Claims:

1. Use of a probiotic in the manufacture of a medicament for treating a subject diagnosed with or at risk of Prader-Willi syndrome (PWS), wherein an effective amount of the medicament is to be administered to the subject.

2. The use of claim 1, wherein the probiotic comprises one or more of a *Lactobacillus*, *sp., Saccharomyces, sp., Bifidobacterium, sp., Bacillus, sp.,* and *Eubacterium hallii.*

3. The use of claim 1 or 2, wherein the probiotic comprise a *Lactobacillus*, *sp.* and *Bifidobacterium animalis, subsp.*

4. The use of claim 1 or 2, wherein the probiotic comprises *Lactobacillus reuteri* (*L. reuteri*) and *Bifidobacterium animalis* subsp. *lactis* (*B. lactis*).

5. The use of claim 1, wherein the subject is suffering from one or more of the following symptoms or conditions: obesity, short statue, social deficits, fine motor abnormalities, developmental delay, and abnormal behavioral characteristics; wherein after treatment, the subject's symptoms or conditions are decreased as compared to before treatment.

6. The use of claim 5, wherein the developmental delay comprises one or more of communication, gross motor control, fine motor control, problem-solving, and personal-social interaction.

7. The use of claim 5 wherein the abnormal behavioral characteristics comprise one or more of restrictive, repetitive behaviors (RRB), aberrant social interaction (SI), aberrant social communication (SC), aberrant emotional responses (ER), aberrant cognitive style (CS), and maladaptive speech (MS).

8. The use of claim 5, wherein the subject is suffering from obesity, and/or short stature, and wherein the subject's body-mass index (BMI) after treatment is lower than the subject's BMI before treatment by *L. reuteri;* and/or wherein the subject’s height after treatment is higher than the subject’s height before treatment by *B. lactis*.

9. The use of claim 5, wherein the subject is suffering from varying severities of psychopathology as measured by Clinical Global Impression-Improvement (CGI-I),

and wherein the baseline CGI severity of the psychopathology after treatment is lower than the baseline CGI severity before treatment by *B. lactis*.

10. The use of claim 6, wherein the subject is suffering from developmental delays, and wherein the subject's Ages and Stages Questionnaires, 3rd Edition (ASQ-3) score is statistically improved for one or more of communication, gross motor function, fine motor function, problem-solving, and personal-social interaction after treatment as compared to the subject's ASQ-3 score before treatment by *L. reuteri*.

11. The use of claim 7, wherein the subject is suffering from abnormal behavioral characteristics, and wherein the subject's Third Edition GARS-3 score (GARS-3) is statistically improved for one or more of RRB, SI, SC, ER, CS and MS after treatment as compared to the subjects GARS-3 score before treatment for *L. reuteri*.

12. The use of claim 9, wherein the subject is suffering from varying severities of psychopathology and wherein the subject's Clinical Global Impression-Improvement (CGI-I) is statistically improved for one or more scores of improvement (CGI-I) and severity (CGI-S) after treatment as compared to the subject's CGI-I and CGI-S score before treatment for *B. lactis*.

13. The use of claim 1, wherein an effective dose of the medicament is to be administered once per day, twice per day, three times per day, or four times per day.

14. The use of claim 1, wherein an effective dose of the medicament is to be administered for at least about 3 weeks, 4 weeks, 5 weeks, 6 weeks, 7 weeks, 8 weeks, 9 weeks, 10 weeks 11 weeks, or at least about 12 weeks.

15. The use of claim 1, wherein the effective amount of the medicament comprises about $1x10^3$, about $2x10^3$, about $3x10^3$ about $4x10^3$, about $5x10^3$ about $6x10^3$ about $7x10^3$, about $8x10^3$, about $9x10^3$ or about $10x10^3$ colony forming units (CFU) of probiotic.

16. The use of claim 1, wherein one or more additional therapeutics is to be further administered to the subject.

17. The use of claim 1, wherein the probiotic comprises either *L. reuteri* or *B. lactis,* wherein the medicament is to be administered twice per day at a dose of about $3x10^3$ CFU of the probiotic for 12 weeks, and wherein after administration, the subject

exhibits a statistically relevant improvement in one or more of BMI, fine motor function, and problem solving skills as measured by ASQ-3 testing.

18. The use of claim 1, wherein the microbiome composition of the subject is different after administration of the medicament as compared to before the administration.

19. The use of claim 18, wherein the difference comprises a decrease in one of more of *Escherichia-Shigella*, *Porphyromonas*, and *Ruminococcus torques* by *L. reuteri*.

20. The use of claims 18 or 19, wherein difference comprises an increase in one of more of *Bifidobacterium, Lactobacillus, Faecalibacteria, Roseburia,* and *Alistipes* by *L. reuteri*.

21. The use of claim 18, wherein the difference comprises a significant positive association of Rothia against RRB.

22. A composition comprising an effective amount of one or more probiotics, and a growth hormone.

23. The composition of claim 22, wherein the probiotic comprises *Lactobacillus sp*.

24. The composition of claim 22, wherein the probiotic comprises *Lactobacillus reuteri* and the growth hormone comprises human growth hormone.