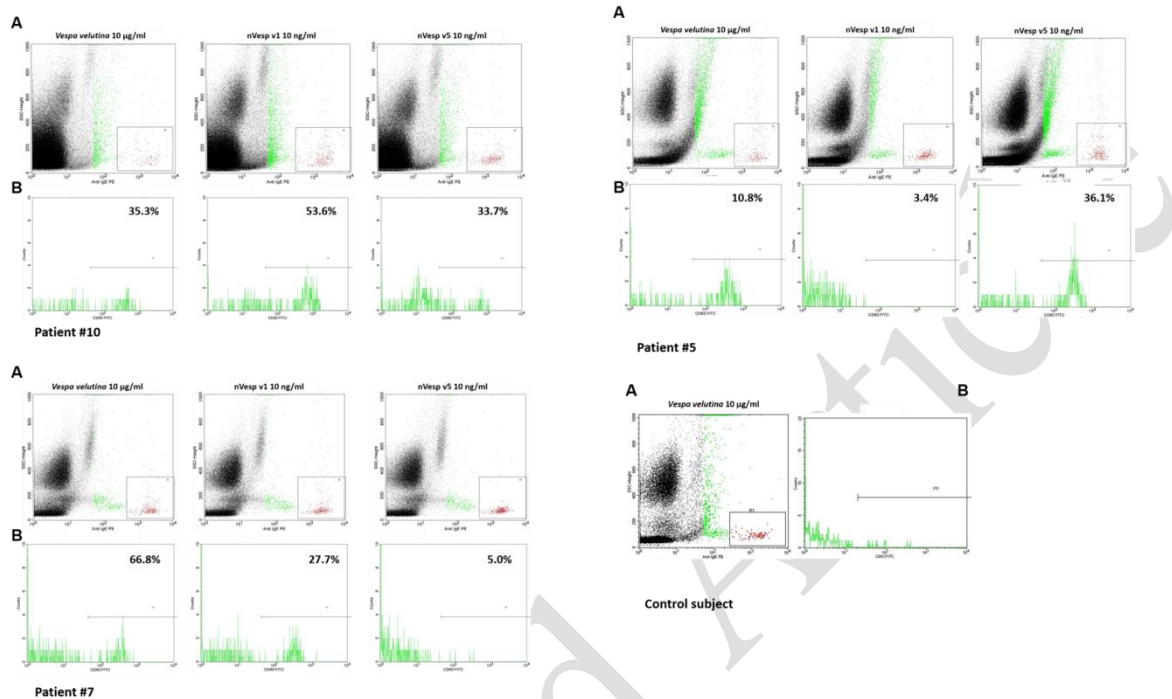


## Supplementary material

**Supplementary Figure 1.** Example of BAT in three selected patients and one atopic control



A) Basophils were defined as cells expressing IgE of high intensity in dot plots (red dots); low intensity anti-IgE cells appear in green; B) Activated basophils were defined as cells expressing CD63+ in histograms. Results are expressed as % of activated CD63+ basophils over total basophil population acquired. A minimum of 500 basophils were acquired for all samples. Patient#10 shows activation against *Vespa velutina* whole venom and both molecules (nVesp v 1 and nVesp v5); Patient#5 shows activation against *Vespa velutina* whole venom and nVesp v 5; Patient#7 shows activation against *Vespa velutina* whole venom and nVesp v 1; Control subject shows no activation.

**Supplementary Table 1.** Patient characteristics

Parameter	Patient									
	#1 #9	#2 #10	#3	#4	#5	#6	#7	#8	#9	#10
Age (years)	26	48	59	64	79	74	81	36	45	55
Grade of anaphylaxis	1	1	3	3	3	3	2	2	2	2
REMA score	1	0	1	0	1	-2	1	-2	-2	-2
Total serum IgE (UI/mL)	172	356	496	1134	91	488	88	167	119	70
Baseline tryptase (ng/mL)	14.5	4.8	11.1	4.7	4.2	6.7	4.9	5.7	5.2	2.1
slgE MUXF3 (kU <sub>A</sub> /L)	0.15	0.32	0.02	0.13	0.07	8.03	0.01	0.01	0.10	0.07
slgE <i>Apis mellifera</i> (kU <sub>A</sub> /L)	0.44	0.63	4.64	1.63	0.60	60.90	0.36	0.03	0.11	1.48
slgE rApi m 1 (kU <sub>A</sub> /L)	0.04	0.02	0.65	0.03	0.04	22.20	0.29	0.00	0.00	0.00
slgE rApi m 5 (kU <sub>A</sub> /L)	0.03	2.20	0.18	10.40	0.99	30.60	0.01	0.02	0.37	2.70
slgE rApi m 10 (kU <sub>A</sub> /L)	0.00	0.10	12.30	0.02	0.15	6.89	0.00	0.04	0.00	0.00
slgE <i>Vespula spp</i> (kU <sub>A</sub> /L)	3.35	16.70	>100	>100	8.77	35.30	6.44	9.82	6.84	6.37
slgE rVes v 1 (kU <sub>A</sub> /L)	2.77	19.50	0.40	1.42	0.02	0.78	0.03	12.50	0.02	6.89
slgE rVes v 5 (kU <sub>A</sub> /L)	0.13	1.21	>100	>100	12.30	20.40	4.13	0.60	7.25	0.11
slgE <i>Polistes dominula</i> (kU <sub>A</sub> /L)	0.14	36.00	48.80	>100	1.56	28.60	3.30	10.30	3.47	19.9
slgE rPol d 5 (kU <sub>A</sub> /L)	0.19	14.80	83.20	>100	2.00	23.30	1.42	1.44	5.17	0.77
slgE <i>Vespa crabro</i> (kU <sub>A</sub> /L)	0.87	5.82	2.94	7.79	0.30	24.10	3.39	8.02	0.87	1.87
slgE <i>Vespa velutina</i> (kU <sub>A</sub> /L)	1.11	4.93	8.29	2.42	0.41	32.60	2.80	7.66	2.25	1.63
slgE nVesp v 1 (kU <sub>A</sub> /L)	0.70	1.12	0.56	0.53	0.07	9.44	0.12	1.17	0.05	0.91
slgE nVesp v 5 (kU <sub>A</sub> /L)	0.03	1.71	26.90	62.40	1.51	14.20	1.36	0.16	5.41	0.07

MUXF3, N-glycan from bromelain; r, recombinant; REMA score, measurement recommended by the European Competence Network on Mastocytosis to calculate the risk of suffering from a clonal mast cell disorder (increased risk with REMA score higher than 2)

**Supplementary Table 2. Individual results of basophil activation test with whole *Vespa velutina nigrithorax* venom and with venom antigen components (nVesp v 1 and nVesp v 5) in the 10 patients studied.**

Patient	Negative control	Positive control	<i>Vespa velutina nigrithorax</i> venom				nVesp v 1				nVesp v 5			
			10 µg/mL	1 µg/mL	0.1 µg/mL	0.01 µg/mL	10 ng/mL	1 ng/mL	0.1 ng/mL	0.01 ng/mL	10 ng/mL	1 ng/mL	0.1 ng/mL	0.01 ng/mL
#1	1.7	30.7	13.7	16.1	5.6	3.3	3.2	5.1	2.1	1.0	1.0	2.0	0.5	1.1
#2	5.8	36.2	31.3	38.2	35.2	27.6	19.2	20.9	13.9	9.7	36.0	37.5	36.9	36.1
#3	1.6	47.1	6.5	7.9	3.7	3.3	2.6	2.5	1.6	2.5	5.9	5.7	4.9	6.1
#4	3.6	30.4	15.5	14.9	10.9	5.1	4.8	4.3	8.4	4.1	21.3	28.3	27.4	23.0
#5	4.2	43.3	10.8	12.5	7.5	2.6	3.4	2.4	1.6	1.6	36.1	33.2	36.0	16.1
#6	1.2	25.0	31.7	33.7	29.1	22.2	1.8	5.1	0.8	1.5	32.8	31.1	32.2	31.3
#7	2.1	16.4	61.6	62.5	55.7	44.6	45.4	35.3	24.9	2.0	64.3	60.3	50.9	56.1
#8	4.8	27.3	66.8	32.2	20.0	14.4	27.7	27.6	21.6	14.8	5.0	5.3	4.6	2.9
#9	1.7	31.4	57.0	59.3	64.3	61.2	21.8	12.9	4.6	2.0	61.1	63.8	69.8	62.0
#10	4.0	45.4	35.3	59.0	60.8	41.4	53.6	60.0	58.1	50.3	33.7	35.5	39.3	30.6

Data are percentages of basophil activation at every antigen concentration with the CD63-based kit. Negative control, wash solution. Positive control, N-formyl-Met-Leu-Phe peptide.

**Supplementary Table 3. Individual results of basophil activation test with whole *Vespa velutina nigrithorax* venom in 5 control patients (4, atopic and 1 (#5), non-atopic)**

Control subject	Negative control	Positive control	<i>Vespa velutina nigrithorax</i> venom			
			0.01 µg/mL	0.1 µg/mL	1 µg/mL	10 µg/mL
#1	2.1	27.6	0.9	0.5	2.47	3.4
#2	3.3	24.0	2.4	5.2	2.8	6.5
#3	1.4	21.7	1.1	2.6	2.5	2.1
#4	1.4	37.2	1.2	2.0	2.7	1.8
#5	0.2	12.0	0.0	0.0	0.0	0.0

Data are percentages of basophil activation at every antigen concentration with the CD63-based kit. Negative control, wash solution. Positive control, N-formyl-Met-Leu-Phe peptide.