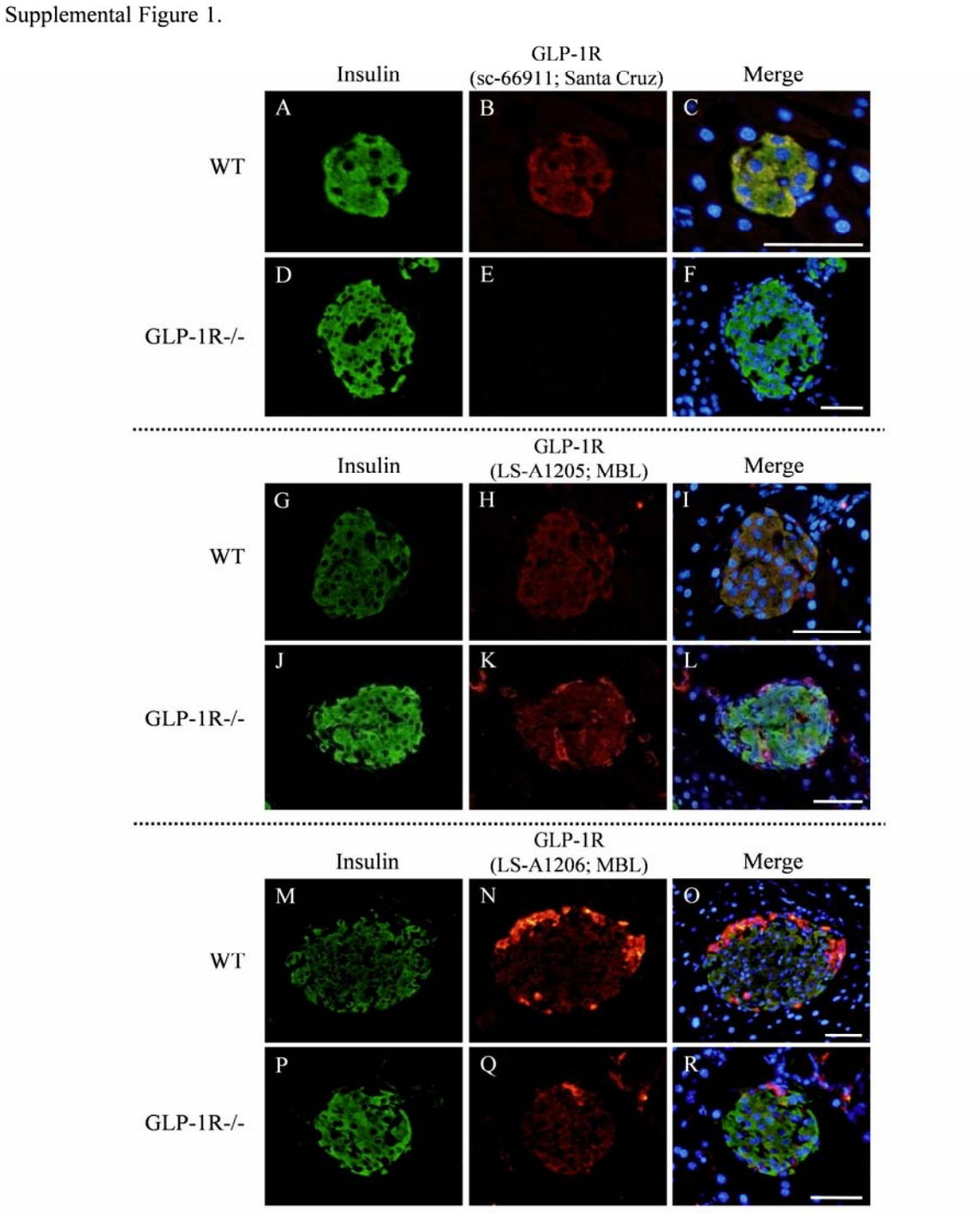
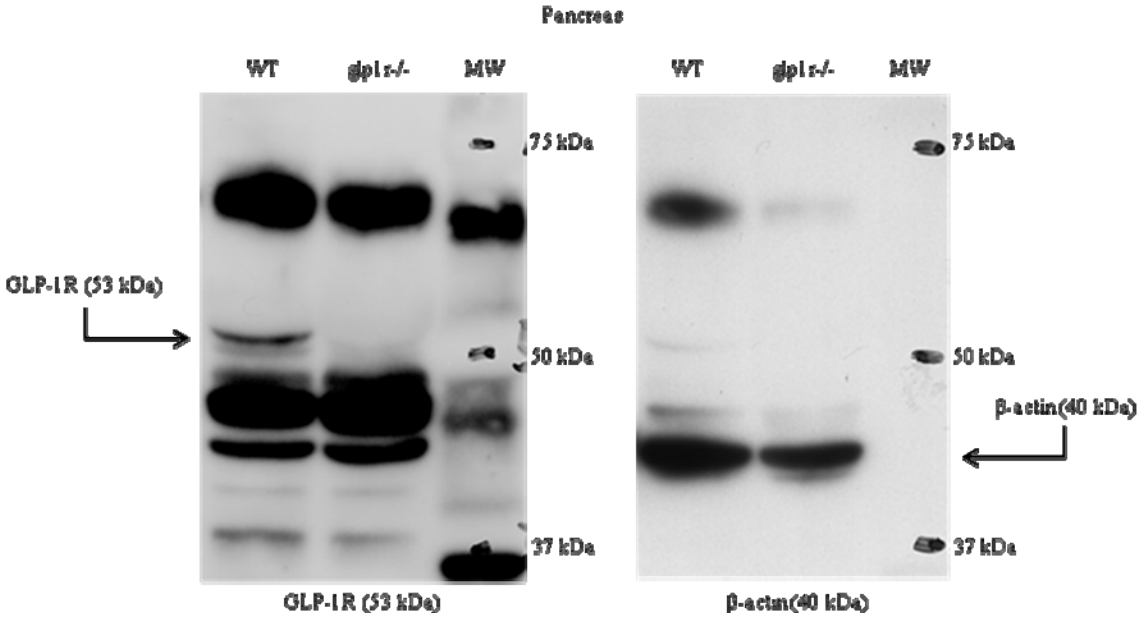
SUPPLEMENTARY DATA

Supplementary Figure 1. Immunolocalizations of GLP-1R in beta cells of islets. Colocalizations of insulin (green) and GLP-1R (red) in islets of wild type or Glp1r-/- mice were detected with three kinds of anti-GLP-1R antibodies (wild type: A-C, G-I, M-O, Glp1r-/-: D-F, J-L, P-R). In the merge of both images on the right, nuclei (blue) were stained with DAPI. Bar: 50μm. WT; wild type mouse, Glp1r-/-; GLP-1R knockout mouse.



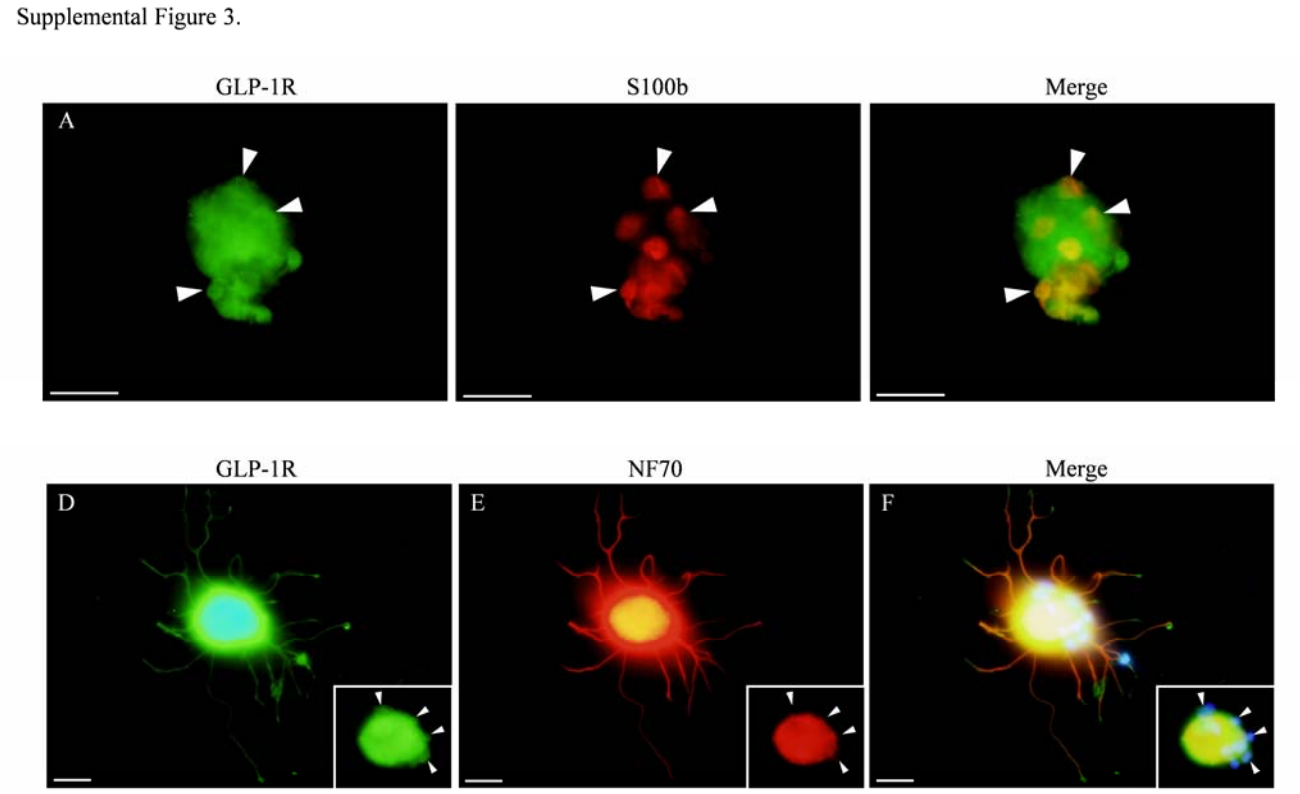
SUPPLEMENTARY DATA

Supplementary Figure 2. The protein expressions of GLP-1R and β-actin in pancreas of wild type and GLP-1r-/- mice. The GLP-1R protein was detected in pancreas of wild type mice but not in that of glp-1r-/- mice. GLP-1R; GLP-1 receptor, WT; wild type mice, MW; molecular weight marker.



SUPPLEMENTARY DATA

Supplementary Figure 3. Immunolocalization of GLP-1R in cultured DRG cells. The GLP-1R proteins were detected in cultured DRG cells. Satellite glias indicated with S100b antibody (red) (A-C) and neurons indicated with neurofilament 70kDa antibody (red) (D-F) expressed GLP-1R protein. White arrowheads indicate satellite glias on the surface of neurons (A-F). Insets show the images with a short exposure period to observe of somata of neurons (D-F). GLP-1R; GLP-1 receptor, NF70; neurofilament 70kDa.



Supplementary Figure 4. Serum insulin and glucagon levels and intraperitoneal glucose tolerance test (IPGTT). After the Ex4 treatment, serum insulin levels were significantly decreased in diabetic mice (normal mice (N-S) [*n*=9]; 100.5 ± 45.1 pmol/l, diabetic mice (DM-S) [*n*=9]; 34.0 ± 12.5, $p<0.001$), and Ex4 administration provided no significant improvement in diabetic (DM–Ex4) or normal mice (N-Ex4) (N-Ex4 [n=8]: 73.3 ± 30.4, p=0.073 versus N-S, DM-Ex4 [n=8]: 44.8 ± 17.9, p=0.438 versus DM-S) (A). The glucagon concentrations in diabetic mice had a high propensity to be decreased by Ex4 treatment (DM-Ex4 [n=4]: 143.2 ± 4.9, p=0.069 versus DM-S) (B). In IPGTT, blood glucose levels in diabetic mice at 15 minutes after glucose injection were significantly elevated compared with those in normal mice (N-S [*n*=9]; 15.8 ± 4.0 mmol/l, DM-S [*n*=9]; 29.8 ± 6.0, $p<0.0001$). These elevations were not significantly decreased by Ex4 treatment (N-Ex4 [n=8]: 14.8 ± 3.6, p=0.603 versus N-S, DM-Ex4 [n=7]: 26.3 ± 6.8, p=0.077 versus DM-S) (C). N, normal mice; DM, diabetic mice; S, saline; Ex4, exendin-4. Results are means ± SD. **p<0.005 versus S-treated N

SUPPLEMENTARY DATA

Supplemental Figure 4.