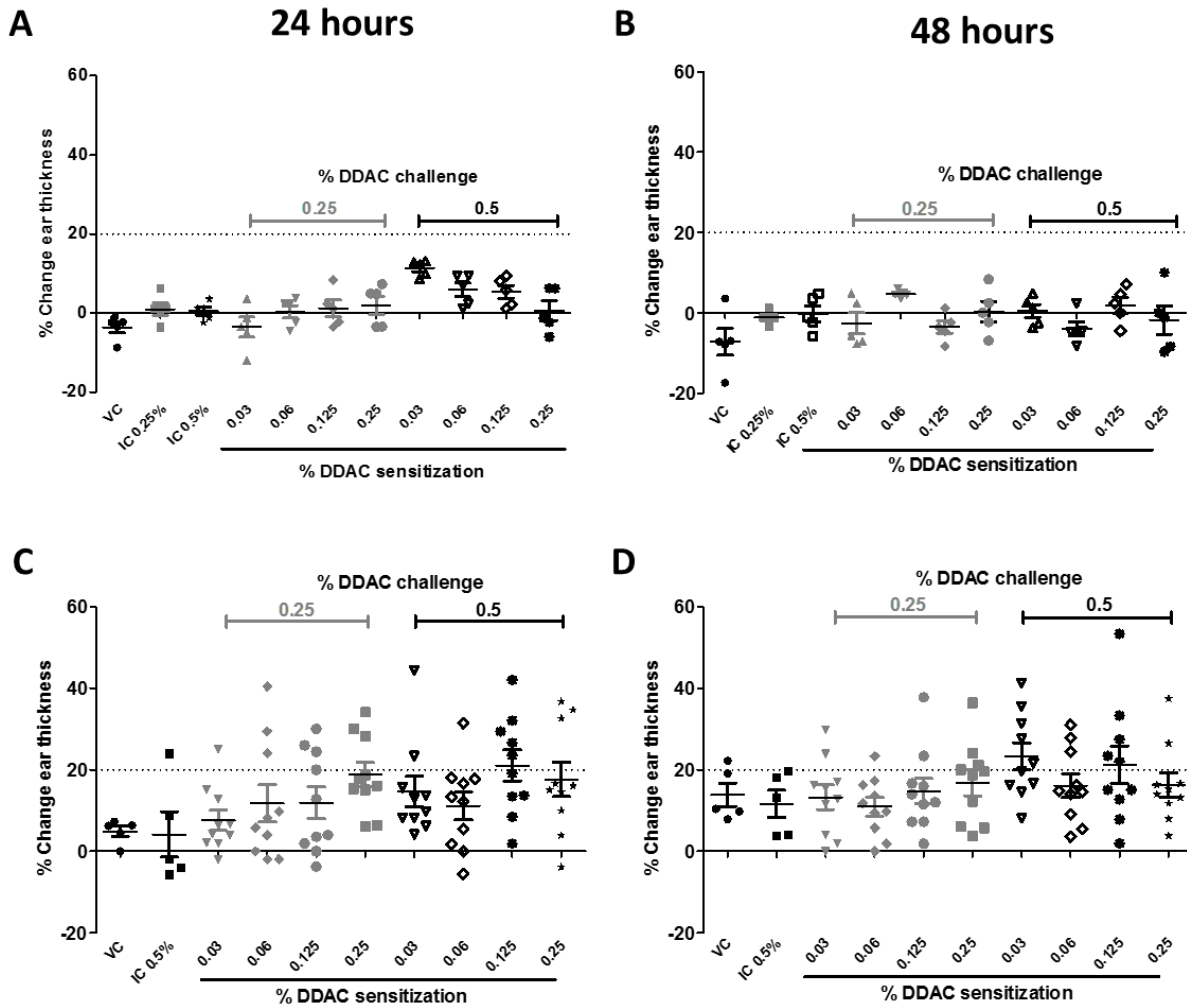


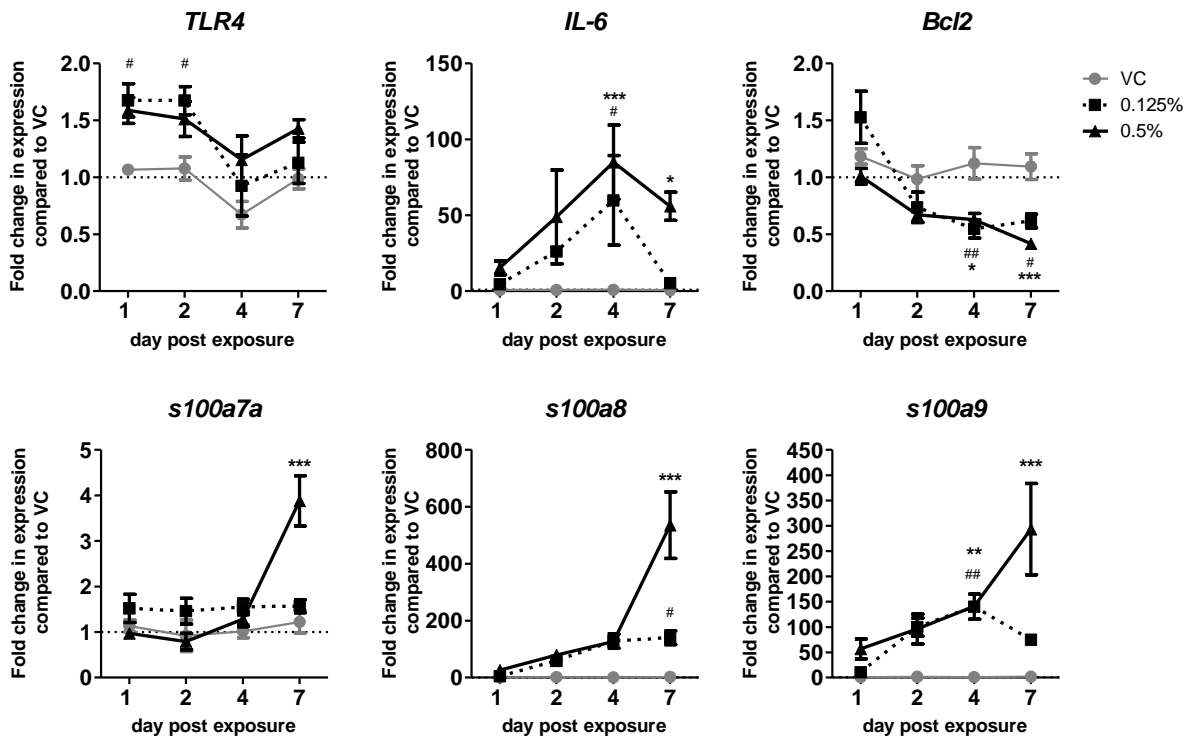
Supplemental material:



Supplemental Figure 1. Mouse ear swelling test confirms that DDAC is a contact sensitizer

in mice. Mice (5/group) were sensitized on the shaved dorsum with acetone, for the vehicle control (VC) and the irritation control (IC) or increasing concentrations of DDAC (0.03% - 0.25%), as indicated at the bottom of the x-axis. Following sensitization, mice were challenged with either acetone (VC), 0.25% DDAC (gray points) or 0.5% DDAC (black points) on the ear pinna. Each point represents the change in ear thickness from a pre-challenge reading measured at 24 hr (A) or 48 hr (B) post first challenge, and 24 hr (C) or 48 hr (D) post the second challenge. VC= vehicle

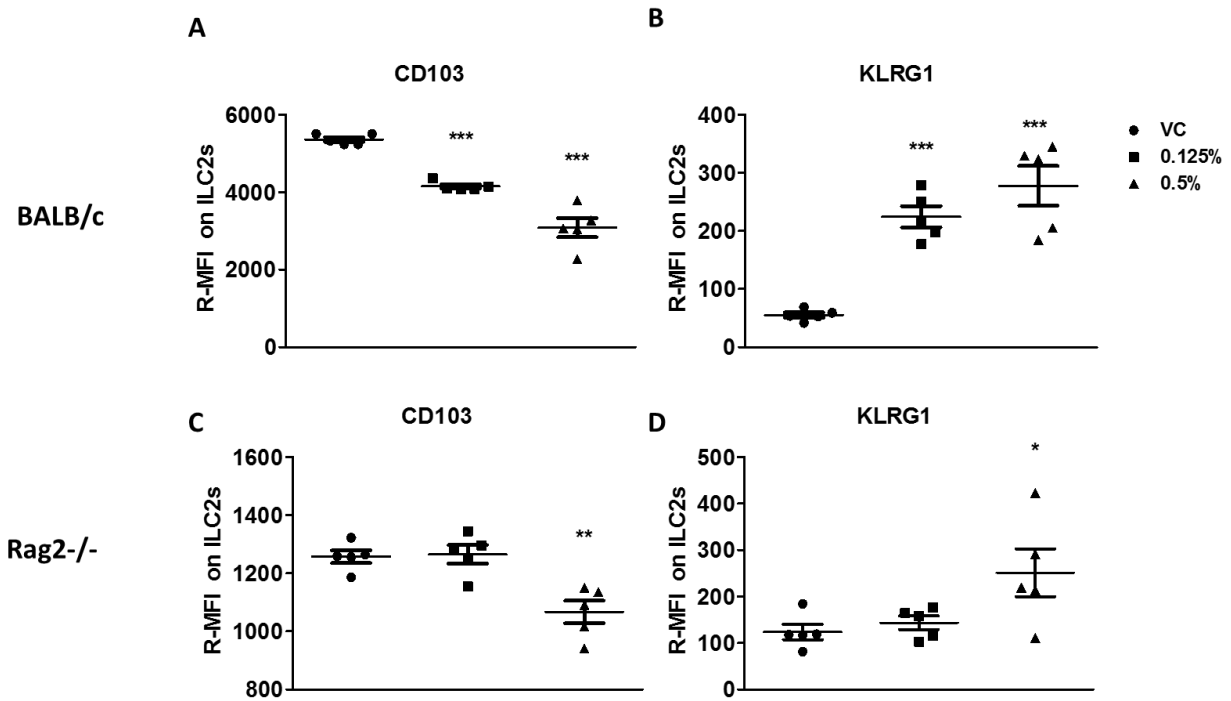
control, IC = 0.5% DDAC irritation control. Each point represents the % change in ear thickness of a single ear. A 20% increase threshold is considered positive as a contact sensitizer; for the MEST to be positive only one subject from each test group must exhibit >20% swelling.



Supplemental Figure 2. Gene expression in the skin following topical exposure to DDAC.

Gene expression analysis was performed on ear tissue over time following exposure to DDAC for up to 7 days. Each point represents the level of the indicated gene’s mRNA expression relative to acetone (VC), and normalized to β -actin as an endogenous control. Each dot represents mean (\pm SEM) of 5 mice per group. Significance was determined using a two-way ANOVA and Bonferroni

post-tests to compare each treatment group to its respective acetone control. P values are represented by #s (0.125% DDAC) and *s (0.5% DDAC) where #/* = $p < 0.05$, ##/** = $p < 0.01$, and ###/*** = $p < 0.001$.



Supplemental Figure 3. Additional phenotypic analysis of ILCs from BALB/c and Rag2^{-/-} at 7 days post DDAC exposure. ILC2s from BALB/c (A + B) and Rag2^{-/-} mice (C + D) were assessed for expression of CD103 and KLRG1 as indicated. Analysis was performed on cells isolated from ear tissue at 7 days post DDAC exposure. ILC2s were identified as described in Figures 2 and 3. Median fluorescent intensity (relative to unstained controls) was determined for the expression of CD103 (A + C) and KLRG1 (B + D) at 7 dpe to DDAC. Statistical significance

was determined using an one-way ANOVA with a Dunnett's post-test. P values are represented as *s where * = p< 0.05, ** = p< 0.01, and *** = p <0.001; n= 5 mice/group.

Supplemental Table 1. Cytokines expressed in ear lysate from BALB/c mice following 7 days of DDAC exposure:

Cytokine	Th designation	Vehicle control	DDAC(0.125%)	DDAC (0.5%)
IL-4	Th2	0.63 ± 0.04	1.02 ± 0.13	22.46 ± 16.01 **
IL-5	Th2	5.52 ± 0.91	5.89 ± 0.53	7.07 ± 1.18
IL-13	Th2	6.94 ± 0.57	5.49 ± 0.46	5.07 ± 0.53 *
IFN- γ	Th1	0.92 ± 0.16	0.90 ± 0.05	1.38 ± 0.29
IL-12p70	Th1	1.80 ± 0.24	2.51 ± 0.49	3.31 ± 0.75
IL-18	Th1	91.43 ± 3.26	94.63 ± 4.04	240.29 ± 93.20 **
IL-17A	Th17	4.98 ± 0.24	5.83 ± 0.58	16.13 ± 5.21 *
IL-22	Th17	1.38 ± 0.57	14.21 ± 5.37	68.65 ± 26.10 *
IL-23	Th17	222.12 ± 11.29	209.80 ± 12.89	208.01 ± 10.37
GM-CSF	Th1/Th17	0.09 ± 0.09	1.31 ± 0.36	4.90 ± 1.09 ***
TNF- α	Th1/Th17	4.51 ± 0.42	5.96 ± 0.65	13.86 ± 3.07 **
IL-27	Th1/Treg	21.10 ± 2.26	22.46 ± 1.78	26.73 ± 1.44
IL-2	Th1/Th2/Treg	8.73 ± 0.60	7.47 ± 0.79	10.63 ± 2.65
IL-1 β	Th1/Th2/Th17	0.86 ± 0.10	0.90 ± 0.08	4.13 ± 1.72
IL-6	Th1/Th2/Th17	41.08 ± 2.46	38.51 ± 3.08	50.85 ± 10.40
IL-9	Th9/Th2/Th17	105.64 ± 3.35	108.15 ± 4.44	124.61 ± 8.26
IL-10	Th1/Th2/Th17/Treg	24.13 ± 1.64	21.06 ± 1.88	22.97 ± 1.69

N= 4 mice per group, statistical significance was determined using a one-way ANOVA with a Dunnett's post-test where * = p< 0.05, ** = p< 0.01, and *** = p <0.001.

Supplemental Table 2. Cytokines expressed in ear lysate from Rag2^{-/-} mice following 7 days of DDAC exposure:

Cytokine	Th designation	Vehicle control	DDAC (0.125%)	DDAC (0.5%)
IL-4	Th2	n.d.	0.29 ± 0.19	29.34 ± 18.43 [§]
IL-5	Th2	2.30 ± 0.38	2.97 ± 0.26	5.64 ± 0.94 **
IL-13	Th2	2.57 ± 0.29	3.17 ± 0.24	2.66 ± 0.17
IFN- γ	Th1	0.64 ± 0.05	0.73 ± 0.05	0.95 ± 0.05 **
IL-12p70	Th1	2.87 ± 0.81	2.20 ± 0.21	2.44 ± 0.42
IL-18	Th1	34.75 ± 4.09	39.71 ± 3.23	237.18 ± 87.67 *
IL-17A	Th17	1.94 ± 0.14	2.22 ± 0.15	2.71 ± 87.67 *
IL-22	Th17	1.95 ± 1.11	2.89 ± 1.19	57.57 ± 15.02 **
IL-23	Th17	37.72 ± 4.65	48.33 ± 7.38	37.60 ± 0.61
GM-CSF	Th1/Th17	0.15 ± 0.09	0.71 ± 0.20	4.48 ± 0.63 ***
TNF- α	Th1/Th17	1.31 ± 0.68	2.52 ± 0.85	12.75 ± 1.59 ***
IL-27	Th1/Treg	10.62 ± 0.61	12.59 ± 1.85	15.47 ± 1.13 *
IL-2	Th1/Th2/Treg	2.89 ± 0.39	3.59 ± 0.58	3.80 ± 0.21
IL-1 β	Th1/Th2/Th17	0.01 ± 0.01	0.17 ± 0.07	6.32 ± 0.93 ***
IL-6	Th1/Th2/Th17	25.31 ± 2.73	29.75 ± 5.22	37.41 ± 1.50
IL-9	Th9/Th2/Th17	60.92 ± 4.09	62.45 ± 1.53	48.13 ± 1.40 *
IL-10	Th1/Th2/Th17/Treg	17.07 ± 2.57	24.60 ± 1.70	26.13 ± 2.42 *

N= 4 mice per group, statistical significance was determined using a one-way ANOVA with a Dunnett's post-test where * = p< 0.05, ** = p< 0.01, and *** = p <0.001.

n.d. = not detected

[§] cytokine was undetectable in control