Figure S1. Disease enrichment analysis of the comparison between the leukocytopenia group and the leukocytosis group.

**Significant Enriched FunDO.disease Terms (Top 30)**

- Cancer | 1934
- Depression | 1907
- Behavior disease | 2221
- Intestinal disease | 1911
- Spino-cerebellar ataxias | 2055
- Adenovirus infection | 2118
- Polycystic kidney | 1883
- Osteoporosis | 2138
- Bipolar disorder | 2045
- Muscular dystrophy | 1734
- Leprosy | 2110
- Primary hyperparathyroidism | 2105
- Bladder cancer | 2125
- Ovarian cancer | 1859
- Drug abuse | 1870
- Gilles de la Tourette syndrome | 1765
- Prion disease | 2244
- Schizophrenia | 2069
- Psychotic disorder | 2198
- Autistic disorder | 2124
- Rheumatic fever | 2018
- Cervical cancer | 1779
- Brain disease | 2035
- Chronic fatigue syndrome | 2216
- Vitamin D deficiency | 1797
- Cholelithiasis | 2070
- Neurodegenerative disorder | 2062
- Gastrointestinal tumor | 1728
- Alzheimer's disease | 1740
- Polyarthritis | 2025

$-\log (P\text{-value})$
Figure S2. Disease enrichment analysis of the comparison between the leukocytopenia group and the normal control group.

**Significant Enriched FunDO.disease Terms (Top 30)**

- **Cancer** | 1934
- **Down syndrome** | 1983
- **Alzheimer's disease** | 1740
- **Diabetes mellitus** | 1904
- **Cholelithiasis** | 2070
- **Depression** | 1907
- **Brain disease** | 2035
- **Drug abuse** | 1870
- **Heart failure** | 2075
- **Hyperlipidemia** | 2097
- **Pleural effusion, Malignant** | 1846
- **Polyarthritis** | 2025
- **Bone disease** | 1824
- **Atherosclerosis** | 1918
- **Tuberous sclerosis** | 2176
- **Intestinal disease** | 1911
- **Intraocular melanoma** | 2200
- **Osteoporosis** | 2138
- **Common cold** | 1758
- **Polycystic kidney** | 1883
- **Autistic disorder** | 2124
- **Ptosis** | 1891
- **Glaucoma** | 2060
- **Neurodegenerative disorder** | 2062
- **Gastrointestinal tumor** | 1728
- **Intractable epilepsy** | 1777
- **Uterine fibroids** | 2227
- **Conduct disorder** | 1862
- **Thalassemia** | 1999
- **Obesity** | 1856

-\( -\log(p-value) \)
Figure S3. Disease enrichment analysis of the comparison between the leukocytosis group and the normal control group.

**Significant Enriched FunDO.disease Terms (Top 30)**

- Cancer | 1934
- Adenovirus infection | 2118
- Yersinia infection | 1712
- Brain tumor | 1860
- Leukoencephalopathy | 2011
- Neurodegenerative disorder | 2062
- Deafness | 2207
- Primary biliary cirrhosis | 1964
- Alzheimer's disease | 1740
- Epilepsy | 1799
- Spinal dysraphism | 2064
- Schizophrenia | 2069
- Breast cancer | 1944
- Uveitis | 2205
- Tuberous sclerosis | 2176
- Intestinal disease | 1911
- Long QT syndrome | 2092
- Hyperhomocysteinemia | 2039
- Keratoconjunctivitis Sicca | 2131
- Spondylarthropathies | 2076
- Protein-energy malnutrition | 2122
- Infection | 2052
- Amyotrophic lateral sclerosis | 2134
- Eosinophilia | 1899
- Common wart | 1810
- Osteomyelitis | 2247
- Primary tumor | 2067
- Thyroid gland disease | 1946
- Muscular dystrophies | 2115
- Connective tissue disease | 2027