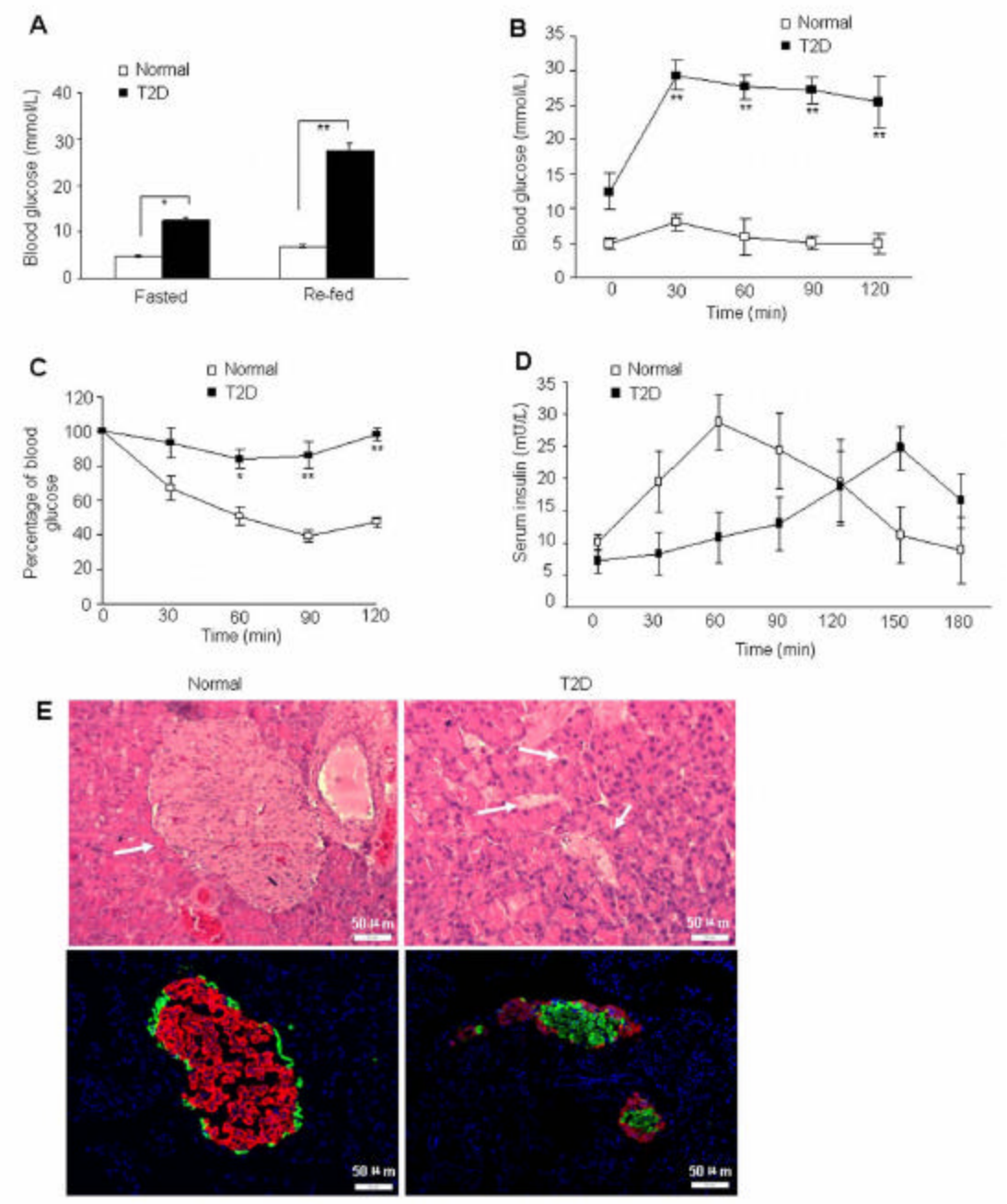
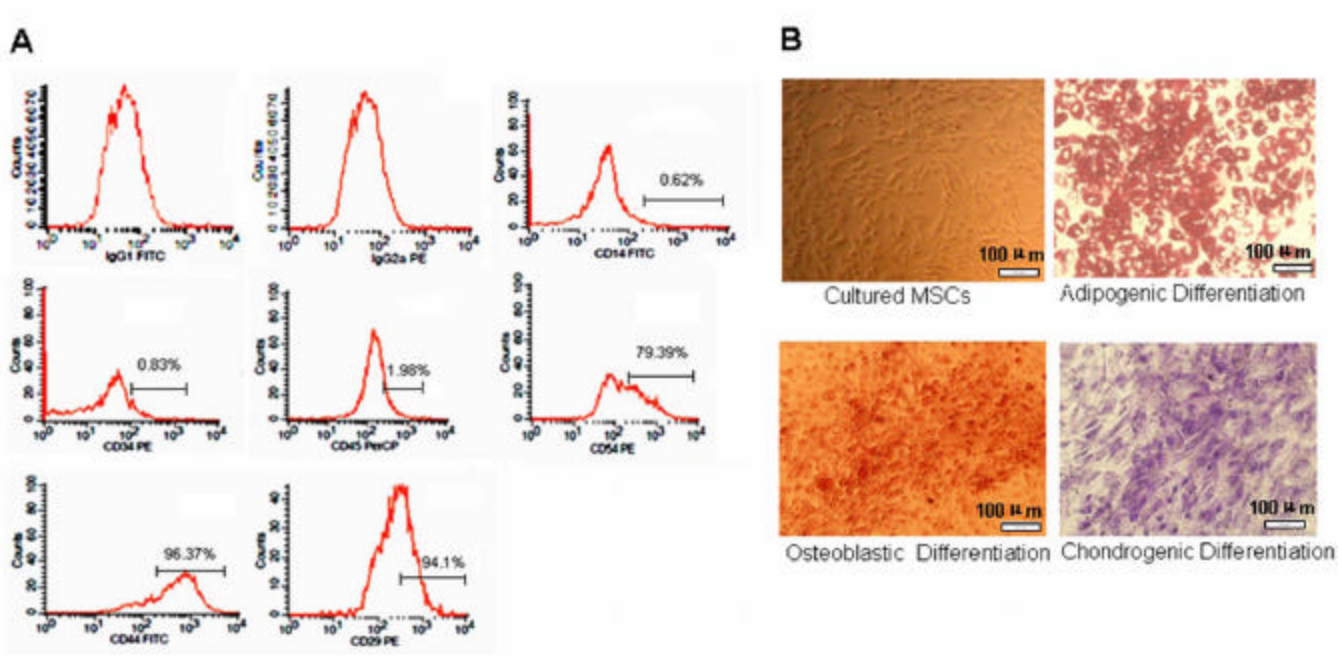
SUPPLEMENTARY DATA

Supplementary Figure 1. Characterization of the fat-fed/STZ-induced T2D rat model. After consumption of a high-fat diet for 2 weeks, SD rats were injected intraperitoneally with 30 mg/kg STZ in 0.1 M citrate buffer. One week after STZ administration, *A*: Blood glucose level was determined in venous blood samples obtained from alert fasted and re-fed animals. *B*: Individual glucose tolerance was assessed by oral glucose tolerance test (OGTT), by intragastric administration of 2 g glucose /kg body weight and determination of blood glucose levels. *C*: Individual insulin tolerance was evaluated by intraperitoneal insulin tolerance test (IPITT), by injecting with 2 g glucose /kg bw immediately followed by insulin administration at a dose of 2 U/kg bw. *D*: Individual insulin level was assessed by insulin release test (IRT), involving administration of 2 g glucose /kg body weight and determination of serum insulin levels; *E*: Pancreas histology was studied in serial 5 µm hematoxylin/eosin-stained sections, observed under light microscopy and focusing on islet structures indicated by arrows. Scale bar: 50 µm (*E*). Values of *A*-*D* are means ± SE; $n = 10$ rats per group; $^{*}P < 0.05$, $^{**}P < 0.01$.



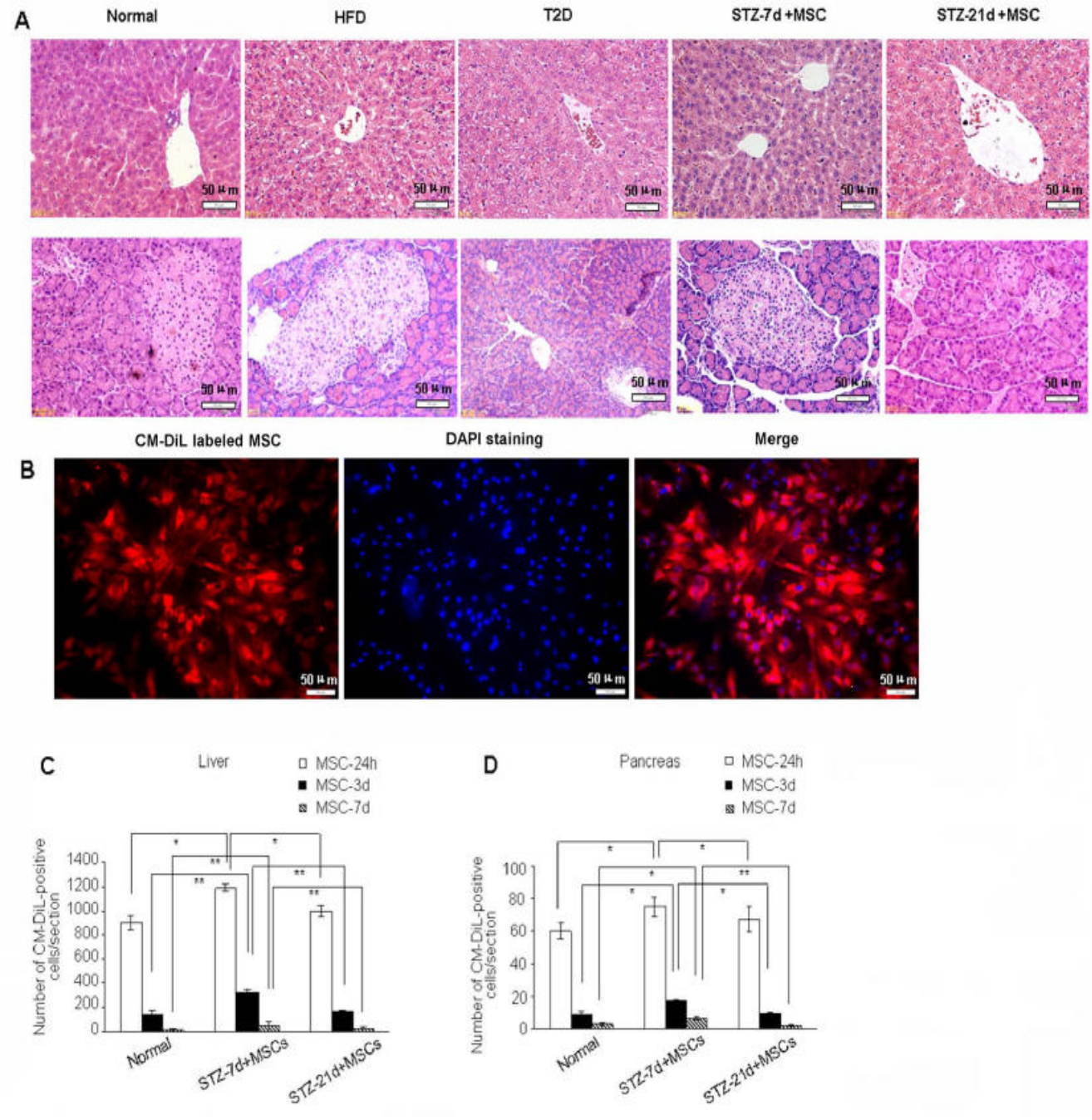
SUPPLEMENTARY DATA

Supplementary Figure 2. Identification of BM-MSC characteristics. *A*: Immunologic phenotypes of MSCs: cultured BM-derived cells consisted of a homogenous mesenchymal population stained positive for CD29, CD44, CD54, while negative for CD14, CD34, CD45 (-). *B*: Multilineage differentiation of MSCs: adipocytic differentiation was detected by Oil Red O staining; osteoblastic differentiation was confirmed by Alizarin Red staining; chondrogenic differentiation was evidenced by Safranin-O staining. Scale bar: 50μm (*B*).



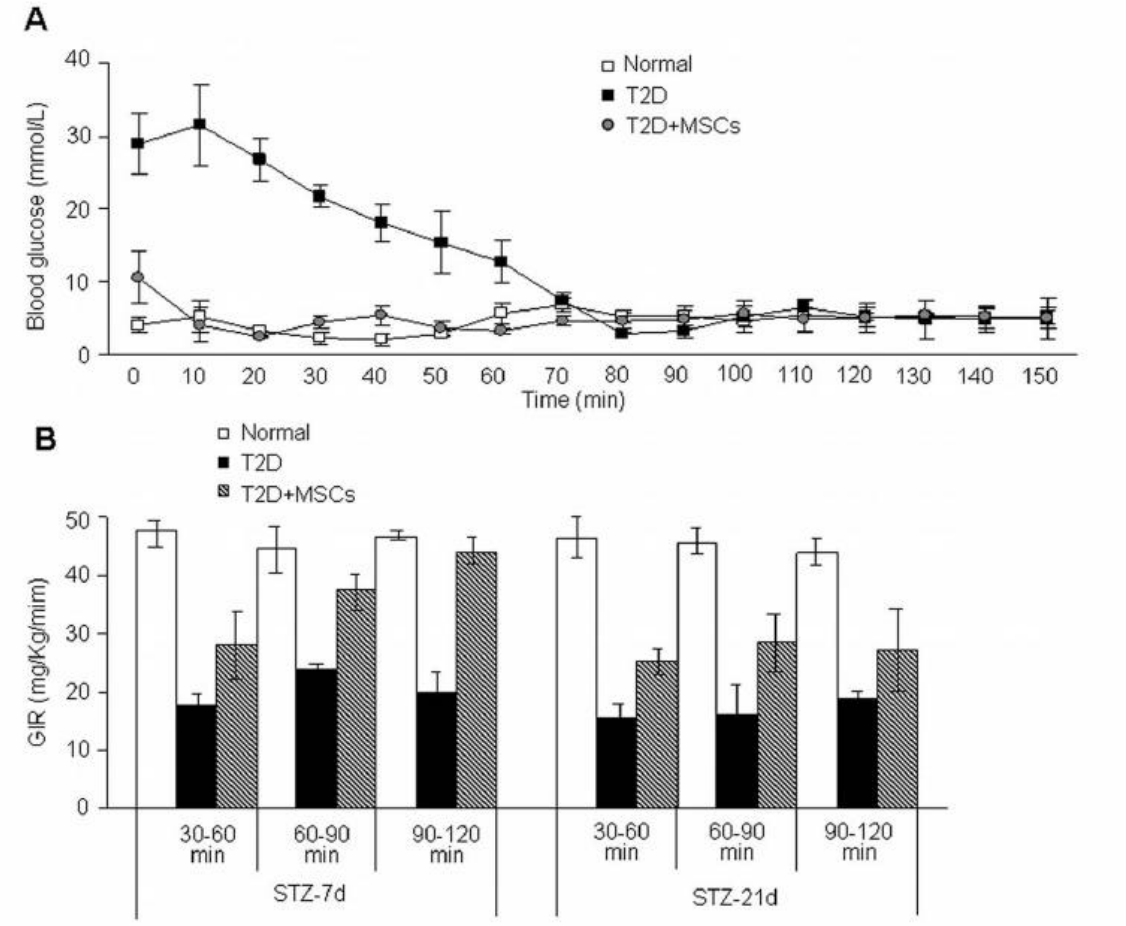
SUPPLEMENTARY DATA

Supplementary Figure 3. MSC homing and histopathologic analyses in liver and pancreas. *A*: The influence of MSC treatment on liver (upper panel) and pancreas (lower panel) was assessed by histopathologic analysis, respectively. *B-D*: MSC homing in liver and pancreas at different time points were measured by immunofluorescence staining. 2×10^6 MSCs were labeled with 2 μmol/L CM-DiL (*B*).Comparison of the labeled MSCs homing to liver and pancreas of the indicated groups were detected at different time points (24h, 3d and 7d) after MSC infusion at early phase (7 day) or late phase (21 day) after STZ-injection (*C*, *D*). Labeled MSCs were calculated in 10 random fields of each of 5 tissue sections under fluorescence microscopy with 570-nm filters. Bars represent the average number of labeled MSCs per section. Scale bar: 200μm (*A*,*B*). Values of *C and D* are means ± SE; n = 10 rats per group; $^{*}P < 0.05$, $^{**}P < 0.01$.



SUPPLEMENTARY DATA

Supplementary Figure 4. Glucose values and GIR levels at the different time points during the clamp experiment. *A*: The glucose values were measured every 10 mins during the clamp experiment. *B*: GIR levels were calculated at 30-60min, 60-90min, 90-120min during the clamp experiment.



SUPPLEMENTARY DATA

Supplementary Figure 5. MSC administration influenced the expression of Glut-2. The expression level of Glut-2 protein in livers of the indicated groups was measured by immunoblotting and was normalized by ? -actin. $^{**}P < 0.01$.