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Knowledge Inn (in nature)

Research Profile of Shizuo Akira

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Research Profile of Shizuo Akira

Shizuo Akira

Born on 27 January 1953
Ōsaka Prefecture, Kansai region, Japan

	All	Since 2014
Citations	3, 49, 241 **3, 54,723**	**1, 29, 856**
h-index	271 **273**	**163**

 # Publications **1673**

Accessed on 17-11-2019 (black)

16-01-2020(Red)

Affiliation

Director / Professor
Laboratory of Host Defense,
World Premier International Immunology Frontier Research Center, (WPI-IFReC),
Osaka University, 3-1 Yamadaoka, Suita,
Osaka 565-0871

Typical titles ofresearch output ofShizuo Akira high impact (# citations) publications		
Reference	**# Citations**	Year of publication
Pathogen recognition and innate immunity S Akira, S Uematsu, O Takeuchi Cell 124 (4), 783-801	**10,429**	2006
Toll-like receptors K Takeda, T Kaisho, S Akira Annual review of immunology 21 (1), 335-376	**9,841***	2003
Toll-like receptor signalling S Akira, K Takeda Nature reviews immunology 4 (7), 499	**8,605**	2004
A Toll-like receptor recognizes bacterial DNA H Hemmi, O Takeuchi, T Kawai, T Kaisho, S Sato, H Sanjo, M Matsumoto, ... Nature 408 (6813), 740	6946	2000
The role of pattern-recognition receptors in innate immunity: update on Toll-like receptors T Kawai, S Akira Nature immunology 11 (5), 373	6504	2010
Guidelines for the use and interpretation of assays for monitoring autophagy DJ Klionsky, FC Abdalla, H Abeliovich, RT Abraham, A Acevedo-Arozena, ... Autophagy 8 (4), 445-544	5922*	2012
Association of NOD2 leucine-rich repeat variants with susceptibility to Crohn's disease JP Hugot, M Chamaillard, H Zouali, S Lesage, JP Cézard, J Belaiche, ... Nature 411 (6837), 599	5853	2001
Toll-like receptors: critical proteins linking innate and acquired immunity S Akira, K Takeda, T Kaisho Nature immunology 2 (8), 675	5341	2001
Pattern recognition receptors and inflammation O Takeuchi, S Akira Cell 140 (6), 805-820	5287	2010
Species-specific recognition of single-stranded RNA via toll-like receptor 7 and 8	3831	2004

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F Heil, H Hemmi, H Hochrein, F Ampenberger, C Kirschning, S Akira, ... Science 303 (5663), 1526-1529		
The innate immune response to bacterial flagellin is mediated by Toll-like receptor 5 F Hayashi, KD Smith, AOzinsky, TR Hawn, CY Eugene, DR Goodlett, ... Nature 410 (6832), 1099	3795	2001
The RNA helicase RIG-I has an essential function in double-stranded RNA-induced innate antiviral responses M Yoneyama, M Kikuchi, T Natsukawa, N Shinobu, T Imaizumi, ... Nature immunology 5 (7), 730	3765	2004
Cutting edge: Toll-like receptor 4 (TLR4)-deficient mice are hyporesponsive to lipopolysaccharide: evidence for TLR4 as the Lps gene product K Hoshino, O Takeuchi, T Kawai, H Sanjo, T Ogawa, Y Takeda, K Takeda, ... The Journal of Immunology 162 (7), 3749-3752	3725	1999
Differential roles of TLR2 and TLR4 in recognition of gram-negative and gram-positive bacterial cell wall components O Takeuchi, K Hoshino, T Kawai, H Sanjo, H Takada, T Ogawa, K Takeda, ... Immunity 11 (4), 443-451	3627	1999
Innate antiviral responses by means of TLR7-mediated recognition of single-stranded RNA SS Diebold, T Kaisho, H Hemmi, S Akira, CR e Sousa Science 303 (5663), 1529-1531	3534	2004
Differential roles of MDA5 and RIG-I helicases in the recognition of RNA viruses H Kato, O Takeuchi, S Sato, M Yoneyama, M Yamamoto, K Matsui, ... Nature 441 (7089), 101	3224	2006
Role of adaptor TRIF in the MyD88-independent toll-like receptor signaling pathway M Yamamoto, S Sato, H Hemmi, K Hoshino, T Kaisho, H Sanjo, ... Science 301 (5633), 640-643	3205	2003
Small anti-viral compounds activate immune cells *via* the TLR7	2662	2002

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MyD88–dependent signaling pathway H Hemmi, T Kaisho, O Takeuchi, S Sato, H Sanjo, K Hoshino, T Horiuchi, ... Nature immunology 3 (2), 196		
Toll-like receptors and their crosstalk with other innate receptors in infection and immunity T Kawai, S Akira Immunity 34 (5), 637-650	2637	2011
Unresponsiveness of MyD88-deficient mice to endotoxin T Kawai, O Adachi, T Ogawa, K Takeda, S Akira Immunity 11 (1), 115-122	2378	1999
IPS-1, an adaptor triggering RIG-I-and Mda5-mediated type I interferon induction T Kawai, K Takahashi, S Sato, C Coban, H Kumar, H Kato, KJ Ishii, ... Nature immunology 6 (10), 981	2375	2005
5'-Triphosphate RNA is the ligand for RIG-I V Hornung, J Ellegast, S Kim, K Brzózka, A Jung, H Kato, H Poeck, ... science 314 (5801), 994-997	2303	2006
TLR signaling pathways K Takeda, S Akira Seminars in immunology 16 (1), 3-9	2268	2004
Targeted disruption of the MyD88 gene results in loss of IL-1-and IL-18-mediated function O Adachi, T Kawai, K Takeda, M Matsumoto, H Tsutsui, M Sakagami, ... Immunity 9 (1), 143-150	2177	1998
TLR signaling T Kawai, S Akira Cell death and differentiation 13 (5), 816	2017	2006
Innate immune recognition of viral infection T Kawai, S Akira Nature immunology 7 (2), 131	1729	2006
Collaborative induction of inflammatory responses by dectin-1 and Toll-like receptor 2	1656	2003

Typical titles ofresearch output ofShizuo Akira high impact (# citations) publications		
Reference	**# Citations**	Year of publication
BN Gantner, RM Simmons, SJ Canavera, S Akira, DM Underhill Journal of Experimental medicine 197 (9), 1107-1117		
Interleukin-6 in biology and medicine S Akira, T Taga, T Kishimoto Advances in immunology 54, 1-78	1651	1993
Human TLR9 confers responsiveness to bacterial DNA via species-specific CpG motif recognition S Bauer, CJ Kirschning, H Häcker, V Redecke, S Hausmann, S Akira, ... Proceedings of the National Academy of Sciences 98 (16), 9237-9242	1623	2001
Toll-like receptors control activation of adaptive immune responses M Schnare, GM Barton, AC Holt, K Takeda, S Akira, R Medzhitov Nature immunology 2 (10), 947	1594	2001
Essential role of Stat6 in IL-4 signalling K Takeda, T Tanaka, W Shi, M Matsumoto, M Minami, S Kashiwamura, ... Nature 380 (6575), 627	1585	1996
Signaling to NF-κB by Toll-like receptors T Kawai, S Akira Trends in molecular medicine 13 (11), 460-469	1580	2007
Pathogen recognition by the innate immune system H Kumar, T Kawai, S Akira International reviews of immunology 30 (1), 16-34	1573	2011
Loss of the autophagy protein Atg16L1 enhances endotoxin-induced IL-1β production T Saitoh, N Fujita, MH Jang, S Uematsu, BG Yang, T Satoh, H Omori, ... Nature 456 (7219), 264	1573	2008

OPenheart with Shizuo Akira

📖 My style of doing research is to change research subjects when I move to a different laboratory.

- I intended to minimize the relationship between my new research and past research. Some overlap was unavoidable, but I wanted the new research to be a diversion from previous work.
- Once a project comes to a certain end, I would rather leave it for others and pursue another subject. Such a style may have something to do with my generation
- When we were young, we believed we should study abroad first in order to see the world outside. We used to go abroad without thinking about the place to come home to. We just thought it would somehow work out
- I didn't experience any difficult times because I was able to publish a good paper every several years and the research has gone well. There may have been a difficult time, but honestly, I don't remember.

Focus on next leap

- It may be because I'm always future oriented. My interest is only in the subject that comes next.
- I always consider myself to be nothing. I think that's how I should be. That is why I am in the practice of giving away my knockout mice. I believe it's the right thing to do. It doesn't make any sense to keep them with me if I cannot use them. It's better to give them to someone who can use them for good research. I will lose my advantage by giving, but it's better, because it keeps me from doing the same thing as others.
- I need to be able to fight, and win, a competition on level ground. Winning doesn't count if my possess have something special. If so, I can win now, but maybe not in the future.
- Most of my success was by chance, eventually becoming the large project as you know it.
- There are many people in Japan who have done excellent work in immunology. I think their history and tradition is continuing. Japan is formidable in immunology just as it is in elementary particle theory. Even I read Professor Kimishige Ishizaka's paper when I was a student and became interested in immunology. I suppose the emergence of eminent people helps to attract talented youth

Academic profile of Shizuo Akira

MD	Osaka University, School of Medicine	1977
Clinical Training	Osaka University Hospital	1977-1978
Ph.D	Molecular and Cellular Biology Osaka University, School of Medicine	1980-1984
Fellowship	Japan Society for the Promotion of Science Institute for Molecular and Cellular Biology, Osaka University	1984-1985
Post Doctoral research	Research Fellow, Department of Microbiology & Immunology, California	1985-1987

Research Associate	Institute for Molecular and Cellular Biology, Osaka University	1987-1995

Employment. Shizuo Akira		
Physician	Department of Internal Medicine, Sakai Municipal Hospital, Sakai, Osaka	1978-1980
Associate Professor	Institute for Molecular and Cellular Biology, Osaka University	1995
Professor	Dept. of Biochemistry, Hyogo College of Medicine	1996-1999
Research Head	o CREST (Core Research for Evolutional Science and Technology) o SORST (Solution Oriented Research for Science and Technology) of Japan Science and Technology Corporation (JST)	1996-2002
Project Director	oAKIRA Innate Immunity, ERATO (Exploratory Research for Advanced Technology) of Japan Science and Technology Corporation (JST)	2002-2007
Director,	WPI Immunology Frontier Research Center (WPI-IFReC), Osaka University	2007-present
Professor	Department of Host Defense, Research Institute for Microbial Diseases, Osaka University	1999-present

Awards (to) Shizuo Akira

Award	for	year
ACS	Theoretical Chemistry	2019
German Society for Immunology	Avery-Landsteiner Prize	2010
National Academy of Sciences of USA	Foreign Associate	2009
Thomson Scientific	2004-2005 "Hottest Researcher"	2006
William B. Coley Award	for Distinguished Research in Basic	2006

	Immunology Cancer Research Institute, USA	
The Prize of Princess Takamatsu	Cancer Research Fund	2004
The Hideyo Noguchi Memorial Award	Medical Sciences	2001
…….		

Shizuo Akira

Expertise

- Pattern recognition receptors (molecules)
  - Detect intruding pathogens/initiates antimicrobial responses in the host
- Ablation of toll-like receptor (TLR)s genes
  - Recognize a discrete collection of molecules of microbial origin,
- RNA helicases, RIG-I (retinoic-acid-inducible protein I)

MDA5 (melanoma differentiation-associated protein) …..

→ One of the world's most-cited scientist in the years 2006 and 2007
(published the greatest number (11)of 'Hot Papers')

Innate host defense mechanisms