

Supplemental Figure and Video Legends

Supplemental Figure 1 Results of glucose-glucagon challenge tests. (A) Blood glucose levels measured during the two-phase glucose clamp (euglycemic 0-90 minutes, hyperglycemic 90-210 minutes) and following the glucagon bolus (1 mg delivered intravenously at 210 minutes). (B) Serum C-peptide concentration measured throughout the glucose clamp. Healthy control group ($n=4$) is indicated by open symbols T1DM group ($n=3$) by closed symbols.

Supplemental Figure 2 [^{18}F]FP-(+)-DTBZ PET images for all control subjects ($n=9$) and T1DM patients ($n=7$). Images represent summed activity from 0 to 90 min post-injection and are displayed on a common scale (0 to 20 SUV) normalized by injected dose and body weight. Pancreatic SUV over the 60-90 minute interval was significantly greater in control subjects than diabetics (17.2 ± 4.0 vs. 10.7 ± 2.6 , $P<0.005$).

Supplemental Figure 3 Relationships of [^{18}F]FP-(+)-DTBZ binding with age and body mass index. Tracer binding parameters in pancreas were negatively associated with age (A-C) and positively associated with body mass index (D-F). Group differences in tracer binding between controls and T1DM patients remained intact when age and body mass index were included as covariates. T1DM patients indicated by filled markers and solid regression lines, control subjects by open markers and dashed regression lines.

Supplemental Video 1 Animation of maximum intensity projections taken from different angles about the PET image volume acquired in control subject 1, a 24 year old male. Supplemental Videos 1-16 all correspond to PET images acquired 0 to 90 minutes after injection of [^{18}F]FP-(+)-DTBZ and are displayed on a common color scale (0 to 20 SUV) normalized by injected dose and body weight.

Supplemental Video 2 Maximum intensity projections for PET image volume acquired in control subject 2, a 34 year old male.

Supplemental Video 3 Maximum intensity projections for PET image volume acquired in control subject 3, a 24 year old male.

Supplemental Video 4 Maximum intensity projections for PET image volume acquired in control subject 4, a 34 year old female.

Supplemental Video 5 Maximum intensity projections for PET image volume acquired in control subject 5, a 19 year old male.

Supplemental Video 6 Maximum intensity projections for PET image volume acquired in control subject 6, a 30 year old female.

Supplemental Video 7 Maximum intensity projections for PET image volume acquired in control subject 7, a 54 year old male.

Supplemental Video 8 Maximum intensity projections for PET image volume acquired in control subject 8, a 45 year old female.

Supplemental Video 9 Maximum intensity projections for PET image volume acquired in control subject 9, a 42 year old female.

Supplemental Video 10 Maximum intensity projections for PET image volume acquired in T1DM subject 1, a 39 year old female.

Supplemental Video 11 Maximum intensity projections for PET image volume acquired in T1DM subject 2, a 36 year old male.

Supplemental Video 12 Maximum intensity projections for PET image volume acquired in T1DM subject 3, a 48 year old male.

Supplemental Video 13 Maximum intensity projections for PET image volume acquired in T1DM subject 4, a 31 year old female.

Supplemental Video 14 Maximum intensity projections for PET image volume acquired in T1DM subject 5, a 47 year old female.

Supplemental Video 15 Maximum intensity projections for PET image volume acquired in T1DM subject 6, a 50 year old female.

Supplemental Video 16 Maximum intensity projections for PET image volume acquired in T1DM subject 7, a 28 year old male.





