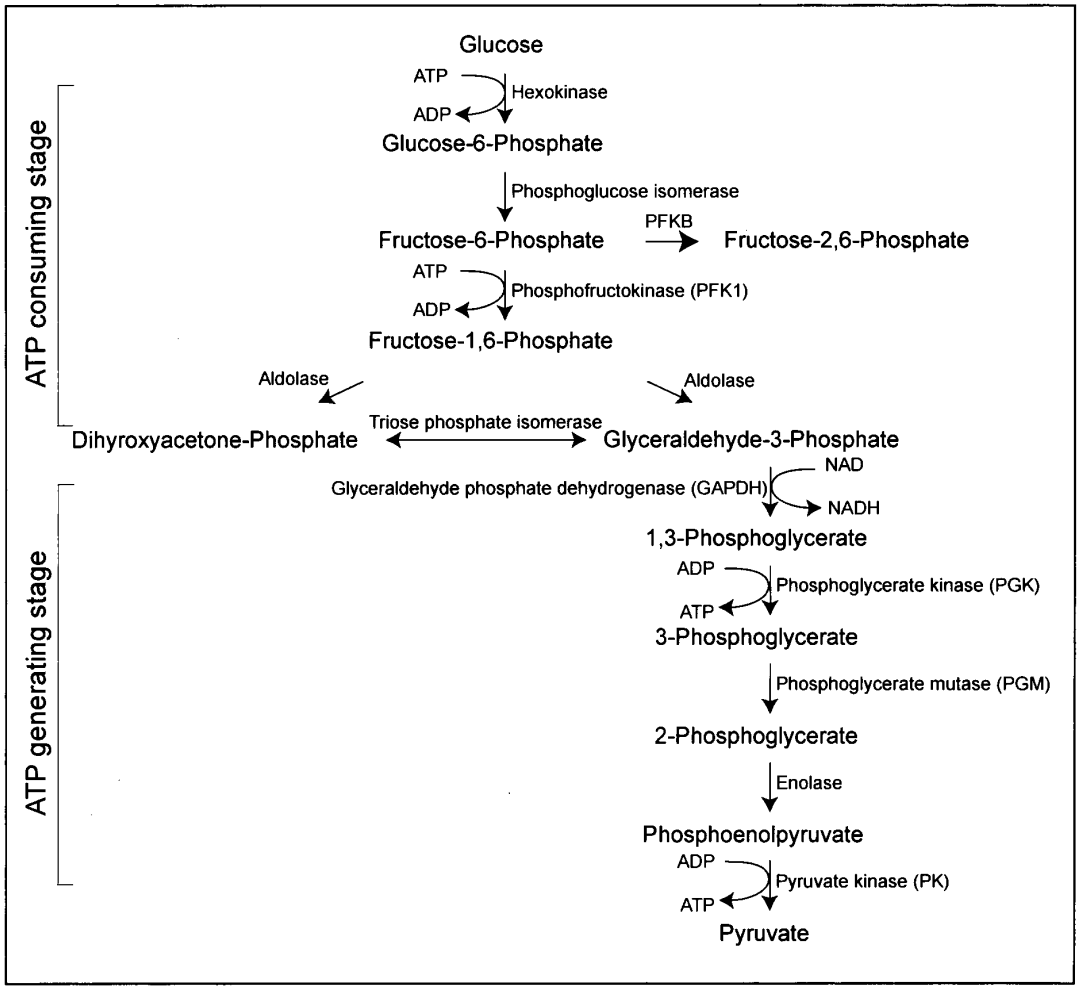

Glucose
ATP
Hexokinase
ADP
Glucose-6-Phosphate
Phosphoglucose isomerase
Fructose-6-Phosphate
PFKB
Fructose-2,6-Phosphate
ATP
Phosphofructokinase (PFK1)
ADP
Fructose-1,6-Phosphate
Aldolase
Aldolase
Triose phosphate isomerase
Dihyroxyacetone-Phosphate
Glyceraldehyde-3-Phosphate
NAD
Glyceraldehyde phosphate dehydrogenase (GAPDH)
NADH
1,3-Phosphoglycerate
ADP
Phosphoglycerate kinase (PGK)
ATP
3-Phosphoglycerate
Phosphoglycerate mutase (PGM)
2-Phosphoglycerate
Enolase
Phosphoenolpyruvate
ADP
Pyruvate kinase (PK)
ATP
Pyruvate
ATP consuming stage
ATP generating stage

FIGURE 3B

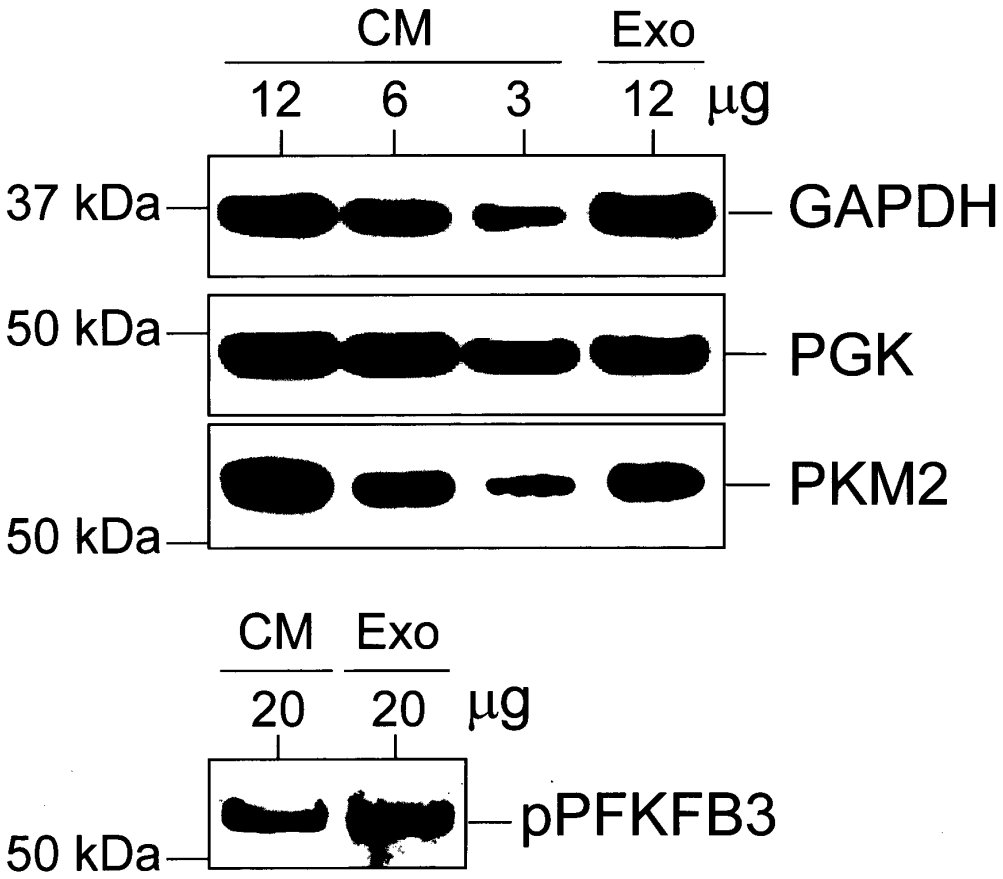

CM
Exo
12
6
3
12
µg
37 kDa
GAPDH
50 kDa
PGK
PKM2
50 kDa
CM
Exo
20
20
µg
pPFKFB3
50 kDa

FIGURE 3C

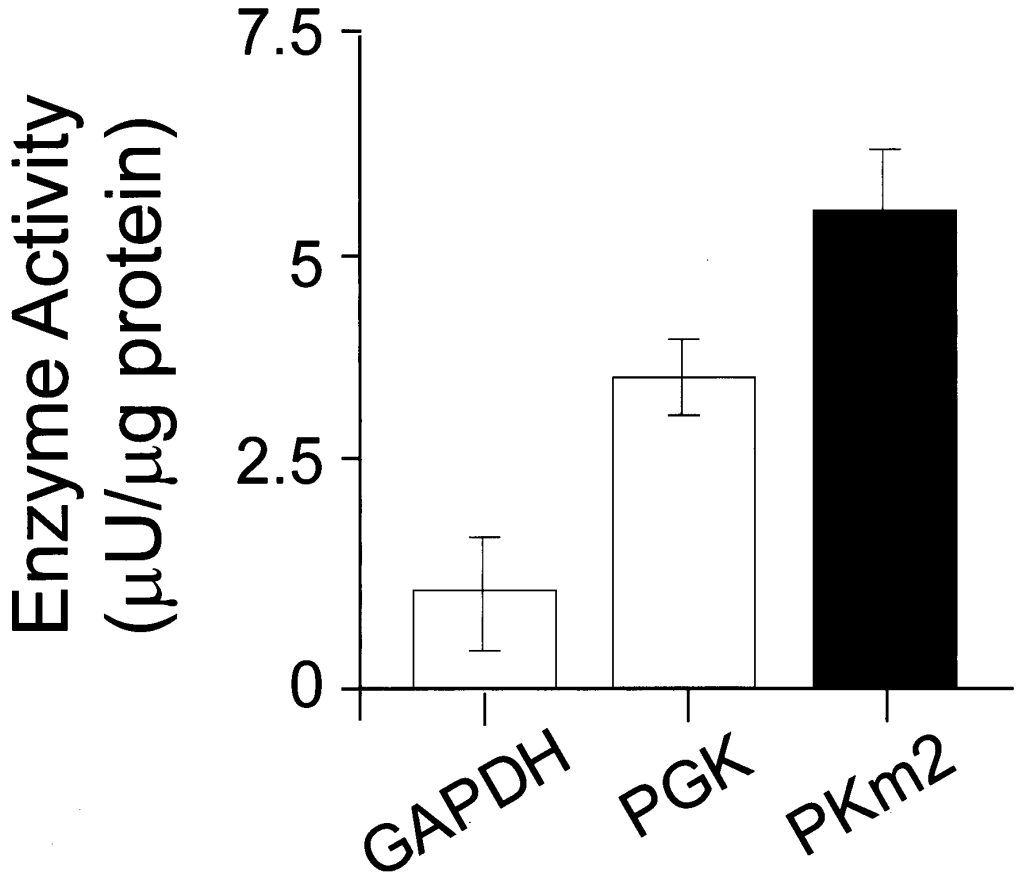


FIGURE 3D

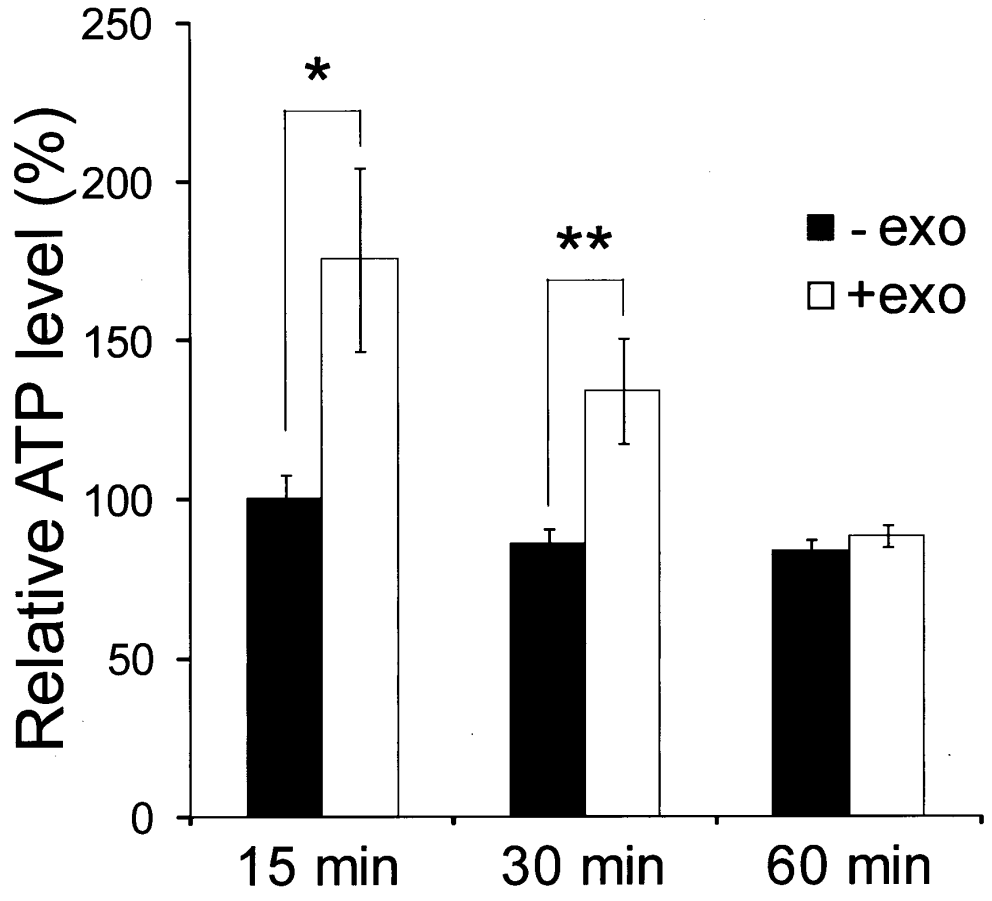

250
200
150
100
50
0
Relative ATP level (%)
*
**
■ - exo
□ +exo
15 min
30 min
60 min

FIGURE 4A

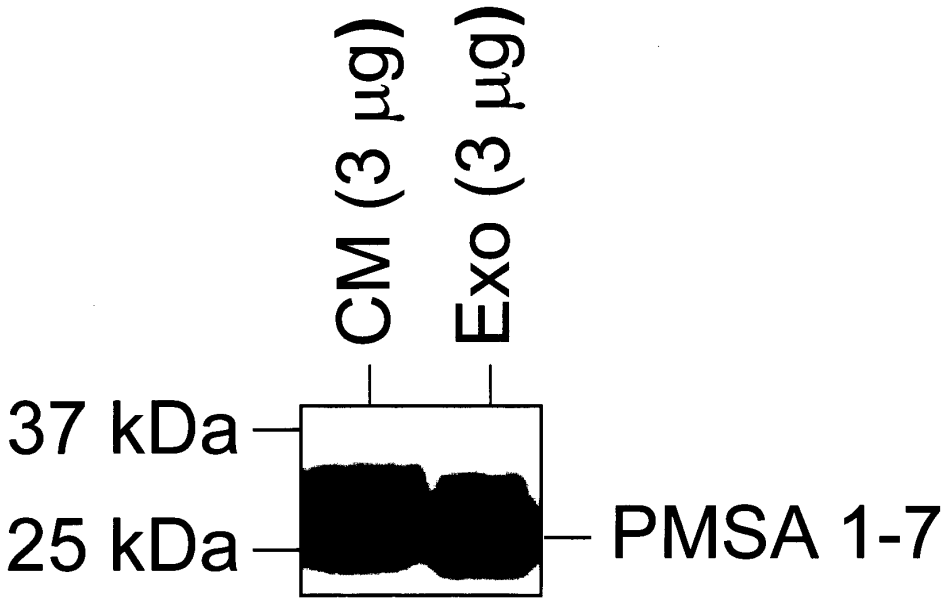


FIGURE 4B

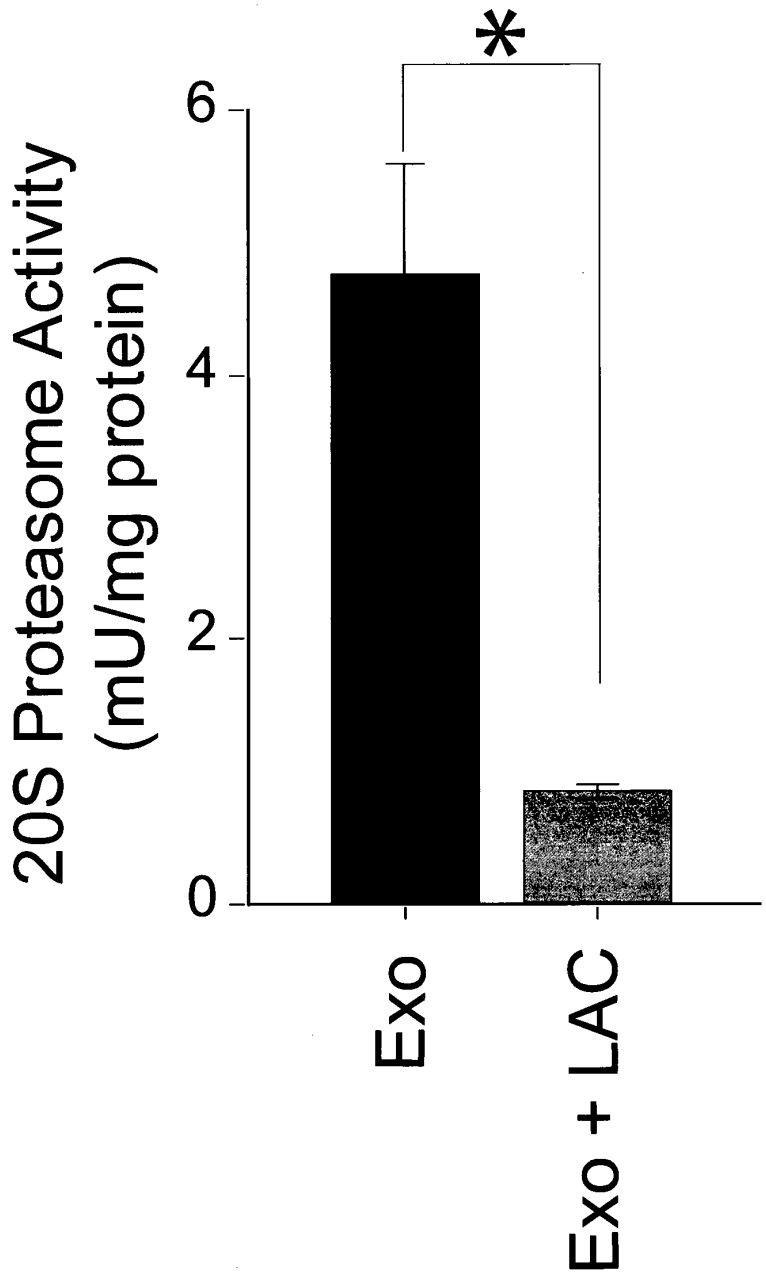


FIGURE 5A

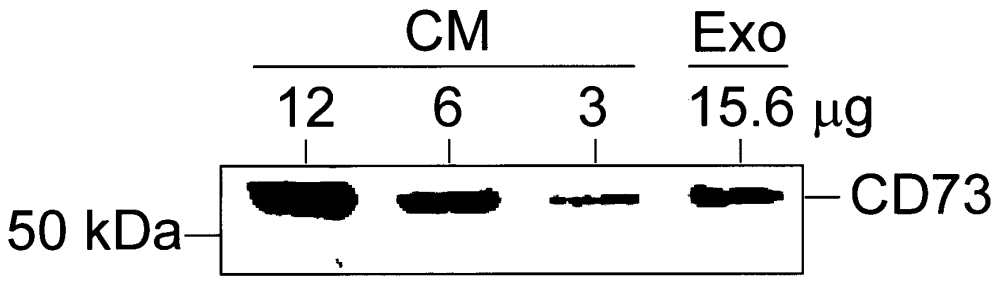


FIGURE 5B

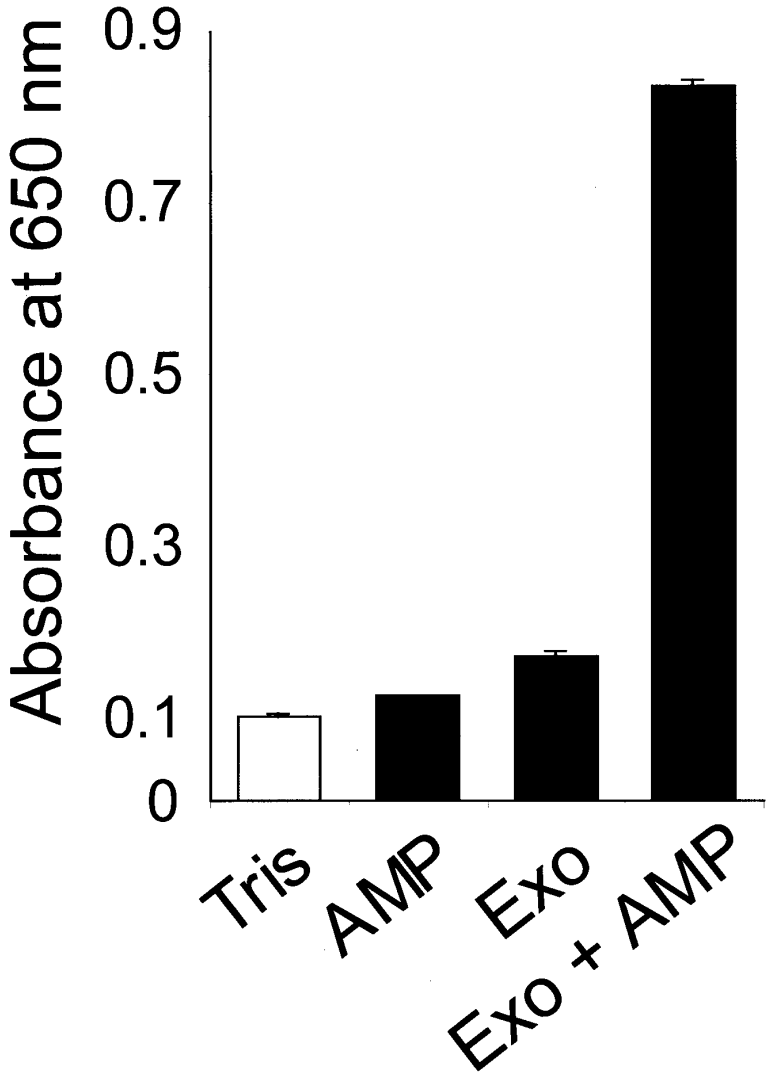


FIGURE 5C

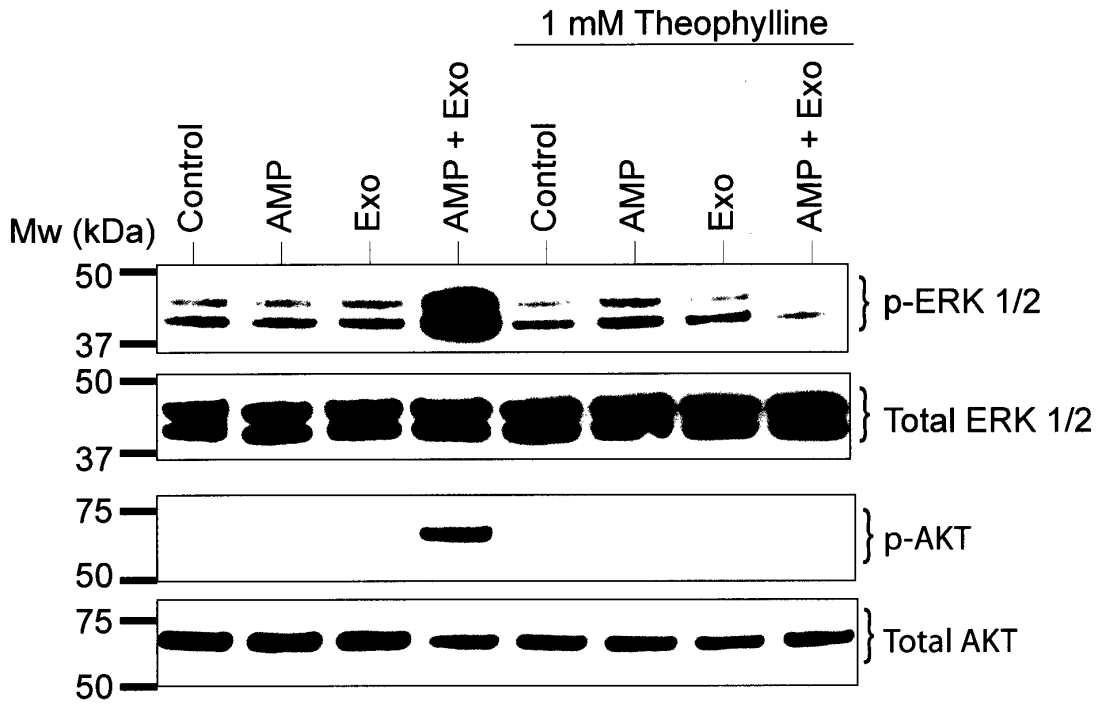

1 mM Theophylline
Control
AMP
Exo
AMP + Exo
Control
AMP
Exo
AMP + Exo
Mw (kDa)
50
37
50
37
75
50
75
50
p-ERK 1/2
Total ERK 1/2
p-AKT
Total AKT

FIGURE 6A

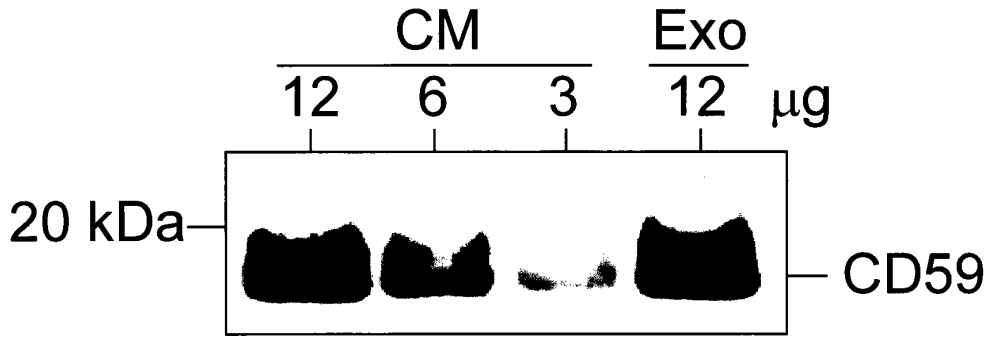


FIGURE 6B

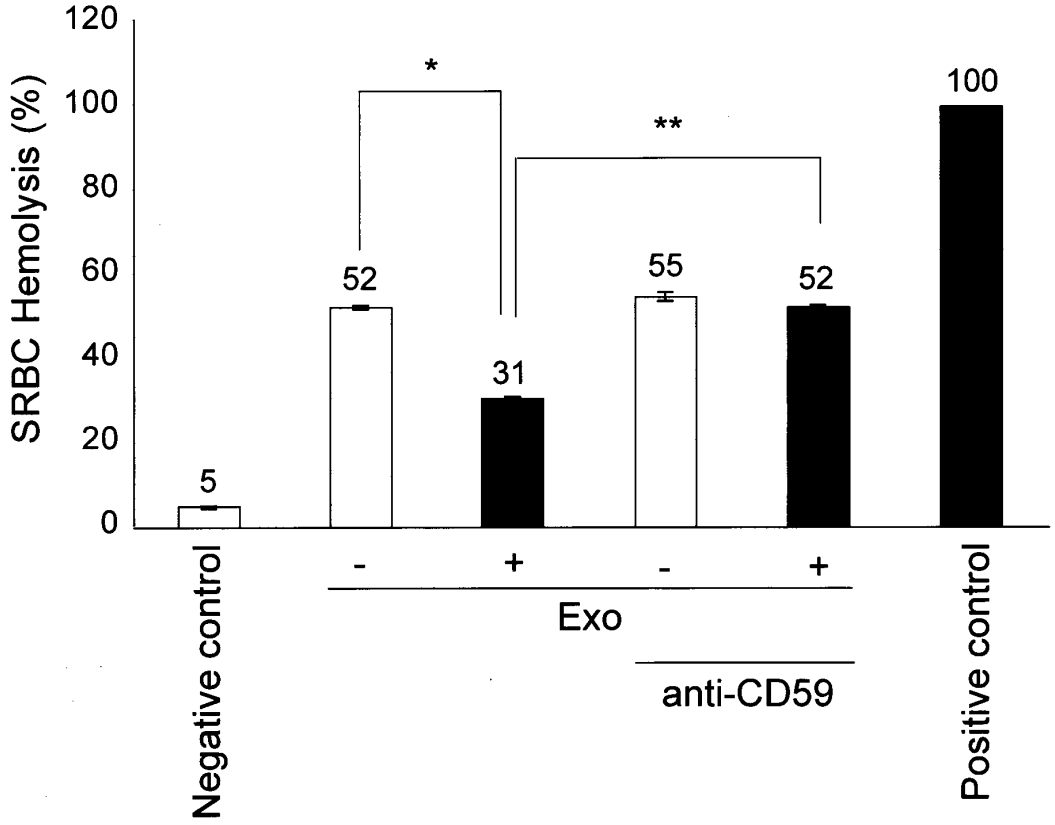

SRBC Hemolysis (%)
120
100
80
60
40
20
0
*
**
5
52
31
55
52
100
-
+
-
+
Exo
anti-CD59
Negative control
Positive control

FIGURE 7

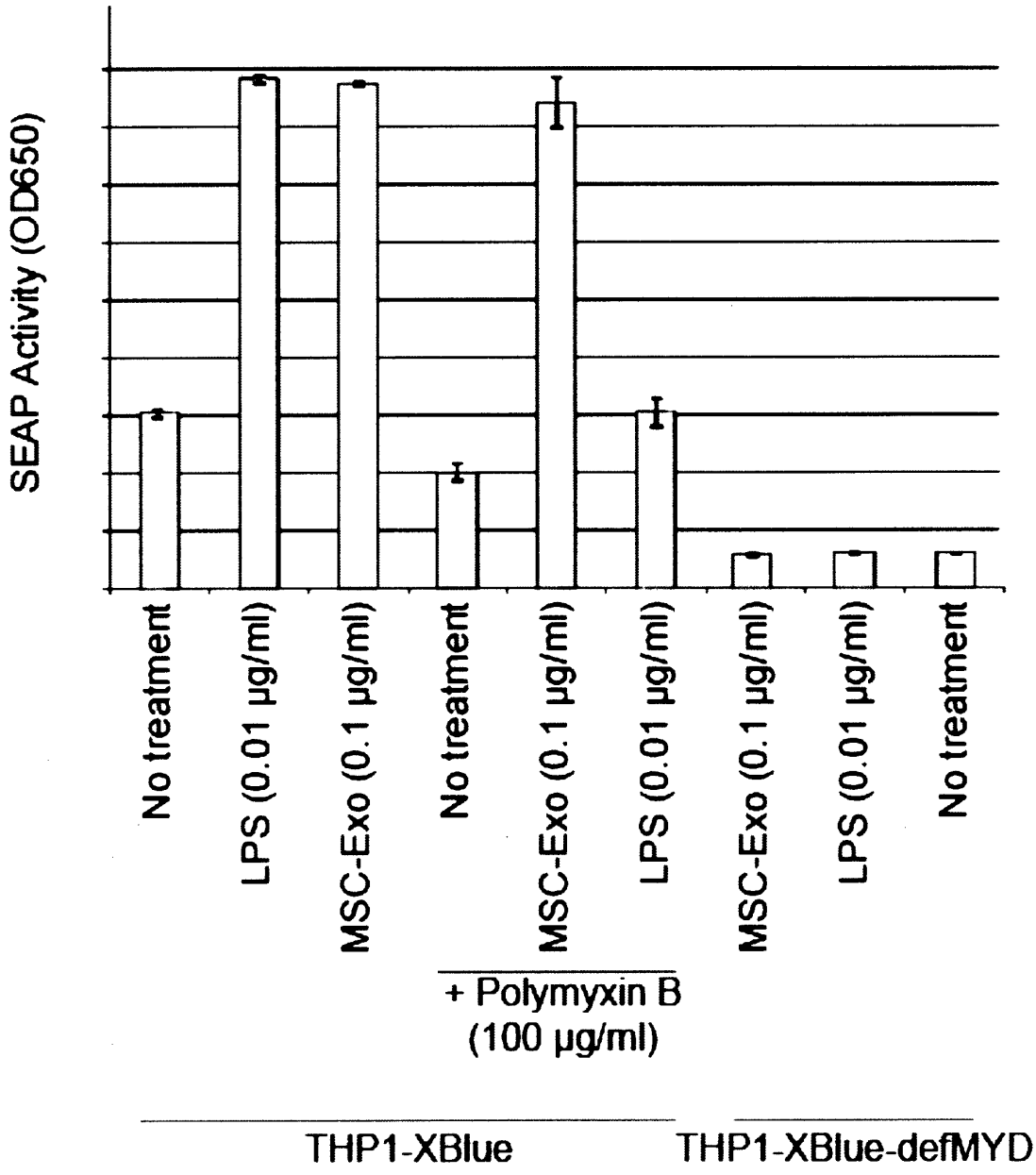

SEAP Activity (OD650)
No treatment
LPS (0.01 µg/ml)
MSC-Exo (0.1 µg/ml)
No treatment
MSC-Exo (0.1 µg/ml)
LPS (0.01 µg/ml)
MSC-Exo (0.1 µg/ml)
LPS (0.01 µg/ml)
No treatment
+ Polymyxin B
(100 µg/ml)
THP1-XBlue
THP1-XBlue-defMYD

FIGURE 8

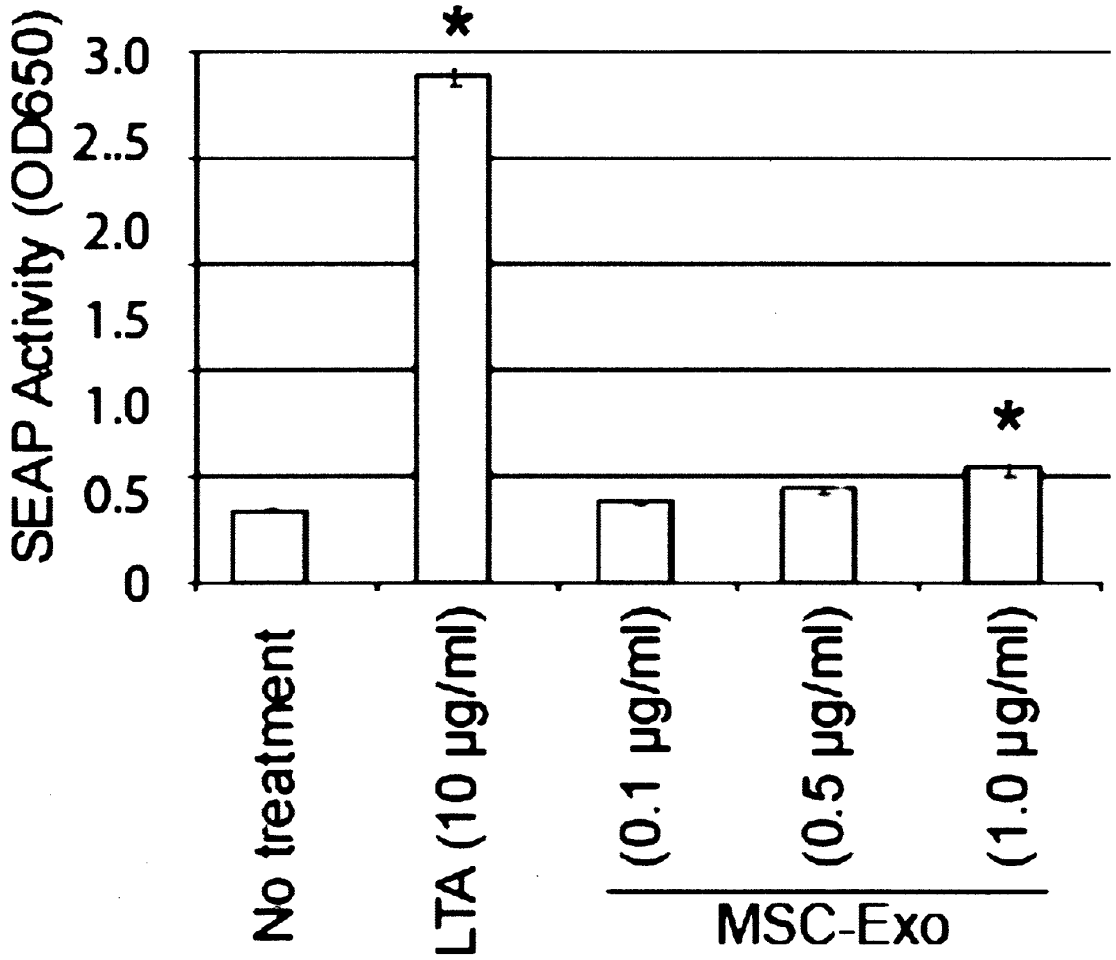

SEAP Activity (OD650)
3.0
2.5
2.0
1.5
1.0
0.5
0
*
*
No treatment
LTA (10 μg/ml)
(0.1 μg/ml)
(0.5 μg/ml)
(1.0 μg/ml)
MSC-Exo

FIGURE 9

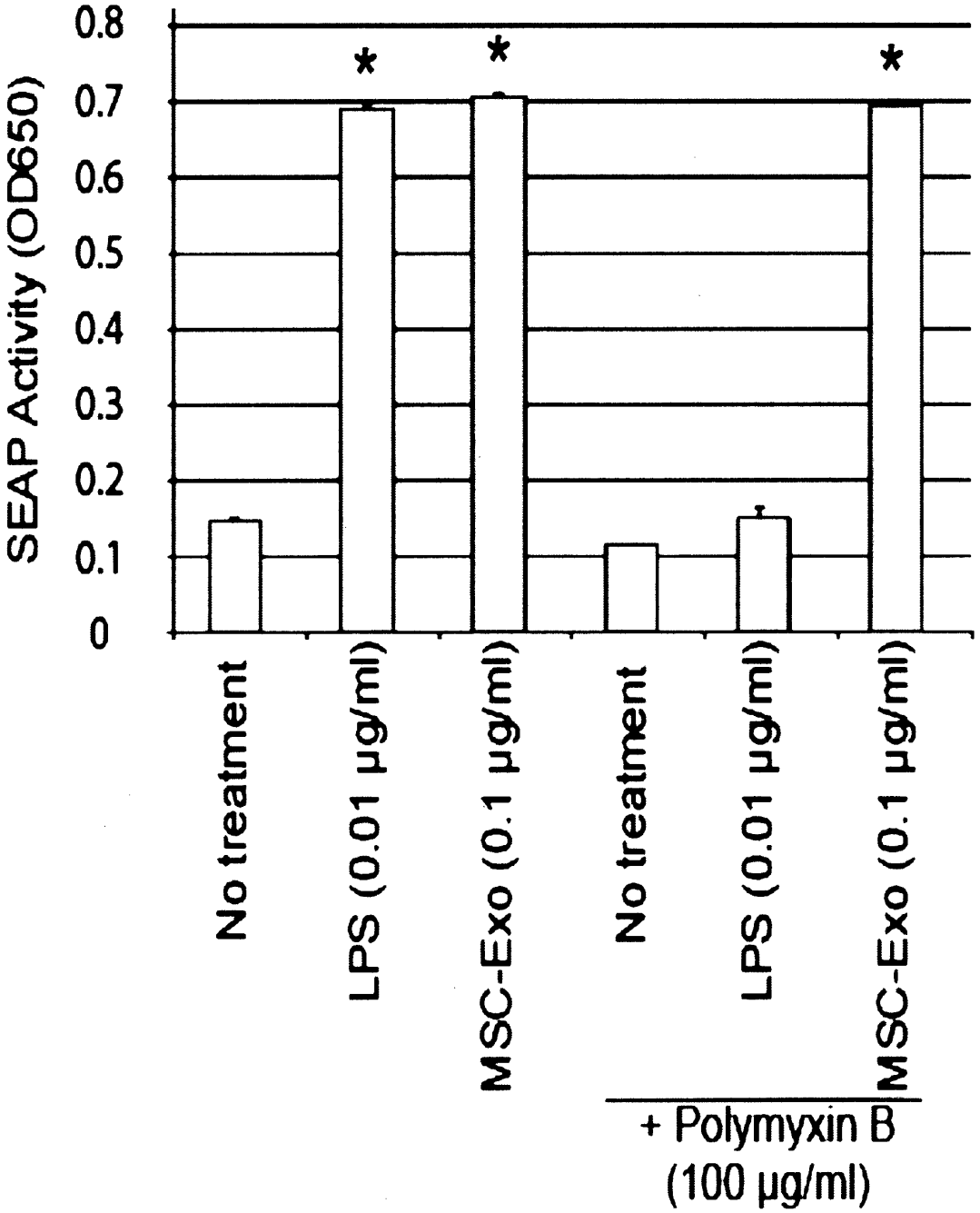

SEAP Activity (OD650)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
*
*
*
No treatment
LPS (0.01 µg/ml)
MSC-Exo (0.1 µg/ml)
No treatment
LPS (0.01 µg/ml)
MSC-Exo (0.1 µg/ml)
+ Polymyxin B
(100 µg/ml)

FIGURE 10

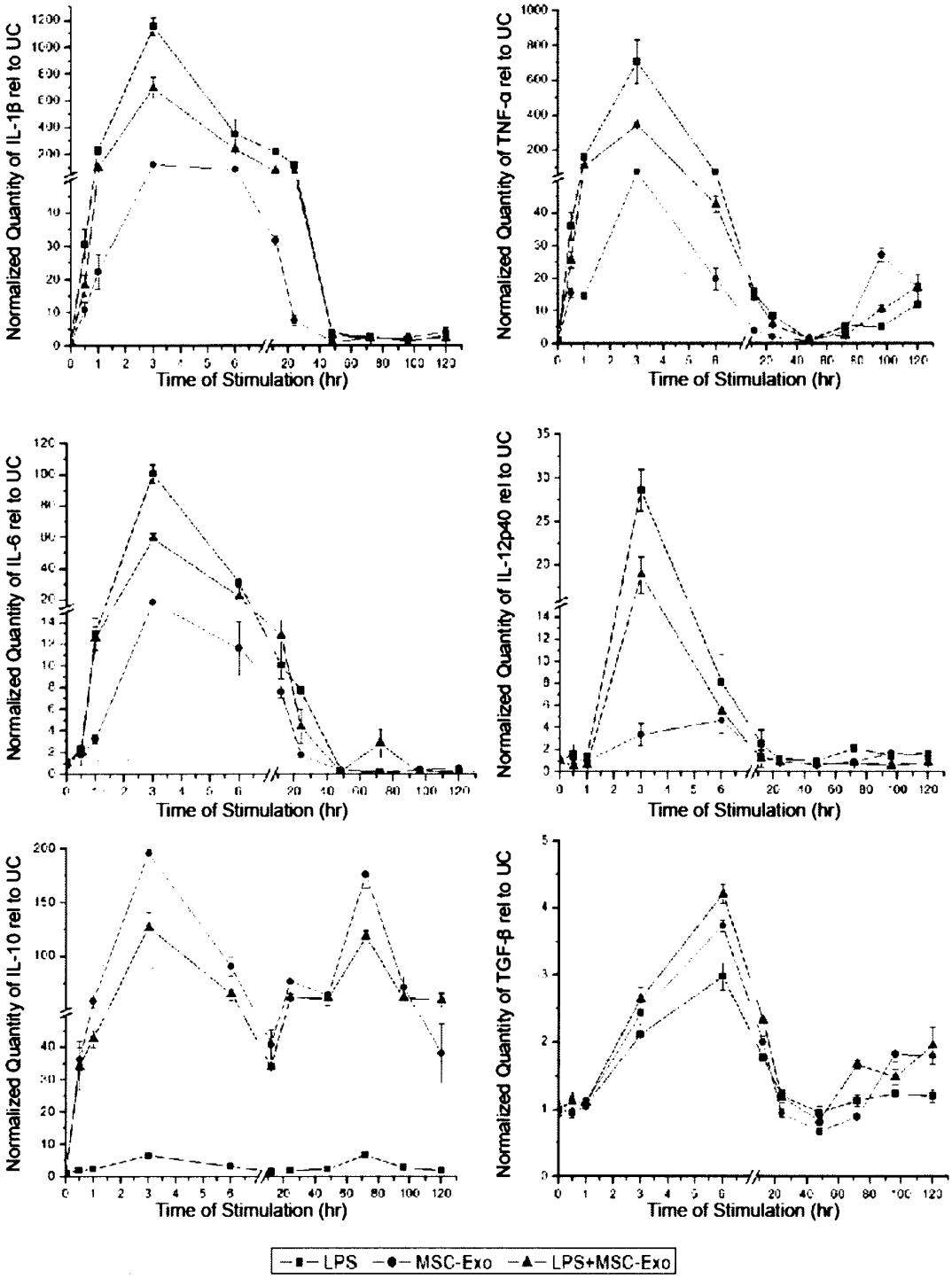

Normalized Quantity of IL-1β rel to UC
Time of Stimulation (hr)
Normalized Quantity of TNF-α rel to UC
Time of Stimulation (hr)
Normalized Quantity of IL-6 rel to UC
Time of Stimulation (hr)
Normalized Quantity of IL-12p40 rel to UC
Time of Stimulation (hr)
Normalized Quantity of IL-10 rel to UC
Time of Stimulation (hr)
Normalized Quantity of TGF-β rel to UC
Time of Stimulation (hr)
LPS
MSC-Exo
LPS+MSC-Exo

FIGURE 11A

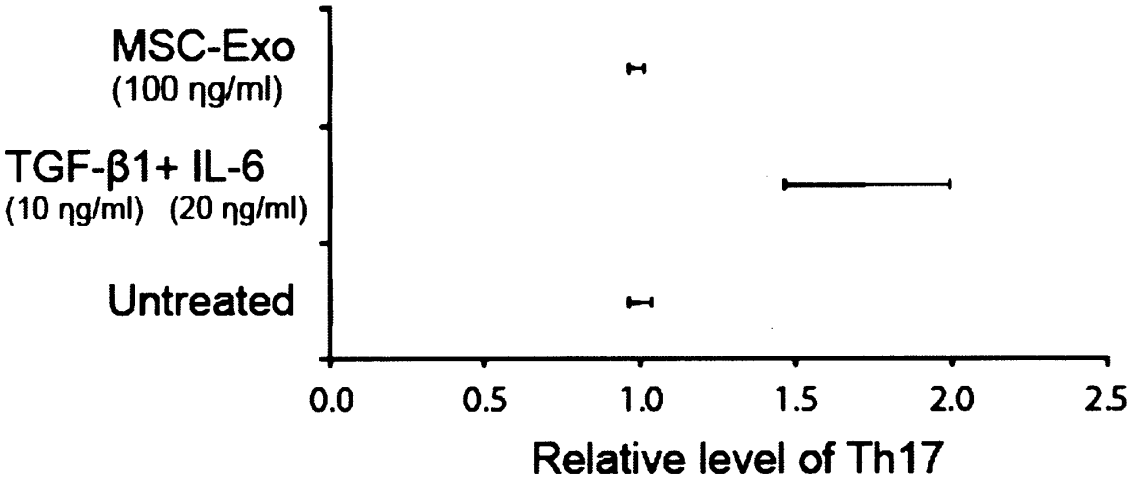


FIGURE 11B

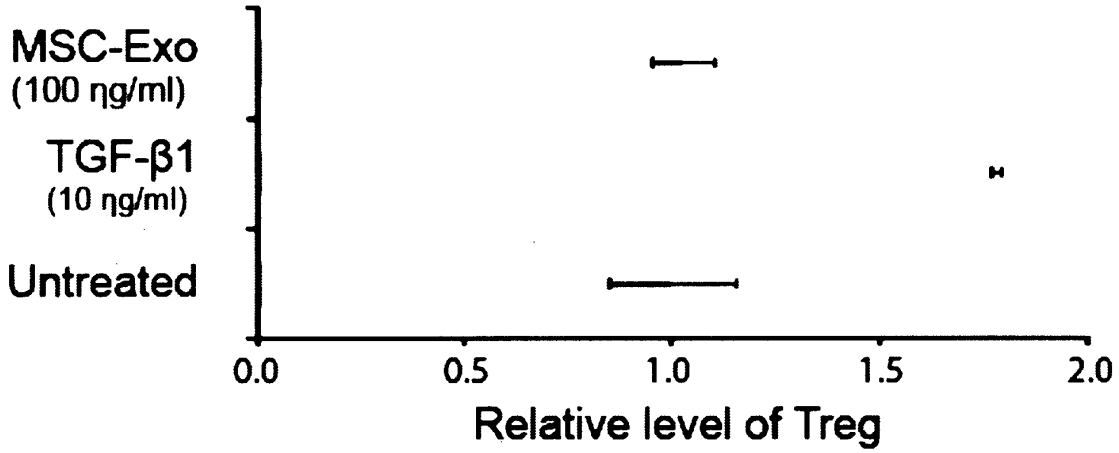


FIGURE 12A

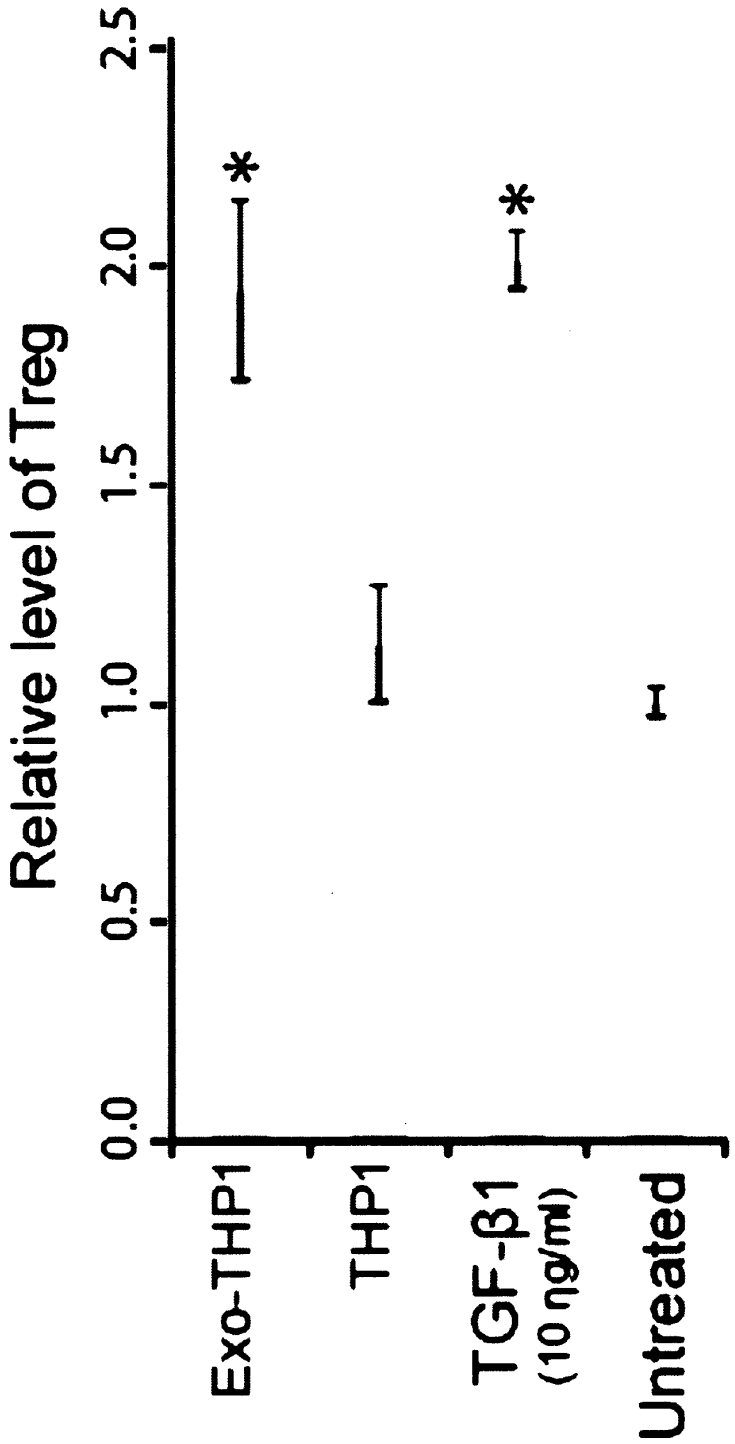

Relative level of Treg
0.0
0.5
1.0
1.5
2.0
2.5
*
*
Exo-THP1
THP1
TGF-β1
(10 ng/ml)
Untreated

FIGURE 12B

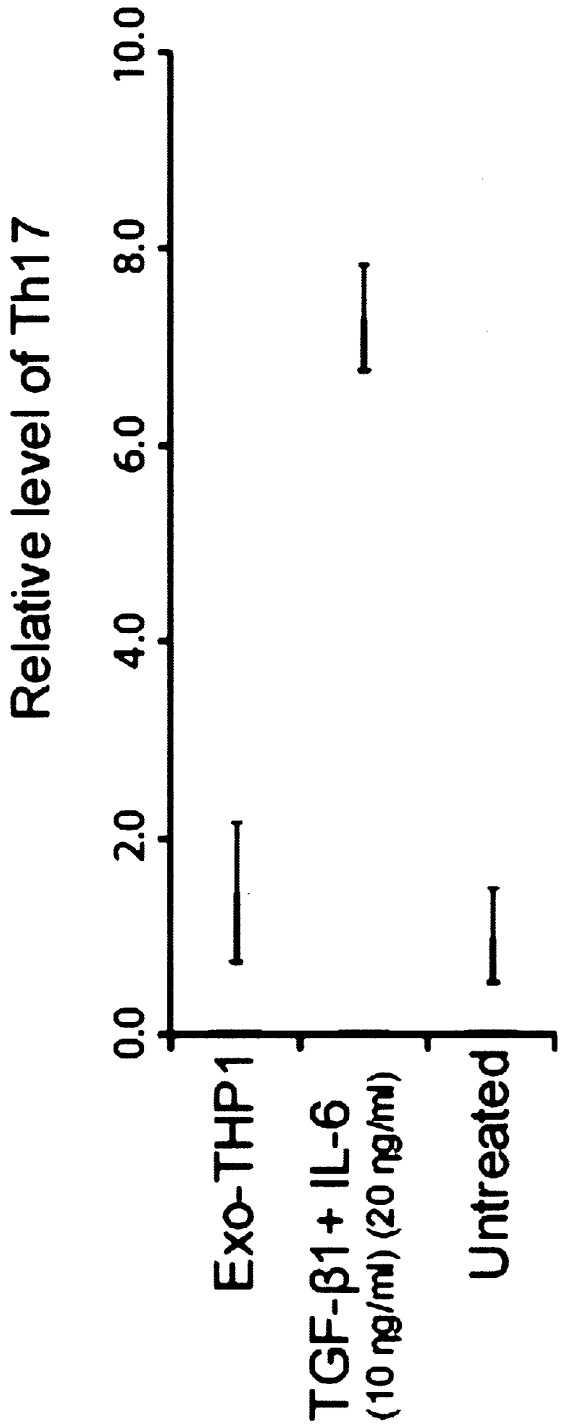
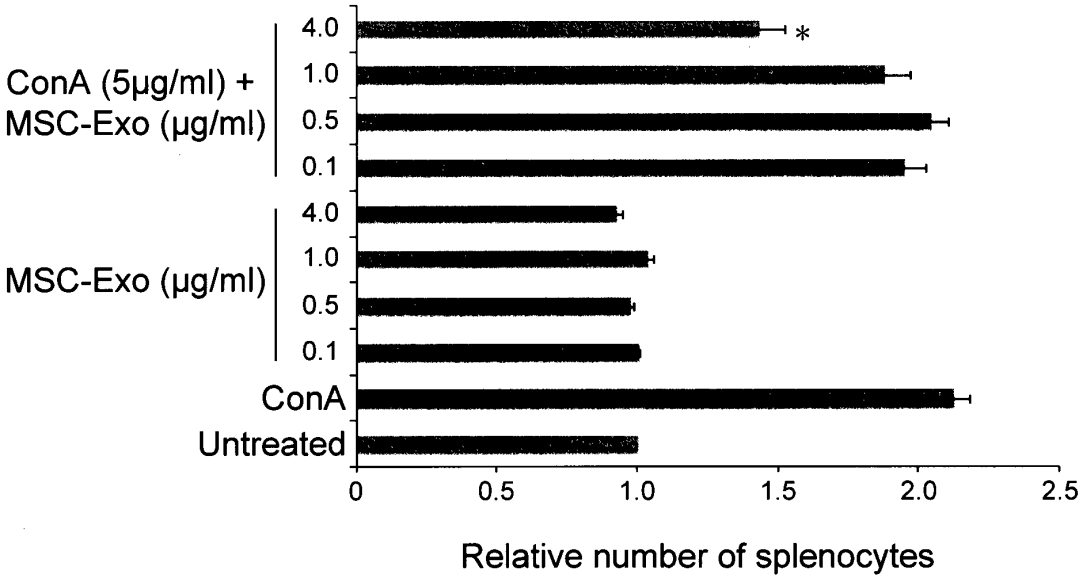

Relative level of Th17
0.0
2.0
4.0
6.0
8.0
10.0
Exo-THP1
TGF-β1 + IL-6
(10 ng/ml) (20 ng/ml)
Untreated

FIGURE 13


ConA (5μg/ml) +
MSC-Exo (μg/ml)
4.0
1.0
0.5
0.1
*
MSC-Exo (μg/ml)
4.0
1.0
0.5
0.1
ConA
Untreated
0
0.5
1.0
1.5
2.0
2.5
Relative number of splenocytes