

## SUPPLEMENTARY MATERIAL

sTable 1. Basic characteristics of the included studies

Study ID	Disease	Type	Study quality*	Country	Age (year)	Dose	Other treatments	Unit	Before treatment			After treatment												
									N	Level#	week	N	Level#											
Wenzel 2013	Asthma	RCT	High	United States	37.8±13.2	300 mg qw	Fluticasone and/or Salmeterol	pg/ml	52	496.1±342.4	1	50	335.71±207.35											
											4	48	286.84±130.23											
											8	52	307.14±206.03											
											12	45	277.07±156.35											
Beck 2014-M4A&B	AD	RCT	High	Multinational	42.6±1.9	75/150/300 mg qw	-	pg/ml	51	6004.5±10989.23	4	51	1788.4±10989.23											
Beck 2014-M12	AD	RCT	High	Europe	33.7±1.4	300 mg qw	-	pg/ml	55	4013.7±4284.34	4	55	1239.51±4284.34											
Beck 2014-C4	AD	RCT	High	Europe	36.0±2.5	300 mg qw	TCS	pg/ml	21	2703.4±3496.05	4	21	1027.76±3496.05											
	Guttman-Yassky 2018	AD	RCT	High	United States and Canada	Median 35	200 mg qw	-	pg/ml	27	7722±13587	1	27	4389.35±13587										
											2	26	3493.14±13587											
											3	25	2465.62±13587											
											4	24	2248.86±13587											
											6	24	2248.86±13587											
											8	24	2005.01±13587											
											10	24	1950.82±13587											
											12	23	2059.20±13587											
											14	23	3115.90±13587											
											15	22	2384.34±13587											
											16	21	2519.81±13587											
											Ariëns 2019	AD	Observational	High	Netherlands	39.8±13.1	300 mg q2w	TCS	pg/ml	35	1075.84±241.69	4	35	620.34±260.15
																						8	35	528.45±343.29
12	35	566.89±274.02																						
16	35	562.23±287.91																						
Uchida 2019	AD	Observational	High	Japan	Mean 41.4	300 mg q2w	TCS and/or TCI	pg/ml	22	5652.27±1491.23	4	22	1099.85±142.10											
											16	25	735.31±164.72											
Matsutani 2020	AD	Observational	High	Japan	39.7±10.9	300 mg q2w	TCS and/or TCI	pg/ml	53	5247±7521	4	53	687.52±890.59											
											16	53	349.62±431.16											
de Wijs 2021	AD	Observational	High	Japan	Median 34	300 mg q2w	Multiple	pg/ml	153	2239±6122.50	80	153	290.32±2332.00											
Hamilton 2021-CHRONOS	AD	RCT	High	Multinational	39.6±14.0	300 mg q2w	TCS	pg/ml	110	9678.78±19173.17	52	84	479.11±395.29											
Hamilton 2021-QUEST	Asthma	RCT	High	Multinational	47.7±15.6	300 mg q2w	ICS/LABA	pg/ml	622	364.66±295.29	52	479	234.72±173.99											
Hamilton 2021-SINUS-52	CRSwNP	RCT	High	Multinational	51.9±11.9	300 mg q2w	INCS	pg/ml	147	372.27±253.88	52	139	219.43±126.98											
Hamilton 2021-SOLO 1&2	AD	RCT	High	Multinational	38.3±14.4	300 mg q2w	-	pg/ml	464	6864.12±15160.53	16	361	572.33±735.49											
Hamilton 2021-EoE PoC	EoE	RCT	High	Multinational	33.1±8.7	300 mg qw	-	pg/ml	22	275.54±130.49	12	22	203.38±104.55											
Mizuno 2021	AD	Observational	High	Japan	58.8±12.7	300 mg q2w	-	pg/ml	60	4081.76±4756.71	4	60	576.35±428.80											
											8	60	538.44±398.17											
											12	60	455.38±367.54											
											43	60	483.87±306.28											
											48	60	455.38±306.28											
											56	60	403.23±245.03											
											65	60	365.31±398.17											
											78	60	616.67±367.54											
82	60	498.11±520.68																						

\* For RCT, the risk of bias tools in Review Manager 5.3 software was applied. For observational studies, the Newcastle-Ottawa Scale (NOS) was applied;

# If the original data was not in the form of Mean±SD, transformations were made based on the tools from <https://www.math.hkbu.edu.hk/~tongt/papers/median2mean.html> and Handbook for systematic reviews from Cochrane. If the original data was only shown in the figures, the software GetData Graph Digitizer was used;

Abbreviations: AD: atopic dermatitis; CRSwNP: chronic rhinosinusitis with nasal polyp; EoE: eosinophilic esophagitis; RCT: randomized controlled trial; TCS: topical corticosteroids; TCI: topical calcineurin inhibitors; ICS: inhaled corticosteroids; LABA: long-acting β2-agonist; INCS: intranasal corticosteroids.

sTable 2. List of included studies

Study ID	PMID	DOI
Wenzel 2013	23688323	10.1056/NEJMoa1304048
Beck 2014	25006719	10.1056/NEJMoa1314768
Guttman-Yassky 2018	30194992	10.1016/j.jaci.2018.08.022
Ariëns 2019	31593343	10.1111/all.14080
Uchida 2019	31127860	10.1111/bjd.18163
Matsutani 2020	-	10.1002/cia2.12099
de Wijs 2021	33657668	10.1111/bjd.19897
Hamilton 2021	34037993	10.1111/cea.13954
Mizuno 2021	34523731	10.1111/ajd.13719

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