Fig. 1

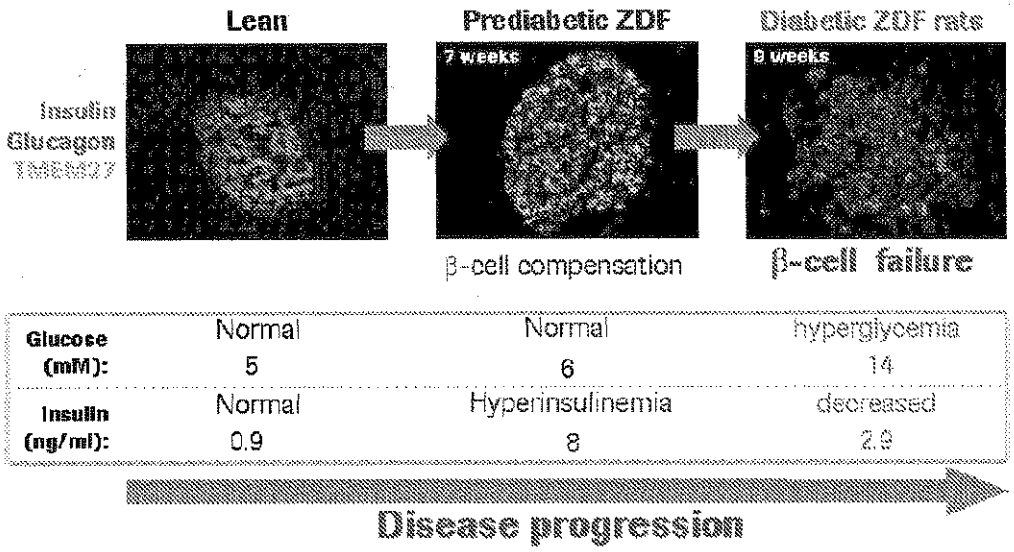

Lean
Prediabetic ZDF
Diabetic ZDF rats
7 weeks
9 weeks
Insulin
Glucagon
TMEM27
β-cell compensation
β-cell failure
Glucose (mM):
Normal
5
Normal
6
hyperglycemia
14
Insulin (ng/ml):
Normal
0.9
Hyperinsulinemia
8
decreased
2.9
Disease progression

Fig. 2

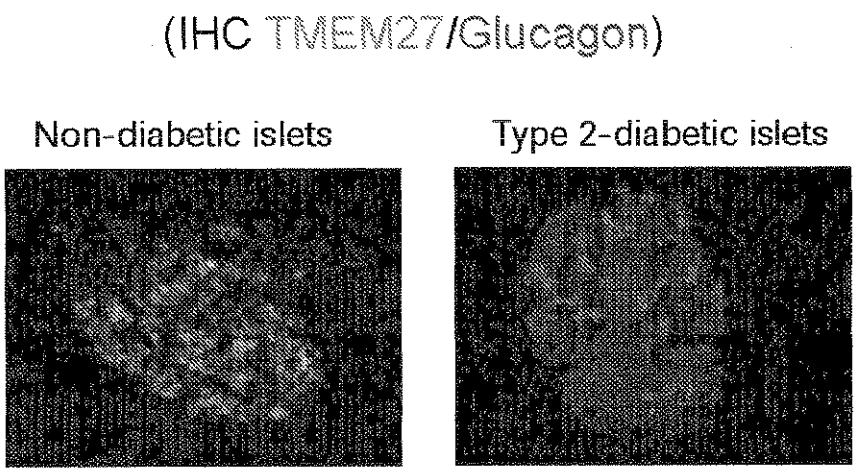

(IHC TMEM27/Glucagon)
Non-diabetic islets
Type 2-diabetic islets

Fig. 3

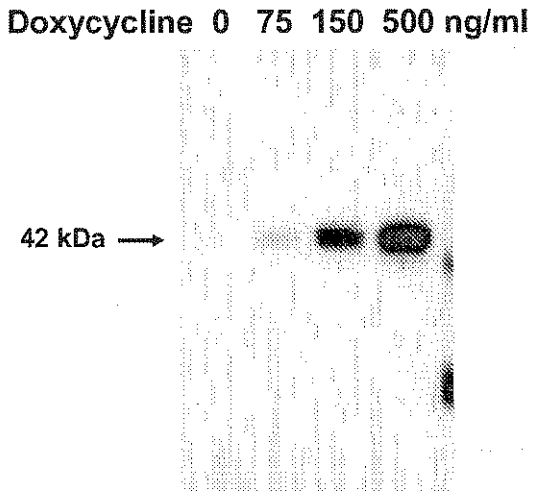


Fig. 4a

Fab3.3µg/ml + IgG 1µg/ml → 488
Fab 66nM + IgG 6.6 nM

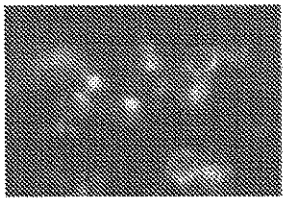


Fig. 4b

Fab 8/9-Alexa555 - 3.3µg/ml
66nM

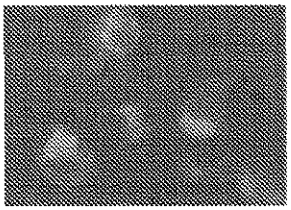


Fig. 4c

IgG 8/9-Alexa488 10µg/ml
66nM

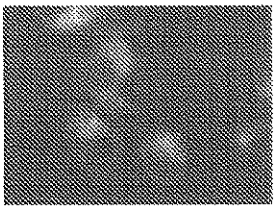


Fig. 4d

Fab3.3µg/ml + IgG 1µg/ml → 555
Fab 66nM + IgG 6.6 nM

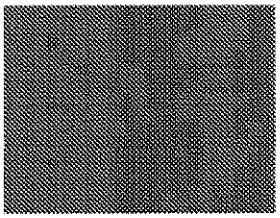


Fig. 4e

nt

Fig. 4f

IgG 8/9-Alexa488 3.3µg/ml

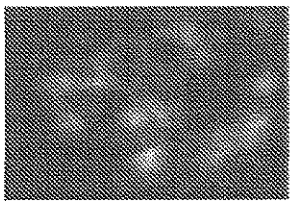


Fig. 4g

Fab3.3µg/ml + IgG 1µg/ml → 488+555

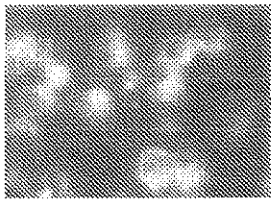


Fig. 4h

Fab 8/9-Alexa555 - 0.33µg/ml

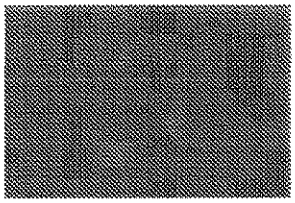


Fig. 4i

IgG 8/9-Alexa488 1.0 µg/ml

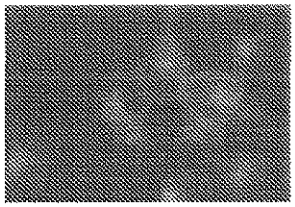


Fig. 4j

neg.

Fig. 4k

IgG 8/9-Alexa488 0.33µg/ml

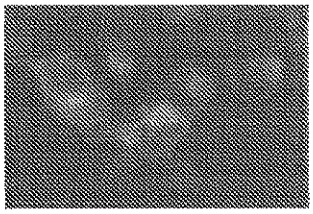


Fig. 5

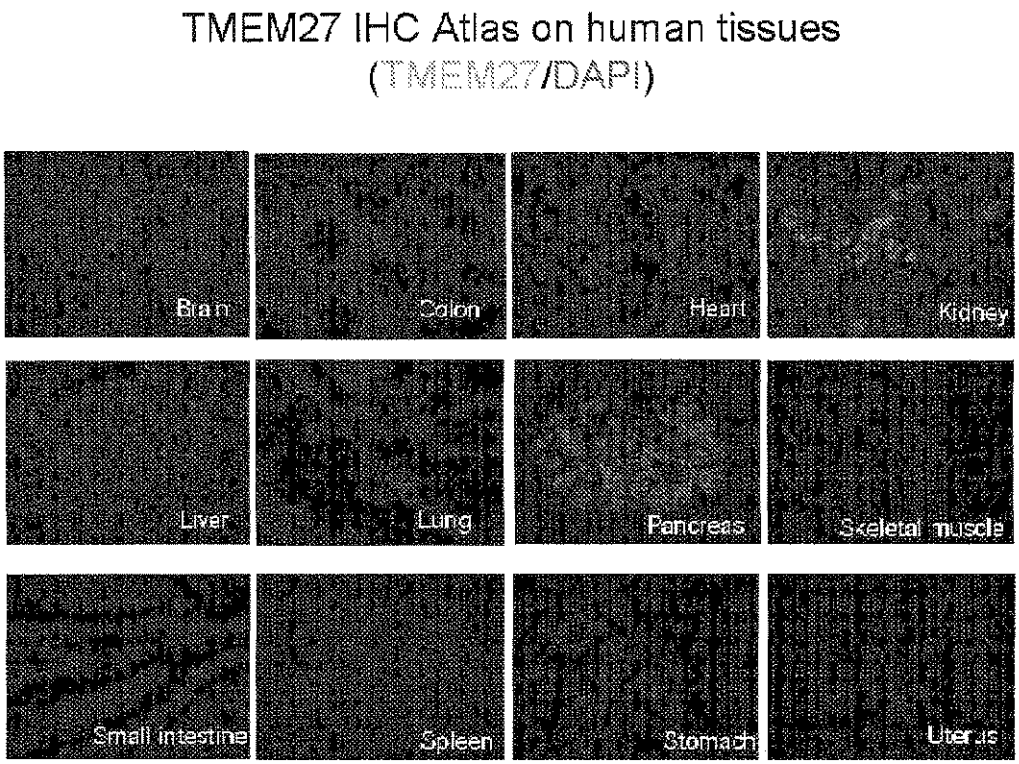

TMEM27 IHC Atlas on human tissues
(TMEM27/DAPI)
Brain
Colon
Heart
Kidney
Liver
Lung
Pancreas
Skeletal muscle
Small intestine
Spleen
Stomach
Uterus

Fig. 6a

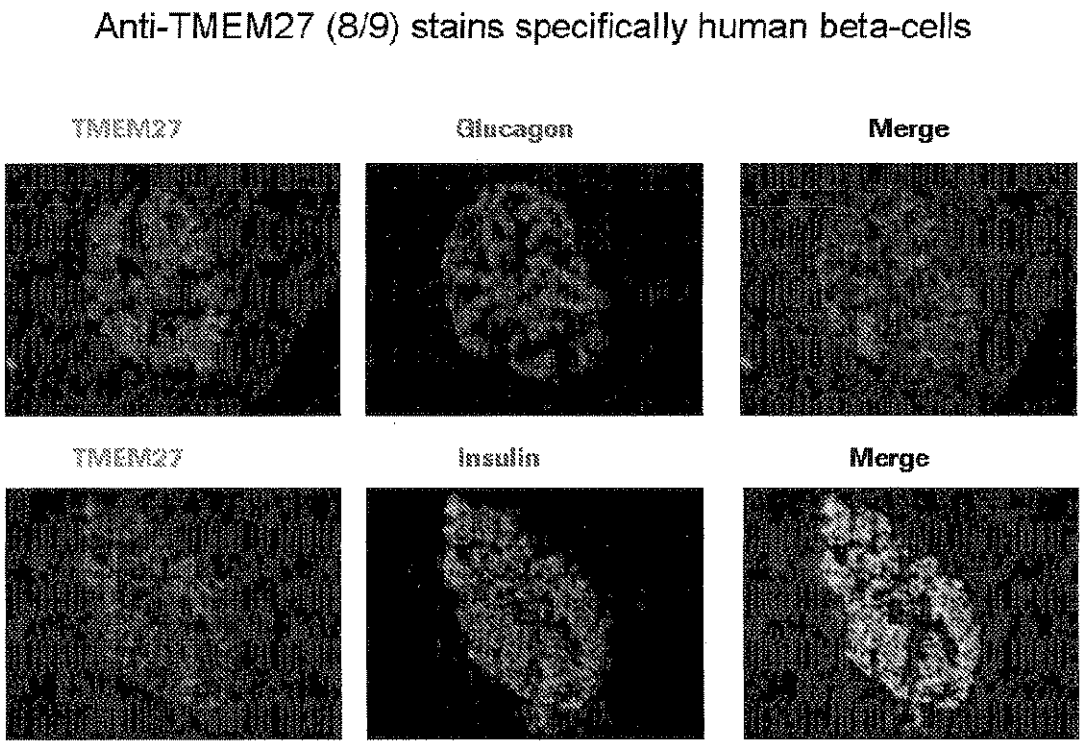

Anti-TMEM27 (8/9) stains specifically human beta-cells
TMEM27
Glucagon
Merge
TMEM27
Insulin
Merge

Fig. 6b

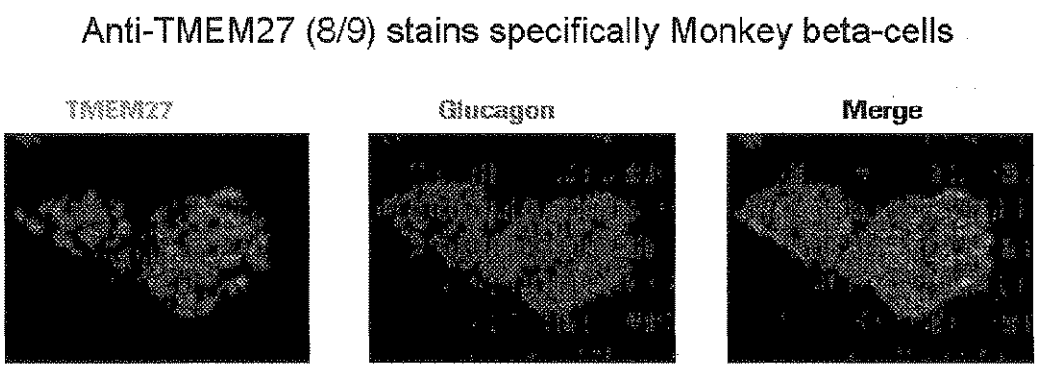

Anti-TMEM27 (8/9) stains specifically Monkey beta-cells
TMEM27
Glucagon
Merge

Fig. 7

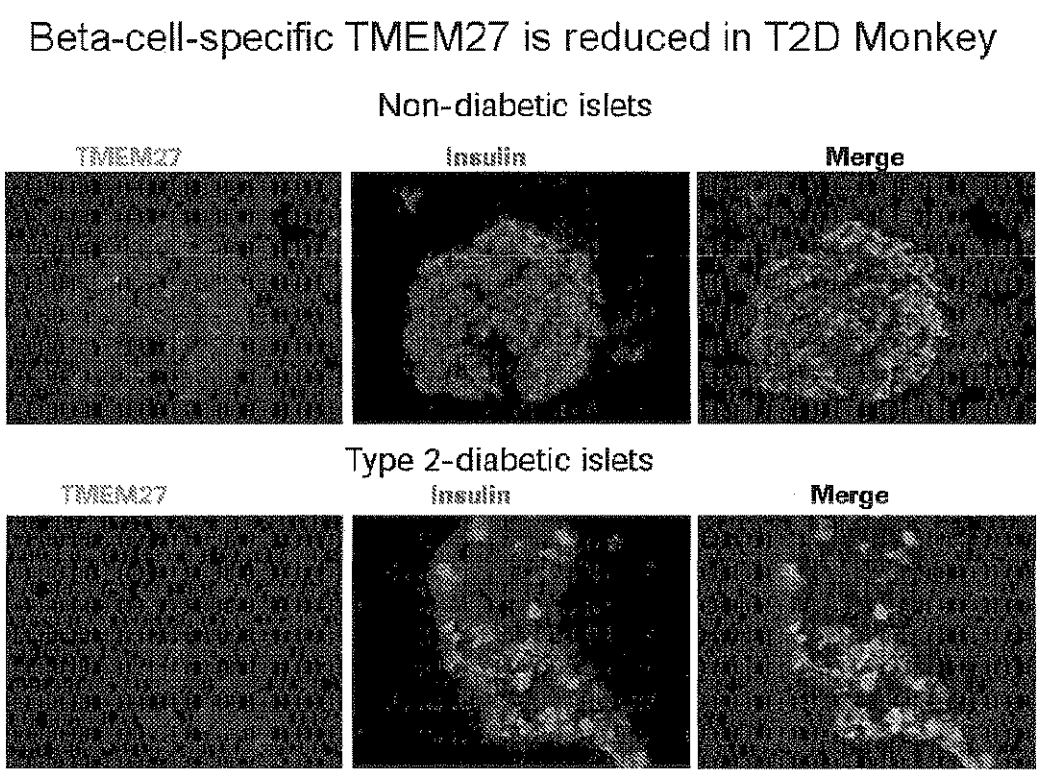
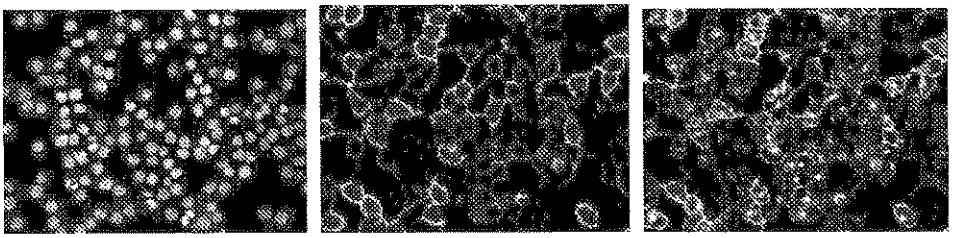
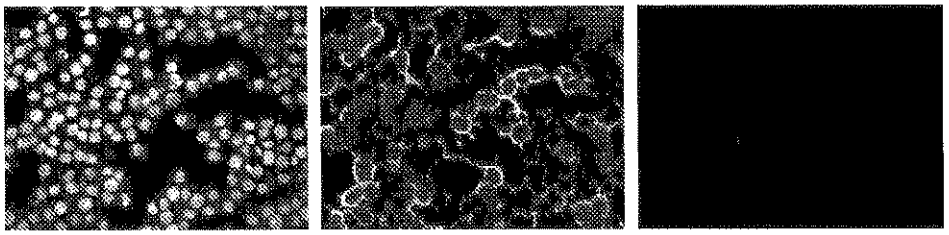

Beta-cell-specific TMEM27 is reduced in T2D Monkey
Non-diabetic islets
TMEM27
Insulin
Merge
Type 2-diabetic islets
TMEM27
Insulin
Merge

Fig. 8

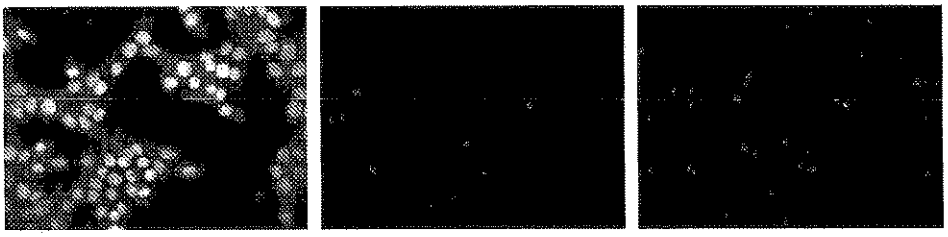
8A 8B 8C



8D 8E 8F



8G 8H 8 I



8J 8 K 8L

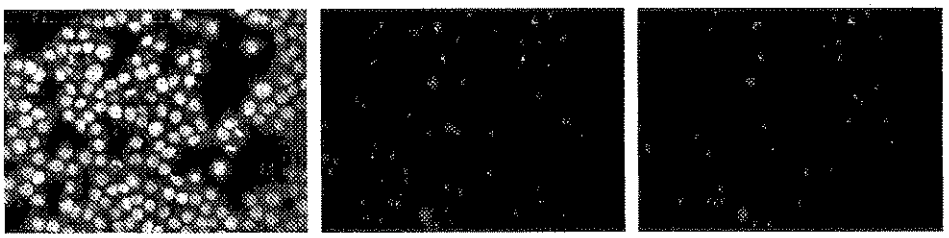


Fig. 9a

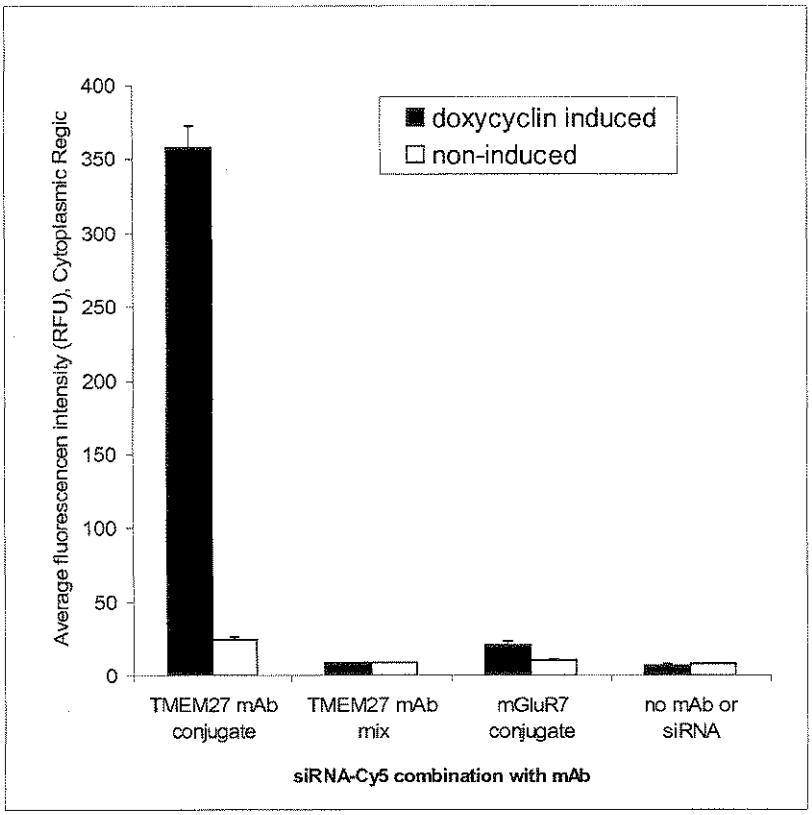
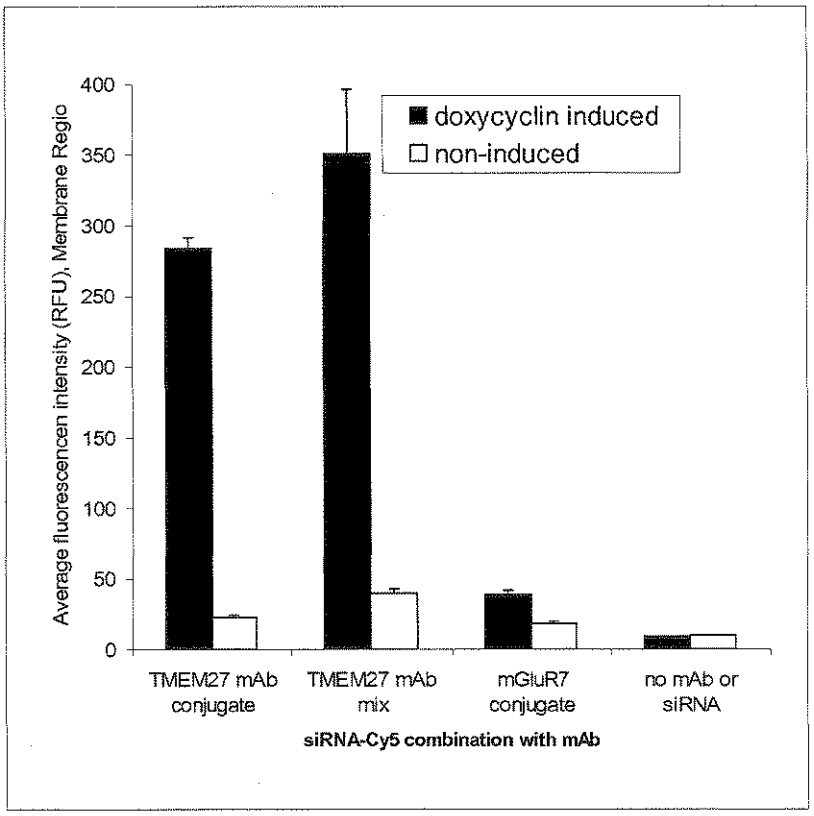

doxycyclin induced
non-induced
Average fluorescencen intensity (RFU), Cytoplasmic Regic
400
350
300
250
200
150
100
50
0
TMEM27 mAb conjugate
TMEM27 mAb mix
mGluR7 conjugate
no mAb or siRNA
siRNA-Cy5 combination with mAb

Fig. 9b


doxycyclin induced
non-induced
Average fluorescencen intensity (RFU), Membrane Regic
400
350
300
250
200
150
100
50
0
TMEM27 mAb conjugate
TMEM27 mAb mix
mGluR7 conjugate
no mAb or siRNA
siRNA-Cy5 combination with mAb