

TABLE 6B

Homeostasis model assessment of beta cell function (HOMA % B).					
HOMA % B	E (n = 3)	A (n = 11)	B (n = 10)	C (n = 6)	D (n = 2)
Minimum	38	13.96	20.73	22.8	38.57
25% Percentile	38	19.54	26.47	27.02	38.57
Median	49.66	42.35	56.81↑↑	57.27↑↑	52.62↑
75% Percentile	86.9	90	94.47	103.8	66.67
Maximum	86.9	112.5	225	110.8	66.67
Mean ± SEM	58.18 ± 14.75	50.97 ± 10.84	76.34 ± 21.44	63.01 ± 14.9	52.62 ± 14.05

FIG. 9 provides plots of circulating betatrophin levels for human subjects. Sample size is indicated in parentheses. It is observed that betatrophin levels were increased at post-FMD refeeding compared to the baseline and before administration of the FMD.

Table 7 shows that levels of adiponectin in the serum of human subjects on FMD were measured at baseline and after 3 cycles of the FMD, indicating a 40% increase in circulating adiponectin after 3 cycles of the diet (post-FMD, 7 days refeeding after cycle 3). Higher adiponectin levels are associated with insulin sensitization and a lower risk of type 2 diabetes.

TABLE 7

Levels of Adiponectin of human subjects before and after receiving 3 cycles of the FMD.		
	pre-FMD	post-FMD
N	7	7
Mean	100	140.1 ± 29.04

FIG. 10 provides charts of FMD cycles showing a reduction in cytokines associated with autoimmune type 1 diabetes in mice. MCP-1, TNF $\alpha$ , RANTES and IL-12 are known to be associated with the autoimmune pathogenesis of type 1 diabetes. In the Streptozotocin (STZ)-induced T1D mouse model, levels of the indicated inflammatory cytokines in serum were reduced after 8 cycles of FMD treatment.

Table 8 provides the effects of FMD on immune cells in mice. Cytotoxic CD8+ T-cells have a major role in pathogenesis of type 1 diabetes. Numbers of cells ( $10^6$ /ml) in the peripheral blood of STZ-induced T1D model were measured at the 8<sup>th</sup> cycle of the indicated timepoints, indicating a reduction of circulating T-cell populations in mice on FMD cycles. AL, ad libitum fed mice; FMD, at the end of FMD; post-FMD, 7 days after post-FMD refeeding.

TABLE 8

Effects of FMD on immune cells in mice			
	AL	FMD	post-FMD
WBC	10.39 ± 1.1	6.81 ± 1.6 ↓	9.23 ± 1.3
Total T cell	2.62 ± 0.34	1.34 ± 0.17 ↓↓	2.18 ± 0.30 ↓
CD8+ T cell	1.03 ± 0.2	0.58 ± 0.1 ↓	0.34 ± 0.14 ↓↓

While exemplary embodiments are described above, it is not intended that these embodiments describe all possible forms of the invention. Rather, the words used in the specification are words of description rather than limitation, and it is understood that various changes may be made without depart-

ing from the spirit and scope of the invention. Additionally, the features of various implementing embodiments may be combined to form further embodiments of the invention.

What is claimed is:

1. A method of treating a symptom of diabetes, the method comprising:

identifying a subject exhibiting symptoms caused by pancreatic beta cell destruction, the subject having a normal caloric intake; and

administering multiple cycles of a diet protocol to the subject wherein a fasting mimicking diet is provided for a first time period and a re-feeding diet is provided for a second time period, the fasting mimicking diet providing less than about 50% of the normal caloric intake of the subject with both protein restriction and sugar restriction and the re-feeding diet providing 60-100 percent of the normal caloric intake of the subject, depending on a need to lose weight wherein the first time period is from 2 days to 6 days and the second time period is from 7 days to 85 days.

2. The method of claim 1 wherein the multiple cycles are administered once a month for at least 3 months.

3. The method of claim 1 further comprising: monitoring response of the subject to the diet protocol; and adjusting the diet protocol if the response of the subject is determined to be inadequate by increasing the first time period and/or reducing caloric intake during the first time period.

4. The method of claim 1 wherein the subject is diagnosed with diabetes mellitus type 1.

5. The method of claim 1 wherein the fasting mimicking diet includes protein in an amount that is less than 15 percent of total calories provided by the fasting mimicking diet.

6. The method of claim 1 wherein the fasting mimicking diet includes sugars in an amount that is less than 15 percent of total calories provided by the fasting mimicking diet.

7. The method of claim 1 wherein the fasting mimicking diet provides the subject with 4.5 to 7 kcal/pound of body weight/day on day 1 followed by 3 to 5 kcal/pound of body weight/day for days 2 to 5.

8. The method of claim 1 wherein the fasting mimicking diet provides the subject with 7 kcal/pound of body weight/day on day 1 followed by 4 kcal/pound of body weight/day for days 2-5.

9. The method of claim 1 wherein the fasting mimicking diet provides the subject with 3-6 kcal/pound of body weight/day on day 1 followed by 2-4 kcal/pound of body weight/day for days 2-4.

10. The method of claim 1 wherein the fasting mimicking diet includes 2 to 5% calories from glycerol.

11. The method of claim 1 wherein the fasting mimicking diet includes at least 60% calories from fatty acids, 2-5%