Table s1: Level of asthma control at V0, V1 and V2 according to patient baseline characteristics

Patient characteristics	Visit (n)	Controlled : Good control % (n)	Not controlled: Partial control % (n)	Poor control % (n)	P value : controlled versus not controlled
Age					
< 12	V0 (47) V1 (46) V2 (41)	0 (0) 48 (22) 53.5 (22)	15 (7) 30 (14) 36.5 (15)	85 (40) 22 (10) 10 (4)	V1:0.40 V2 :0.02
≥ 12	V0 (57) V1 (57) V2 (51)	0 (0) 56 (32) 76.5 (39)	21 (12) 30 (17) 15.5 (8)	79 (45) 14 (8) 8 (4)	
Exacerbation rate					
≥ 3	V0 (67) V1 (67) V2 (61)	0 (0) 56.5 (38) 69 (42)	16.5 (11) 34.5 (23) 24.5 (15)	83.5 (56) 9 (6) 6.5 (4)	V1:0.29 V2:0.60
< 3	V0 (36) V1 (35) V2 (30)	0 (0) 46 (16) 63 (19)	22 (8) 20 (7) 23.5 (7)	78 (28) 34 (12) 13.5 (4)	
IgE level					
≤ 700 kU/l	V0 (47) V1 (46) V2 (45)	0 (0) 48 (22) 64.5 (29)	21 (10) 35 (16) 22 (10)	79 (37) 17 (8) 13.5 (6)	V1:0.40 V2:0.71
> 700 kU/l	V0 (57) V1 (57) V2 (47)	0 (0) 56 (32) 68 (32)	16 (9) 26.5 (15) 27.5 (13)	84 (48) 17.5 (10) 4.5 (2)	
Allergen sensitivity					
< 3	V0 (35) V1 (35) V2 (30)	0 57 (20) 73 (22)	17 (6) 26 (9) 13.5 (4)	83 (29) 17 (6) 13.5 (4)	V1 :0.49 V2 :0.32
≥ 3	V0 (69) V1 (68) V2 (62)	0 50 (34) 63 (39)	19 (13) 32.5 (22) 30.5 (19)	81 (56) 17.5 (12) 6.5 (4)	
Dosing regimen					
2 weeks	V0 (71) V1 (71) V2 (62)	0 (0) 52 (37) 69.5 (43)	17 (12) 28 (20) 22.5 (14)	83 (59) 20 (14) 8 (5)	V1:0.92 V2:0.37
4 weeks	V0 (33) V1 (32) V2 (30)	0 (0) 53 (17) 60 (18)	21 (7) 34.5 (11) 30 (9)	79 (26) 12.5 (4) 10 (3)	

Table s2: Outcomes according to dosing regimen

outcome	2 weeks	4 weeks	P value
Exacerbation rate over the year (n/year)	1.42 [0.40; 2.44]	0.90 [0.50; 1.30]	0.89
FEV1 at V2 (% PV)	92 [88; 95]	93 [82; 104]	0.89
ICS dose at V2 (fluticasone equivalent, µg/d)	458 [373; 543]	530 [401; 659]	0.32

FEV1: forced expiratory volume in 1 second; PV: predicted value; ICS: inhaled corticosteroids

Table s3: Outcomes according to age

outcome	< 12 years old	≥ 12 years old	P value
Exacerbation rate over the year	1.85 [0.33; 3.40]	0.76 [0.45; 1.08]	0.049
FEV1 at V2 (% PV)	93 [85; 101]	91 [86; 96]	0.99
ICS dose at V2 (fluticasone equivalent, µg/d)	475 [369; 581]	486 [390; 582]	0.79

FEV1: forced expiratory volume in 1 second; PV: predicted value; ICS: inhaled corticosteroids

Table s4: Outcomes in the subgroup of children with baseline IgE > 700 kU/l (n=57)

outcome	Correlation	P value
Exacerbation rate over the year	Rho: -0.06	0.68
FEV1 at V2 (%PV)	Rho:-0.15	0.38
ICS dose at V2 (fluticasone equivalent, µg/d)	Rho: -0.05	0.73

FEV1: forced expiratory volume in 1 second; PV: predicted value; ICS: inhaled corticosteroids

Table s5: Omalizumab studies in children: main results

Study design Duration	No of patients, Age, IgE level	Severity scoring	Treatment dose frequency	Outcomes (significant difference)
Milgrom H [6] DBPCT 28 weeks	334 children 5-12 years IgE: 30-1300 kU/l Mean : 335 kU/l	Moderate-severe allergic asthma	0.016 mg/kg/IgE every 2-4 weeks	- Median reduction of ICS dose: Omalizumab: 100% Placebo: 66.7% - Exacerbation rate: Omalizumab vs placebo:-36% - Physicians/patients evaluation (GETE*) excellent/good : omalizumab : 31.5/56% placebo : 16/33%
Busse WW [4] DBPCT 60 weeks	419 patients 6-20 years IgE: 30-1300 kU/l	Moderate-severe allergic asthma: 73%	0.016 mg/kg/IgE every 2-4 weeks	Omalizumab vs placebo: - Number of days with asthma symptoms: -25.5% - % of patients with $\geq$ 1 exacerbation : -38%
Lanier [5] DBPCT 52 weeks	627 children, 6 to < 12 years IgE: 30-1300 kU/l Mean : 470 kU/l	Moderate-severe uncontrolled allergic asthma (Severe: 37.5%) history of severe exacerbations	75 to 375 mg according to table every 2-4 weeks	Omalizumab vs placebo: - exacerbation rate : -43% - severe exacerbation: -50% -physicians/patients evaluation (GETE*) excellent/good : omalizumab : 79%/ 80% placebo : 56/72%
Kulus M [7] DBPCT 52 weeks	246 children Sub-analysis restricted to severe asthmatic children of Lanier study	Severe allergic asthma with exacerbations and symptoms despite treatment with high ICS dose plus a LABA.	75 to 375 mg according to table every 2-4 weeks	Omalizumab vs placebo: exacerbations : -50%
Brodlie [8] observational 16 weeks	34 children (5-16 years, 15 children <12 years) IgE: 30-1300kU/l Median IgE : 411 kU/l	Severe asthma maintained on oral prednisolone	75 to 375 mg according to table every 2-4 weeks	- Median daily prednisolone dose reduced from 20 mg to 5 mg including seven children who stopped prednisolone completely. -Mini-AQLQ score increased from 3.5 to 5.9.
Current study Observational 52 weeks	104 children (6-18 years, 47 children < 12 years) Median IgE: 1125 kU/l	Severe allergic asthma	75 to 375 mg according to table every 2-4 weeks	- control improvement : good control : 0% at initiation, 67% at week 52 -exacerbation rate: -72%

GETE: global evaluation of treatment effectiveness; AQLQ: Asthma Quality of Life Questionnaire
ICS: inhaled corticosteroids; LABA: long acting β2 agonists