CURRICULUM VITAE – Hitoshi Takizawa

Name: **Hitoshi Takizawa**
Affiliation: International Research Center for Medical Sciences (IRCMS), Kumamoto University
Position: Director and Professor
Academic Title: Ph.D.
Academic degree:
Mar 22th, 2007. Department of Immunology, Institute of Medical Science, Graduate School of Medical Science, The University of Tokyo, Tokyo, Japan
Specialty:
Stem Cell Biology, Hematology, Inflammation, Humanized mice
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Education:

2003 Apr. - 2007 Mar.	Department of Immunology, Institute of Medical Science, Graduate School of Medical Science, The University of Tokyo, Tokyo, Japan Awarded the degree of PhD in Medical Science Advisor: Prof. Dr. Kiyoshi Takatsu
2001 Apr. - 2003 Mar.	Department of Immunology, Institute of Medical Science, Graduate School of Medical Science, The University of Tokyo, Tokyo, Japan Awarded the degree of Master in Medical Science Advisor: Prof. Dr. Kiyoshi Takatsu
1997 Apr. - 2001 Mar.	Department of Bioscience, Tokyo Institute of Technology, Tokyo, Japan Awarded the degree of BSc in Bioscience Advisor: Prof. Dr. Yuji Saito

Research training:

2009 Sept. - 2012 Jan.	Postdoctral Research Fellow Division of Experimental Hematology, University Hospital Zürich, Switzerland Advisor: Prof. Dr. med. Markus G. Manz
2007 Apr. - 2009 Aug.	Postdoctral Research Fellow Hematopoiesis Laboratory, Institute for Research in Biomedicine, Switzerland Advisor: Dr. med. Markus G. Manz

Academic appointments:

2023 Apr. – present	Director and Professor, International Research Center for Medical Sciences, Kumamoto University, Japan
2017 Jan. – 2023 Mar.	Vice Director and Professor International Research Center for Medical Sciences, Kumamoto University, Japan
2015 Jan. - 2016 Dec.	Associate Professor International Research Center for Medical Sciences, Kumamoto University, Japan
2012 Feb. - 2014 Dec.	Junior group Leader Division of Experimental Hematology, University Hospital Zürich, Switzerland

Short description on previous achievements

I have been specialized in stem cell biology with strong interest and focus on inflammatory stress, i.e., how inflammation regulates and alters hematopoietic stem cell (HSC) function. Early on, I studied an adaptor molecule, called Lnk (SH3B) regulating cytokine signallings through both c-Kit and c-Mpl for HSC expansion and maintenance in steady state and upon myeloablation (Blood 2006; JCI 2010; Blood 2016). Then, my work was shifted toward understanding of HSC cycling dynamics in a steady state and inflammatory context such as infection, leukemogenesis (JEM 2011; JEM 2014). I found that toll-like receptor 4 is expressed by not only innate immune cells but also HSCs that can sense infection-associated danger signals to adapt hematopoiesis into host defense enhancement (Blood 2012). Acute stimulation of HSC with bacteria-derived infectious agent activates dormant HSC into proliferation and differentiation, while chronic stimulation leads to their dysfunction through proliferative stress (JEM 2011; Cell Stem Cell 2017). More recently, a specific type of microbiota penetrating through gut upon inflammation or aging can expands HSPCs in the BM and in some case, directs them to secondary lymph nodes for further expansion and differentiation (EMBO Rep 2023;

Blood 2022; EMBO J 2022). To understand human hematopoiesis under a relatively physiological conditions, I have developed a novel animal model with a microenvironment derived from human mesenchymal stem cell (MSC) that are able to maintain HSC dormancy (Annu Rev Immunol., 2013; PNAS 2011; iScience 2019; Stem Cells Dev 2021).

Honors and Awards:

2020 Healthy Longevity Grand Challenge Catalysis Award (The United States National Academy of Science)
2013 Bruno Speck Award, Basel Stem Cell Network 2013
2013 Basic Science Award, 39th Annual meeting of the European Group for Blood and Marrow Transplantation
2009 Young Investigator Award, 2nd International Workshop on Humanized Mice
2007 - 2008 Research Fellowship, Japanese Science for the Promotion of Science
2006 - 2007 Research Fellowship for Young Scientist, Japanese Science for the Promotion of Science

Professional organizations and societies:

International Society for Experimental Hematology (ISEH): New Investigator Committee Member (2018-2020), Scientific Program Committee (2020-2022)
Japanese Society for Hematology (JSH): Board member (2019-), Scientific Program committee (2019-)
Japanese Society for Immunology (JSI), The Molecular Biology Society of Japan (MBSJ), and American society for hematology (ASH): Regular membership

Commitment in Scientific Community:

1. Meeting organizing committee for Japanese Society of Hematology (2019-)
2. Meeting organizing committee for stem cell research symposium (2019-)
3. New investigator committee for international society for experimental hematology (2018-)

Invited lecture (last 5 years):

1. Hitoshi Takizawa, “Mitochondrial Translation Drives Erythroid Differentiation via Iron Homeostasis” Gordon Research Conferences for Red Cells, June 4-9, 2023, Newport, USA
2. Hitoshi Takizawa, “Erythroblast differentiation driven by mitochondrial translation” 2023 Normal/Malignant Hematopoiesis and Novel Therapies for Hematologic Malignancies Symposium Feb 22-24 2023, Hawaii, USA
3. Hitoshi Takizawa, **“**Inflammatory signals in malignant stem cells”, International Workshop of Humanized Mice, Oct 12-14 2022, Kyoto, Japan
4. Hitoshi Takizawa, “Innate Immune Signal-Regulated Hematopoiesis”, The 61st American Society of Hematology Annual Meeting, Dec 7-10 2019, Orland, USA
5. Hitoshi Takizawa, “Innate immune signal-instructed hematopoietic modulation” JSPS bilateral seminar JSPS-INSERM Symposium “Implications of senescence in age related disorders: Towards healthy aging”, Sept 5-6 2019, Paris, France
6. Hitoshi Takizawa, “Inflammation-modulated early hematopoiesis”, Zhujiang Summit on Hematology at the 3rd Annual Congress of Hematology, Aug 16-17,2019, Guangzhou, China
7. Hitoshi Takizawa, “Early hematopoiesis translates microbial signals to intestinal tissue repair”, 24th Congress of European Hematology Association, 13-16th June 2019, Amsterdam, Netherland
8. Hitoshi Takizawa, “Innate immune signal-instructed early hematopoiesis”, JSPS bilateral seminar 2019 US-Japan Symposium on Normal/Malignant Hematopoiesis and Novel Therapies for Hematologic Malignancies, Feb 19-21 2019, Hawaii, USA

Selected publication:

and * indicate co-first and corresponding author, respectively.

1. Morishima T, Takahashi K, Chin D, Tokunaga K, Arima Y, Matsuoka M, Suda T, **Takizawa H***. Phospholipid metabolic adaptation promotes survival of IDH2 mutant AML cells. ***Cancer Sci.***, 2023 Oct 26.
2. Wang Y, Morishima T, Sezaki M, Sato R, Nakato G, Fukuda S, Kobiyama K, Ishii KJ, Li Y, **Takizawa H***. Akkermansia muciniphila induces slow extramedullary hematopoiesis via cooperative IL-1R/TLR signals. ***EMBO Rep.***, 2023 Dec 6;24(12):e57485.
3. Sezaki M#, Hayashi Y#, Nakato G, Wang Y, Nakata S, Biswas S, Morishima T, Fakruddin M, Moon J, Ahn S, Kim P, Miyamoto Y, Baba Y, Fukuda S, **Takizawa H***. Hematopoietic stem and progenitor cells integrate microbial signals to promote gut tissue repair. ***EMBO J***, 2022 Oct 18;e110712.

4. Kovtonyuk LV, Caiado F, Garcia-Martin S, Manz EM, Helbling PM, **Takizawa H**, Boettcher S, Al-Shahrour F, Nombela-Arrieta C, Slack E, Manz MG*. IL-1 mediates microbiome-induced inflammaging of hematopoietic stem cells in mice. ***Blood***, 2022 Jan 6;139(1):44-58
5. Sezaki M, Biswas S, Nakata S, Oshima M, Koide S, Ho NPY, Okamoto N, Miyamoto T, Iwama A, **Takizawa H**. CD271+CD51+PALLADIN- human mesenchymal stromal cells possess enhanced ossicle-forming potential. ***Stem Cells Dev***., 2021 Jul 15;30(14):725-735.
6. Fritsch K, Pigeot S, Bourgine PE, Feng X, Schroeder T, Martin I, Manz MG, **Takizawa H***, Engineered humanized bone organs maintain human hematopoiesis in vivo, ***Exp Hematol***., 2018 May;61:45-51.
7. **Takizawa H***, Fritsch K, Kovtonyuk LV, Saito Y, Yakkala C, Jacobs K, Ahuja AK, Lopes M, Hausmann A, Hardt WD, Gomariz Á, Nombela-Arrieta C and Manz MG. Pathogen-induced TLR4-TRIF innate immune signaling in hematopoietic stem cells promotes proliferation but reduces competitive fitness. ***Cell Stem Cell***., 2017 Aug 3;21(2):225-240.
8. Kovtonyuk LV, Fritsch K, Feng X, Manz MG, **Takizawa H***. Inflamm-Aging of Hematopoiesis, Hematopoietic Stem Cells and the Bone Marrow Microenvironment. ***Front Immunol***., 2016, Nov 14;7:502.
9. Kovtonyuk LV, Manz MG, **Takizawa H***. Enhanced thrombopoietin but not G-CSF receptor stimulation induces self-renewing hematopoietic stem cell divisions in vivo. ***Blood***, 2016 Jun 23;127(25):3175-3179.
10. Lundberg P[#], **Takizawa H**[#], Kubovcakova L[#], Guo G, Hao-Shen H, Dirnhofer S, Orkin SH, Manz MG, Skoda RC. Myeloproliferative neoplasms can be initiated from a single hematopoietic stem cell expressing *JAK2*-V617F. ***J Exp Med***., 2014 Oct 20;211(11):2213-2230.
11. Scotti C[#], Piccinini E[#], **Takizawa H**[#], Todorov A, Bourgine P, Papadimitropoulos A, Barbero A, Manz MG, Martin I*. Engineering of a functional bone organ through endochondral ossification. ***Proc Natl Acad Sci U S A***., 2013, Mar 5;110(10):3997-4002.
12. Rongvaux A, **Takizawa H**, Strowig T, Willinger T, Eynon EE, Flavell RA*, Manz MG*. Human Hemato-Lymphoid System Mice: Current Use and Future Potential for Medicine. ***Annu Rev Immunol***., 2013;31:635-674.
13. **Takizawa H**[#], Regoes RR[#], Boddupalli CS, Bonhoeffer S, Manz MG*. Dynamic variation in cycling of hematopoietic stem cells in steady state and inflammation. ***J Exp Med***., 2011 Feb; 14;208(2):273-284
14. **Takizawa H**[#], Nishimura S[#], Nishikii H, Takayama N, Oda A, Kakinuma S, Morita Y, Yamazaki S, Tamura N, Goto S, Sawaguchi A, Manabe I, Takatsu Ki, Nakauchi H, Takaki S, Eto K*. Lnk/Sh2b3 regulates integrin αIIbβ3 outside in signaling in platelets leading to stabilization of developing thrombus in vivo. ***J Clin Invest***., 2010 Jan;120(1):179-190.
15. **Takizawa H**, Kubo-Akashi C, Nobuhisa I, Kwon SM, Iseki M, Taga T, Takatsu K, Takaki S*. Enhanced engraftment of hematopoietic stem/progenitor cells by the transient inhibition of an adaptor protein, Lnk. ***Blood***, 2006 Apr 1; 107(7): 2968-2975.