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2 **Table IE. Genes Induced By Allergen (HDM, RWP), But Not Cytokine Treatment**

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Symbol	Description	RWP	HDM	IL-4 + IL-13
<i>Secreted Epithelial Factors</i>				
Tff2	trefoil factor 2 (spasmolytic protein 1)	2.8	2.5	1.2
U46068	cDNA sequence U46068	3.3	2.8	1.6
<i>Host Immune Response</i>				
Il1rl1	interleukin 1 receptor-like 1	2.5	4.9	1.0
S100a8	S100 calcium binding protein A8 (calgranulin A)	-1.9	-2.5	-1.3
<i>Immunoglobulins</i>				
Igh-VJ558	immunoglobulin heavy chain (J558 family)	2.2	2.0	1.4
Igh-6	immunoglobulin heavy chain 6 (heavy chain of IgM)	4.7	5.9	-1.1
IgE	M.musculus rearranged mRNA for IgE heavy chain C-region	5.3	8.6	1.5

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5 7 genes induced in the lung by both HDM and RWP as determined via Venn Analysis (Fig1B).

6 Values represent mean fold-change differences from corresponding controls N= two independent

7 samples per treatment group). Gene expression differences between treatments and

8 corresponding control groups for each of the 3 treatments (HDM, RWP, and IL-4/IL-13) were

9 determined via Student's *t*- test with $p \geq 0.05$. The overlapping gene lists were further filtered by10 fold induction of ≥ 2 . HDM-house dust mite, RWP-ragweed pollen protein.

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Table E.II. RWP -Induced Gene Expression Patterns in the Mouse Lung

Symbol	Description	RWP 72 h
<i>Epithelial Products</i>		
Arg1	arginase 1, liver	3.3
Itln2	intelectin 2	3.7
Muc5ac	mucin 5, subtypes A and C, tracheobronchial/gastric	2.0
Retnlb	resistin like beta	2.3
Scin	scinderin	2.1
Tff2	trefoil factor 2 (spasmolytic protein 1)	2.7
<i>Chemokines</i>		
Ccl8	chemokine (C-C motif) ligand 8	12.9
Ccl9	chemokine (C-C motif) ligand 9	2.7
Ccl11	small chemokine (C-C motif) ligand 11	3.7
<i>Inflammation</i>		
Chi3l3	chitinase 3-like 3	9.9
Chia	chitinase, acidic	8.6
Ear2	Eosinophil-associated, ribonuclease A family, member 2	2.1
Itgax	integrin alpha X	2.3
<i>Host Immune Response</i>		
Il1rl1	interleukin 1 receptor-like 1	2.5
Pigr	polymeric immunoglobulin receptor	3.3
S100a8	S100 calcium binding protein A8 (calgranulin A)	-1.9
<i>Antigen Presentation</i>		
Ctss	cathepsin S	2.1
<i>Matrix Homeostasis</i>		
Ctsk	cathepsin K	1.9
Dcn	decorin	-2.0
<i>Protease Pathways</i>		
Mmp12	matrix metalloproteinase 12	7.2
Mmp12	matrix metalloproteinase 12	5.8
Serpina3g	serine (or cysteine) proteinase inhibitor, clade A, member 3G	3.3
<i>Arginine Metabolism</i>		
Gatm	glycine amidinotransferase (L-arginine:glycine amidinotransferase)	2.1

	<u>Complement Pathway</u>	
C1qa	complement component 1, q subcomponent, alpha polypeptide	2.7
C1qg	complement component 1, q subcomponent, gamma polypeptide	2.3
	<u>Signaling</u>	
Vav	vav 1 oncogene	4.4
	<u>Cytoskeleton Organization</u>	
Krt1-13	keratin complex 1, acidic, gene 13	-1.9
	<u>Cell Cycle Control</u>	
Cdkn1c	cyclin-dependent kinase inhibitor 1C (P57)	-1.9
Nupr1	nuclear protein 1	-1.9
	<u>Regulation of Gene Expression</u>	
Zfp145	zinc finger protein 145	-4.4
	<u>Others</u>	
Crct1	cysteine-rich C-terminal 1	-2.0
Eprs	glutamyl-prolyl-tRNA synthetase	-2.2
Esd	esterase D/formylglutathione hydrolase	-2.2
Fbp1	fructose biphosphatase 1	2.0
U46068	cDNA sequence U46068	3.3
	<u>Immunoglobulins</u>	
AI324046	expressed sequence AI324046	6.8
<u>Fcgbp</u>	Fc fragment of IgG binding protein	4.7
Fcgr2b	Fc receptor, IgG, low affinity IIb	2.3
Gm1067	gene model 1067, (NCBI)	2.0
Igh-1a	immunoglobulin heavy chain 1a (serum IgG2a)	2.6
	Clone L2MZB-13.5 immunoglobulin heavy chain variable region	
Igh-4	mRNA, partial cds	3.6
	M.musculus mRNA for rearranged Ig heavy chain V region (J558	
Igh-4	Family) NR10	2.4
Igh-		
V3609N	immunoglobulin heavy chain (V3609N non-productive)	6.5
Igh-		
V7183	immunoglobulin heavy chain (V7183 family)	2.5
Igh-	Clone L2MZB-5.6 immunoglobulin heavy chain variable region	
VJ558	mRNA, partial cds /// immunoglobulin heavy chain (J558 family)	1.9
	immunoglobulin kappa chain variable 1 (V1) /// immunoglobulin	
	kappa chain variable 1 (V1) /// Clone L2MZB-24.1 immunoglobulin	
Igk-V1	heavy chain variable region mRNA, partial cds	4.3
	Mouse Ig aberrantly rearranged kappa-chain region downstream of	
Igk-V28	J2 gene, from plasmacytoma 3886.	2.5
	Anti-PC rearranged Ig kappa chain V-J region mRNA, hybridoma	
Igk-V28	31-23-1, partial cds.	2.7

Igk-V8	immunoglobulin kappa chain variable 8 (V8)	7.5
Igl-V1	immunoglobulin lambda chain, variable 1	3.1
LOC5630	Igkappa gene for immunoglobulin kappa chain, partial cds, strain:BDF1. 375.81 monoclonal anti-DNA IgM kappa-chain	
4	variable region mRNA, partial cds.	6.4
MGC608	Unknown (protein for MGC:60843) immunoglobulin heavy chain 6	
43 Igh-6	(heavy chain of IgM)	4.7

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21 Values represent mean fold-change differences from corresponding controls (N= 2 independent

22 samples). Gene expression differences were determined via Student's *t*- test with $p \geq 0.05$, and

23 further filtered by a fold induction ≥ 2 .

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29 **Table E. III. HDM -Induced Gene Expression Patterns in the Mouse Lung**

Symbol	Description	HDM
<i>Epithelial Products</i>		
Agr2	anterior gradient 2 (<i>Xenopus laevis</i>)	4.4
Itn2	intelectin 2	5.7
Muc5ac	<i>Mus musculus</i> Muc5AC-like gene, partial.	3.0
Retnlb	resistin like beta	6.3
Sprr2a	small proline-rich protein 2A	2.9
Sprr2a	small proline-rich protein 2A	3.0
Sprr2b	small proline-rich protein 2B	2.8
Tff2	trefoil factor 2 (spasmolytic protein 1)	2.5
<i>Ion Channels</i>		
Clca3	chloride channel calcium activated 3	26.9
Mcoln2	mucolipin 2	1.9
Slc5a1	solute carrier family 5 (sodium/glucose cotransporter), member 1	2.7
<i>Chemokines</i>		
Ccl2	chemokine (C-C motif) ligand 2	5.2
Ccl7	chemokine (C-C motif) ligand 7	2.6
Ccl8	chemokine (C-C motif) ligand 8	23.4
Ccl9	chemokine (C-C motif) ligand 9	5.7
Ccl11	small chemokine (C-C motif) ligand 11	8.4
Ccl12	chemokine (C-C motif) ligand 12	2.0
Ccr5	chemokine (C-C motif) receptor 5	4.1
Cxcl1	chemokine (C-X-C motif) ligand 1	4.5
<i>Inflammation</i>		
Chi3l3	chitinase 3-like 3	10.7
Chia	chitinase, acidic	9.9
Ear2	Eosinophil-associated, ribonuclease A family, member 2	2.3
Itgax	integrin alpha X	2.5
Scin	scinderin	3.1
<i>Host Immune Response</i>		
Cd83	CD83 antigen	2.6
Il1rl1	interleukin 1 receptor-like 1	4.9
Irf4	interferon regulatory factor 4	2.1
Mrc1	mannose receptor, C type 1	2.8
Ms4a1	membrane-spanning 4-domains, subfamily A, member 1	2.0
Pigr	polymeric immunoglobulin receptor	4.3
S100a8	S100 calcium binding protein A8 (calgranulin A)	-2.5

	<i><u>Protease Pathways</u></i>	
Mcpt2	mast cell protease 2	2.8
Mmp12	matrix metalloproteinase 12	16.6
Serpina3c	serine (or cysteine) proteinase inhibitor, clade A, member 3C	2.0
Serpina3g	serine (or cysteine) proteinase inhibitor, clade A, member 3G	6.3
Serpina3n	serine (or cysteine) proteinase inhibitor, clade A, member 3N	3.2
Tfpi2	tissue factor pathway inhibitor 2	2.9
	<i><u>Arginine Metabolism</u></i>	
Arg1	arginase 1, liver	9.0
Gatm	glycine amidinotransferase (L-arginine:glycine amidinotransferase)	4.2
	<i><u>Complement Pathway</u></i>	
C1qa	complement component 1, q subcomponent, alpha polypeptide	3.5
C1qg	complement component 1, q subcomponent, gamma polypeptide	2.9
C3	complement component 3	2.1
	<i><u>Antigen Presentation</u></i>	
Ctsb	cathepsin B	2.0
Ctsb	cathepsin B	2.0
Ctsz	cathepsin Z	2.7
Ifi30	interferon gamma inducible protein 30	2.2
	<i><u>Matrix Homeostasis</u></i>	
Col6a2	procollagen, type VI, alpha 2	2.1
Ctsk	cathepsin K	3.2
Ltbp4	latent transforming growth factor beta binding protein 4	-2.0
	<i><u>Lipid Metabolites/ Mediators</u></i>	
Alox15	Arachidonate 15-lipoxygenase	2.8
Ch25h	cholesterol 25-hydroxylase	2.5
Pon1	paraoxonase 1	-2.7
	<i><u>Signaling</u></i>	
F10	coagulation factor X	2.1
Fbp1	fructose biphosphatase 1	2.7
Mapt	microtubule-associated protein tau	-2.1
Mapt	microtubule-associated protein tau	-2.2
Mod1	malic enzyme, supernatant	2.2
Pcdha1	protocadherin alpha 1	-1.9
Tenc1	tensin like C1 domain-containing phosphatase	-2.0
	<i><u>Cell Growth</u></i>	
Fgf1	fibroblast growth factor 1	-2.0
Igf1	insulin-like growth factor 1	2.4
Igfbp3	insulin-like growth factor binding protein 3	-2.6

Thbs1	thrombospondin 1	2.8
	<i>Cell Adhesion</i>	
Adam8	a disintegrin and metalloprotease domain 8	2.1
	<i>Regulation of Gene Expression</i>	
Atf3	activating transcription factor 3	2.1
Nr1d1	nuclear receptor subfamily 1, group D, member 1	-2.0
	<i>Lysine Metabolism</i>	
Aass	aminoadipate-semialdehyde synthase	2.8
	<i>Others</i>	
Mest	mesoderm specific transcript	2.3
	<i>Immunoglobulins and Receptors</i>	
Fcgbp	Fc fragment of IgG binding protein	5.8
Fcgr2b	Fc receptor, IgG, low affinity IIb	5.4
Igh-VJ558	immunoglobulin heavy chain (J558 family)	2.0
	immunoglobulin kappa chain variable 8 (V8) immunoglobulin kappa chain variable 1 (V1) Nucleosome-reactive monoclonal antibody PR1-3, Ig light chain variable region mRNA, partial cds.	3.1
Igk-V8		
Igk-V1		
MGC60843	Unknown (protein for MGC:60843) immunoglobulin heavy chain 6 (heavy chain of IgM)	5.9
Igh-6		
U46068	cDNA sequence U46068	2.8
	M.musculus rearranged mRNA for IgE heavy chain C-region	8.6

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31 Values represent mean fold-change differences from corresponding controls (N=2 independent

32 samples). Gene expression differences were determined via Student's *t*- test with $p \geq 0.05$, and33 further filtered by a fold induction ≥ 2 . HDM-house dust mite.

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37 **Table E. IV. Differences in HDM and RWP-induced Gene Expression Patterns**
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Symbol	Description	RWP	HDM
<i>Epithelial Products</i>			
Clca3	chloride channel calcium activated 3	41.3	26.9
Itln2	intelectin 2	3.7	5.7
Muc5ac	mucin 5, subtypes A and C, tracheobronchial/gastric	2.1	3.0
Retnlb	resistin like beta	2.5	6.3
Slc5a1	solute carrier family 5 (sodium/glucose cotransporter), member 1	1.5	2.7
<i>Chemokines</i>			
Ccl12	chemokine (C-C motif) ligand 12	1.2	2.0
Ccl8	chemokine (C-C motif) ligand 8	12.8	23.4
Ccl9	chemokine (C-C motif) ligand 9	2.7	5.7
Cxcl1	chemokine (C-X-C motif) ligand 1	1.5	4.5
Cxcl12	chemokine (C-X-C motif) ligand 12	1.1	2.3
Cxcl13	chemokine (C-X-C motif) ligand 13	-1.2	2.1
Cxcl5	chemokine (C-X-C motif) ligand 5	1.2	2.3
Ccl11	small chemokine (C-C motif) ligand 11	3.6	8.4
<i>Protease Pathways</i>			
Mcpt2	mast cell protease 2	1.5	2.8
Mmp12	matrix metalloproteinase 12	7.2	16.6
Serpina3g	serine (or cysteine) proteinase inhibitor, clade A, member 3G	3.3	6.3
Serpina3n	serine (or cysteine) proteinase inhibitor, clade A, member 3N	1.5	3.2
Tfpi2	tissue factor pathway inhibitor 2	1.6	2.9
<i>Immunoglobulins</i>			
Igh-VJ558	immunoglobulin heavy chain (J558 family)	1.8	4.9
Igk-V8	immunoglobulin kappa chain variable 8 (V8)	1.6	3.1
<i>Host Immune Response</i>			
Cd52	CD52 antigen	1.5	2.4
Cd83	CD83 antigen	1.4	2.6
C1qb	complement component 1, q subcomponent, beta polypeptide	2.7	3.8
Irf4	interferon regulatory factor 4	1.6	2.1
Il1rl1	interleukin 1 receptor-like 1	2.5	4.9
Lilrb4	leukocyte immunoglobulin-like receptor, subfamily B, member 4	1.7	3.1
Lilrb4	leukocyte immunoglobulin-like receptor, subfamily B, member 4	1.8	2.6

Ly86	lymphocyte antigen 86	1.4	2.4
Spp1	secreted phosphoprotein 1	1.6	2.9
Ifi30	interferon gamma inducible protein 30	1.4	2.2
<i><u>Antigen Presentation</u></i>			
Ctss	cathepsin S	2.1	2.6
Ctsz	cathepsin Z	1.5	2.7
<i><u>Signaling</u></i>			
Basp1	brain abundant, membrane attached signal protein 1	1.0	2.0
F10	coagulation factor X	1.4	2.1
Creld2	cysteine-rich with EGF-like domains 2	1.2	2.1
Lcn2	lipocalin 2	1.1	2.2
Mod1	malic enzyme, supernatant	1.4	2.2
Mapt	microtubule-associated protein tau	-1.3	-2.1
Mapt	microtubule-associated protein tau	-1.2	-2.2
Tgtp	T-cell specific GTPase	-1.1	2.8
Tenc1	tensin like C1 domain-containing phosphatase	-1.3	-2.0
Thbs1	thrombospondin 1	1.8	2.8
<i><u>Matrix Homeostasis</u></i>			
Ctsk	cathepsin K	2.0	3.2
Col3a1	procollagen, type III, alpha 1	-1.0	2.3
Col6a2	procollagen, type VI, alpha 2	1.4	2.1
<i><u>Growth Factors/ Cell Growth</u></i>			
Mki67	antigen identified by monoclonal antibody Ki 67	1.2	2.8
Igf1	insulin-like growth factor 1	1.6	2.4
Igfbp3	insulin-like growth factor binding protein 3	-1.3	-2.6
Igfbp3	insulin-like growth factor binding protein 3	-1.0	-2.0
Ltbp4	latent transforming growth factor beta binding protein 4	-1.3	-2.0
<i><u>Arginine Metabolism Pathway</u></i>			
Gclc	glutamate-cysteine ligase, catalytic subunit	-1.2	2.1
Eprs	glutamyl-prolyl-tRNA synthetase	-2.0	1.2
Gatm	glycine amidinotransferase (L-arginine:glycine amidinotransferase)	2.1	4.2
<i><u>Apoptosis</u></i>			
Atf3	activating transcription factor 3	-1.0	2.1
Ctsb	cathepsin B	1.4	2.0
<i><u>Cell Adhesion</u></i>			
Adam8	a disintegrin and metalloprotease domain 8	1.3	2.1

	<u>Cell motility</u>		
Actb	actin, beta, cytoplasmic	2.1	-1.7
Myh6	myosin, heavy polypeptide 6, cardiac muscle, alpha	-2.4	-1.8
Myl7	myosin, light polypeptide 7, regulatory	-2.2	-1.9
	<u>Lipid Metabolites/ Mediators</u>		
Alox15	arachidonate 15-lipoxygenase	1.5	2.8
Ch25h	cholesterol 25-hydroxylase	1.5	2.5
Pon1	paraoxonase 1	-1.4	-2.7
	<u>Others</u>		
D17H6S56E-5	DNA segment, Chr 17, human D6S56E 5	1.2	2.6
Mest	mesoderm specific transcript	-1.2	2.3
LOC56304	Single chain Fv antibody fragment scFv 7-10A mRNA, partial cds.	1.7	3.3

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40 Values represent mean fold-change differences from corresponding controls (N= 2 independent

41 samples per treatment). Gene expression differences were determined via Student's *t*- test with42 $p \geq 0.05$, and further filtered by a fold induction ≥ 2 .

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