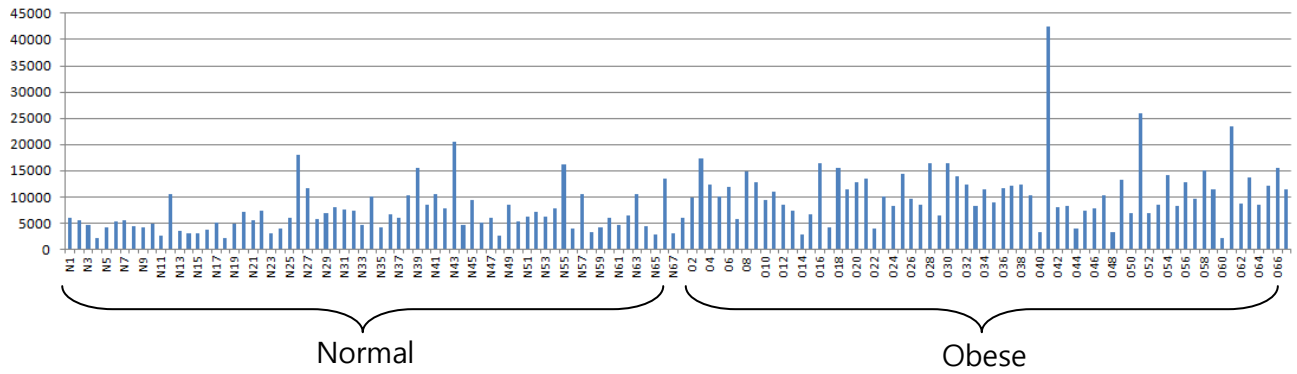


**S1 File: Figure A.**

**A**



**B**

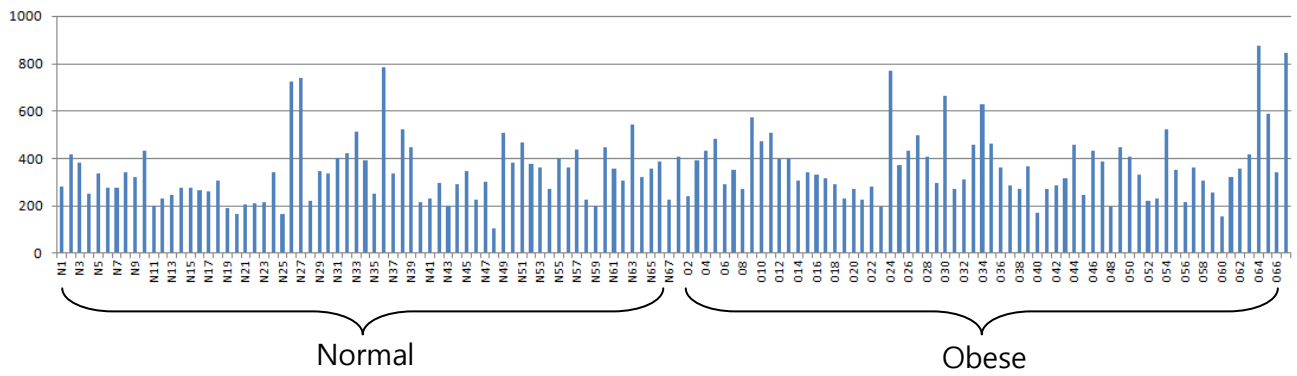
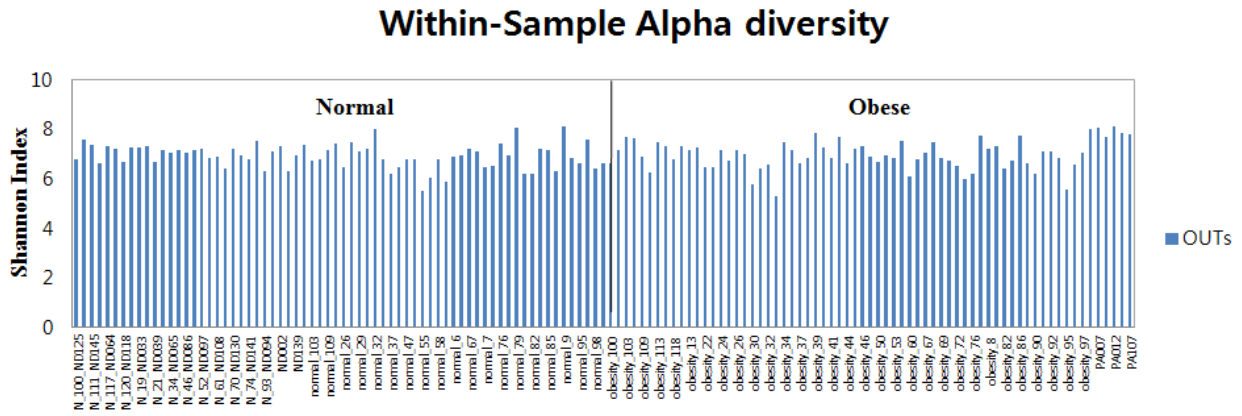
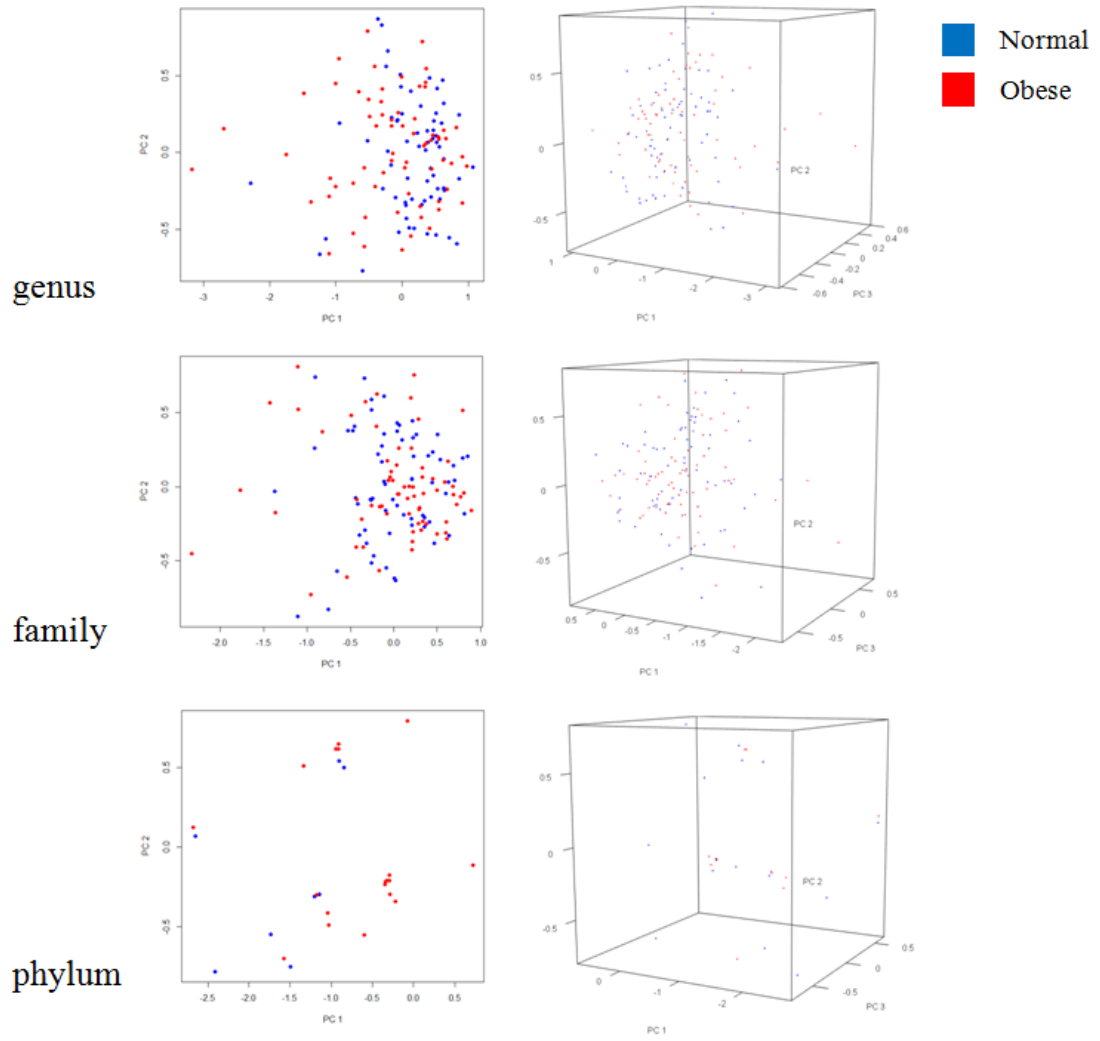


Figure B.



**Figure C.**



**Table A.**

## Decoded Rules

- 
- (1) Bacteroides = {1}, Escherichia\_Shigella = {3} -> Obese (0.90)
  - (2) Sutterella = {3}, Clostridium\_XVIII = {2}, Bifidobacterium = {1} -> Obese (0.90)
  - (3) Bacteroides = {2}, Oscillibacter = {1}, Streptococcus = {2} -> Obese (0.89)
  - (4) Faecalibacterium = {1}, Sutterella = {4} -> Obese (0.89)
  - (5) Sutterella = {3}, Ruminococcus = {2}, Bifidobacterium = {1} -> Obese (0.89)
  - (6) Sutterella = {3}, Clostridium\_XI = {2}, Bifidobacterium = {1} -> Obese (0.89)
  - (7) Bacteroides = {2}, Oscillibacter = {1}, Subdoligranulum = {1} -> Obese (0.88)
  - (8) Bacteroides = {1}, Dialister = {4} -> Obese (0.85)
  - (9) Bacteroides = {1}, Bifidobacterium = {2} -> Obese (0.85)
  - (10) Sutterella = {4}, Clostridium\_XI = {2} -> Obese (0.82)
  - (11) Sutterella = {4}, Haemophilus = {2} -> Obese (0.81)
  - (12) Sutterella = {4}, Bifidobacterium = {4} -> Obese (0.80)
  - (13) Bacteroides = {4}, Prevotella = {1}, Escherichia\_Shigella = {2} -> Normal (0.92)
  - (14) Bacteroides = {4}, Prevotella = {1}, Gemmiger = {2} -> Normal (0.92)
  - (15) Bacteroides = {4}, Prevotella = {1}, Ruminococcus = {2} -> Normal (0.91)
  - (16) Bacteroides = {4}, Prevotella = {1}, Clostridium\_IV = {2} -> Normal (0.91)
  - (17) Bacteroides = {4}, Prevotella = {1}, Clostridium\_XIVb = {2} -> Normal (0.91)
  - (18) Bacteroides = {4}, Prevotella = {1}, Streptococcus = {2} -> Normal (0.91)
  - (19) Oscillibacter = {4}, Clostridium\_IV = {4}, Blautia = {3} -> Normal (0.91)
  - (20) Bacteroides = {4}, Flavonifractor = {3} -> Normal (0.91)
  - (21) Oscillibacter = {3}, Sutterella = {2} -> Normal (0.88)
  - (22) Bacteroides = {2}, Oscillibacter = {4}, Blautia = {3} -> Normal (0.88)
  - (23) Prevotella = {3}, Oscillibacter = {4}, Blautia = {3} -> Normal (0.88)
  - (24) Bacteroides = {3}, Faecalibacterium = {4}, Oscillibacter = {4} -> Normal (0.86)
  - (25) Bacteroides = {3}, Oscillibacter = {4}, Clostridium\_IV = {4} -> Normal (0.86)
  - (26) Bacteroides = {3}, Oscillibacter = {4}, Blautia = {4} -> Normal (0.86)
  - (27) Bacteroides = {3}, Oscillibacter = {4}, Clostridium\_XI = {2} -> Normal (0.86)
  - (28) Bacteroides = {3}, Oscillibacter = {4}, Escherichia\_Shigella = {2} -> Normal (0.83)
  - (29) Bacteroides = {3}, Oscillibacter = {4}, Flavonifractor = {2} -> Normal (0.83)