**Table S1**. **Inclusion and exclusion criteria**

|  |  |  |
| --- | --- | --- |
|   | Healthy control group | Asthma group |
| Inclusion | (1) No obvious abnormality was found in chest X-ray or CT, the results of pulmonary function test were normal;(2) No history of respiratory diseases such as asthma, chronic obstructive pulmonary disease, pulmonary infection, lung cancer, allergic rhinitis, eczema and other allergic diseases, and no history of autoimmune diseases.(3) Age ≥ 16 years old. | (1) In line with the diagnostic criteria of Global Initiative for Asthma: ①Variable asthma symptom; ②Variable airflow limitation test; ③Patients with variable asthma symptoms and those who meet any of the variable airflow limitation tests can be diagnosed with asthma. Atypical asthma without obvious wheezing symptoms should have at least one of the above tests.(2) Diagnosed with asthma for the first time. (3) Age ≥ 16 years old. |
| Exclusion | -          | (1) Complicated with other respiratory diseases or immune system related diseases;(2) Associated with circulatory, digestive, urinary and neurological systems diseases; (3) Pregnant or lactating women; (4) Long-term or nearly 1 month has received standard drugs or anti-infective treatment. |

Detailed inclusion and exclusion criteria for healthy controls and patients with asthma.

**Table S2**. The primer sequences

|  |  |  |  |
| --- | --- | --- | --- |
| Gene | Species | Type | Sequence |
| GAPDH | Human | Forward | AAGGTGAAGGTCGGAGTCAAC |
| Reverse | GGGGTCATTGATGGCAACAATA |
| has\_circ\_0000302 | Human | Forward | CCCAGCTCAGATGAGGAGGA |
| Reverse | GGAAGTCCCAGTAATGGTCTGTC |
| has\_circ\_0000524 | Human | Forward | CAGCAACAGTGGCAATGAGAC |
| Reverse | TGCCATCCTGTCAGATTTGCT |
| has\_circ\_0005004 | Human | Forward | GAGGCAGCTGATGAGGTTTGA |
| Reverse | CGCCATTCTCACTAGACTTGTCA |
| has\_circ\_0006050 | Human | Forward | GAATAGTTCGGATCATTCAGGTTC |
|  |  | Reverse | CAGGGAATCACAGGTGAAACTT |
| has\_circ\_0006156 | Human | Forward | AGGGCCATAGTGGTGGAAGTG |
|  |  | Reverse | CCAGTACTATCTTCAATCACCTTGC |
| has\_circSORT1 | Human | Forward | CATGTAGATGAACCTGGAGCTGAC |
|  |  | Reverse | TGTATCCTTATCAGCCATCACAGA |
| has\_circSERPINB1 | Human | Forward | CACGGGCCTGAAGAAGGAAA |
|  |  | Reverse | CTGAATGGTGCATTCGTCGT |
| has\_circPTPRJ | Human | Forward | GCTAGAATCTCCGTATTGTTGCTAA |
|  |  | Reverse | GCCTGTAATCCCAGCAGACACT |
| ZNFX1 | Human | Forward | AAATCAGGCCAATAACCCACC |
|  |  | Reverse | GGCCCTAAATCTCTCTTCCCT |
| FSCN1 | Human | Forward | CTGCTACTTTGACATCGAGTGG |
|  |  | Reverse | GGGCGGTTGATGAGCTTCA |