IV. 研究成果の刊行に関する一覧表

雑誌

	発表者氏名	論文タイトル名	発表誌名	巻号	ページ	出版年	掲載
1	Honda T, Nakajima S, Egawa G, Malissen B, Ogasawara K, Miyachi Y, Kabashima K.	Compensatory role of Langerhans cells and Langerin positive dermal dendritic cells in the sensitization phase of mouse contact hypersensitivity.	J Allergy Clin Immunol.		(in press)		
2	Mori T, Ishida K, Mukumoto S, Yamada Y, Imokawa G, Kabashima K, Kobayashi M, Bito T, Nakamura M, Ogasawara K, Tokura Y	Comparison of skin barrier function and sensory nerve electric current perception threshold between IgE-high extrinsic and IgE-normal intrinsic types of atopic dermatitis.	Br J Dermatol.		(in press).		
3	Kawano M, Junkyu Han J, Elyes MK and Isoda H	Hair growth regulation by the extract of aromatic plant Erica multiflora.	J. Nat. Med.	63	335-339	2009	
4	Talorete TPN, Limam A, Kawano M, Ben Rejeb Jenhani A, Ghrabi A, Isoda H.	Stress response of mammalian cells incubated with landfill leachate.	Environmental Toxicology and Chemistry.	27	1084-1092	2008	
5	Nakayama M, Akiba H, Takeda K, Kojima Y, Hashiguchi M, Azuma M, Yagita H, Okumura K	Tim-3 mediates phagocytosis of apoptotic cells and cross-presentation	Blood	113	3821-3830	2009	*
6	Kitaura K, Kanayama K, Fujii Y, Shiobara N, Tanaka K, Kurane I, Suzuki S, Itoh T, Suzuki R.	T cell receptor repertoire in BALB/c mice varies according to tissue type, sex, age, and hydrocortisone treatment.	Exp Anim.	58(2)	159-68.	2009	*

7	Gotoh A, Hamada Y, Shiobara N, Kumagai K, Seto K, Horikawa T, Suzuki R.	Skew in T cell receptor usage with polyclonal expansion in lesions of oral lichen planus without hepatitis C virus infection.	Clin Exp Immunol.	154(2)	192-201	2008	*
8	Shiobara N, Suzuki Y, Aoki H, Gotoh A, Fujii Y, Hamada Y, Suzuki S, Fukui N, Kurane I, Itoh T, Suzuki R.	Bacterial superantigens and T cell receptor beta-chain-bearing T cells in the immunopathogenesis of ulcerative colitis.	Clin Exp Immunol.	150(1)	13-21.	2007	*
9	Wakasa-Morimoto C, Toyosaki-Maeda T, Matsutani T, Yoshida R, Nakamura-Kikuoka S, Maeda-Tanimura M, Yoshitomi H, Hirota K, Hashimoto M, Masaki H, Fujii Y, Sakata T, Tsuruta Y, Suzuki R, Sakaguchi N, Sakaguchi S.	Arthritis and pneumonitis produced by the same T cell clones from mice with spontaneous autoimmune arthritis.	Int Immunol.	20(10)	1331-42	2008	*
10	Nishimoto A, Lu L, hayashi M, Nishiya T, Horinouchi T, Miwa S	Jab1 regulates levels of endothelin type A and B receptors by promoting ubiquitination and degradation	Biochem. Biophys. Res. Commun.	391(4)	1616-1622	2010	
11	Horinouchi T, Asano H, Higa T, Nishimoto A, Nishiya T, Muramatsu I, Miwa S	Differential coupling of human endothelin type A receptor to G(q/11) and G(12) proteins: the functiional significance of receptor expression level in generating multiple receptor signaling	J. Pharmacol. Sci.	111(4)	338-351	2009	*
12	Seike M, Furuya K, Ohmura M, Watanabe K, Ohtsu H.	Histamine H4 receptor antagonist ameliorates chronic allergic contact dermatitis induced by repeated challenge.	Allergy		in press	2010	

13	Hirasawa N, Goi Y, Tanaka R, Ishihara K, Ohtsu H, Ohuchi K.	Involvement of prostaglandins and histamine in nickel wire-induced acute inflammation in mice.	Journal of Biomedical Materials Research Part A		in press	2010	
14	Shen Y, He P, Fan YY, Zhang JX, Yan HJ, Hu WW, Ohtsu H, Chen Z.	Carnosine protects against permanent cerebral ischemia in histidine decarboxylase knock-out mice through reducing glutamate excitotoxicity.	Free Radic Biol Med.	48	727-735	2010	
15	Carlos D, Fremond C, Samarina A, Vasseur V, Maillet I, Ramos SG, Erard F, Quesniaux V, Ohtsu H, Silva CL, Faccioli LH, Ryffel B.	Histamine Plays an Essential Regulatory Role in Lung Inflammation and Protective Immunity in the Acute Phase of Mycobacterium tuberculosis Infection.	Infect Immun	77	5359-68	2009	
16	Anaclet C, Parmentier R, Ouk K, Guidon G, Buda C, Sastre JP, Akaoka H, Sergeeva OA, Yanagisawa M, Ohtsu H, Franco P, Haas HL, Lin JS.	Orexin/Hypocretin and Histamine: Distinct Roles in the Control of Wakefulness Demonstrated Using Knockout Mouse Models.	J Neurosci	29	14423-14438	2009	
17	Rajasekaran N, Solomon S, Watanabe T, Ohtsu H, Gajda M, Braeuer R, Illges H.	Histidine decarboxylase but not histamine receptor 1 or 2 deficiency protects from K/BxN serum-induced Arthritis.	Int Immunol	21	1263-8	2009	
18	Carter M, Adamantidis A, Ohtsu H, Deisseroth K, de Lecea L.	Sleep homeostasis modulates Hypocretin-mediated sleep-to-wake transitions.	J Neurosci	29	10939-49	2009	
19	Ishihara K, Goi Y, Hong JJ, Seyama T, Ohtsu H, Wada H, Ohuchi K, Hirasawa N.	Effects of nickel on eosinophil survival.	Int Arch Allergy Immunol	149	57-60	2009	*

20	Beghdadi W, Porcherie A, S Schneider B, Dubayle D, Peronet R, Huerre M, Watanabe T, Ohtsu H, Louis J, Mécheri S.	Role of histamine and histamine receptors in the pathogenesis of Malaria.	Med Sci (Paris)	25	377-381	2009	
21	Musio S, Pedotti P, Mantegazza R, Ohtsu H, Boon L, Steinman L, Galli SJ, Pedotti R.	Anaphylaxis to a self-peptide in the absence of mast cells or histamine.	Lab Invest	89	398-405	2009	
22	Andou A, Hisamatsu T, Okamoto S, Chinen H, Kamada N, Kobayashi T, Hashimoto M, Okutsu T, Shimbo K, Takeda T, Matsumoto H, Sato A, Ohtsu H, Suzuki M, Hibi T.	Dietary histidine ameliorates murine colitis by inhibition of pro-inflammatory cytokine production from macrophages.	Gastroenterol	136	567-574	2009	
23	Brabant C, Alleva L, Grisar T, Quertemont E, Lakaye B, Ohtsu H, Lin J-S, Jatlow P, Picciotto M, Tirelli E.	The H_3 inverse agonist thioperamide potentiates cocaine-induced locomotion: role of the histaminergic system and potential pharmacokinetic effects	Psychopharmacology	202	673-687	2009	
24	Shiohara M, Shigemura T, Suzuki T, Tanaka M, Morii E, Ohtsu H, Shibahara S, Koike K.	MITF-CM, a newly identified isoform of microphthalmia-associated transcription factor, is expressed in cultured mast cells.	Int J Lab Hematol	31	215-226	2009	
25	Leite-de-Moraes MC, Diem S, Michel ML, Ohtsu H, Thurmond RL, Schneider E, Dy M.	Histamine receptor H4 Activation Positively Regulates *in vivo* IL-4 and IFN-g Production by invariant natural killer T cells.	J Immunol	182	1233-1236	2009	*

26	Yamauchi K, Piao HM, Nakadate T, Shikanai T, Nakamura Y, Ito H, Mouri T, Kobayashi H, Maesawa C, Sawai T, Ohtsu H, Inoue H.	Enhanced Goblet Cell Hyperplasia in HDC Knockout Mice with Allergic Airway Inflammation.	Allergology International	58	125-134	2009	*
27	Ito T, Hashizume H, Takigawa M.	Contact immunotherapy-induced Renbok phenomenon in a patient with alopecia areata and psoriasis vulgaris	Eur J Deramtol	20	1-2	2010	*
28	Ito T, Ito N, Hashizume H, Takigawa M.	Roxithromycin inhibits chmokine-induced chemotaxis of Th1 and Th2 but regulatory T cells	J Dermatol Sci	54	185-91	2009	*
29	Ito T, Fukamizu H, Ito N, Seo N, Yagi H, Takigawa M, Hashizume H.	Roxithromycin antagonizes catagen induction in murine and human hair follicles: implication of topical roxithromycin as hair restoration reagent	Arch Dermatol Res	301	347-55	2009	
30	Ito T, Aoshima M, Ito N, Uchiyama I, Sakamoto K, Kawamura T, Yagi H, Hashizume H, Takigawa M.	Combination therapy with oral PUVA and corticosteroid for recalcitrant alopecia areata	Arch Dermatol Res	301	373-80	2009	
31	Hashizume H, Aoshima M, Ito T, Seo N, Takigawa M.	Emergence of circulating monomyeloid precursors predicts reactivation of human herpesvirus-6 in drug-induced hypersensitivity syndrome	Br J Dermatol	161	486-8	2009	
32	瀬尾尚宏, 橋爪秀夫	金属アレルギーにおけるT細胞の反応	臨床免疫・アレルギー科	52	246-251	2009	
33	Kobayashi M, Yoshiki R, Sakabe J, Kabashima K, Nakamura M, Tokura Y.	Expression of toll-like receptor 2, NOD2 and dectin-1 and stimulatory effects of their ligands and histamine in normal human keratinocytes.	Br J Dermatol	160	297-304	2009	*

34	Yoshiki R, Kabashima K, Sugita K, Atarashi K, Shimauchi T, Tokura Y.	IL-10-Producing Langerhans Cells and Regulatory T Cells Are Responsible for Depressed Contact Hypersensitivity in Grafted Skin.	J Invest Dermatol	129	705-713	2009	
35	Nakamura M, Tokura Y	Congenital woolly hair without P2RY5 mutation.	Dermato-Endocrinology	1	58-59	2009	
36	Kobayashi M, Kabashima K, Nakamura M, Tokura Y	Downmodulatory Effects of the Antihistaminic Drug Bepotastine on Cytokine/Chemokine Production and CD54 Expression in Human Keratinocytes.	Skin Pharmacol Physiol	22	45-48	2009	
37	Fukamachi S, Nakamura M, Tokura Y	Cisplatin-induced acral erythema.	Eur J Dermatol	19	171-172	2009	*
38	Fukamachi S, Kabashima K, Sugita K, Kobayashi M, Tokura Y	Therapeutic effectiveness of various treatments for eosinophilic pustular folliculitis.	Acta Derm Venereol.	89	155-159	2009	
39	Atarashi K, Mori T, Yoshiki R, Kabashima K, Kuma H, Tokura Y	Skin application of ketoprofen systemically suppresses contact hypersensitivity by inducing CD4(+) CD25(+) regulatory T cells.	J Dermatol Sci	53	216-221	2009	*
40	Nakamura M, Tokura Y	The localization of label-retaining cells in eccrine glands.	J Invest Dermatol.	129	2077-2078	2009	
41	Nakamura M, Tokura Y	A novel missense mutation in the PTCH1 gene in a premature case of nevoid basal cell carcinoma syndrome.	Eur J Dermatol	19	262-263	2009	
42	Nakamura M, Kabashima K, Tokura Y	Pseudolymphomatous folliculitis presenting with multiple nodules.	Eur J Dermatol	19	263-264	2009	
43	Nakamura M, Tokura Y	Tocilizumab-induced erythroderma.	Eur J Dermatol	19	273-274	2009	
44	Sakabe JI, Nakamura M, Tokura Y	A missense mutation in exon 1 of the keratin 9 gene in a Japanese patient	Eur J Dermatol.	19	286-287	2009	

		with "Vörner type" hereditary palmoplantar keratoderma.					
45	Amagai M, Ikeda S, Shimizu H, Iizuka H, Hanada K, Aiba S, Kaneko F, Izaki S, Tamaki K, Ikezawa Z, Takigawa M, Seishima M, Tanaka T, Miyachi Y, Katayama I, Horiguchi Y, Miyagawa S, Furukawa F, Iwatsuki K, Hide M, Tokura Y, Furue M, Hashimoto T, Ihn H, Fujiwara S, Nishikawa T, Ogawa H, Kitajima Y, Hashimoto K	Pemphigus Study Group: A randomized double-blind trial of intravenous immunoglobulin for pemphigus.	J Am Acad Dermatol.	60	595-603	2009	
46	Nishio D, Nakashima D, Mori T, Kabashima K, Tokura Y	Induction of eosinophil-infiltrating drug eruption in mice.	J Dermtol Sci	55	34-39	2009	
47	Fukamachi S, Sugita K, Sawada Y, Bito T, Nakamura M, Tokura Y.	Drug-induced CD30+ T cell pseudolymphoma	Eur J Dermatol.	19	292-294	2009	
48	Tokura Y	Greeting from the President of the Japanese Society for Investigative Dermatology (JSID) On achieving internationalization and educating young researchers.	J Dermatol Sci	54	141-142	2009	
49	Sakabe JI, Kabashima K, Sugita K, Tokura Y	Possible involvement of T lymphocytes in the pathogenesis of Nagashima-type keratosis palmoplantaris.	Clin Exp Dermatol.	34	282-284	2009	

50	Sawada Y, Sugita K, Fukamachi S, Bito T, Nakamura M, Tokura Y	Doripenem-induced intertriginous drug eruption as a mild form of AGEP.	J Eur Acad Dermatol Venereol.	23	974-976	2009	
51	Shimauchi T, Nishio D, Isoda H, Sugita K, Kabashima K, Tokura Y	Leukaemic mycosis fungoides in an atomic bomb survivor with lung and renal cancers.	Clin Exp Dermatol.	34	322-324	2009	
52	Sawada Y, Kawakami C, Nakamura M, Tokura Y, Yoshiki R.	Toxic epidermal necrosis-like dermatosis induced by the first course of methotrexate.	Eur J Dermatol.	19	397-398	2009	
53	Isoda H, Kabashima K, Tokura Y	'Nagashima-type' keratosis palmoplantaris in two siblings.	J Eur Acad Dermatol Venereol.	23	737-738	2009	
54	Kabashima R, Sugita K, Kabashima K, Nakamura M, Tokura Y	Lichen spinulosus in an alcoholic patient.	Acta Derm Venereol.	89	311-312	2009	
55	Sugita K, Shimauchi T, Kabashima R, Nakashima D, Hino R, Kabashima K, Nakamura M, Tokura Y	Loss of tumor cell CCR4 expression upon leukemic change in adult T-cell leukemia/lymphoma.	J Am Acad Dermatol	61	163-164	2009	
56	Ine K, Kabashima K, Koga C, Kobayashi M, Tokura Y	Mixed tumor of the skin arising on the auricle.	J Dermatol	36	515-517	2009	
57	Onoue A, Kabashima K, Kobayashi M, Mori T, Tokura Y	Induction of eosinophil- and Th2-attracting epidermal chemokines and cutaneous late-phase reaction in tape-stripped skin.	Exp Dermatol.	18	1036-1043	2009	*
58	Kobayashi M, Kabashima K, Nakamura M, Tokura Y	Effects of oral antibiotic roxithromycin on quality of life in acne patients.	J Dermatol	36	383-391	2009	

59	Fukamachi S, Kimura T, Kobayashi M, Hino R, Nakamura M, Tokura Y.	Palmar pseudolymphoma associated with herpes simplex infection.	J Cutan Pathol		in press	2009	
60	Kabashima R, Kabashima K, Mukumoto S, Hino R, Huruno Y, Kabashima N, Tokura Y.	Kimura's disease presenting with a giant suspensory tumor and associated with membranoproliferative glomerulonephritis.	Eur J Dermatol	19	626-628	2009	
61	Nakamura M, Kobayashi M, Tokura Y.	A novel missense mutation in tumour necrosis factor receptor superfamily 1A (TNFRSF1A) gene found in tumour necrosis factor receptor-associated periodic syndrome (TRAPS) manifesting adult-onset Still disease-like skin eruptions: report of a case and review of the Japanese patients.	Br J Dermatol	161	968-970	2009	
62	Nakamura M, Sugita K, Tokura Y.	A novel missense mutation in the TRPS1 gene in a case of trichorhinophalangeal syndrome type I (TRPS1) with fish-like malodour.	J Eur Acad Dermatol Venereol.		in press	2009	
63	Sugita K, Kabashima K, Yoshiki R, Ikenouchi-Sugita A, Tsutsui M, Nakamura J, Yanagihara N, Tokura Y.	Inducible Nitric Oxide Synthase Downmodulates Contact Hypersensitivity by Suppressing Dendritic Cell Migration and Survival.	J Invest Dermatol.	130	464-471	2010	*
64	Yoshiki R, Nakamura M, Tokura Y.	Drug eruption induced by IL-6 receptor inhibitor tocilizumab.	J Eur Acad Dermatol Venereol.		in press	2009	
65	Kato M, Ohshima K, Mizuno M, Kyogoku M, Hashikawa K, Tokura Y, Miyachi	Analysis of CXCL9 and CXCR3 expression in a case of intravascular large B-cell lymphoma.	J Am Acad Dermatol	61	888-891	2009	

	Y, Kabashima K.						
66	Mori T, Ishida K, Mukumoto S, Yamada Y, Imokawa G, Kabashima K, Kobayashi M, Bito T, Nakamura M, Ogasawara K, Tokura Y.	Comparison of skin barrier function and sensory nerve electric current perception threshold between IgE-high extrinsic and IgE-normal intrinsic types of atopic dermatitis.	Br J Dermatol	162	83-90	2010	*
67	Sawada Y, Sugita K, Kabashima R, Nakamura M, Tokura Y	Docetaxel-induced Stevens-johnson syndrome with regenerating epidermis composed of atypical keratinocytes.	J Eur Acad Dermatol Venereol	23	1333-1335	2009	
68	Kabashima R, Hino R, Bito T, Kabashima K, Nakamura M, Oyama B, Hashimoto T, Tokura Y	Epidermolysis bullosa acquisita associated with psoriasis.	Acta Derm Venereol		in press	2009	
69	Koga C, Sugita K, Kabashima K, Matsuoka H, Nakamura M, Tokura Y	High responses of peripheral lymphocytes to mosquito salivary gland extracts in patients with Wells' syndrome.	J Am Acad Dermatol		in press	2009	
70	Shimauchi T, Sugita K, Nakamura M, Tokura Y	Leukemic cutaneous T-cell lymphoma manifesting papuloerythroderma with CD3- CD4+ phenotype.	Acta Derma Venereol	90	68-72	2010	
71	Hino R, Kabashima K, Kato Y, Yagi H, Nakamura M, Honjo T, Okazaki T Tokura Y	Tumor cell expression of programmed cell death 1 is a prognostic factor for malignant melanoma.	Cancer		in press	2009	
72	Kabashima K, Sakabe J-I, Yoshiki R, Tabata Y, Kohno K, Tokura Y	Involvement of Wnt signaling in dermal fibroblasts.	Am J Pathol	176	721-732	2010	

73	Sawada Y, Bito T, Kabashima R, Yoshiki R, Hino R, Nakamura M, Masanori S, Tokura Y	Ectopic extramammary Paget's disease: case report and literature reiew.	Acta Derm Venereol		in press	2009	
74	Sugita K, Kobayashi M, Mori T, Kabashima K, Nakamura M, Tokura Y	Antihistaminic drug olopatadine downmodulates CCL17/TARC production by keratinocytes and Langerhans cells.	J Dermatol	36	654-657	2009	*
75	Sugita K, Kabashima K, Nakamura M, Tokura Y.	Drug-induced Papuloerythroderma: Analysis of T-cell Populations and a Literature Review.	Acta Derm Venereol	89	618-622	2009	
76	Ine K-I, Kabashima K, Koga C, Kobayashi M, Tokura Y	Eruptive generalized granuloma annulare presenting with numerous micropapules.	Int J Dermatol	49	104-105	2009	
77	Tomura M, Honda T, Tanizaki H, Otsuka A, Egawa G, Tokura Y, Hori S, Miyachi Y, Kanagawa O, Kabashima K	Activated Regulatory T cells are the major T cell type emigrating from sensitized skin.	J Clin Invest		in press	2009	
78	Abe S, Kabashima K, Moriyama T, Tokura Y	Food-dependent anaphylaxis with serum IgE immunoreactive to dairy products containing high-molecular-weight proteins.	J Dermatol Sci	57	137-140	2010	
79	Moniaga CS, Egawa G, Kawasaki H, Chikuma M, Honda T, Tanizaki H, Nakajima S, Matsuoka H, Kubo A, Tokura Y, Miyachi Y, Amagai M, Kabashima K	Flaky tail mouse denotes human atopic dermatitis in the steady state and by topical application with Dermatophagoides pteronyssimus extract.	Am J Pathol		in press	2009	
80	Nakamura M, Tokura Y	Pathogenesis of alopecia areata: why does alopecia	Exp Dermatol		in press	2009	

		areata develop in a round pattern?					
81	Nishitani N, Bito T, Tokura Y, Nishigori C	Complete remission of metastatic malignant melanoma after surgery in association with development of systemic vitiligo	J Dermatol		in press	2009	
82	Yoshiki R, Kabashima K, Sakabe J-I, Sugita K, Bito T, Nakamura M, Malissen B, Tokura Y	The mandatory role of IL-10-producing and OX40L-expresssing mature Langerhans cells in local UVB-induced immunosuppression.	J Immunol		in press	2009	
83	Nakamura M, Tokura Y	Expression of Snail1 in the fibrotic dermis of postmenopausal frontal fibrosing alopecia: possible involvement of an epithelial-mesenchymal transition and a review of the Japanese patients.	Br J Dermatol		in press	2009	
84	Tokura Y	Photoallergy.	Expert Rev Dermatol	4	263-270	2009	
85	Honda T, Tkura Y, Miyachi Y, Kabashima K	Prostanoid receptors as possible targets for anti-allergic drugs:Recent advances in prostanoids on allergy and immunology.	Current Drug Target		in press	2009	
86	Tokura Y	Extrinsic and intrinsic types of atopic dermatitis.	J Dermatol Sci		in press	2009	
87	戸倉新樹	産業医学と皮膚科	皮膚と美容	41	14-19	2009	
88	戸倉新樹	偽リンパ腫	日本皮膚科学会雑誌	119	1059-1064	2009	
89	戸倉新樹	皮膚リンパ腫	日本医師会雑誌	138	280-281	2009	
90	戸倉新樹	炎症性皮膚疾患の見方とコツ	日本臨床内科医会会誌	24	115-118	2009	
91	戸倉新樹	薬剤性過敏症症候群とヒトヘルペスウイルス	小児科	50	1335-1341	2009	
92	戸倉新樹	乾癬の病態:T 細胞と樹状細胞から	マルホ皮膚科セミナー. 放送内容集	201	35-38	2009	
93	戸倉新樹	職業性皮膚炎の臨床と原因抗原	アレルギー・免疫	16	1714-1719	2009	

94	Tomura M, Honda T, Tanizaki H, Otsuka A, Egawa G, Tokura Y, Waldmann H, Hori S, Cyster JG, Watanabe T, Miyachi Y, Kanagawa O, Kabashima K.	Activated regulatory T cells are major T cell type emigrating from sensitized skin.	J Clin Invest (in press)			2010	*
95	Honda T, Nakajima S, Egawa G, Malissen B, Ogasawara K, Miyachi Y, Kabashima K*.	Compensatory role of Langerhans cells and Langerin positive dermal dendritic cells in the sensitization phase of mouse contact hypersensitivity.	J Allergy Clin Immunol. (in press)			2010	
96	Sugita, K., Kabashima, K. *, Yoshiki, R., Ikenouchi-Sugita, A., Tsutsui, M., Nakamura, J., Yanagihara, N., and Tokura, Y.	Inducible Nitric Oxide Synthase Downmodulates Contact Hypersensitivity by Suppressing Dendritic Cell Migration and Survival.	J Invest Dermatol	130(2)	464-71	2010	
97	Honda T, Matsuoka T, Ueta M, Kabashima K, Miyachi Y, Narumiya S.	Prostaglandin E(2)-EP(3) signaling suppresses skin inflammation in murine contact hypersensitivity.	J Allergy Clin Immunol	124(4)	809-18.e2	2009	*
98	Yoshiki, R., Kabashima, K., Sugita, K., Atarashi, K., Shimauchi, T., and Tokura, Y.	IL-10-producing Langerhans cells and regulatory T cells are responsible for depressed contact hypersensitivity in grafted skin.	J Invest Dermatol	129	705-713.	2009	
99	Nishio, D., Nakashima, D., Mori, T., Kabashima, K., and Tokura, Y.	Induction of eosinophil-infiltrating drug photoallergy in mice.	J Dermatol Sci	55	34-39.	2009	*
100	Kobayashi, M., Yoshiki, R., Sakabe, J., Kabashima, K.,	Expression of toll-like receptor 2, NOD2 and dectin-1 and stimulatory effects of their ligands and	Br J Dermatol	160	297-304.	2009	

	Nakamura, M., and Tokura, Y.	histamine in normal human keratinocytes.					
101	椛島健治	【アトピー疾患の非アレルギー的側面】アトピー性皮膚炎とフィラグリン	Topics in Atopy	8巻2号	15-18	2009	
102	椛島健治	【アトピー性皮膚炎の新たな病態解明】アトピー性皮膚炎におけるTh17の役割	臨床免疫・アレルギー科	51巻6号	Page605-612	2009	

書籍

著者氏名	論文タイトル名	書籍全体の編集者名	書　籍　名	出版社名	出版地	出版年	ページ
Hiroshi Ohtsu	"Histamine synthesis and lessons learned from histidine decarboxylase deficient mice."	Robin L. Thurmond	Histamine in inflammation	Landes Bioscience	Austen Texas	2010	ND
戸倉新樹	皮膚T細胞性リンパ腫とケモカイン受容体.	宮地良樹	WHAT'S NEW in 皮膚科学	メディカルレビュー社	東京	2008	114-115
戸倉新樹	光アレルギーとは？	宮地良樹	スキンケア最前線.	メディカルレビュー社	東京	2008	158-159
戸倉新樹	薬剤性光線過敏症.	森田明理他	1冊でわかる光皮膚科学	文光堂	東京	2008	130-134
戸倉新樹	光線過敏型薬疹	池澤善郎, 相原道子	薬疹のすべて	南江堂	東京	2008	222-227
戸倉新樹	光線過敏症と起こしうる皮膚科治療薬は？	宮地良樹, 大谷道輝	現場の疑問に答える皮膚病治療薬	中外医学社	東京	2008	293-294
戸倉新樹	物理化学的皮膚障害･光線過敏症.		皮膚科典型アトラス560	日本医事新報社	東京	2008	61-66
戸倉新樹	アレルギー･マーチって何？皮膚科医の立場から.	宮地良樹他	小児の皮膚トラブル FAQ. 編	診断と治療社	東京	2008	100-101
Tokura Y, Moriwaki S	Photodynamic therapy.	Edit. Krieg T et al	Therapy of Skin Diseases	Springer	Berlin	2009	105-111
戸倉新樹	悪性萎縮性丘疹症. 栄養性潰瘍. 壊疽性膿皮症. 柑皮症. 好酸球性血管リンパ球増殖症. 術後紅皮症. 播種	渡邉　圭二編	医学書院医学大辞典	医学書院	東京	2009	pp11,pp236,pp256,pp548,pp891, pp1281, pp2236, pp2607

	状環状肉芽腫.ホジキン肉腫						
戸倉新樹	多形滲出性紅斑・Stevens-Johnson 症候群・蚊アレルギー(蚊刺過敏症)	宮地良樹、古川福実編	皮膚疾患診療実践ガイド第2版	文光堂	東京	2009	pp319-322、pp607-608
戸倉新樹	物理化学的皮膚障害･光線過敏症		知っておきたい画像所見皮膚疾患	日本医事新報社	東京	2009	(印刷中)
戸倉新樹	乾燥肌(ドライスキン)	宮地良樹ら編	美容皮膚科学 改訂2版	南山堂	東京	2009	pp560-568
戸倉新樹	顔面のリンパ腫を見逃さない	宮地良樹編	顔の皮膚病最前線	メディカルレビュー社	東京	2009	pp240-243
戸倉新樹	EB ウイルス感染症の皮膚症状は？	宮地良樹編	うつる皮膚病最前線	メディカルレビュー社	東京	2009	pp68-73
戸倉新樹	菌状息肉症・セザリー症候群・原発性皮膚 CD30 陽性 T 細胞増殖性疾患	押味和夫監修	WHO 分類第4版による白血病･リンパ系腫瘍の病態学	中外医学社	東京	2009	pp347-362
戸倉新樹	抗ヒスタミン薬抵抗性の痒みの対策も含めたアトピー性皮膚炎の痒みの治療ポイントは？	秋山一男／他編	EBM アレルギー疾患の治療 2010-2011	中外医学社	東京	2009	pp300-302
椛島健治	プリックテスト、スクラッチテスト、皮内テスト	宮地良樹、古川福美	皮膚科疾患診療実践ガイド(第二版)	文光堂	東京	2009	122-124
椛島健治	皮内テスト-特殊反応	宮地良樹、古川福美	皮膚科疾患診療実践ガイド(第二版)	文光堂	東京	2009	124-125

椛島健治	パッチテスト	宮地良樹、古川福美	皮膚科疾患診療実践ガイド(第二版)	文光堂	東京	2009	130-131
椛島健治	リンパ球検査、リンパ球幼若化試験	宮地良樹、古川福美	皮膚科疾患診療実践ガイド(第二版)	文光堂	東京	2009	134-136

V. 研究成果の刊行物・別刷

Tim-3 mediates phagocytosis of apoptotic cells and cross-presentation

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Phagocytes such as macrophages and dendritic cells (DCs) engulf apoptotic cells to maintain peripheral immune tolerance. However, the mechanism for the recognition of dying cells by phagocytes is not fully understood. Here, we demonstrate that T-cell immunoglobulin mucin-3 (Tim-3) recognizes apoptotic cells through the FG loop in the IgV domain, and is crucial for clearance of apoptotic cells by phagocytes. Whereas Tim-4 is highly expressed on peritoneal resident macrophages, Tim-3 is expressed on peritoneal exudate macrophages, monocytes, and splenic DCs, indicating distinct Tim-mediated phagocytic pathways used by different phagocytes. Furthermore, phagocytosis of apoptotic cells by CD8 DCs is inhibited by anti–Tim-3 mAb, resulting in a reduced cross-presentation of dying cell-associated antigens in vitro and in vivo. Administration of anti–Tim-3 as well as anti–Tim-4 mAb induces autoantibody production. These results indicate a crucial role for Tim-3 in phagocytosis of apoptotic cells and cross-presentation, which may be linked to peripheral tolerance. (Blood. 2009;113: 3821-3830)

Introduction

Apoptosis is a crucial process in the development and homeostasis of multicellular organisms.[1,2] In the immune system, an enormous number of cells undergo apoptosis during development of lymphocytes and after interaction with antigens.[3] Because apoptotic cells and secondary necrotic cells releasing intracellular contents could be autoantigens, phagocytes such as macrophages and dendritic cells (DCs) must engulf these dying cells rapidly and efficiently to prevent detrimental inflammatory responses and autoimmunity.[1,4] To engulf apoptotic cells, macrophages use a variety of molecules, including Mer tyrosine kinase (MerTK),[5] milk fat globule-EGF-factor 8 (MFG-E8),[6] brain-specific angiogenesis inhibitor 1 (BAI1),[7] and T-cell immunoglobulin and mucin domain-containing molecule 4 (Tim-4).[8,9] However, their relative contributions to the phagocytosis remain to be elucidated. Multiple receptors may simultaneously recognize multiple "eat-me" signals on apoptotic cells. In addition, different subsets of macrophages may use different repertoires of receptors for the phagocytosis.

DCs are able to not only phagocytose apoptotic cells but also present dying cell-associated antigens with MHC class I molecules, which is termed as "cross-presentation."[1,10] It has been considered that, in steady state, cross-presentation of self-antigens by DCs stimulates CD8 T cells to proliferate abortively, resulting in their deletion, which is crucial to maintain peripheral tolerance.[10-14] Among mouse splenic DC subsets, CD8 DCs are unique in their ability for efficient phagocytosis of apoptotic cells and cross-presentation.[15,16] However, the mechanism for the recognition of apoptotic cells by CD8 DCs is poorly understood. Scavenger receptor CD36 and mannose receptor (MR)/DEC205 are highly expressed on CD8 DCs, but not CD8 DCs, however, these receptors are not required for cross-presentation of cell-associated antigens by this DC subset.[16-18] Neither $_{v}$ $_{3}$ nor $_{v}$ $_{5}$ integrin that mediates phagocytosis of apoptotic cells by macrophages[1] is essential for phagocytosis by CD8 DCs.[17] Thus, the phagocytic receptor for apoptotic cells linked to cross-presentation remains to be identified.

Tim-3 has been identified as a Th1-specific marker, and several in vivo studies have shown that Tim-3 regulates autoimmunity.[19,20] We and others have reported that Tim-3 negatively regulates Th1-mediated inflammatory diseases such as experimental autoimmune encephalomyelitis (EAE), type I diabetes, and acute graft-versus-host diseases (aGVHD).[21-23] Moreover, it has been reported that Tim-3 promotes tolerance induction.[21,22] Recently, Zhu et al have identified galectin-9 as a Tim-3 ligand, and they have demonstrated that galectin-9 binds to the carbohydrate chains on Tim-3, and induces cell death of Th1 cells in vitro, which may explain the mechanism by which Tim-3 suppresses Th1 immunity.[24] On the other hand, Anderson et al have reported that Tim-3 is expressed on DCs, and that galectin-9 activates the DCs through Tim-3, proposing that Tim-3 exacerbates EAE.[25] Taken together, Tim-3 appears to have multiple roles for the immune regulation in vivo, however, it remains unknown whether these multiple functions of Tim-3 are mediated solely through galectin-9.

In this study, we demonstrate that Tim-3 recognizes apoptotic cells through the FG loop in the IgV domain. Although Tim-4 is reported to be crucial for the phagocytosis of apoptotic cells by peritoneal macrophages,[8,9] we highlight here Tim-3 as the phagocytic receptor responsible for cross-presentation of dying cell-associated antigens by CD8 DCs. We propose that this novel function of Tim-3 may be involved in autoimmune regulation and tolerance induction.

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