WHAT IS CLAIMED IS:

1. A composition comprising bacteria of the Rikenellaceae family for use in preventing diabetes or prediabetes in a subject.

2. The composition of claim 1, not comprising more than 50 species of bacteria.

3. The composition of claim 1, being formulated for rectal or oral administration.

4. The composition of claim 1, further comprising lactobacillus ruminis.

5. The composition of claim 1 or 4, further comprising Bacteroides thetaiotaomicron.