CLAIMS

1. A method of diagnosing IBS comprising

providing a biological sample from a subject desiring a diagnosis regarding IBS;

assaying the biological sample for a level of anti-vinculin antibodies and a level of anti-cytolethal distending toxin (CDT) antibodies;

determining the difference between the level of anti-vinculin antibodies and the level of anti-CDT antibodies; and

determining the presence of IBS when the level of anti-vinculin antibodies is higher than the level of anti-CDT antibodies.

2. A method of distinguishing between IBS and IBD comprising:

providing a biological sample from a subject desiring a diagnosis to distinguish between IBS and IBD;

assaying the biological sample for a level of anti-vinculin antibodies and a level of anti-cytolethal distending toxin (CDT) antibodies; and

determining that the subject has IBS and not IBD when the level of anti-vinculin antibodies is higher than the level of anti-CDT antibodies.

3. A method according to Claim 1 or 2, in which assaying the biological sample comprises:

contacting vinculin or a fragment thereof to the biological sample, in which anti-vinculin antibodies specifically bind to the vinculin or the fragment thereof in the biological sample; and

measuring the level of the anti-vinculin antibodies in the biological sample.

4. A method according to Claim 1, 2 or 3, in which assaying the biological sample comprises:

contacting CdtB or a fragment thereof to the biological sample, in which anti-CdtB antibodies specifically bind to the CdtB or the fragment thereof in the biological sample; and

measuring the level of the anti-CdtB antibodies in the biological sample.

5. A method according to Claim 1 or 2, in which the subject is determined to have IBS if the level of anti-vinculin antibodies is 25% or more higher than the level of anti-CDT antibodies.

6. A method according to Claim 1 or 2, in which optical density (OD) is used to measure the level of anti-vinculin antibodies and anti-CDT antibodies, and when the OD of anti-vinculin antibodies (OD_V) is greater than the OD of anti-CDT antibodies (OD_{CDT}), the subject is determined to have IBS.

7. A method according to Claim 6, in which when OD_V - OD_{CDT} is greater than 0.2, the subject is determined to have IBS.

8. A method according to Claim 1 or 2, in which the anti-vinculin antibody is an antibody that binds specifically to vinculin.

9. A method according to Claim 1 or 2, in which the anti-vinculin antibody is an antibody that binds specifically to a 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, or 22 residue peptide that has at least 95%, 96%, 97%, 98%, 99% or 100% homology with 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, or 22 contiguous residues of vinculin or SEQ ID NO: 7.

10. A method according to Claim 1 or 2, in which the anti-vinculin antibody binds specifically to a polypeptide comprising 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, or 22 residues that has at least 95%, 96%, 97%, 98%, 99% or 100% homology with 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, or 22 contiguous residues of vinculin or SEQ ID NO: 7.

11. A method according to Claim 1 or 2, in which the anti-CDT antibody binds specifically to the CdtB subunit of CDT.

12. A method according to Claim 11, in which the CdtB amino acid sequence is *Campylobacter jejuni* cytolethal distending toxin B (SEQ ID NO: 5).

13. A method according to Claim 1 or 2, in which the anti-CDT antibody binds specifically to an amino acid sequence at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, or 99% identical to SEQ ID NO: 5.

14. A method according to Claim 11, in which the CdtB amino acid sequence is *Campylobacter coli* cytolethal distending toxin B (SEQ ID NO: 1).

15. A method according to Claim 1 or 2, in which the anti-CDT antibody binds specifically to an amino acid sequence at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, or 99% identical to SEQ ID NO: 1.

16. A method according to Claim 1 or 2, in which the anti-CDT antibody binds specifically to a polypeptide comprising 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, or 22 residues that has at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% homology with 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, or 22 contiguous residues of CdtB.

17. A method according to Claim 1 or 2, further comprising selecting an IBS treatment for the subject if the subject is determined to have IBS.