Supplemental Table 1: Flow Cytometric Analysis of Splenocytes From Non-engrafted NRG-Akita and NOD-*Rag1*^{null} *Ins2*$^{+/Akita}$ Mice

Surface Marker	NRG (n=4)	NRG-Akita (n=4)
Total Splenocyte Number (x10^6)	2.6±0.4	2.7±0.4
Murine Immune Cell Subsets (%)		
CD3$^+$/CD4$^+$	0.7±0.6	0.2±0.1
CD3$^+$/CD8$^+$	0.3±0.3	0.1±0.0
B220+/IgK+	0.04±0.03	0.2±0.13
B220$^+$/IgK$^-$	3.2±0.1	3.1±0.4
GR-1$^+$/Mac-1$^+$	23.3±1.1	21.2±1.8
GR-1$^-$/Mac-1$^+$	26.0±1.9	32.6±3.8
Ter 119$^+$	46.1±1.6	45.0±3.3
DX5$^+$/CD122$^+$	2.4±0.4	2.7±0.3
LGL$^+$/CD122$^+$	0.02±0.0	0.03±0.0
DX5$^+$/ LGL$^+$	0.02±0.0	0.01±0.0

Splenocytes from 7-8 week NOD-*Rag1*^{null} *IL2rγ*^{null} (NRG, n=4) and NOD-*Rag1*^{null} *IL2rγ*^{null} *Ins2*$^{+/Akita}$ (NRG-Akita, n=4) mice were analyzed by flow cytometry for the indicated mouse cell surface markers. Data shown are the mean ± 1 s.d. No significant differences were observed.

Supplemental Table 2. Human HSC Engraftment in the Blood of NRG and NRG-Akita Mice

BLOOD	NRG	NRG-Akita
Percent Human Leukocytes		
CD45+	15.2 ± 2.0	12.9 ± 2.5
B Lineage		
CD20+	53.4 ± 3.7	50.1 ± 6.6
Myeloid/Granulocytic		
CD13+	4.1 ± 1.8	2.1 ± 0.7
CD33+	5.4 ± 1.2	5.9 ± 1.6
CD33+64+	1.7 ± 0.8	0.7 ± 0.1
CD64+	0.5 ± 0.3	0.2 ± 0.4
T Lineage		
CD3+	23.0 ± 4.2	32.7 ± 7.5
CD4+	23.1 ± 2.9	27.79 ± 4.8
CD8+	8.1 ± 1.3	11.6 ± 2.7
Dendritic Subsets		
BDCA2+	0.7 ± 0.9	0.2 ± 0.03
Monocyte/Macrophage		
CD14+	6.2 ± 1.2	5.5 ± 1.2
NK Cell		
CD56+	2.9 ± 0.7	2.4 ± 0.8

Newborn NRG (n=16) and NRG-Akita (n=12) mice were irradiated with 400 cGY and injected with T cell-depleted UCB containing 3x10^4 human CD34$^+$ HSC by intracardiac injection as described in Materials and Methods. The percent of various human cell populations in the blood was determined by flow cytometry 12 weeks later. The percentages shown for each lineage is of CD45$^+$ cells. No significant differences were observed.

Supplemental Table 3. Human HSC Engraftment in the Bone Marrow of NRG and NRG-Akita Mice

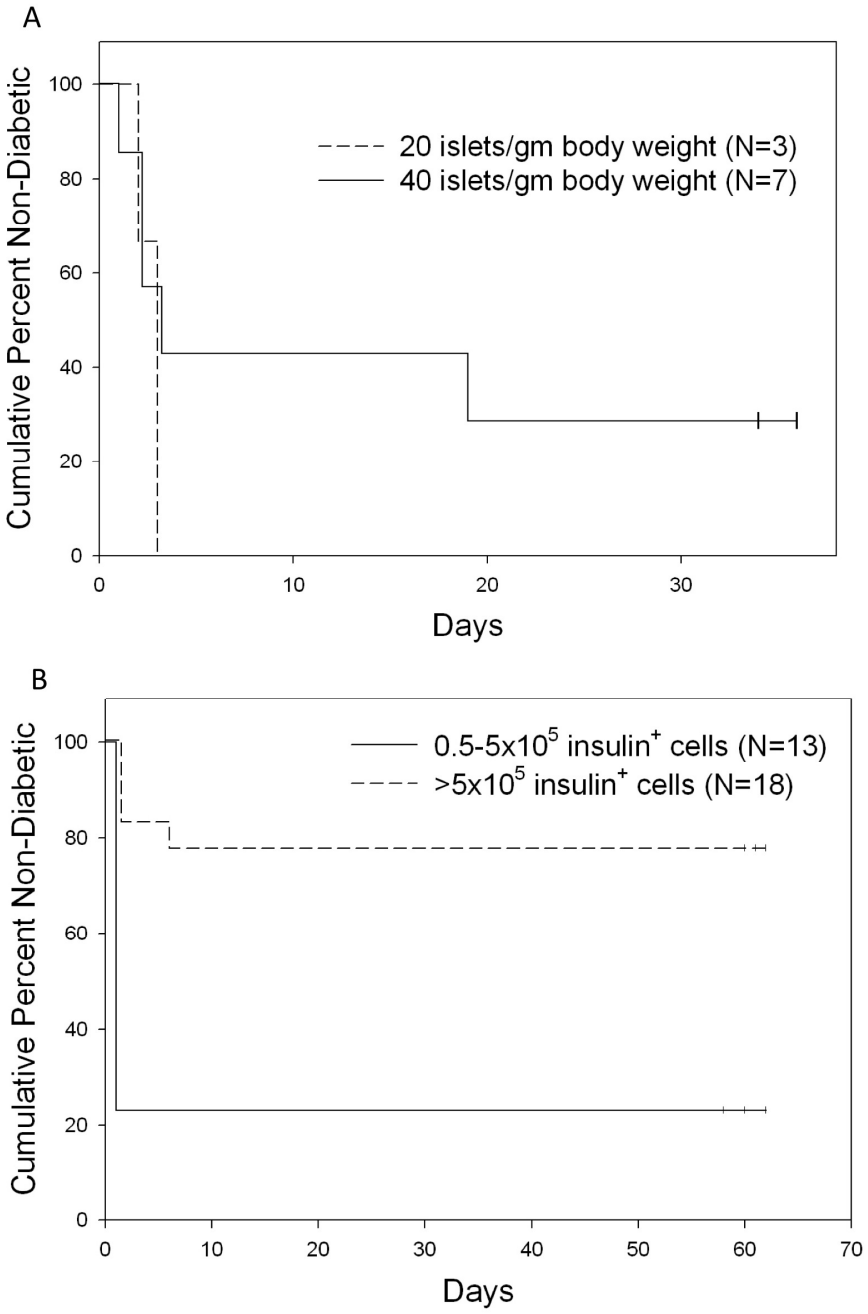
BONE MARROW	NRG	NRG-Akita
Percent Human Leukocytes		
CD45+	44.0 ± 7.2	42.3 ± 7.8
B Lineage		
CD10+	64.3 ± 4.6	61.2 ± 4.0
CD10+20+	11.1 ± 1.4	10.1 ± 2.0
CD20+IgM+	6.5 ± 0.9	5.9 ± 0.6
Myeloid/Granulocytic		
CD33+	5.3 ± 0.8	7.0 ± 1.0
CD33+64+	8.6 ± 0.8	14.8 ± 2.0
CD64+	1.3 ± 0.5	0.9 ± 0.2
Hematopoietic Progenitor		
CD34+38-	0.05 ± 0.01	0.1 ± 0.1
(Common) CD34+38+	14.8 ± 1.5	14.0 ± 1.6
Erythroblast/RBC		
CD71+	0.3 ± 0.1	0.4 ± 0.1
CD71+235a+	3.8 ± 2.1	7.1 ± 2.9
CD235a+	0.3 ± 0.1	0.3 ± 0.1
Dendritic Subsets		
(Monocytic) CD11c+BDCA2-	2.5 ± 0.3	3.6 ± 0.4
(Plasmacytoid) CD123+BDCA2+	0.5 ± 0.1	0.4 ± 0.1
Monocyte/Macrophage		
CD14+	6.0 ± 0.7	10.2 ± 1.2
NK Cell		
CD56+	0.7 ± 0.1	1.3 ± 0.4

Newborn NRG (n=16) and NRG-Akita (n=12) mice were irradiated with 400 cGy and injected with T cell-depleted UCB containing $3x10^4$ human $CD34^+$ HSC by intracardiac injection as described in Materials and Methods. The percent of various human cell populations in the bone marrow was determined by flow cytometry 12 weeks later. The percentages shown for each lineage is of $CD45^+$ cells, except for dendritic cells, which were identified in cells negative for murine CD45. No significant differences were observed.

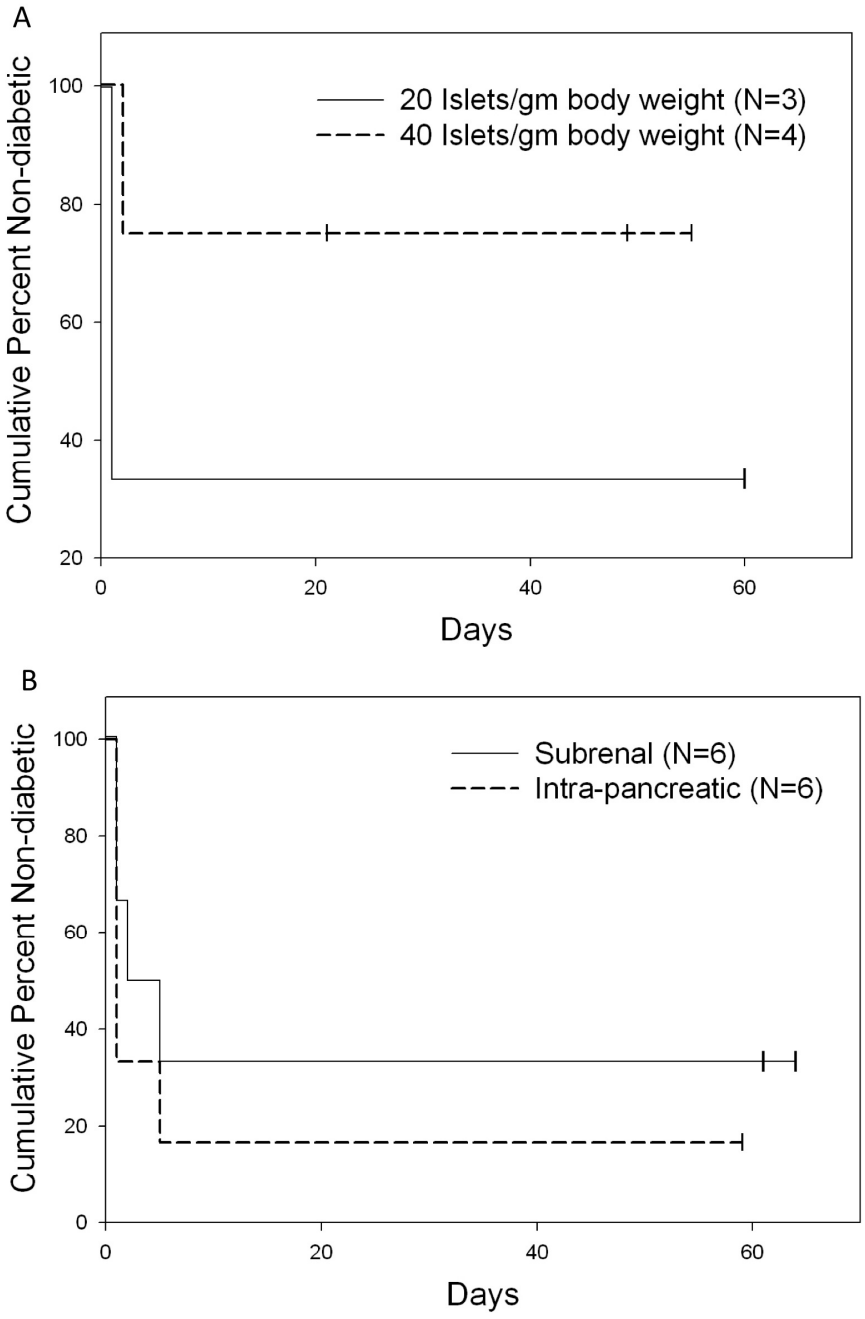
Supplemental Table 4. Human HSC Engraftment in the Thymus of NRG and NRG-Akita Mice

THYMUS	NRG	NRG-Akita
Percent Human Leukocytes		
CD45+	74.6 ± 6.4	77.4 ± 6.2
Developing T Subsets (gated on human $CD45^+$ cells)		
CD4-CD8-	13.9 ± 5.2	10.1 ± 5.4
CD4+CD8+	56.1 ± 7.0	49.2 ± 10.1
CD4+	18.9 ± 2.1	21.8 ± 4.9
CD8+	11.1 ± 1.6	18.9 ± 4.9

Newborn NRG (n=16) and NRG-Akita (n=12) mice were irradiated with 400 cGy and injected with T cell-depleted UCB containing $3x10^4$ human $CD34^+$ HSC by intracardiac injection as described in Materials and Methods. The percent of various human cell populations in the thymus was determined by flow cytometry 12 weeks later. No significant differences were observed.



Supplemental Figure 1. Transplantation of Mouse Islets and Dissociated Mouse Islet cells into Chemically-diabetic NSG Mice. **Panel A:** Islets from BALB/c mice were isolated and transplanted intra-pancreatically at 20 or 40 islets/gm of body weight, as described in Materials and Methods. The graph shows the frequency of diabetes in recipients. No significant differences were observed. **Panel B:** Islets from BALB/c mice were dissociated and single cell suspensions of 0.5 to $5x10^5$ insulin$^+$ cells or greater $5x10^5$ insulin$^+$ cells were transplanted into the renal subcapsular space. The graph shows the frequency of diabetes in recipients. 0.5 to $5x10^5$ insulin$^+$ cells versus greater $5x10^5$ insulin$^+$ cells, $p=0.02$. Small vertical bars indicate censored data, i.e., mice that were found dead or were removed from the study for other analyses.



Supplemental Figure 2. Transplantation of Mouse Islets and Dissociated Mouse Islet Cells into Diabetic NRG-Akita mice. Panel A: Islets from BALB/c mice were transplanted intra-pancreatically at 20 or 40 islets/gm of body weight into diabetic NRG-Akita mice. The graph shows the frequency of diabetes in recipients. No significant differences were observed. **Panel B**: Islets from BALB/c mice were dissociated and single cells containing 1-4x10^6 insulin-positive cells were transplanted intra-pancreatically or subrenally into diabetic NRG-Akita mice. The graph shows the frequency of diabetes in recipients. No significant differences were observed. Small vertical bars indicate censored data, i.e., mice that were found dead or were removed from the study for other analyses.