**Statistical Analysis of Results for Glucose Tolerance Test and Glucose Stimulated Insulin Secretion.**

All measurements in this study are presented as means ± standard error or standard deviation. The differences between two groups in glucose tolerance test were analyzed by repeated measures ANOVA (SAS 9.1, SAS Inc., NC).  All other differences were determined with Student's *t*-tests, the significance were accepted at *p*<0.05.

## TABLE A. Glucose Tolerance Test

Model: Repeated measures

Repeated Measures Mixed Models (Proc Mix SAS) were used to assess the blood glucose over time between Smad3 KO and Smad3 WT group.  The model included group, time, and interaction of group and time. An unstructured covariance structure was utilized.

Male

| min | Smad3 WT (n=9) | | | Smad3 KO (n=7) | | | P** |
| | mean | Standard error | P* | Mean | Standard error | P* | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 75.8 | 5.2 | | 57.6 | 5.9 | | 0.036 |
| 15 | 266.4 | 17.4 | 0.000 | 182.3 | 19.8 | 0.000 | 0.007 |
| 30 | 241.6 | 16.3 | 0.000 | 160.71 | 18.5 | 0.000 | 0.006 |
| 45 | 205.0 | 15.3 | 0.000 | 147.9 | 17.4 | 0.000 | 0.027 |
| 60 | 182.7 | 14.4 | 0.000 | 135.7 | 16.3 | 0.000 | 0.049 |
| 120 | 119.7 | 7.9 | 0.000 | 96.0 | 9.0 | 0.001 | 0.068 |

\* compare to the mean of same group at min 0
\*\* compare the mean at same time: WT vs KO

Female

| min | Smad3 WT (n=10) | | | Smad3 KO (n=6) | | | P ** |
| | mean | Standard error | P* | Mean | Standard error | P* | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 69.3 | 6.4 | | 60.3 | 8.2 | | 0.404 |
| 15 | 299.3 | 28.2 | 0.000 | 175.7 | 36.4 | 0.005 | 0.018 |
| 30 | 232.6 | 24.8 | 0.000 | 141.7 | 32.0 | 0.017 | 0.041 |
| 45 | 192.3 | 21.9 | 0.000 | 152.5 | 28.2 | 0.003 | 0.284 |
| 60 | 187.5 | 20.8 | 0.000 | 138.5 | 26.9 | 0.006 | 0.172 |
| 120 | 92.2 | 15.0 | 0.130 | 101.0 | 19.4 | 0.044 | 0.726 |

\* compare to the mean of same group at min 0
\*\* compare the mean at same time: WT vs KO

## TABLE B. Glucose Tolerance Test

Glucose AUC (Area under curve)

Method: t test

Male

| Group | n | Mean | Standard deviation | P |
|---|---|---|---|---|
| Smad3 KO | 7 | 15764 | 4628 | 0.009 |
| Smad3 WT | 9 | 21703 | 3273 | |

Female

| Group | n | Mean | Standard deviation | P |
|---|---|---|---|---|
| Smad3 KO | 6 | 15724 | 6170 | 0.109 |
| Smad3 WT | 10 | 21180 | 6161 | |

**Interpretation:** Male Smad3 KO have significantly lower glucose AUC than male Smad3 WT (p=0.009). Female Smad3 KO have lower glucose AUC than female Smad3 WT but the difference in levels is not statistically significant (p=0.109).

## TABLE C. Glucose stimulated Insulin secretion

| Delta insulin | Smad3 WT (n=13) | | Smad3 KO (n=12) | | |
|---|---|---|---|---|---|
| | mean | Std | mean | std | P* |
| between 0 and 2 min | 25.9 | 21.6 | 43.4 | 41.1 | 0.1910 |
| between 0 and 15 min | 34.8 | 12.2 | 66.1 | 19.3 | <0.0001 |

*t test, compare WT vs KO