

**Supplementary Table 3.** Identified risk factors for asthma exacerbation: SCH asthma cohort database (replication)

Characteristics	Univariate analysis			Multivariate analysis		
	OR (95% CI)	Pvalue	No. of patients	OR (95% CI)	Pvalue	No. of patients
Age	1.02 (1.01-1.03)	< 0.001	2,195	0.98 (0.84-1.14)	0.770	2,195
Sex (female)*	1.15 (0.89-1.48)	0.284	2,195			
BMI	1.00 (0.99-1.00)	0.805	2,195			
Pack-years	0.99 (0.99-1.01)	0.440	2,195			
Pre-bronchodilator FEV1 (%)	0.95 (0.94-0.96)	< 0.001	2,195	0.71 (0.55-0.90)	0.006	2,195
Pre-bronchodilator FVC (%)	0.95 (0.94-0.96)	< 0.001	2,195	1.26 (1.01-1.56)	0.039	2,195
Post-bronchodilator FEV1 (%)	1.04 (1.02-1.05)	< 0.001	2,195	1.01 (0.92-1.11)	0.822	2,195
PC <sub>20</sub>	0.98 (0.96-1.00)	0.019	2,195	0.95 (0.87-1.04)	0.283	2,195
Blood eosinophil (%)	1.06 (1.03-1.08)	< 0.001	2,195	0.90 (0.65-1.24)	0.509	2,195
Sputum eosinophil (%)	1.00 (0.99-1.01)	0.527	2,195			
Sputum neutrophil (%)	1.01 (1.00-1.02)	0.008	2,195	1.02 (0.97-1.09)	0.406	2,195
Blood total IgE (IU/mL)	1.00 (1.00-1.00)	0.049	2,195	1.00 (1.00-1.00)	0.119	2,195
Log (total IgE)	1.30 (1.07-1.59)	0.009	2,195	0.08 (0.01-0.58)	0.013	2,195
Allergic rhinitis	0.68 (0.44-1.07)	0.021	2,195	0.31 (0.08-1.25)	0.101	2,195
Aspirin hypersensitivity	0.68 (0.44-1.07)	0.094	2,195			
Duration of asthma (month)	1.00 (1.00-1.00)	0.072	2,195			
Symptom duration (month)	1.00 (1.00-1.00)	0.003	2,195	1.12 (0.97-1.30)	0.134	2,195
History of asthma exacerbation	0.04 (0.05-0.26)	0.001	2,195	1.00 (0.9-1.01)	0.94	2,195

SCH, Soonchunhyang University Asthma Genome Research Center; OR, odds ratio; CI, confidence interval; BMI, body mass index; FEV1, forced expiration volume in 1 second; FVC, forced vital capacity; PC<sub>20</sub>, concentration of methacholine that caused a 20% fall in FEV1; IgE, immunoglobulin E.

\*The sex defines female in relation to male.