

**TABLE S3. Pairwise comparisons between B cell populations and clinical variables of asthma patients and healthy controls**

**Table S3A. Comparisons between categorical clinical parameters and B cell variables**

Categorical clinical variable	B cell subset	H	p-value	adjusted p-value
Daily OCS intake [yes/no]	T1 B cell [%]	44,3087	< 0,001	< 0,001
Asthma severity	T1 B cell [%]	20,5009	< 0,001	< 0,001
GINA control status	T1 B cell [%]	3,0867	0,2137	0,4452
Age at asthma diagnosis [yrs]	T1 B cell [%]	3,2196	0,3590	0,6210
Smoking status	T1 B cell [%]	0,3863	0,5342	0,7192
Positive BDR [yes/no]	T1 B cell [%]	0,3011	0,5832	0,7393
Sputum inflammation	T1 B cell [%]	1,0991	0,7773	0,8577
Gender [f/m]	T1 B cell [%]	0,0016	0,9680	0,9834
Daily OCS intake [yes/no]	T2 B cell [%]	42,3446	< 0,001	< 0,001
Asthma severity	T2 B cell [%]	23,6881	< 0,001	< 0,001
Age at asthma diagnosis [yrs]	T2 B cell [%]	6,3263	0,0968	0,2693
Positive BDR [yes/no]	T2 B cell [%]	1,6875	0,1939	0,4433
GINA control status	T2 B cell [%]	3,0684	0,2156	0,4452
Smoking status	T2 B cell [%]	0,5338	0,4650	0,6764
Gender [f/m]	T2 B cell [%]	0,2740	0,6007	0,7393
Sputum inflammation	T2 B cell [%]	1,5197	0,6777	0,7745
Daily OCS intake [yes/no]	Naive B cell [%]	10,1220	0,0015	0,0104
Asthma severity	Naive B cell [%]	12,3739	0,0021	0,0108
GINA control status	Naive B cell [%]	4,3592	0,1131	0,3016
Smoking status	Naive B cell [%]	0,8782	0,3487	0,6199
Gender [f/m]	Naive B cell [%]	0,4755	0,4905	0,6976
Positive BDR [yes/no]	Naive B cell [%]	0,1779	0,6732	0,7745
Sputum inflammation	Naive B cell [%]	1,4431	0,6955	0,7809
Age at asthma diagnosis [yrs]	Naive B cell [%]	0,0645	0,9957	0,9957
Asthma severity	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	17,1772	< 0,001	< 0,001
Daily OCS intake [yes/no]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	11,7697	0,0006	0,0064
GINA control status	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	5,2992	0,0707	0,2154
Age at asthma diagnosis [yrs]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	5,5025	0,1385	0,3474
Smoking status	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	2,1657	0,1411	0,3474
Gender [f/m]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,6412	0,4233	0,6630
Positive BDR [yes/no]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,5812	0,4458	0,6764
Sputum inflammation	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	1,0312	0,7937	0,8610
Daily OCS intake [yes/no]	CD27-IgG <sup>+</sup> B cell [%]	9,3733	0,0022	0,0108
Gender [f/m]	CD27-IgG <sup>+</sup> B cell [%]	4,2853	0,0384	0,1447
Asthma severity	CD27-IgG <sup>+</sup> B cell [%]	3,1218	0,2099	0,4452

Age at asthma diagnosis [yrs]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	4,3730	0,2239	0,4478
Smoking status	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	1,4090	0,2352	0,4562
GINA control status	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	1,8035	0,4059	0,6630
Sputum inflammation	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	2,5958	0,4582	0,6764
Positive BDR [yes/no]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,1950	0,6588	0,7745
Daily OCS intake [yes/no]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	10,9116	0,0010	0,0087
Asthma severity	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	12,4455	0,0020	0,0108
GINA control status	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	4,6943	0,0956	0,2693
Positive BDR [yes/no]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,7217	0,3956	0,6630
Smoking status	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,6373	0,4247	0,6630
Sputum inflammation	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	1,9819	0,5762	0,7393
Age at asthma diagnosis [yrs]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	1,9066	0,5920	0,7393
Gender [f/m]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,0344	0,8529	0,8805
Daily OCS intake [yes/no]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	9,6624	0,0019	0,0108
Smoking status	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	3,3203	0,0684	0,2154
Asthma severity	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	5,3308	0,0696	0,2154
GINA control status	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	3,6240	0,1633	0,3871
Positive BDR [yes/no]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	1,0401	0,3078	0,5794
Age at asthma diagnosis [yrs]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	3,3916	0,3351	0,6127
Gender [f/m]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,4277	0,5131	0,7139
Sputum inflammation	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	2,1625	0,5394	0,7192
Sputum inflammation	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	15,8852	0,0012	0,0096
Daily OCS intake [yes/no]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	8,9200	0,0028	0,0129
Asthma severity	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	11,4026	0,0033	0,0143
GINA control status	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	9,1722	0,0102	0,0408
Smoking status	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	3,7307	0,0534	0,1899
Age at asthma diagnosis [yrs]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	1,7078	0,6352	0,7670
Gender [f/m]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0528	0,8182	0,8666
Positive BDR [yes/no]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0483	0,8260	0,8666

**Table S3B. Comparisons between all categorical groups of the clinical parameters and B cell variables**

Categorical clinical variable	category 1	category 2	B cell subset	p-value
Daily OCS intake [yes/no]	No	Yes	T1 B cell [%]	< 0,001
Sputum inflammation	Neutrophilic inflammation	Mixed inflammation	T1 B cell [%]	0,7230
Age at asthma diagnosis [yrs]	Age at diagnosis 18-40yrs	Age at diagnosis >40yrs	T1 B cell [%]	0,0963
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis >40yrs	T1 B cell [%]	0,9574

Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 6-18yrs	T1 B cell [%]	0,9004
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis >40yrs	T1 B cell [%]	0,5751
Smoking status	Never or former smokers <10PY	Current or former smokers ≥10PY	T1 B cell [%]	0,5354
Gender [f/m]	Male	Female	T1 B cell [%]	0,9692
Sputum inflammation	Paucigranulocytic inflammation	Mixed inflammation	T1 B cell [%]	0,6390
GINA control status	Controlled	Uncontrolled	T1 B cell [%]	0,2343
Sputum inflammation	Paucigranulocytic inflammation	Eosinophilic inflammation	T1 B cell [%]	0,5079
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 18-40yrs	T1 B cell [%]	0,3485
Asthma severity	Healthy	Mild-moderate asthma	T1 B cell [%]	0,0759
Sputum inflammation	Eosinophilic inflammation	Mixed inflammation	T1 B cell [%]	0,6209
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis 18-40yrs	T1 B cell [%]	0,2321
Asthma severity	Mild-moderate asthma	Severe asthma	T1 B cell [%]	< 0,001
GINA control status	Partly controlled	Uncontrolled	T1 B cell [%]	0,0891
Asthma severity	Healthy	Severe asthma	T1 B cell [%]	< 0,001
GINA control status	Controlled	Partly controlled	T1 B cell [%]	0,7149
Sputum inflammation	Paucigranulocytic inflammation	Neutrophilic inflammation	T1 B cell [%]	0,2984
Sputum inflammation	Eosinophilic inflammation	Neutrophilic inflammation	T1 B cell [%]	0,8046
Positive BDR [yes/no]	Yes	No	T1 B cell [%]	0,5845
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 18-40yrs	T2 B cell [%]	0,6533
Sputum inflammation	Paucigranulocytic inflammation	Mixed inflammation	T2 B cell [%]	0,5960
Sputum inflammation	Eosinophilic inflammation	Mixed inflammation	T2 B cell [%]	0,4987
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis 18-40yrs	T2 B cell [%]	0,4072
GINA control status	Controlled	Uncontrolled	T2 B cell [%]	0,1653
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 6-18yrs	T2 B cell [%]	0,8936
Sputum inflammation	Paucigranulocytic inflammation	Neutrophilic inflammation	T2 B cell [%]	0,3154
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis >40yrs	T2 B cell [%]	0,1802
Sputum inflammation	Eosinophilic inflammation	Neutrophilic inflammation	T2 B cell [%]	0,7441
Positive BDR [yes/no]	Yes	No	T2 B cell [%]	0,1946
GINA control status	Controlled	Partly controlled	T2 B cell [%]	0,9115
Asthma severity	Healthy	Mild-moderate asthma	T2 B cell [%]	0,2104
Smoking status	Never or former smokers <10PY	Current or former smokers ≥10PY	T2 B cell [%]	0,4661

Daily OCS intake [yes/no]	No	Yes	T2 B cell [%]	< 0,001
GINA control status	Partly controlled	Uncontrolled	T2 B cell [%]	0,1174
Gender [f/m]	Male	Female	T2 B cell [%]	0,6017
Asthma severity	Mild-moderate asthma	Severe asthma	T2 B cell [%]	0,0000
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis >40yrs	T2 B cell [%]	0,1198
Age at asthma diagnosis [yrs]	Age at diagnosis 18-40yrs	Age at diagnosis >40yrs	T2 B cell [%]	0,0189
Asthma severity	Healthy	Severe asthma	T2 B cell [%]	0,0002
Sputum inflammation	Neutrophilic inflammation	Mixed inflammation	T2 B cell [%]	0,6643
Sputum inflammation	Paucigranulocytic inflammation	Eosinophilic inflammation	T2 B cell [%]	0,2800
GINA control status	Partly controlled	Uncontrolled	Naive B cell [%]	0,0383
GINA control status	Controlled	Partly controlled	Naive B cell [%]	0,3551
Sputum inflammation	Paucigranulocytic inflammation	Neutrophilic inflammation	Naive B cell [%]	0,7211
Sputum inflammation	Paucigranulocytic inflammation	Mixed inflammation	Naive B cell [%]	0,5866
Sputum inflammation	Eosinophilic inflammation	Mixed inflammation	Naive B cell [%]	0,7902
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis >40yrs	Naive B cell [%]	0,9373
Asthma severity	Mild-moderate asthma	Severe asthma	Naive B cell [%]	0,0008
GINA control status	Controlled	Uncontrolled	Naive B cell [%]	0,2730
Asthma severity	Healthy	Mild-moderate asthma	Naive B cell [%]	0,0669
Positive BDR [yes/no]	Yes	No	Naive B cell [%]	0,6746
Age at asthma diagnosis [yrs]	Age at diagnosis 18-40yrs	Age at diagnosis >40yrs	Naive B cell [%]	0,8786
Sputum inflammation	Eosinophilic inflammation	Neutrophilic inflammation	Naive B cell [%]	0,4918
Daily OCS intake [yes/no]	No	Yes	Naive B cell [%]	0,0015
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 18-40yrs	Naive B cell [%]	0,9211
Smoking status	Never or former smokers <10PY	Current or former smokers ≥10PY	Naive B cell [%]	0,3496
Sputum inflammation	Paucigranulocytic inflammation	Eosinophilic inflammation	Naive B cell [%]	0,6544
Sputum inflammation	Neutrophilic inflammation	Mixed inflammation	Naive B cell [%]	0,2561
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 6-18yrs	Naive B cell [%]	0,9337
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis >40yrs	Naive B cell [%]	0,9272

Asthma severity	Healthy	Severe asthma	Naive B cell [%]	0,2756
Gender [f/m]	Male	Female	Naive B cell [%]	0,4914
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis 18-40yrs	Naive B cell [%]	0,7990
Asthma severity	Mild-moderate asthma	Severe asthma	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	< 0,001
GINA control status	Controlled	Partly controlled	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,6885
Sputum inflammation	Neutrophilic inflammation	Mixed inflammation	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,6696
Sputum inflammation	Paucigranulocytic inflammation	Neutrophilic inflammation	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,4725
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 18-40yrs	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,7781
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis 18-40yrs	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,0340
Smoking status	Never or former smokers <10PY	Current or former smokers ≥10PY	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,1416
Sputum inflammation	Paucigranulocytic inflammation	Eosinophilic inflammation	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,6571
Age at asthma diagnosis [yrs]	Age at diagnosis 18-40yrs	Age at diagnosis >40yrs	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,5042
Daily OCS intake [yes/no]	No	Yes	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,0006
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis >40yrs	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,1378
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis >40yrs	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,7319
GINA control status	Partly controlled	Uncontrolled	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,0518
Gender [f/m]	Male	Female	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,4241
Sputum inflammation	Eosinophilic inflammation	Mixed inflammation	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,6320
Positive BDR [yes/no]	Yes	No	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,4470
Asthma severity	Healthy	Severe asthma	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,0074
Asthma severity	Healthy	Mild-moderate asthma	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,2876
GINA control status	Controlled	Uncontrolled	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,0543
Sputum inflammation	Paucigranulocytic inflammation	Mixed inflammation	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,3553
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 6-18yrs	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,0459
Sputum inflammation	Eosinophilic inflammation	Neutrophilic inflammation	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0,7516
Sputum inflammation	Neutrophilic inflammation	Mixed inflammation	CD27-IgG <sup>+</sup> B cell [%]	0,1140
Gender [f/m]	Male	Female	CD27-IgG <sup>+</sup> B cell [%]	0,0386

GINA control status	Partly controlled	Uncontrolled	CD27-IgG <sup>+</sup> B cell [%]	0,3170
Sputum inflammation	Eosinophilic inflammation	Mixed inflammation	CD27-IgG <sup>+</sup> B cell [%]	0,3381
Positive BDR [yes/no]	Yes	No	CD27-IgG <sup>+</sup> B cell [%]	0,6602
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis 18-40yrs	CD27-IgG <sup>+</sup> B cell [%]	0,0801
GINA control status	Controlled	Partly controlled	CD27-IgG <sup>+</sup> B cell [%]	0,2069
Sputum inflammation	Paucigranulocytic inflammation	Neutrophilic inflammation	CD27-IgG <sup>+</sup> B cell [%]	0,7045
Sputum inflammation	Eosinophilic inflammation	Neutrophilic inflammation	CD27-IgG <sup>+</sup> B cell [%]	0,8047
Asthma severity	Healthy	Severe asthma	CD27-IgG <sup>+</sup> B cell [%]	0,1286
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 18-40yrs	CD27-IgG <sup>+</sup> B cell [%]	0,0985
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis >40yrs	CD27-IgG <sup>+</sup> B cell [%]	0,3040
Daily OCS intake [yes/no]	No	Yes	CD27-IgG <sup>+</sup> B cell [%]	0,0022
Asthma severity	Mild-moderate asthma	Severe asthma	CD27-IgG <sup>+</sup> B cell [%]	0,1390
Asthma severity	Healthy	Mild-moderate asthma	CD27-IgG <sup>+</sup> B cell [%]	0,6585
Smoking status	Never or former smokers <10PY	Current or former smokers ≥10PY	CD27-IgG <sup>+</sup> B cell [%]	0,2359
Sputum inflammation	Paucigranulocytic inflammation	Mixed inflammation	CD27-IgG <sup>+</sup> B cell [%]	0,3310
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 6-18yrs	CD27-IgG <sup>+</sup> B cell [%]	0,9254
Sputum inflammation	Paucigranulocytic inflammation	Eosinophilic inflammation	CD27-IgG <sup>+</sup> B cell [%]	0,9070
GINA control status	Controlled	Uncontrolled	CD27-IgG <sup>+</sup> B cell [%]	0,6777
Age at asthma diagnosis [yrs]	Age at diagnosis 18-40yrs	Age at diagnosis >40yrs	CD27-IgG <sup>+</sup> B cell [%]	0,3687
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis >40yrs	CD27-IgG <sup>+</sup> B cell [%]	0,3968
Sputum inflammation	Paucigranulocytic inflammation	Eosinophilic inflammation	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,2871
Age at asthma diagnosis [yrs]	Age at diagnosis 18-40yrs	Age at diagnosis >40yrs	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,6416
GINA control status	Controlled	Partly controlled	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,2875
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis 18-40yrs	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,4151
Gender [f/m]	Male	Female	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,8541
Daily OCS intake [yes/no]	No	Yes	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,0010
GINA control status	Controlled	Uncontrolled	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,2323

Sputum inflammation	Eosinophilic inflammation	Mixed inflammation	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,9213
Sputum inflammation	Neutrophilic inflammation	Mixed inflammation	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,4830
Asthma severity	Healthy	Severe asthma	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,0553
Sputum inflammation	Paucigranulocytic inflammation	Neutrophilic inflammation	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,4561
Sputum inflammation	Paucigranulocytic inflammation	Mixed inflammation	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,2135
GINA control status	Partly controlled	Uncontrolled	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,0377
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 18-40yrs	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,1981
Asthma severity	Mild-moderate asthma	Severe asthma	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,0007
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis >40yrs	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,3297
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis >40yrs	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,7111
Asthma severity	Healthy	Mild-moderate asthma	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,2462
Smoking status	Never or former smokers <10PY	Current or former smokers ≥10PY	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,4257
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 6-18yrs	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,5434
Positive BDR [yes/no]	Yes	No	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,3967
Sputum inflammation	Eosinophilic inflammation	Neutrophilic inflammation	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0,5234
Sputum inflammation	Paucigranulocytic inflammation	Neutrophilic inflammation	CD27-IgA <sup>+</sup> B cell [%]	0,6814
Sputum inflammation	Eosinophilic inflammation	Mixed inflammation	CD27-IgA <sup>+</sup> B cell [%]	0,8019
Asthma severity	Mild-moderate asthma	Severe asthma	CD27-IgA <sup>+</sup> B cell [%]	0,0329
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis >40yrs	CD27-IgA <sup>+</sup> B cell [%]	0,8713
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis >40yrs	CD27-IgA <sup>+</sup> B cell [%]	0,3297
GINA control status	Controlled	Uncontrolled	CD27-IgA <sup>+</sup> B cell [%]	0,3493
Sputum inflammation	Neutrophilic inflammation	Mixed inflammation	CD27-IgA <sup>+</sup> B cell [%]	0,2976
GINA control status	Partly controlled	Uncontrolled	CD27-IgA <sup>+</sup> B cell [%]	0,0608
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis 18-40yrs	CD27-IgA <sup>+</sup> B cell [%]	0,1734
Asthma severity	Healthy	Severe asthma	CD27-IgA <sup>+</sup> B cell [%]	0,3216
Asthma severity	Healthy	Mild-moderate asthma	CD27-IgA <sup>+</sup> B cell [%]	0,2035
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 18-40yrs	CD27-IgA <sup>+</sup> B cell [%]	0,9939

Sputum inflammation	Paucigranulocytic inflammation	Eosinophilic inflammation	CD27-IgA <sup>+</sup> B cell [%]	0,3951
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 6-18yrs	CD27-IgA <sup>+</sup> B cell [%]	0,4114
Gender [f/m]	Male	Female	CD27-IgA <sup>+</sup> B cell [%]	0,5141
Smoking status	Never or former smokers <10PY	Current or former smokers ≥10PY	CD27-IgA <sup>+</sup> B cell [%]	0,0687
Age at asthma diagnosis [yrs]	Age at diagnosis 18-40yrs	Age at diagnosis >40yrs	CD27-IgA <sup>+</sup> B cell [%]	0,1123
Positive BDR [yes/no]	Yes	No	CD27-IgA <sup>+</sup> B cell [%]	0,3087
Sputum inflammation	Paucigranulocytic inflammation	Mixed inflammation	CD27-IgA <sup>+</sup> B cell [%]	0,1965
GINA control status	Controlled	Partly controlled	CD27-IgA <sup>+</sup> B cell [%]	0,3408
Daily OCS intake [yes/no]	No	Yes	CD27-IgA <sup>+</sup> B cell [%]	0,0019
Sputum inflammation	Eosinophilic inflammation	Neutrophilic inflammation	CD27-IgA <sup>+</sup> B cell [%]	0,4551
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 6-18yrs	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,4991
Sputum inflammation	Paucigranulocytic inflammation	Eosinophilic inflammation	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	< 0,001
GINA control status	Controlled	Uncontrolled	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0073
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis 18-40yrs	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,8550
Asthma severity	Healthy	Mild-moderate asthma	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,8904
Asthma severity	Mild-moderate asthma	Severe asthma	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0010
GINA control status	Partly controlled	Uncontrolled	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0155
Age at asthma diagnosis [yrs]	Age at diagnosis 18-40yrs	Age at diagnosis >40yrs	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,2586
Sputum inflammation	Neutrophilic inflammation	Mixed inflammation	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,6855
Gender [f/m]	Male	Female	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,8194
GINA control status	Controlled	Partly controlled	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,7842
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis 18-40yrs	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,5912
Age at asthma diagnosis [yrs]	Age at diagnosis 6-18yrs	Age at diagnosis >40yrs	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,7776
Asthma severity	Healthy	Severe asthma	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0321
Age at asthma diagnosis [yrs]	Age at diagnosis <6yrs	Age at diagnosis >40yrs	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,3040
Sputum inflammation	Paucigranulocytic inflammation	Mixed inflammation	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0071
Smoking status	Never or former smokers <10PY	Current or former smokers ≥10PY	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0536



Positive BDR [yes/no]	Yes	No	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,8276
Sputum inflammation	Paucigranulocytic inflammation	Neutrophilic inflammation	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0164
Sputum inflammation	Eosinophilic inflammation	Mixed inflammation	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0900
Sputum inflammation	Eosinophilic inflammation	Neutrophilic inflammation	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0338
Daily OCS intake [yes/no]	No	Yes	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0,0028

**Table S3C. Comparisons between B cell populations and continuous clinical variables**

Continuous clinical variable	B cell subset	estimate	p-value	adjusted p-value
Blood neutrophils [1000/ $\mu$ l]	T1 B cell [%]	-0.3619	< 0,001	< 0,001
Exacerbations [n]	T1 B cell [%]	-0.2760	< 0,001	0.0034
Specific IgE [kU/l]	T1 B cell [%]	0.1843	0.0143	0.0573
FEV <sub>1</sub> [z-score]	T1 B cell [%]	0.1815	0.0168	0.0644
FEF <sub>25-75</sub> [z-score]	T1 B cell [%]	0.1767	0.0329	0.1006
Blood eosinophils [1000/ $\mu$ l]	T1 B cell [%]	-0.0916	0.2279	0.3800
FEV <sub>1</sub> /FVC [z-score]	T1 B cell [%]	0.0817	0.2851	0.4252
BMI [Kg/m <sup>2</sup> ]	T1 B cell [%]	-0.0444	0.5583	0.7018
Reactance Area [kPa/l/s]	T1 B cell [%]	-0.0255	0.7403	0.8461
R5-R20 [kPa/l/s]	T1 B cell [%]	-0.0214	0.7795	0.8546
Age [yrs]	T1 B cell [%]	0.0049	0.9481	0.9481
Blood neutrophils [1000/ $\mu$ l]	T2 B cell [%]	-0.3615	< 0,001	< 0,001
Exacerbations [n]	T2 B cell [%]	-0.2823	< 0,001	0.0027
Specific IgE [kU/l]	T2 B cell [%]	0.1736	0.0212	0.0748
FEV <sub>1</sub> [z-score]	T2 B cell [%]	0.1724	0.0233	0.0789
FEF <sub>25-75</sub> [z-score]	T2 B cell [%]	0.1748	0.0349	0.1019
Blood eosinophils [1000/ $\mu$ l]	T2 B cell [%]	-0.1066	0.1604	0.2940
FEV <sub>1</sub> /FVC [z-score]	T2 B cell [%]	0.0881	0.2491	0.3914
R5-R20 [kPa/l/s]	T2 B cell [%]	-0.0604	0.4284	0.5800
Age [yrs]	T2 B cell [%]	-0.0574	0.4489	0.5986
Reactance Area [kPa/l/s]	T2 B cell [%]	-0.0439	0.5682	0.7043
BMI [Kg/m <sup>2</sup> ]	T2 B cell [%]	-0.0227	0.7647	0.8546
FEF <sub>25-75</sub> [z-score]	Naive B cell [%]	0.2241	0.0066	0.0323
FEV <sub>1</sub> /FVC [z-score]	Naive B cell [%]	0.1990	0.0087	0.0363
Exacerbations [n]	Naive B cell [%]	-0.1658	0.0323	0.1006
FEV <sub>1</sub> [z-score]	Naive B cell [%]	0.1596	0.0359	0.1019
Specific IgE [kU/l]	Naive B cell [%]	0.1114	0.1409	0.2637
R5-R20 [kPa/l/s]	Naive B cell [%]	-0.0917	0.2289	0.3800

Blood neutrophils [1000/ $\mu$ l]	Naive B cell [%]	-0.0823	0.2789	0.4232
Blood eosinophils [1000/ $\mu$ l]	Naive B cell [%]	0.0718	0.3451	0.4978
Reactance Area [kPa/l/s]	Naive B cell [%]	-0.0409	0.5951	0.7273
Age [yrs]	Naive B cell [%]	-0.0392	0.6053	0.7297
BMI [Kg/m <sup>2</sup> ]	Naive B cell [%]	0.0205	0.7867	0.8546
Blood neutrophils [1000/ $\mu$ l]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0.2046	0.0066	0.0323
R5-R20 [kPa/l/s]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0.1507	0.0471	0.1123
FEV <sub>1</sub> /FVC [z-score]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	-0.1446	0.0577	0.1302
Age [yrs]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0.1273	0.0921	0.1952
Specific IgE [kU/l]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	-0.1269	0.0932	0.1952
FEF <sub>25-75</sub> [z-score]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	-0.1047	0.2087	0.3673
Exacerbations [n]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0.0953	0.2203	0.3800
Reactance Area [kPa/l/s]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0.0878	0.2535	0.3914
FEV <sub>1</sub> [z-score]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	-0.0667	0.3832	0.5353
Blood eosinophils [1000/ $\mu$ l]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	-0.0476	0.5313	0.6876
BMI [Kg/m <sup>2</sup> ]	CD27 <sup>+</sup> IgM <sup>+</sup> B cell [%]	0.0192	0.8001	0.8586
Exacerbations [n]	CD27-IgG <sup>+</sup> B cell [%]	0.2259	0.0033	0.0209
Blood neutrophils [1000/ $\mu$ l]	CD27-IgG <sup>+</sup> B cell [%]	0.1611	0.0332	0.1006
Age [yrs]	CD27-IgG <sup>+</sup> B cell [%]	-0.1539	0.0414	0.1105
FEF <sub>25-75</sub> [z-score]	CD27-IgG <sup>+</sup> B cell [%]	-0.1663	0.0448	0.1123
FEV <sub>1</sub> [z-score]	CD27-IgG <sup>+</sup> B cell [%]	-0.1246	0.1025	0.2097
FEV <sub>1</sub> /FVC [z-score]	CD27-IgG <sup>+</sup> B cell [%]	-0.1156	0.1300	0.2486
Blood eosinophils [1000/ $\mu$ l]	CD27-IgG <sup>+</sup> B cell [%]	0.0505	0.5067	0.6655
R5-R20 [kPa/l/s]	CD27-IgG <sup>+</sup> B cell [%]	0.0378	0.6201	0.7367
Reactance Area [kPa/l/s]	CD27-IgG <sup>+</sup> B cell [%]	0.0373	0.6279	0.7367
BMI [Kg/m <sup>2</sup> ]	CD27-IgG <sup>+</sup> B cell [%]	0.0169	0.8235	0.8648
Specific IgE [kU/l]	CD27-IgG <sup>+</sup> B cell [%]	-0.0077	0.9192	0.9298
Blood neutrophils [1000/ $\mu$ l]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0.2573	0.0006	0.0052
FEF <sub>25-75</sub> [z-score]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	-0.1957	0.0179	0.0657
FEV <sub>1</sub> /FVC [z-score]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	-0.1517	0.0463	0.1123
Exacerbations [n]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0.1306	0.0926	0.1952
FEV <sub>1</sub> [z-score]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	-0.1191	0.1185	0.2317
Age [yrs]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	-0.0995	0.1889	0.3392
R5-R20 [kPa/l/s]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0.0890	0.2429	0.3914
Reactance Area [kPa/l/s]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0.0676	0.3799	0.5353
Blood eosinophils [1000/ $\mu$ l]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	0.0603	0.4276	0.5800
BMI [Kg/m <sup>2</sup> ]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	-0.0161	0.8322	0.8648
Specific IgE [kU/l]	CD27 <sup>+</sup> IgG <sup>+</sup> B cell [%]	-0.0136	0.8579	0.8779
Exacerbations [n]	CD27-IgA <sup>+</sup> B cell [%]	0.3067	< 0,001	0.0015
FEV <sub>1</sub> /FVC [z-score]	CD27-IgA <sup>+</sup> B cell [%]	-0.2079	0.0060	0.0323
FEF <sub>25-75</sub> [z-score]	CD27-IgA <sup>+</sup> B cell [%]	-0.2213	0.0073	0.0336
FEV <sub>1</sub> [z-score]	CD27-IgA <sup>+</sup> B cell [%]	-0.2002	0.0083	0.0363

Blood neutrophils [1000/ $\mu$ l]	CD27 <sup>-</sup> IgA <sup>+</sup> B cell [%]	0.1549	0.0407	0.1105
R5-R20 [kPa/l/s]	CD27 <sup>-</sup> IgA <sup>+</sup> B cell [%]	0.1507	0.0472	0.1123
Reactance Area [kPa/l/s]	CD27 <sup>-</sup> IgA <sup>+</sup> B cell [%]	0.1480	0.0534	0.1237
Age [yrs]	CD27 <sup>-</sup> IgA <sup>+</sup> B cell [%]	0.1201	0.1124	0.2248
Specific IgE [kU/l]	CD27 <sup>-</sup> IgA <sup>+</sup> B cell [%]	-0.0792	0.2959	0.4339
Blood eosinophils [1000/ $\mu$ l]	CD27 <sup>-</sup> IgA <sup>+</sup> B cell [%]	-0.0294	0.6991	0.8095
BMI [Kg/m <sup>2</sup> ]	CD27 <sup>-</sup> IgA <sup>+</sup> B cell [%]	0.0158	0.8353	0.8648
Reactance Area [kPa/l/s]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0.2997	< 0,001	0.0015
Exacerbations [n]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0.2993	< 0,001	0.0015
R5-R20 [kPa/l/s]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0.2826	< 0,001	0.0023
Age [yrs]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0.2619	< 0,001	0.0044
FEV <sub>1</sub> /FVC [z-score]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	-0.2565	< 0,001	0.0053
FEF <sub>25-75</sub> [z-score]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	-0.2768	< 0,001	0.0053
FEV <sub>1</sub> [z-score]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	-0.2397	0.0015	0.0101
Blood neutrophils [1000/ $\mu$ l]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0.2077	0.0058	0.0323
BMI [Kg/m <sup>2</sup> ]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	0.0874	0.2487	0.3914
Specific IgE [kU/l]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	-0.0456	0.5475	0.6983
Blood eosinophils [1000/ $\mu$ l]	CD27 <sup>+</sup> IgA <sup>+</sup> B cell [%]	-0.0209	0.7836	0.8546

**TABLE S3. Pairwise comparisons between B cell populations and clinical variables in asthma patients and healthy controls.** Overall comparisons between categorical clinical parameters and B cell variables (A). Comparisons between all categorical groups of the clinical parameters and B cell variables (B). Comparisons between B cell populations and continuous clinical variables in asthma patients and healthy controls (C). B cell subsets are presented as percentage of CD19<sup>+</sup> B cells. Coefficient estimates, p-values and adjusted p-values after multiple test corrections are shown. GINA, Global Initiative for Asthma; BDR, bronchodilator response; OCS, oral corticosteroids; BMI, Body Mass Index; FEV<sub>1</sub>, forced expiratory volume in 1 second; FVC, forced vital capacity; FEV<sub>1</sub>/FVC, FEV<sub>1</sub> as % of FVC; FEF<sub>25-75</sub>, forced expiratory flow at 25% - 75% of FVC; R5–R20, resistance at 5 Hz – resistance at 20 Hz [kPa/l/s]; IgE, Immunoglobulin E; T1 B cell, Transitional 1 B cells; T2 B cell, Transitional 2 B cells.