provided herein are methods, wherein the vitamin is selected from the group consisting of vitamin A, vitamin B12, vitamin C, vitamin D3, vitamin E, and any combination thereof. Further provided herein are methods, wherein the probiotic is selected from the group consisting of *Bifidobacterium longum*, *Bifidobacterium animalis* subsp *lactis*, *Bifidobacterium breve*, *Lactobacillus rhamnosus*, *Lactobacillus brevis*, *Lactobacillus acidophilus*, *Lactobacillus casei*, and any combination thereof. Further provided herein are methods, wherein the supplement is selected from the group consisting of omega 3, trans-resveratrol, selenium, L-tryptophan, 5-hydroxytryptophan, magnesium, L- glutamine, and any combination thereof. Further provided herein are methods, wherein the nutritional plan is administered for at least one week. Further provided herein are methods, wherein the nutritional plan is administered for at least one month. Further provided herein are methods, wherein the sample is selected from the group consisting of a saliva sample, a buccal sample, a blood sample, a urine sample, an anal sample, a vaginal sample, and any combination thereof. Further provided herein are methods, wherein the sample is selected from the group consisting of an anal sample, a vagina sample, a buccal sample, a blood sample, and any combination thereof. Further provided herein are methods, wherein the assay is selected from the group consisting of quantitative real-time PCR, northern blot, RNA-seq, microarray, ELISA, homogenous protein assays, immunoblot, and mass spectrometry. Further provided herein are methods, wherein the individual is female.

[0002a] Provided herein is a method for assessing a likelihood of infertility in an individual comprising: (a) determining by an assay a level of a first bacteria, a level of a second bacteria, and/or a level of a miRNA in a sample from the individual; (b) comparing a ratio of the first bacteria to the second bacteria and/or the level of the miRNA in the sample to a cohort of control samples; and (c) determining the individual as having the likelihood of infertility if the ratio of the first bacteria to the second bacteria and/or the level of the miRNA in the sample is different from the cohort of control sample.

[0003] Provided herein are methods for assessing a likelihood of infertility in an individual comprising: (a) determining a level of a first bacteria in a sample derived from the individual; (b) determining a level of a miRNA in the sample; and (c) assessing the likelihood of infertility in the individual based on the level of the first bacteria and the level of the miRNA, wherein the miRNA provides an area under the curve (AUC) value of greater than about 0.8 in a receiver operating characteristic (ROC) curve analysis. Further provided herein are methods, wherein the first bacteria is selected from the group consisting of a Proteobacteria, an Actinobacteria, a Firmicutes, and any combination thereof. Further provided herein are methods, wherein the first bacteria is a species of a Proteobacteria, an Actinobacteria, a Bacteroidetes, or a Firmicutes. Further provided herein are methods, wherein the first bacteria is selected from the

group consisting of *Lactobacillus iners*, *Lactobacillus brevis*, a Firmicutes, a Bacteroidetes, and any combination thereof. Further provided herein are methods, wherein the method further comprises determining a level of a second bacteria. Further provided herein are methods, wherein the second bacteria is selected from the group consisting of a Proteobacteria, an Actinobacteria, a Firmicutes, and any combination thereof. Further provided herein are methods, wherein the second bacteria is a species of a Proteobacteria, an Actinobacteria, a Bacteroidetes, or a Firmicutes. Further provided herein are methods, wherein the second bacteria is selected