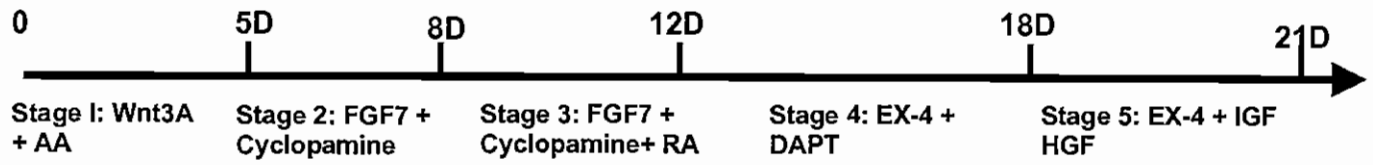
Figure 1

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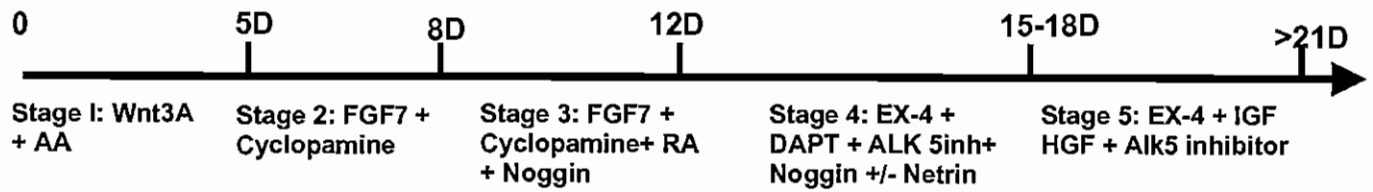
WO 2009/070592

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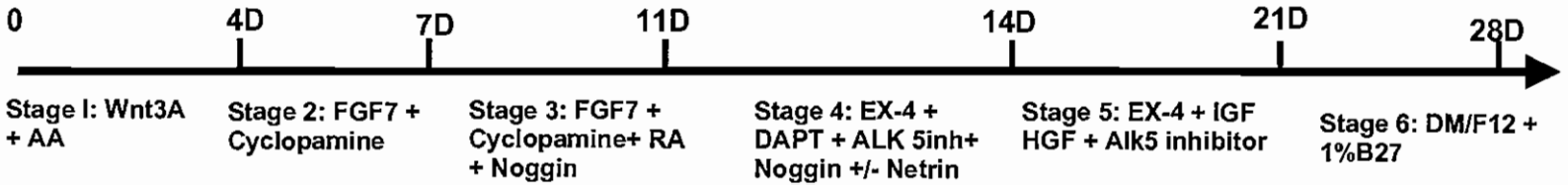
a)



b)



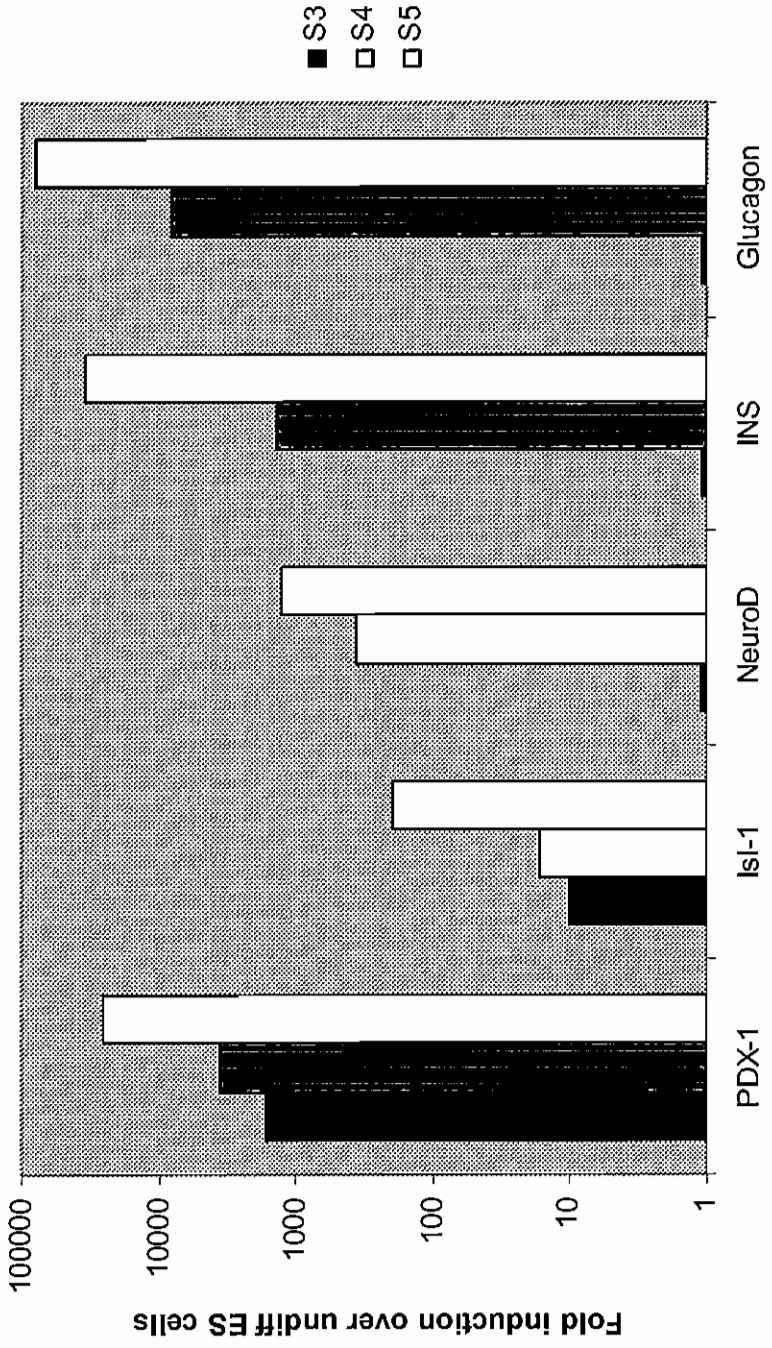
c)



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Figure 2



LFS5177USNP

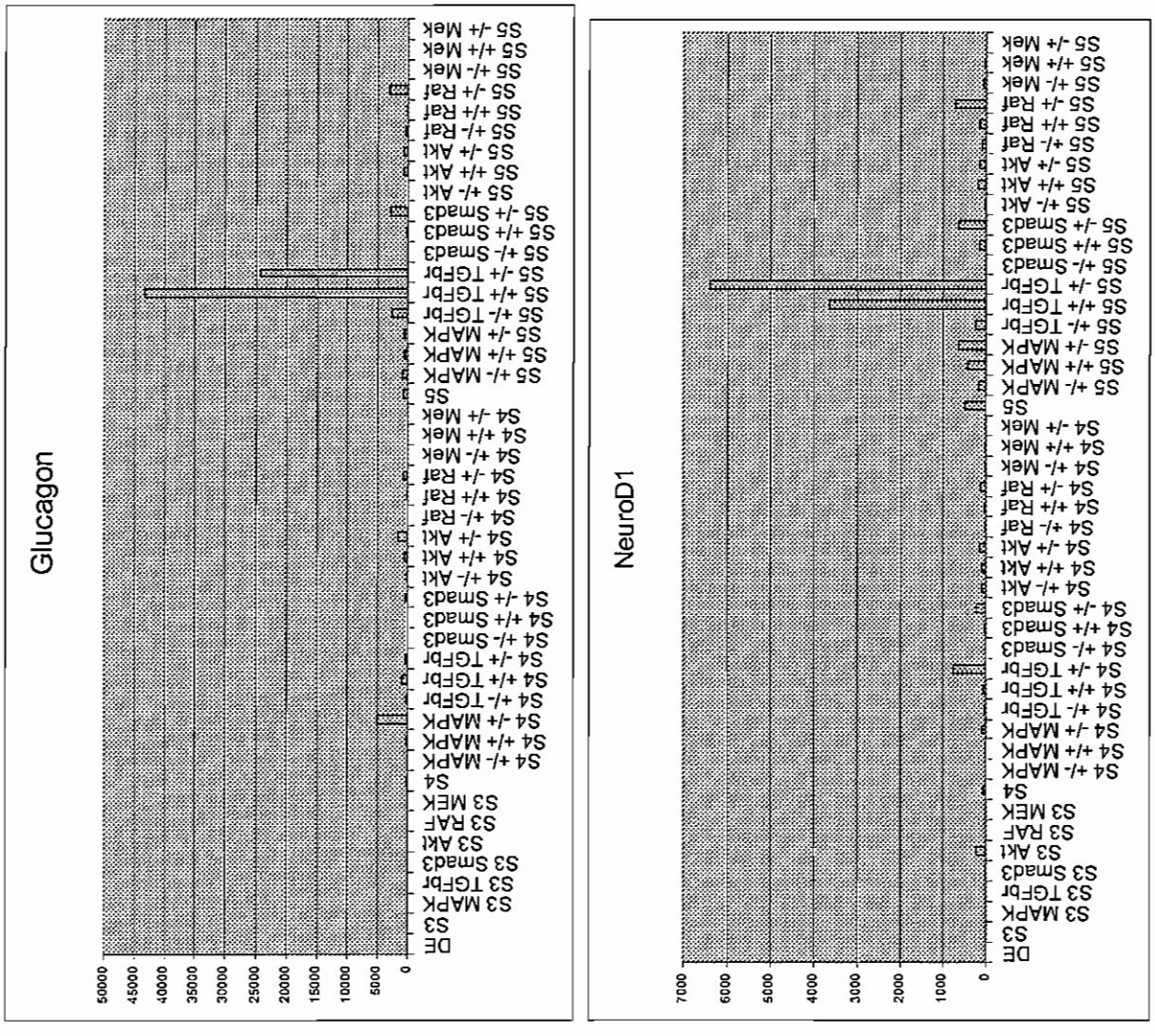
Alireza Rezania

Figure 3

LFS5177USNP

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Figure 3



LFS5177USNP

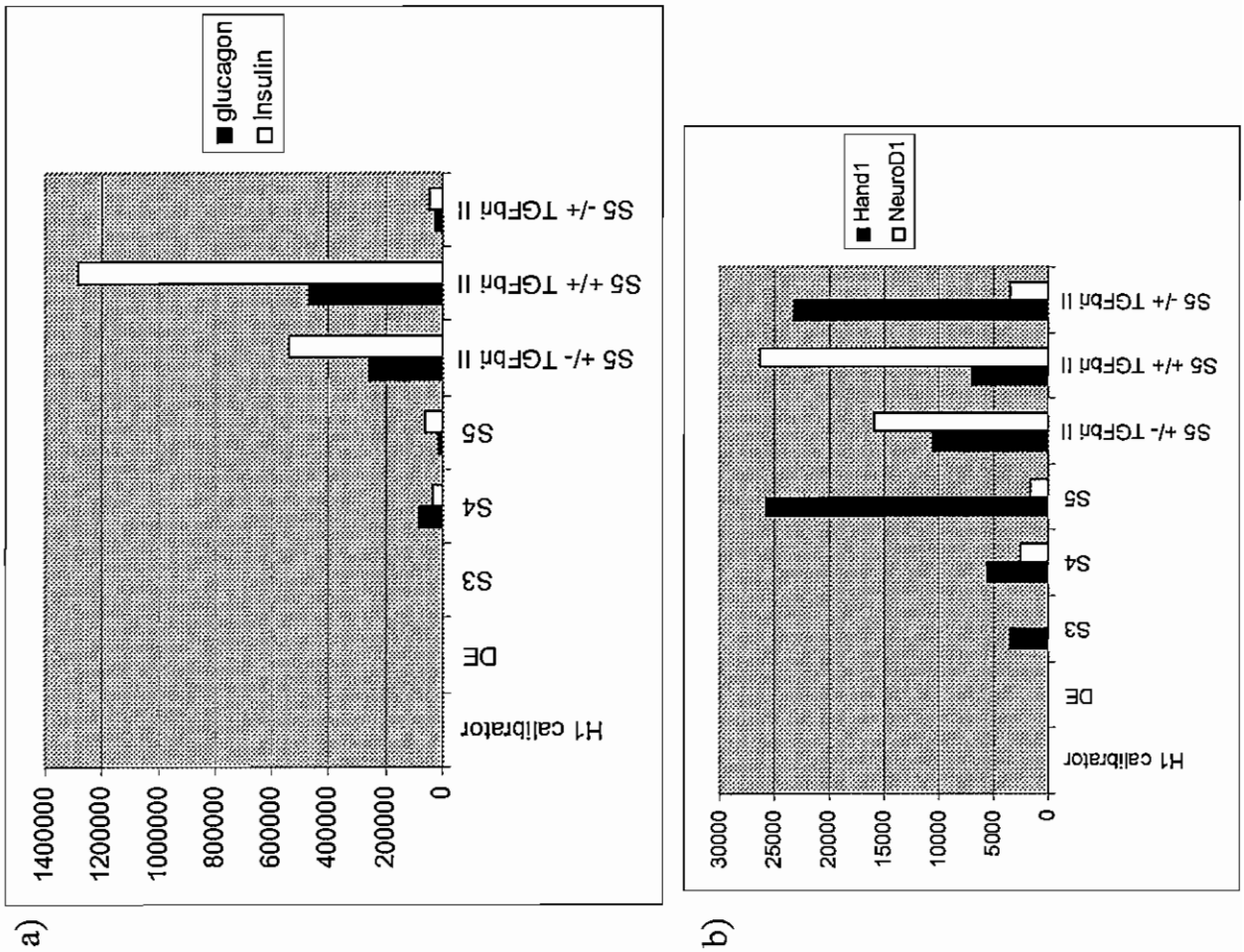
Figure 3

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Figure 4

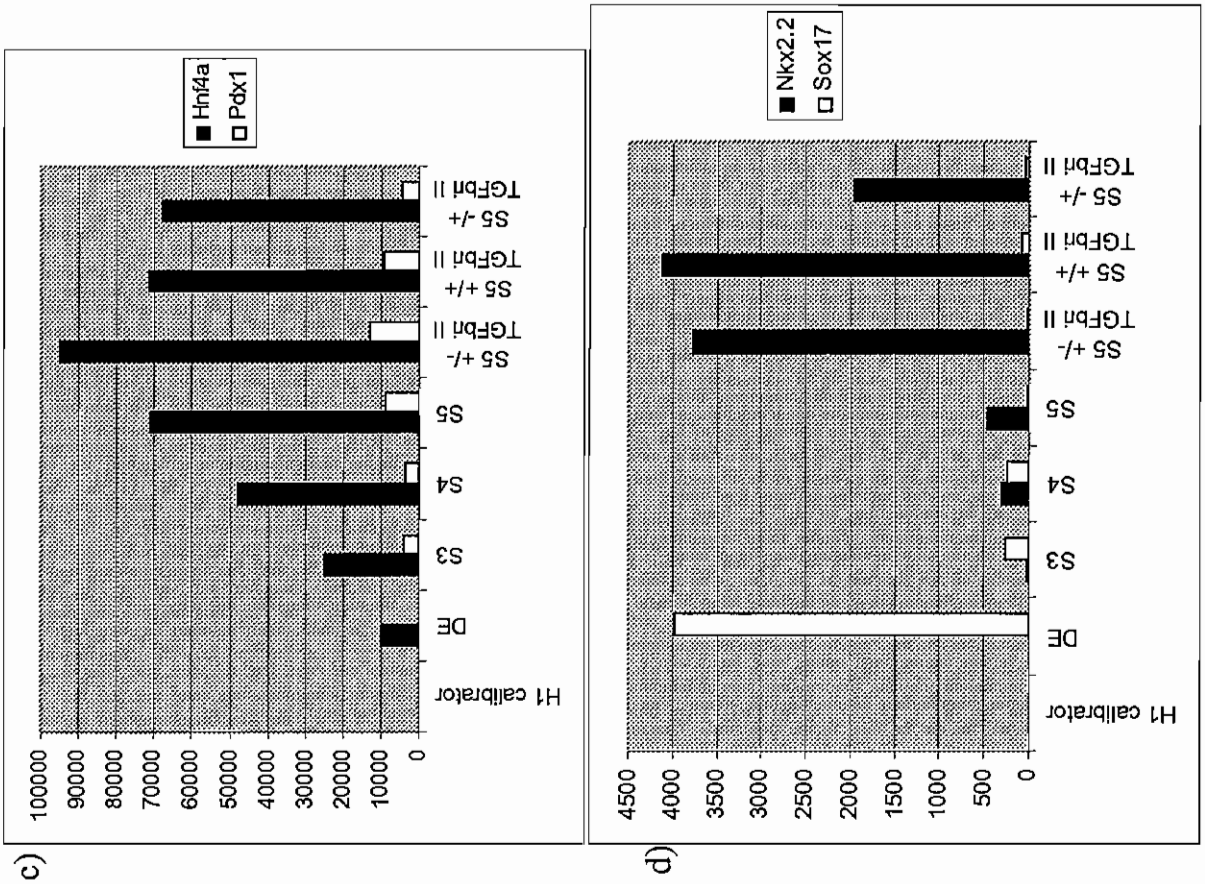
LFS5177USNP



LFS5177USNP

Figure 4

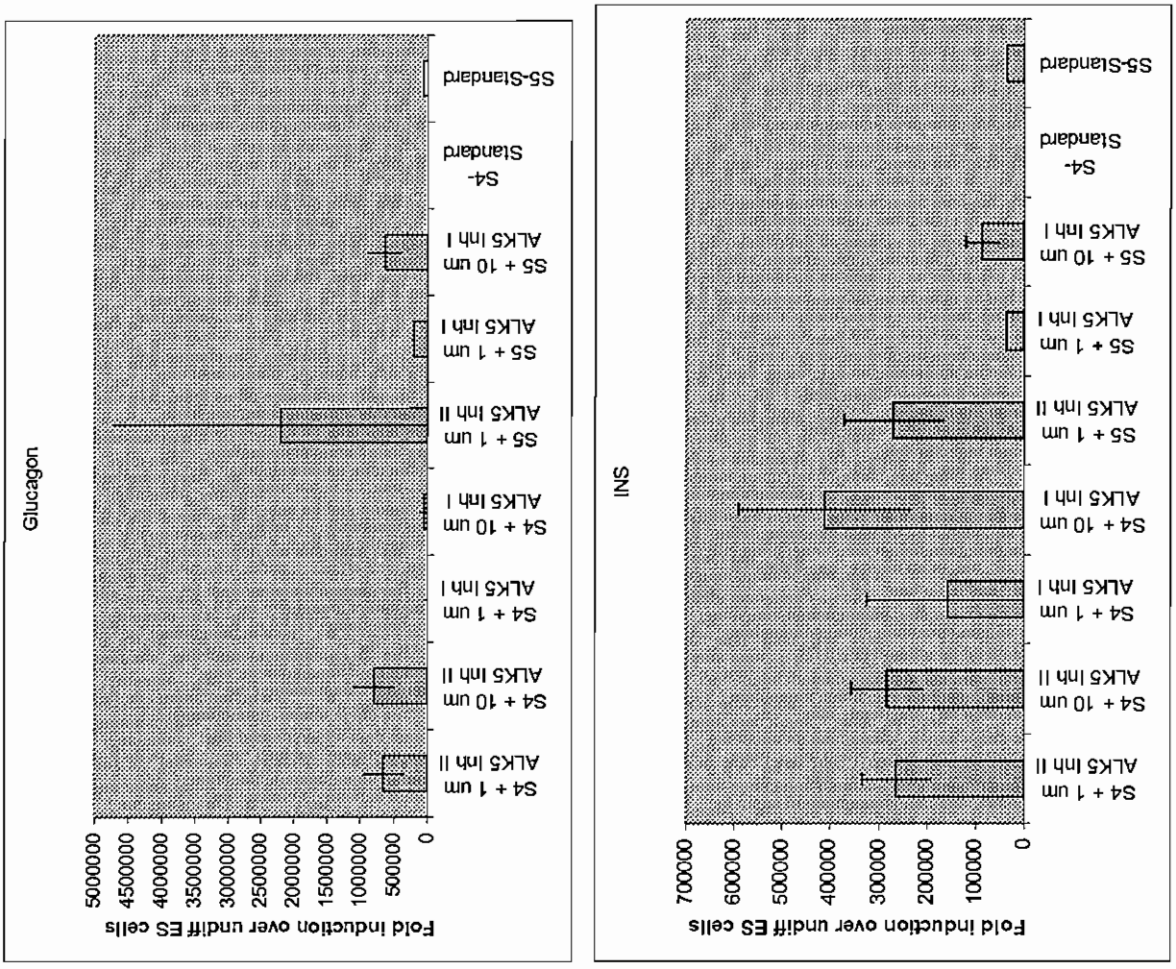
Alireza Rezania



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Figure 5

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LFS5177USNP

Figure 5

Alireza Rezania

LFS5177USNP

Figure 6

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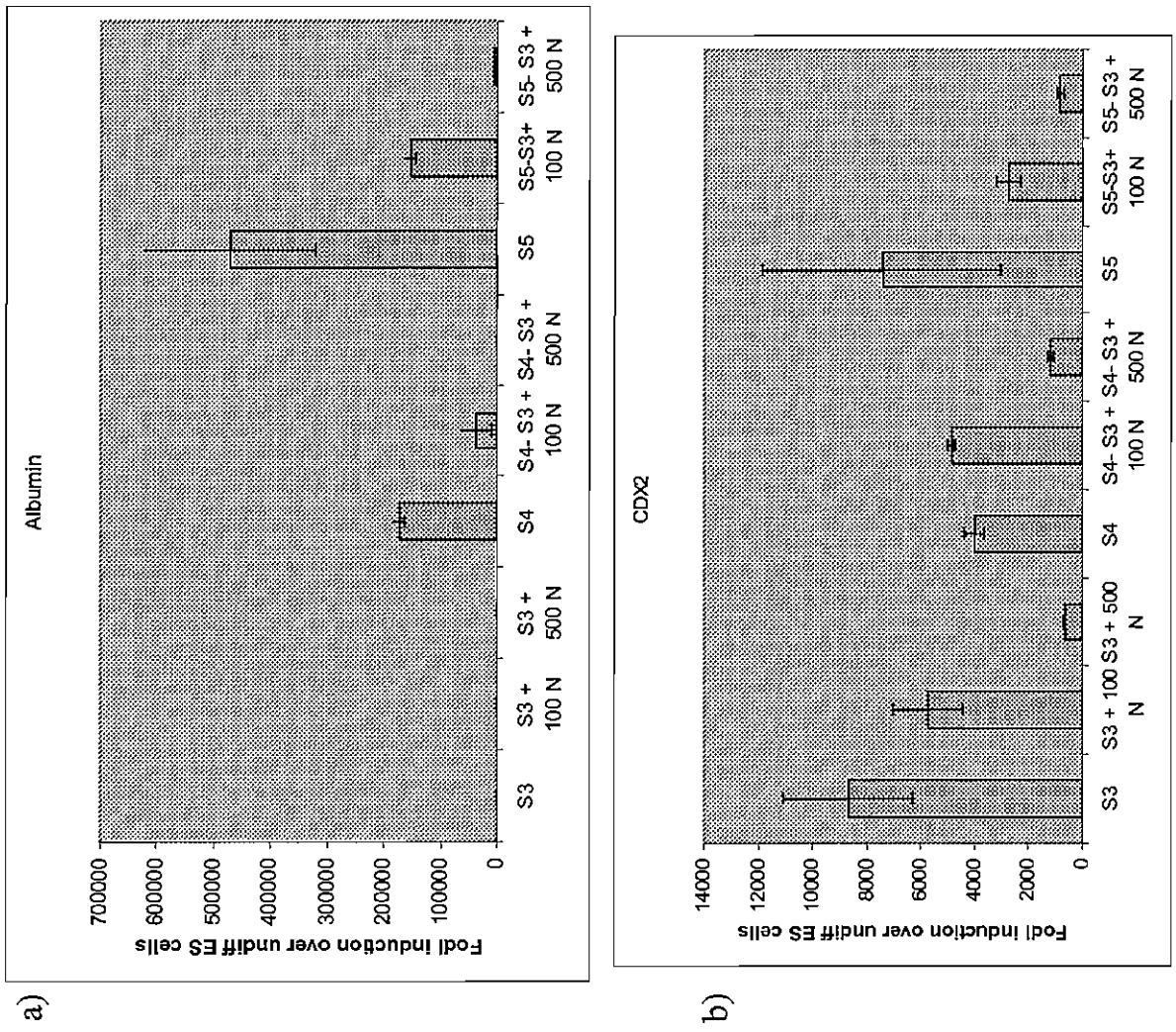
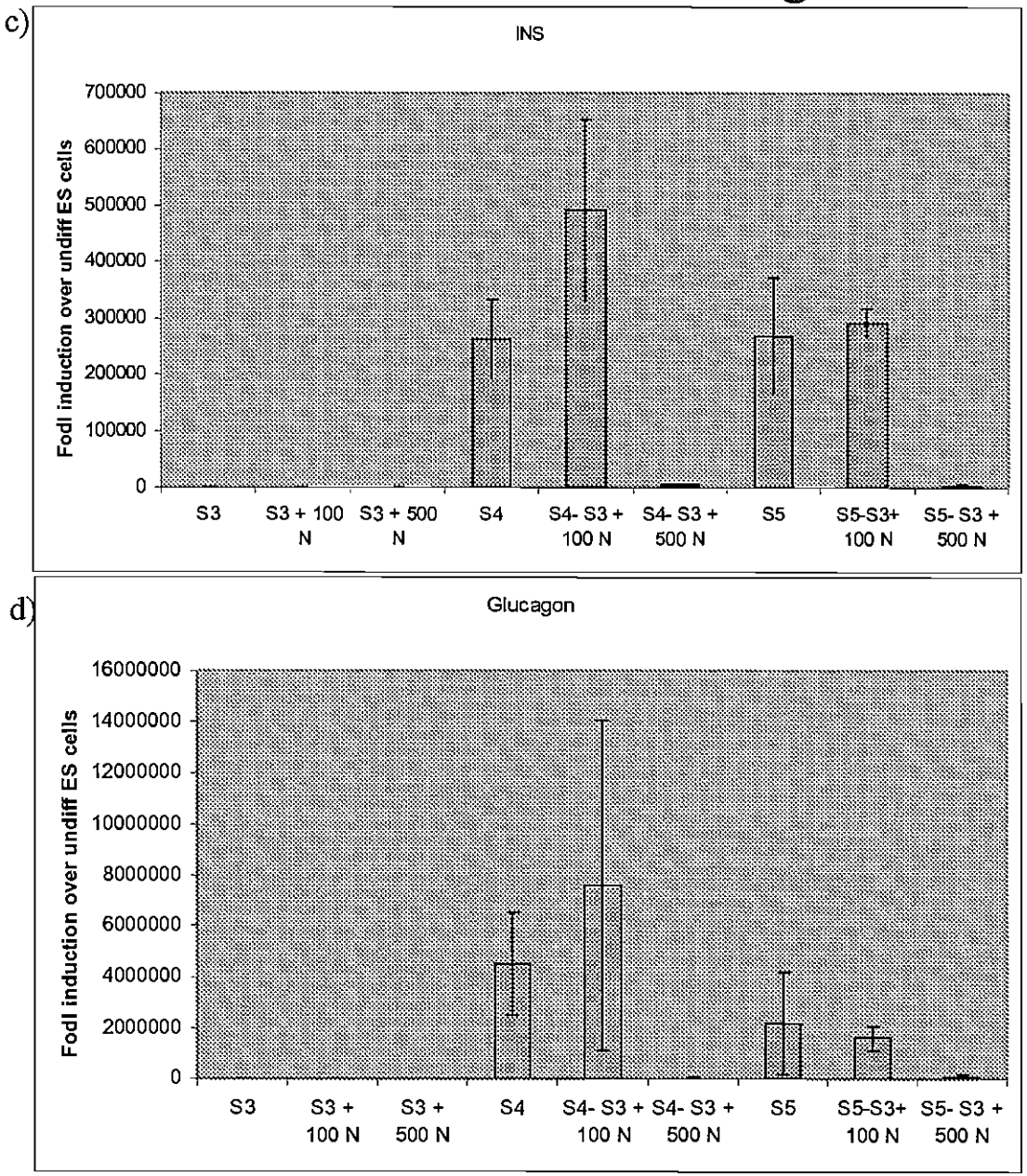


Figure 6



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Figure 6

Alireza Rezania

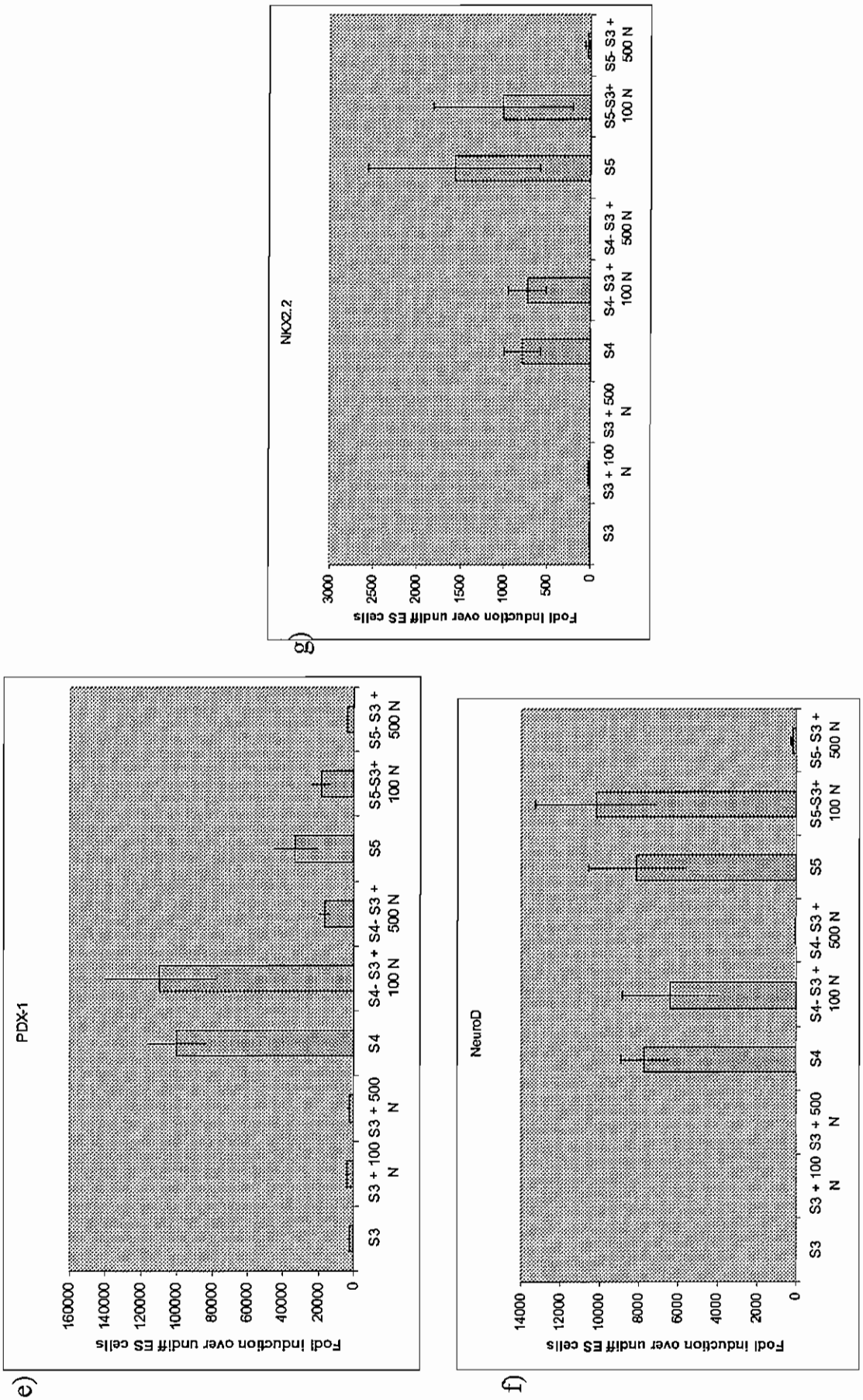


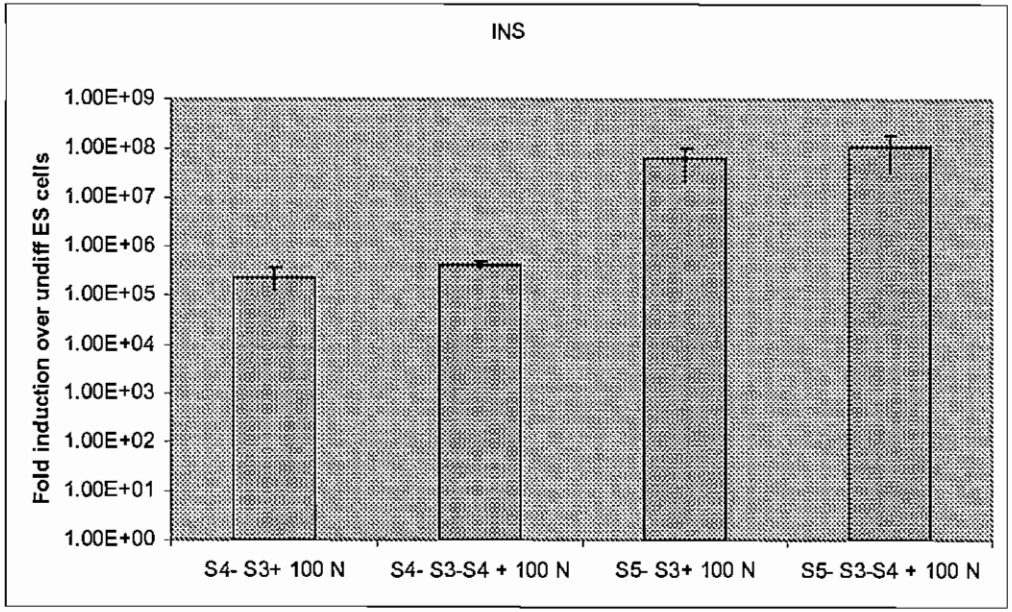
Figure 7

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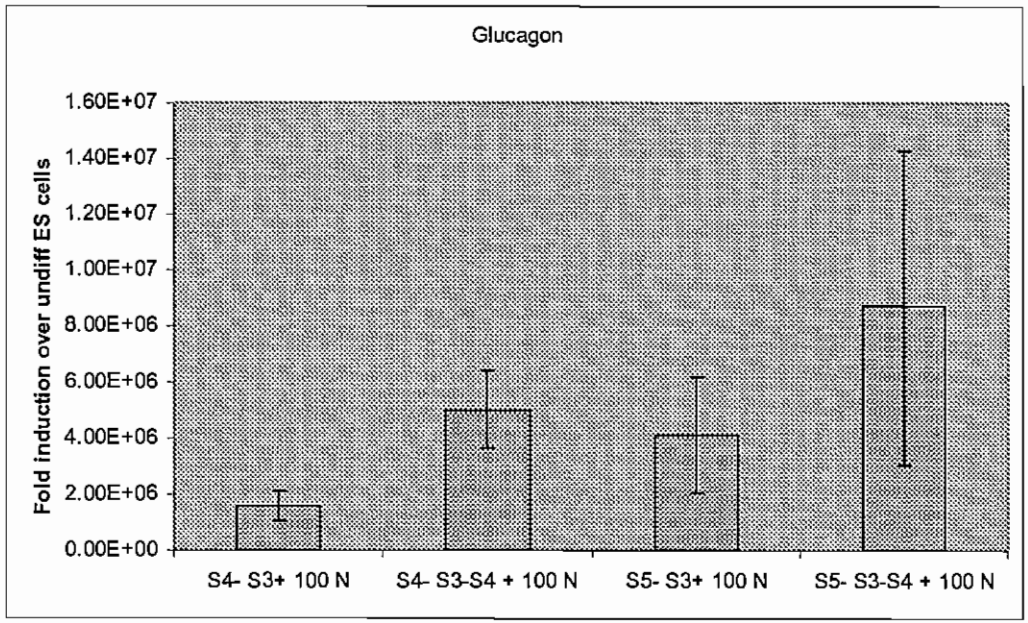
WO 2009/070592

PCT/US2008/084705

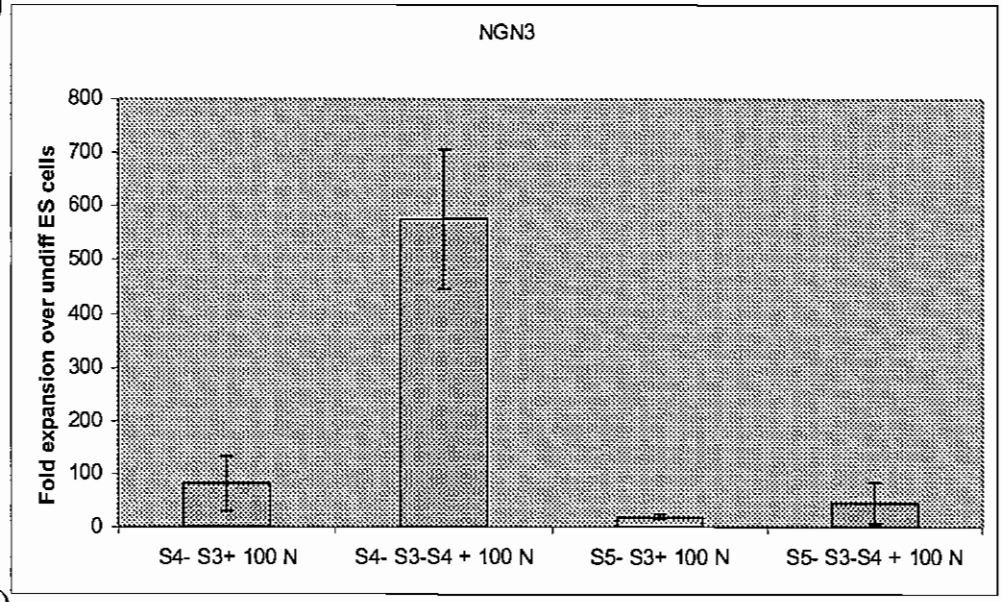
a)



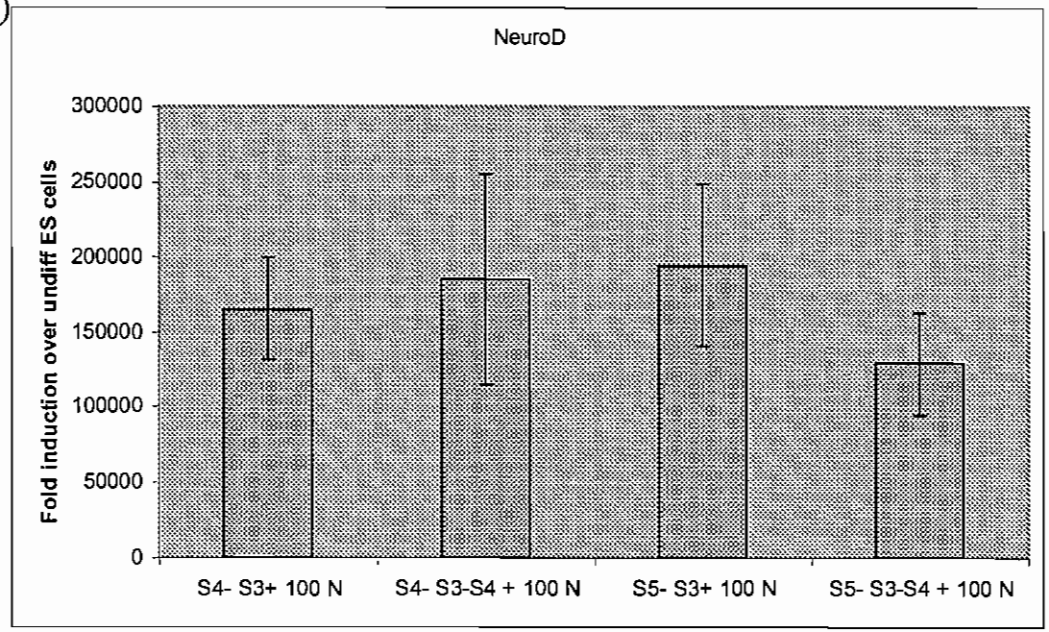
b)



c)


NGN3
Fold expansion over undiff ES cells
800
700
600
500
400
300
200
100
0
S4- S3+ 100 N
S4- S3-S4 + 100 N
S5- S3+ 100 N
S5- S3-S4 + 100 N

d)

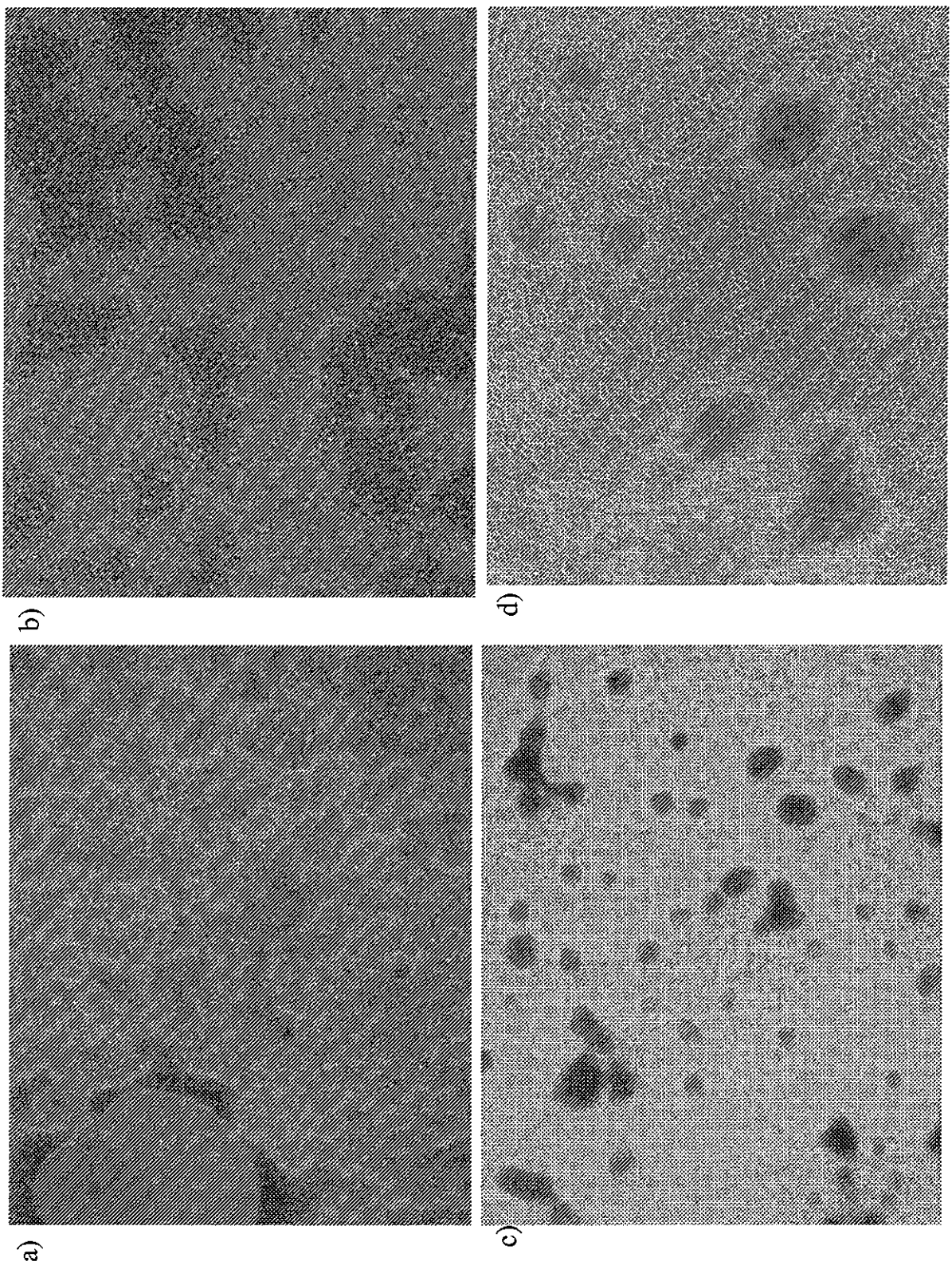

NeuroD
Fold induction over undiff ES cells
300000
250000
200000
150000
100000
50000
0
S4- S3+ 100 N
S4- S3-S4 + 100 N
S5- S3+ 100 N
S5- S3-S4 + 100 N

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Figure 7

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Figure 8



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Figure 9

Alireza Rezania

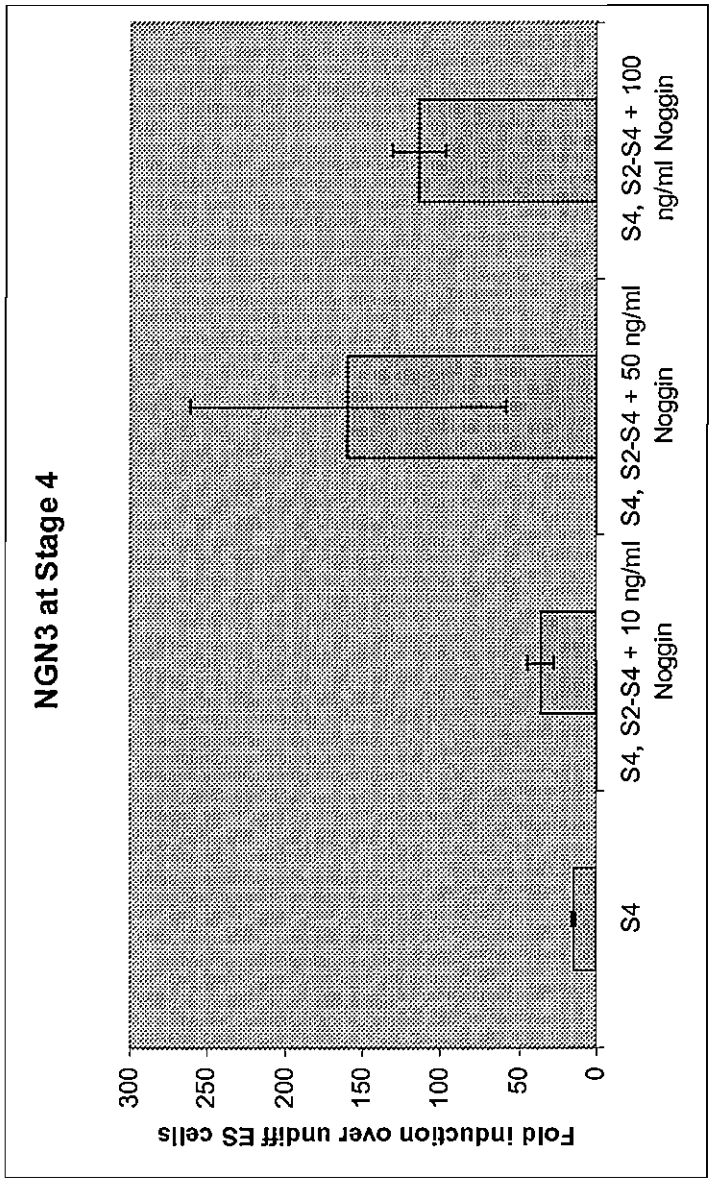
a) Insulin-10X

b) 10X

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Figure 10

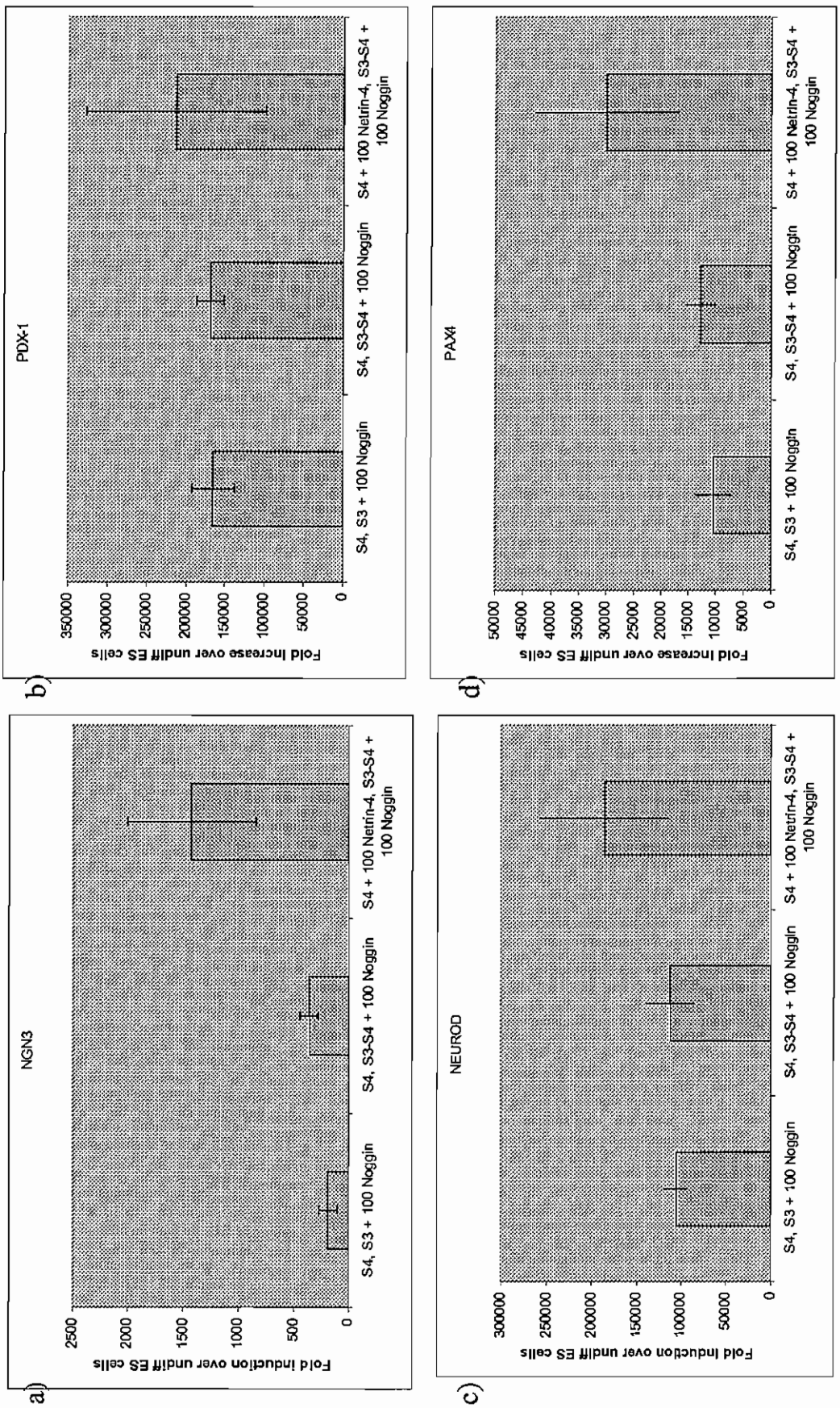
Alireza Rezania



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Figure 11

Alireza Rezania



LFS5177USNP

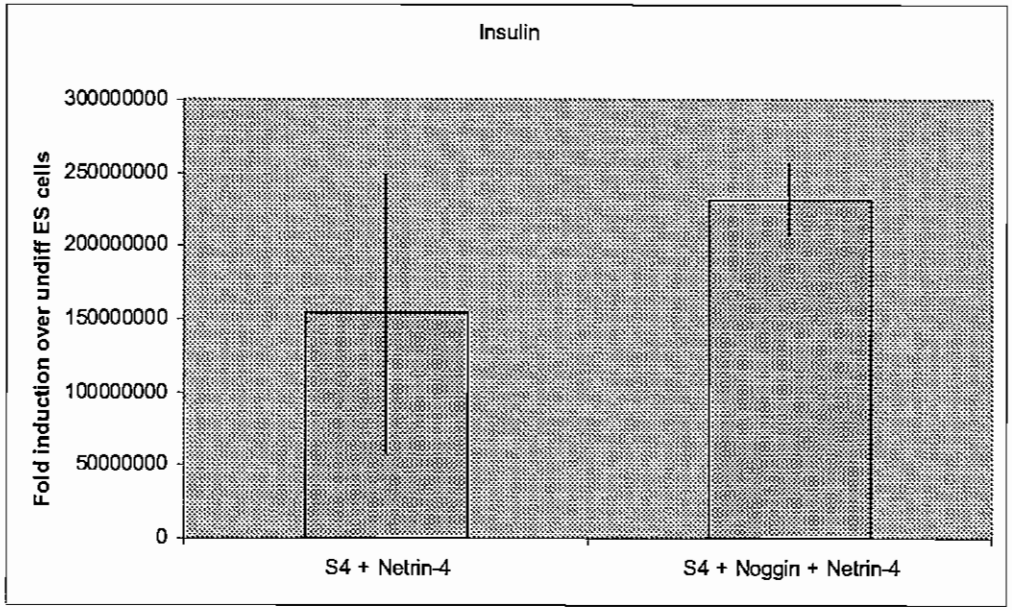
Figure 11

Alireza Rezania

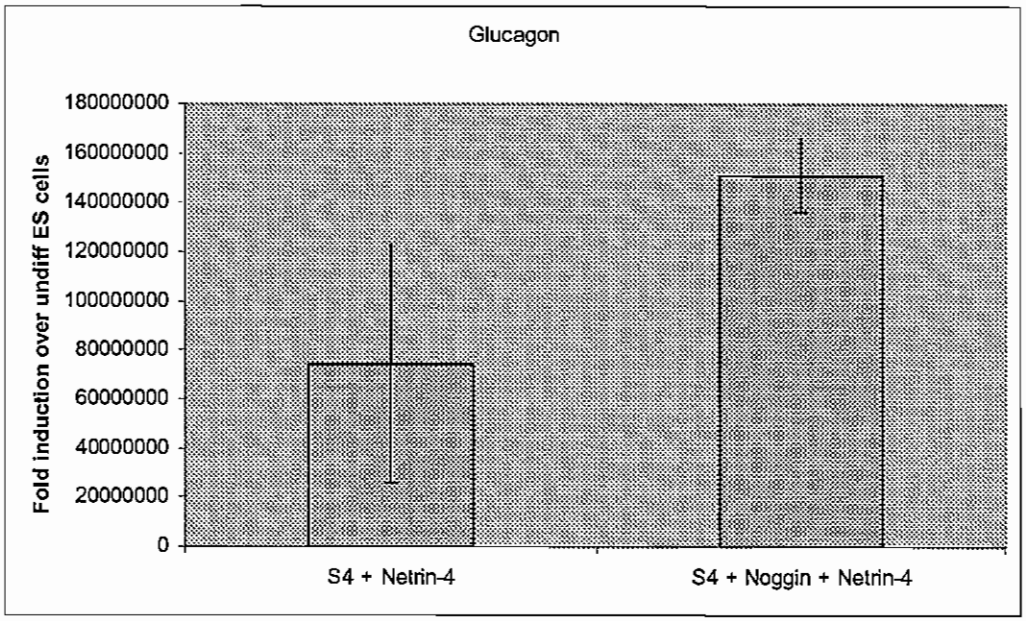
Figure 12

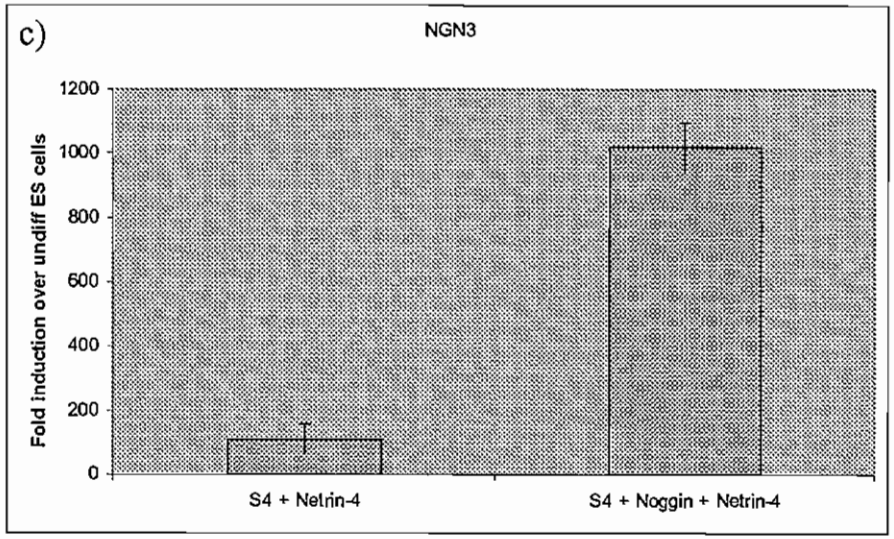
Alireza Rezania

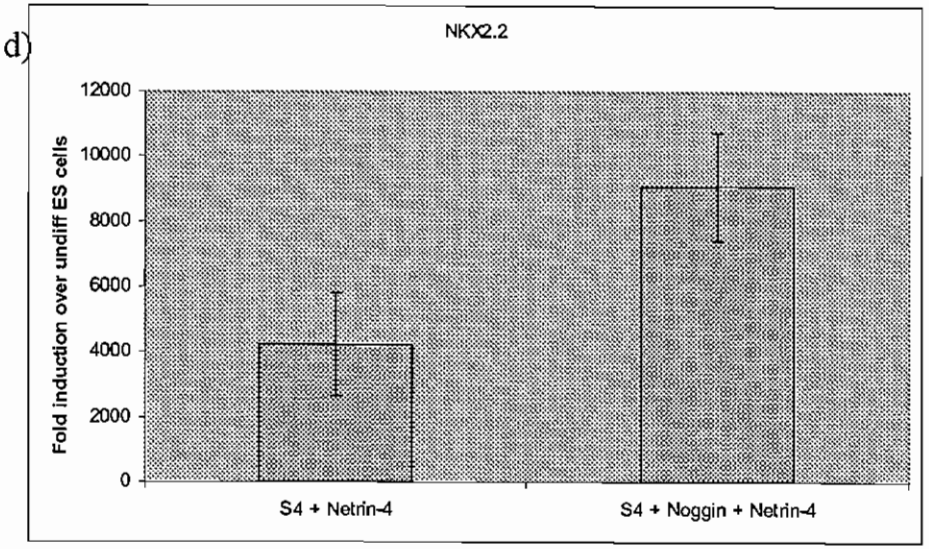
a)

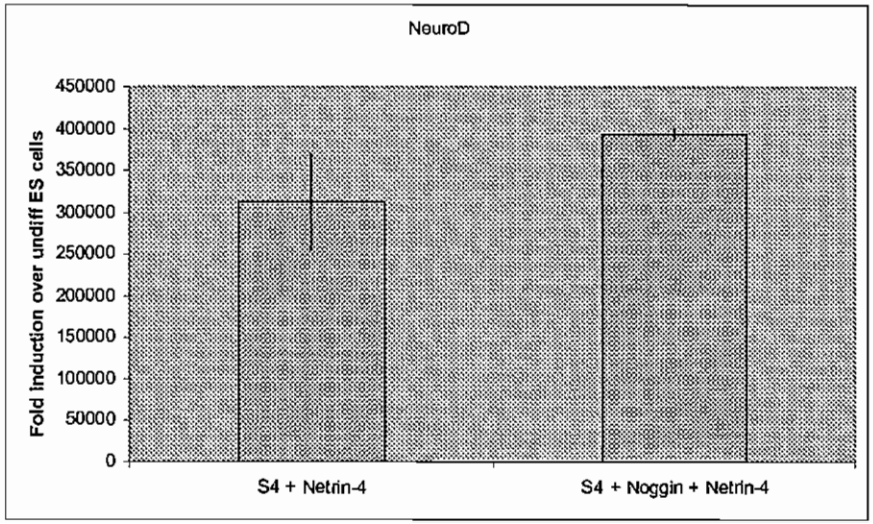


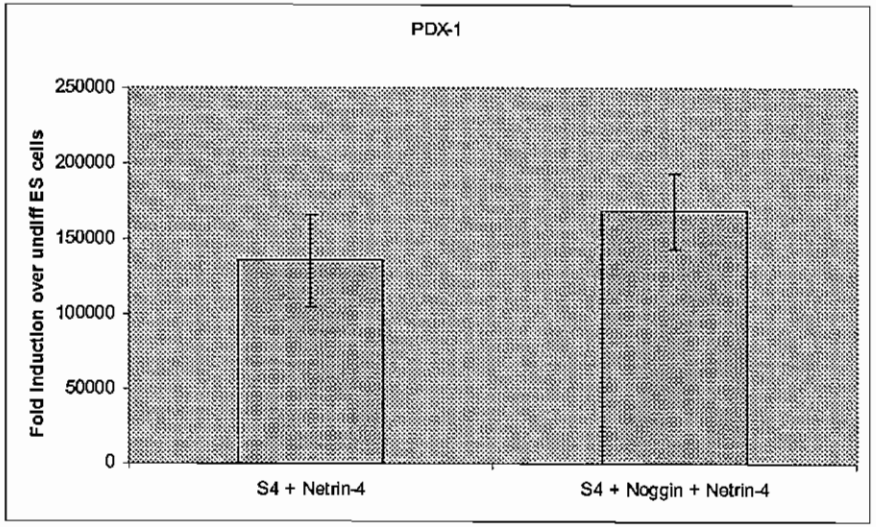
b)




c)
NGN3
Fold induction over undiff ES cells
1200
1000
800
600
400
200
0
S4 + Netrin-4
S4 + Noggin + Netrin-4

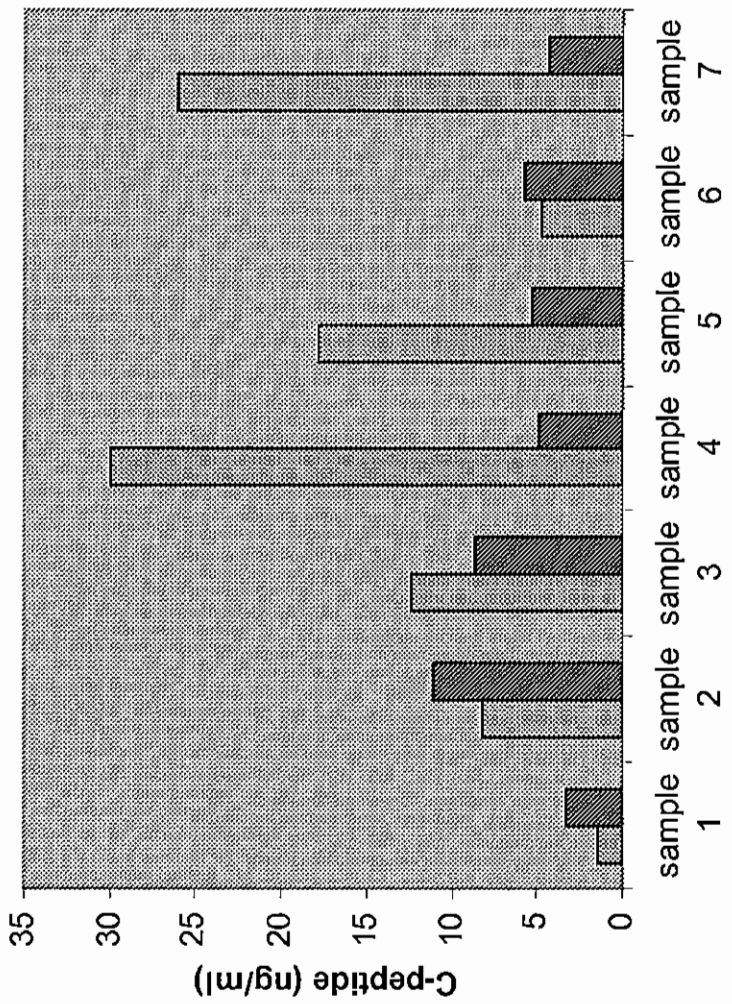

d)
NKX2.2
Fold induction over undiff ES cells
12000
10000
8000
6000
4000
2000
0
S4 + Netrin-4
S4 + Noggin + Netrin-4


e)
NeuroD
Fold induction over undiff ES cells
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
S4 + Netrin-4
S4 + Noggin + Netrin-4


f)
PDX-1
Fold induction over undiff ES cells
250000
200000
150000
100000
50000
0
S4 + Netrin-4
S4 + Noggin + Netrin-4

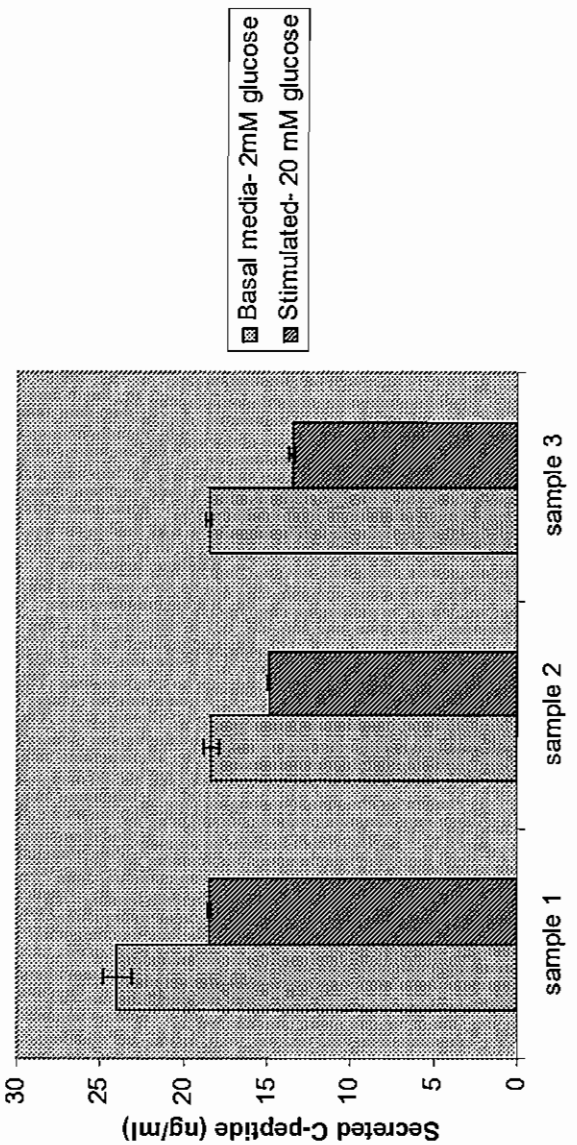
LFS5177USNP Figure 13 Alireza Rezania

a)

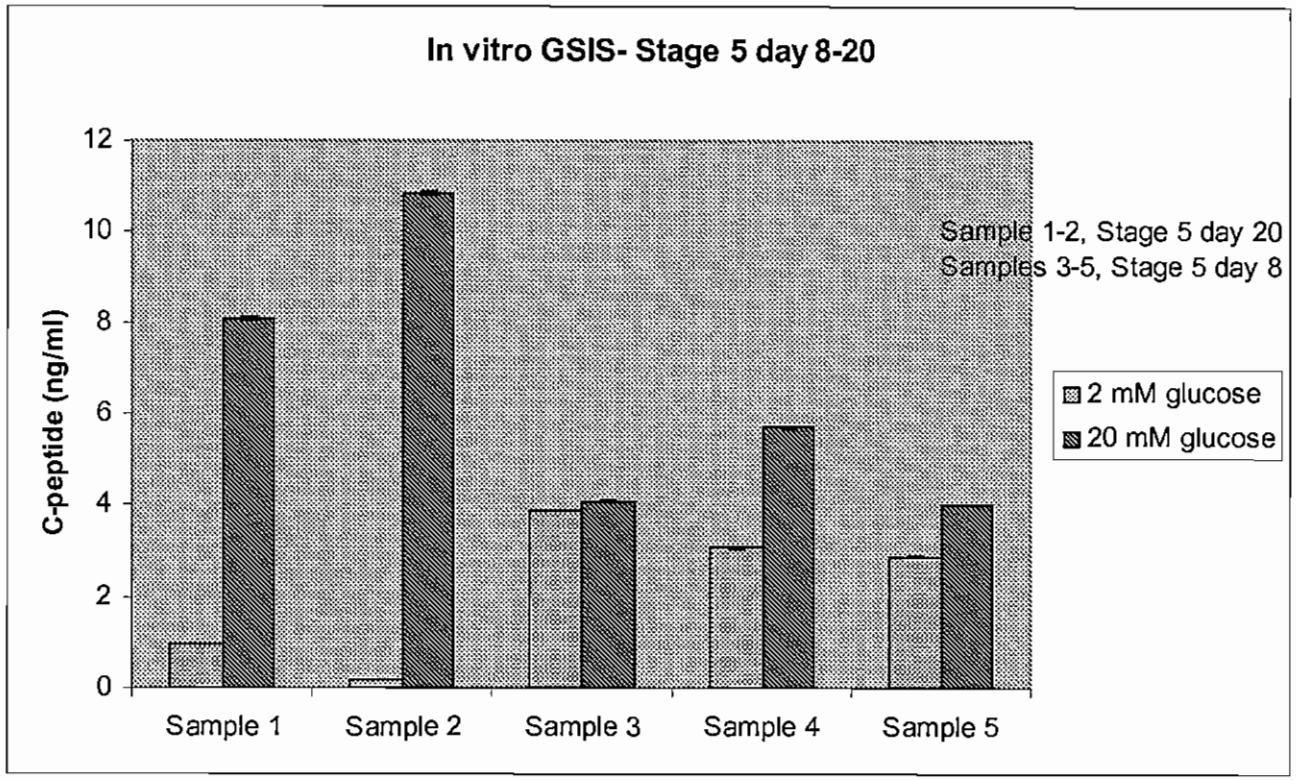


LFS5177USNP Figure 13 Alireza Rezania

b)



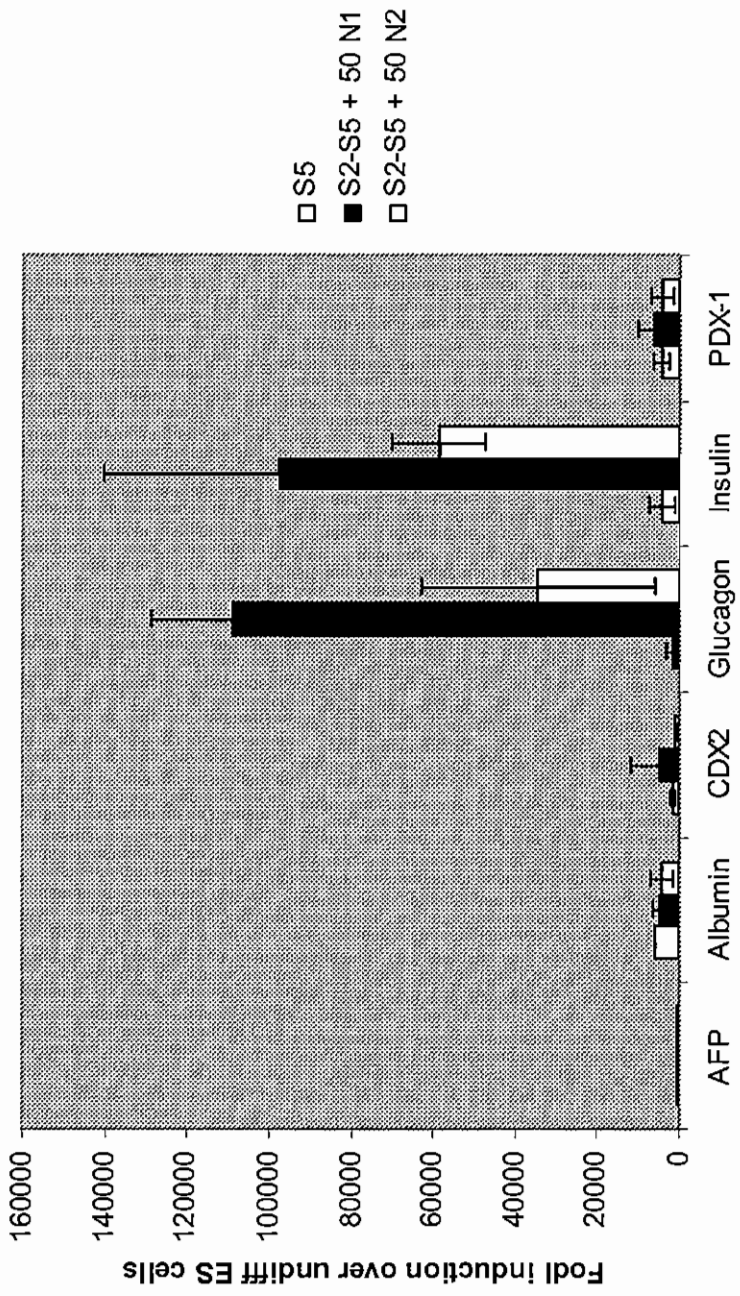
c)


In vitro GSIS- Stage 5 day 8-20
C-peptide (ng/ml)
12
10
8
6
4
2
0
Sample 1
Sample 2
Sample 3
Sample 4
Sample 5
Sample 1-2, Stage 5 day 20
Samples 3-5, Stage 5 day 8
2 mM glucose
20 mM glucose

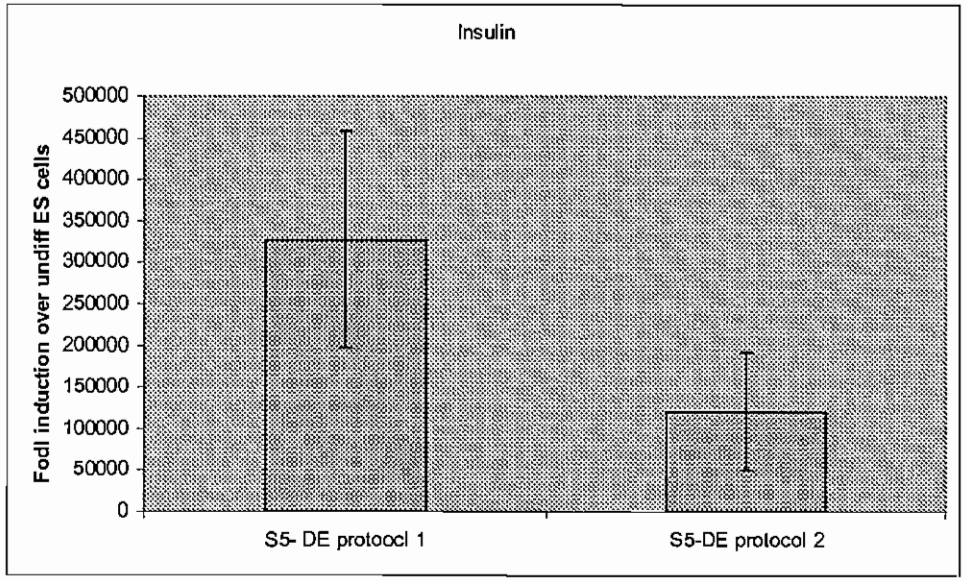
LFS5177USNP

Figure 14

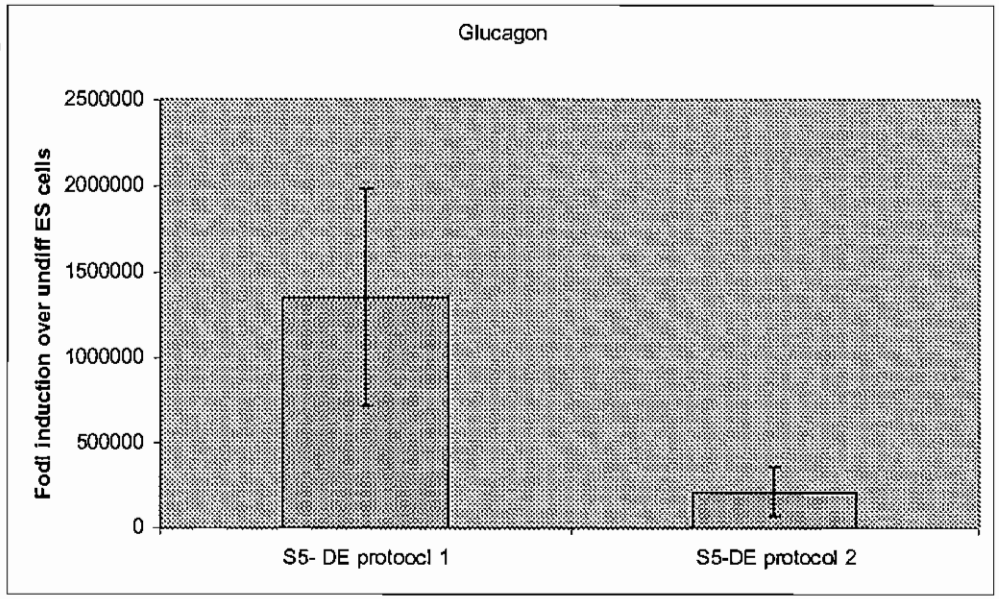
Alireza Rezania



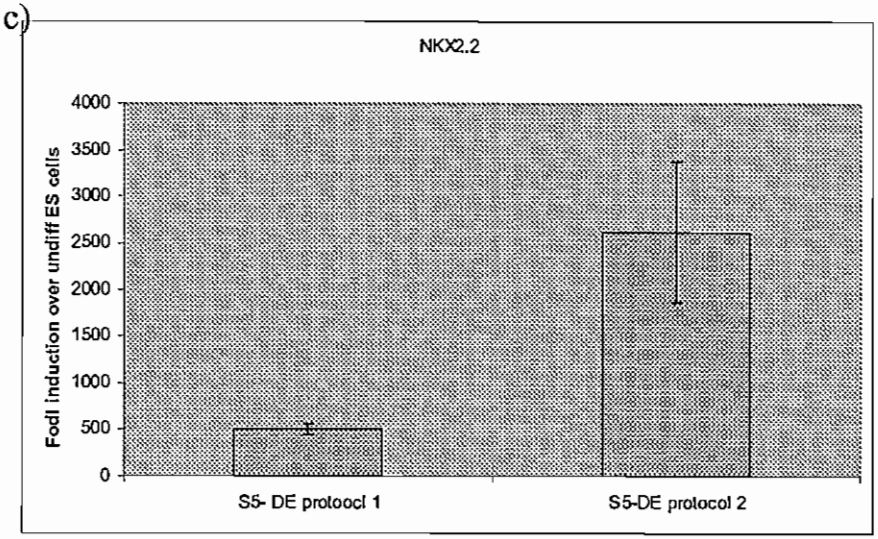
a)


Insulin
Fodl induction over undiff ES cells
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
S5- DE protoocl 1
S5-DE protocol 2

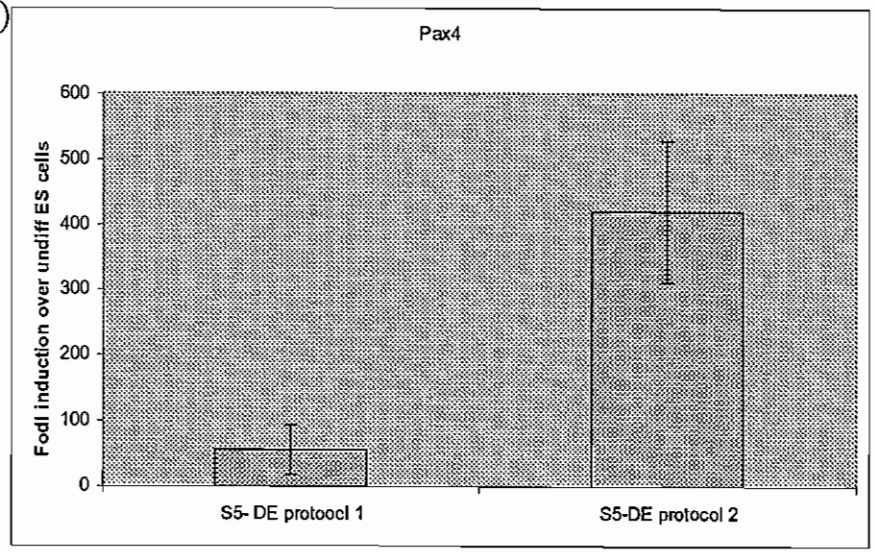
b)


Glucagon
Fodl induction over undiff ES cells
2500000
2000000
1500000
1000000
500000
0
S5- DE protoocl 1
S5-DE protocol 2

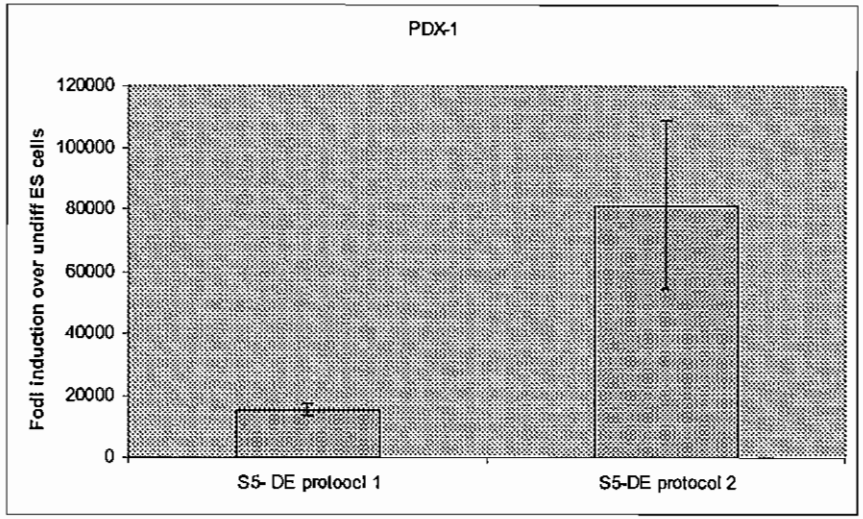
c)


NKX2.2
Fodl induction over undiff ES cells
4000
3500
3000
2500
2000
1500
1000
500
0
S5- DE protocol 1
S5-DE protocol 2

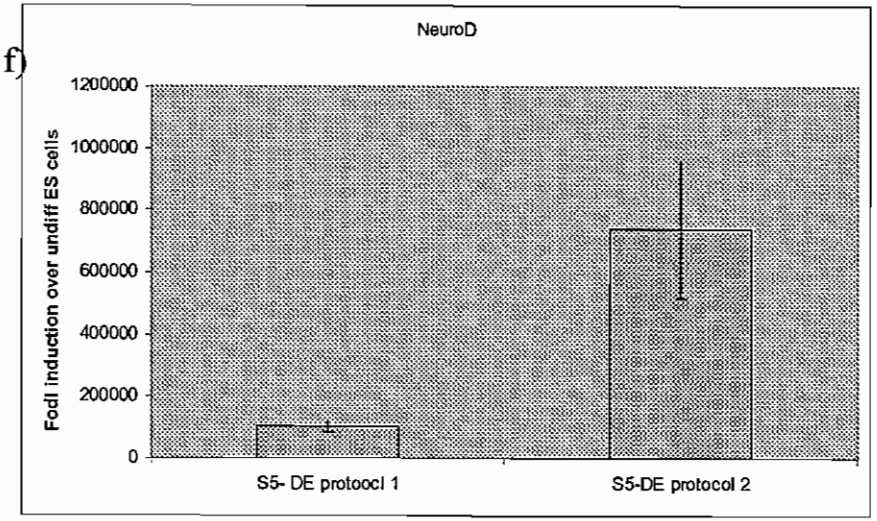
d)


Pax4
Fodl induction over undiff ES cells
600
500
400
300
200
100
0
S5- DE protocol 1
S5-DE protocol 2

e)


PDX-1
Fodl induction over undiff ES cells
120000
100000
80000
60000
40000
20000
0
S5- DE protocol 1
S5-DE protocol 2

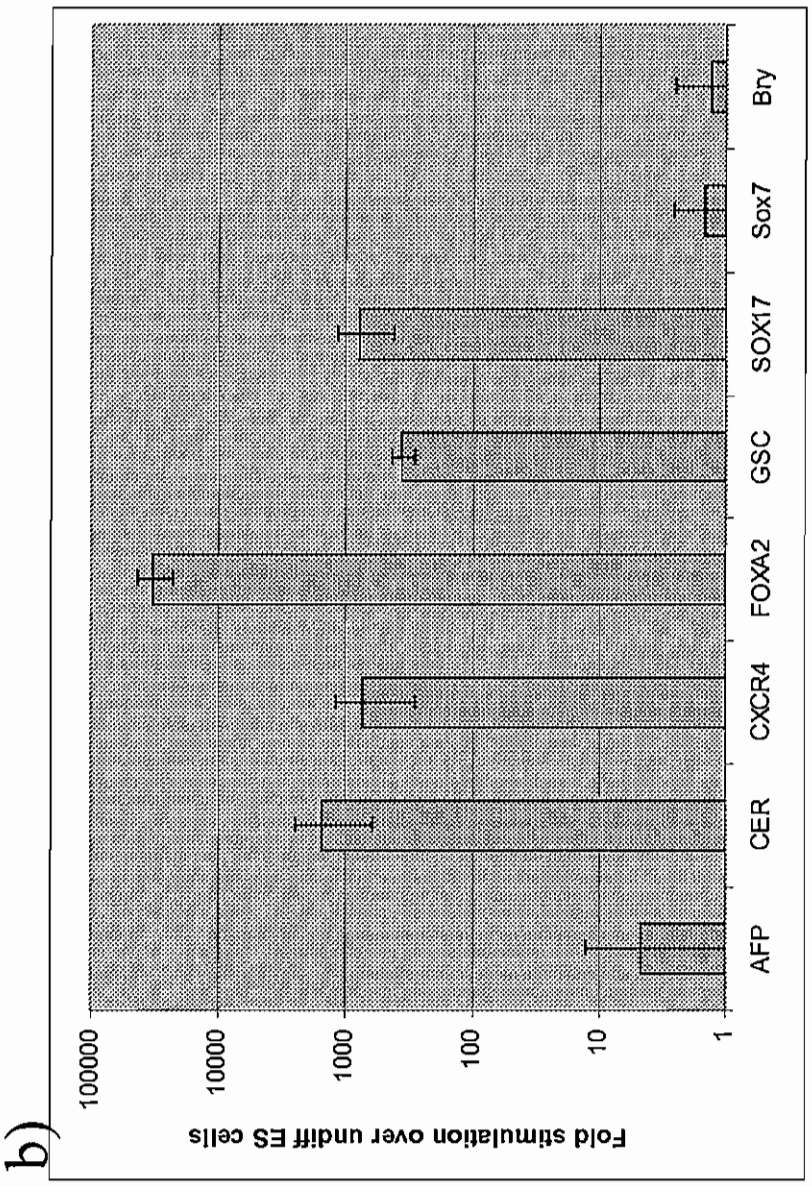
f)

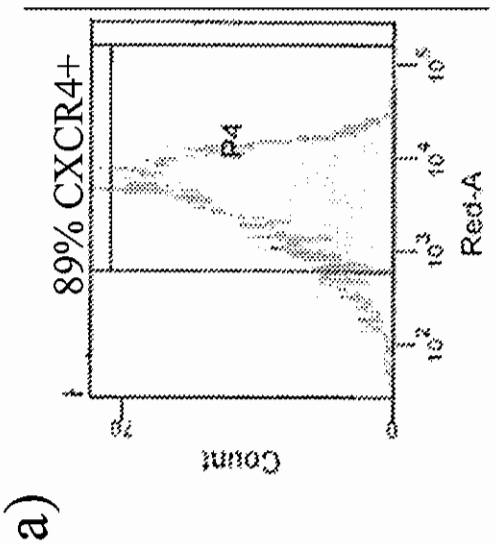

NeuroD
Fodl induction over undiff ES cells
1200000
1000000
800000
600000
400000
200000
0
S5- DE protocol 1
S5-DE protocol 2

LFS5177USNP

Figure 16

Alireza Rezania





LFS5177USNP

Figure 16

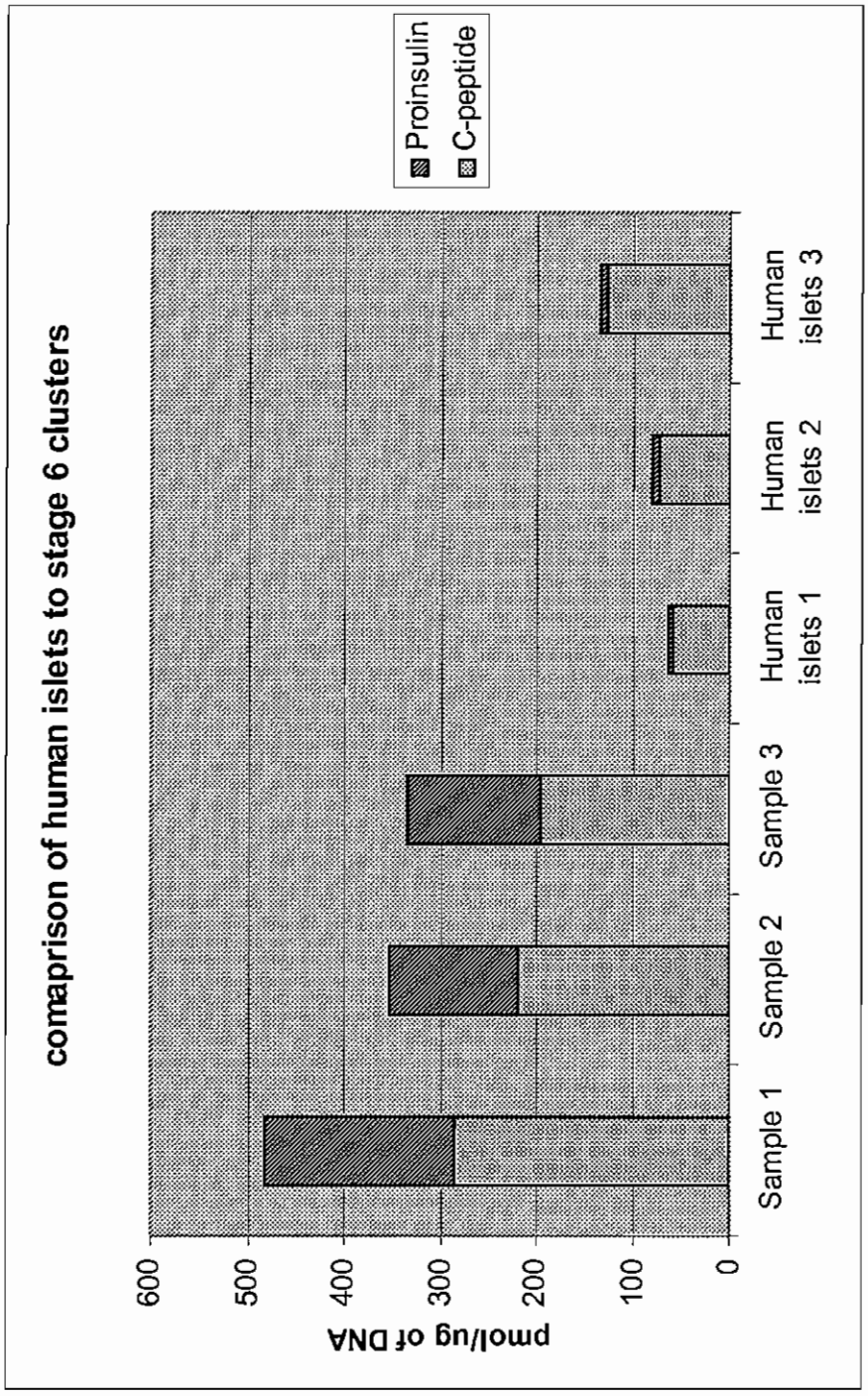
Alireza Rezania

LFS5177USNP

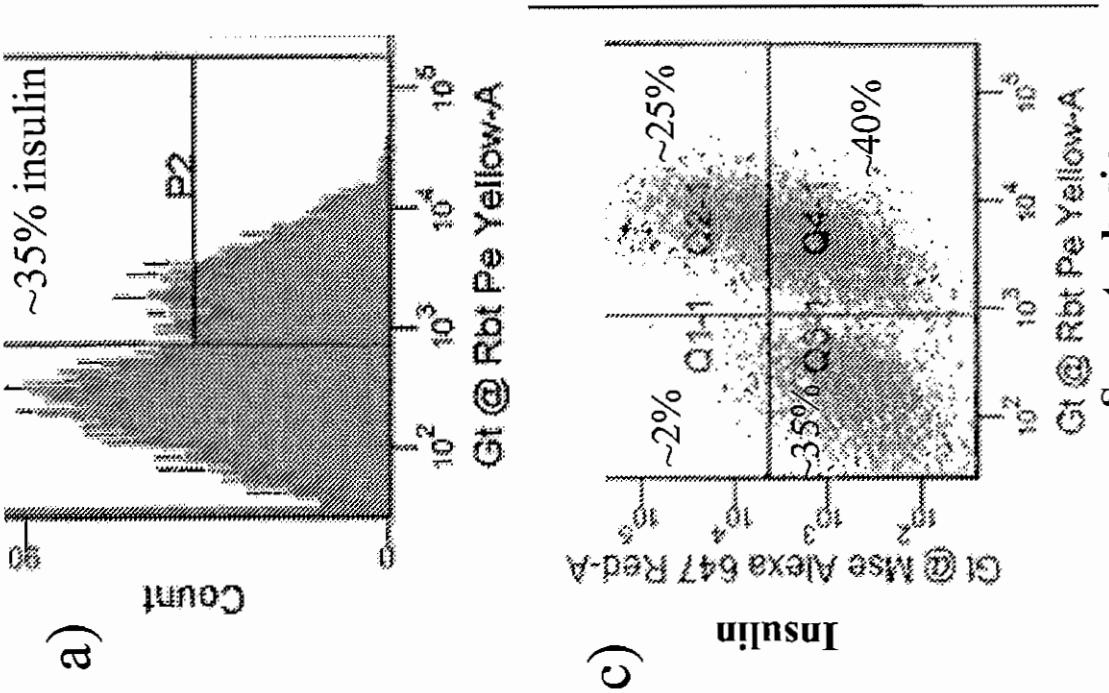
Figure 16

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LFS5177USNP Figure 19 Alireza Rezania



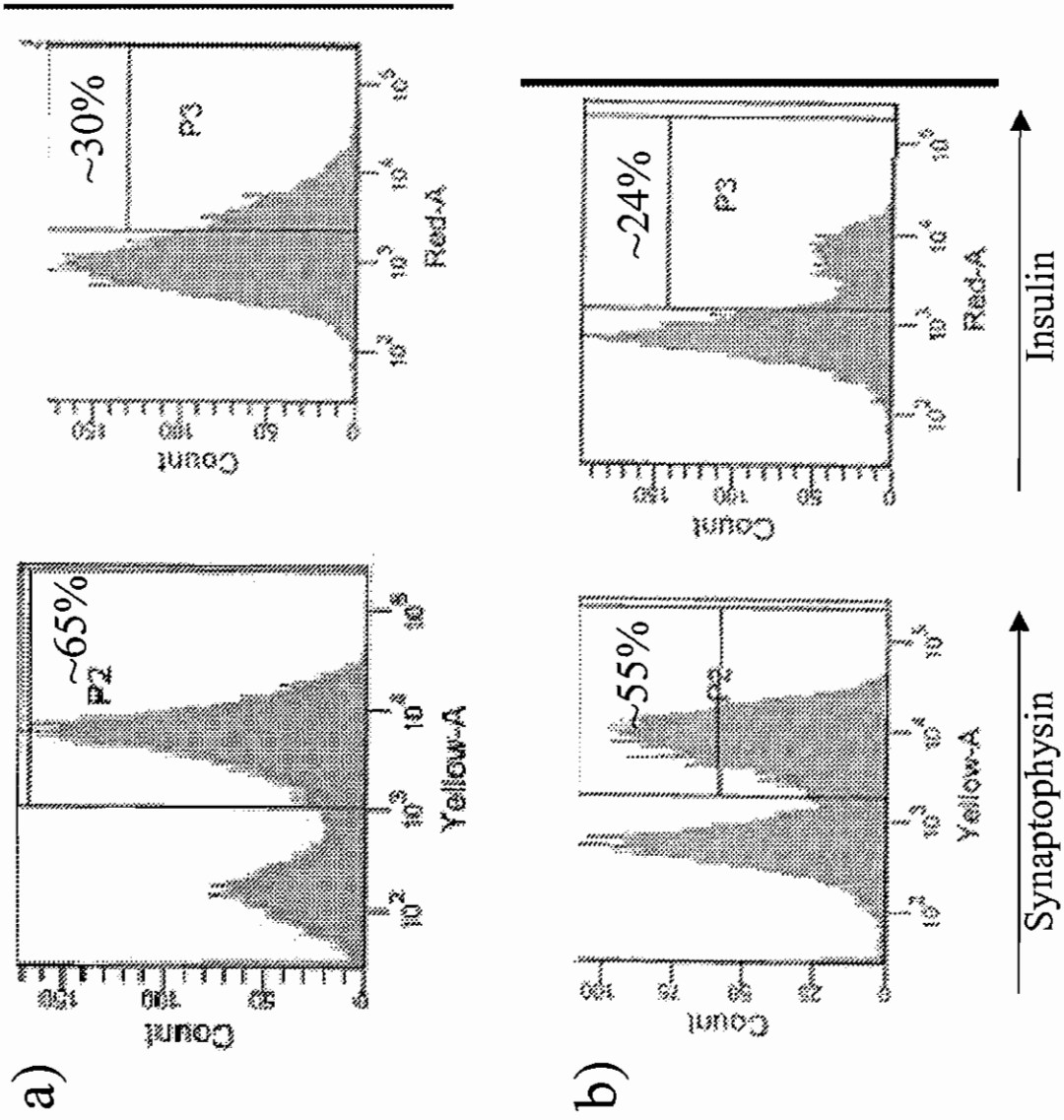
LFS5177USNP Figure 20 Alireza Rezania

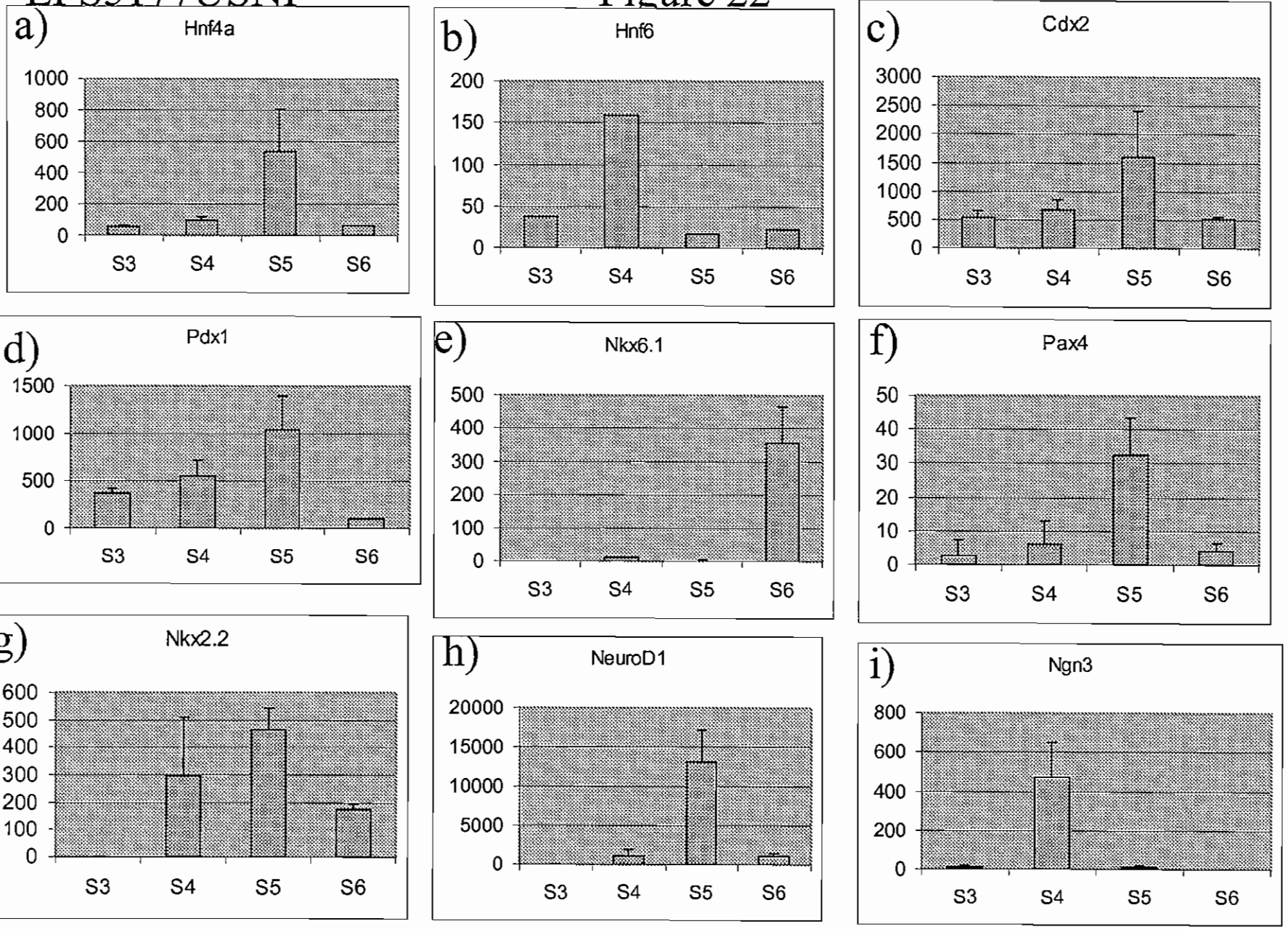


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Figure 21

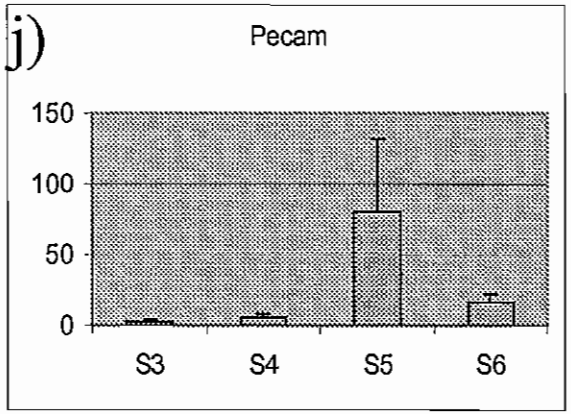
Alireza Rezania

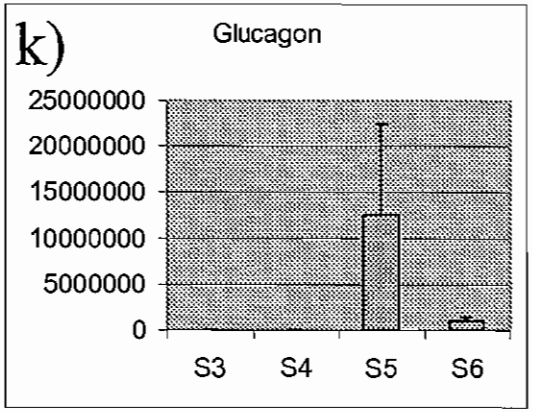


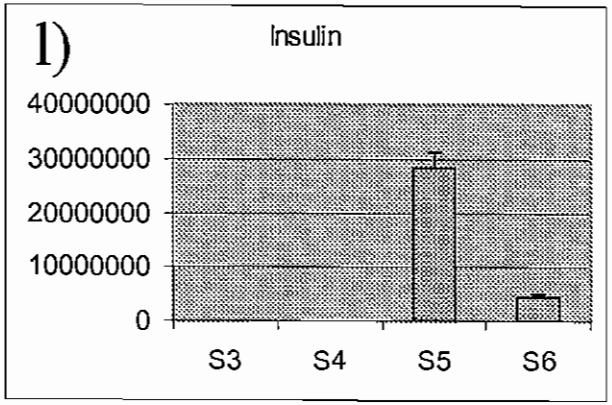


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Figure 22

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