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Education:

1983 MD      Keio University School of Medicine

1987 PhD      Graduate School of Medicine, Keio University

### Professional Background:

1983 – 1985      Resident in Internal Medicine, Keio University School of Medicine

1985 – 1991      Resident in Cardiology, Keio University School of Medicine

1991 – 1992      Growth Factor Division, National Cancer Center Research Institute

1992 – 1994      Dept. of Molecular Medicine, Beth Israel Hospital, Harvard Medical School

1994 – 1995      Cardiovascular Research Center, University of Michigan

1995 – 1999      Lecturer, Department of Cardiology, Keio University School

1999 – 2004      Assistant Professor, Keio University School of Medicine

2005 – 2010      Professor, Department of Regenerative Medicine, Keio University

2005– 2015      Vice Dean, Keio University School of Medicine

2010– present      Professor, Department of Cardiology, Keio University

### Publications:

1. Makino S, Fukuda K, et al. Cardiomyocytes can be generated from marrow stromal cells in vitro. **J. Clin. Invest.** 103: 697-705, 1999.
2. Yuasa S, Fukuda K, et al. Transient and strong inhibition of BMP signals by Noggin induces cardiomyocyte differentiation in murine embryonic stem cells. **Nature Biotechnology** 23: 607-611, 2005.
3. Yoshioka M, Fukuda K, et al. Chondromodulin-I maintains cardiac valvular function by preventing angiogenesis. **Nature Medicine** 12: 1151-1159, 2006.

4. Tokudome S, Fukuda K, et al. Glucocorticoid protects heart from ischemia-reperfusion injury through activation of lipocalin-type prostaglandin D synthase-derived PGD<sub>2</sub> biosynthesis. **J Clin Invest** 119: 1477-88, 2009.
5. Hattori F, Fukuda K, et al. Nongenetic method for purifying stem cell-derived cardiomyocytes. **Nature Methods** 7: 61-66, 2010
6. Kanazawa H, Fukuda K, et al. Heart failure causes cholinergic transdifferentiation of cardiac sympathetic nerves via gp130-mediated cytokines. **J Clin Invest.** 120:408-21, 2010.
7. Shimoji K, Fukuda K, et al. G-CSF promotes the proliferation of developing cardiomyocytes in vivo and in derivation from ES and iPS cells. **Cell Stem Cell** 6:227-237, 2010.
8. Seki T, Fukuda K, et al. Generation of induced pluripotent stem cells from human terminally differentiated circulating T cells. **Cell Stem Cell.** 7:11-4, 2010.
9. Neely GG, Kuba K, Fukuda K, Penninger. A, et al. global *in vivo* *Drosophila* RNAi screen identifies NOT3 as a conserved regulator of heart function. **Cell.** 141:142-53, 2010.
10. Hakuno D, Fukuda K, et al. Periostin advances atherosclerotic and rheumatic cardiac valve degeneration by inducing angiogenesis and MMP production in humans and rodents. **J Clin Invest.** 120: 2292-306, 2010.
11. Nagoshi N, Fukuda K, Okano H, et al. Ontogeny and multipotency of neural crest-derived stem cells in mouse bone marrow, dorsal root ganglia, and whisker pad. **Cell Stem Cell.** 2: 1-12, 2008.
12. Shimizu N, Fukuda K, Tanaka H, et al. Crosstalk between glucocorticoid receptor and nutritional sensor mTOR in skeletal muscle. **Cell Metabolism.** 13: 170-82, 2011.
13. Kimura K, Fukuda K, et al. Too friable to treat? **Lancet** 375:1578, 2010.
14. Tohyama S, Fukuda K, et al. Distinct Metabolic Flow Enables LargeScale Purification of Mouse and Human Pluripotent Stem Cell Derived Cardiomyocytes. **Cell Stem Cell.** 2013; 12: 127–137.
15. Hayashiji N, Yuasa S, Miyagoe-Suzuki Y, Hara M, Ito N, Hashimoto H, Kusumoto D, Seki T, Tohyama S, Kodaira M, Kunitomi A, Kashimura S, Takei M, Saito Y, Okata S, Egashira T, Endo J, Sasaoka T, Takeda S, Fukuda K. G-CSF supports long-term muscle regeneration in mouse models of muscular dystrophy. **Nat Commun.** 2015;6:6745.
16. Kunitomi A, Yuasa S, Sugiyama F, Saito Y, Seki T, Kusumoto D, Kashimura S, Takei M, Tohyama S, Hashimoto H, Egashira T, Tanimoto Y, Mizuno S, Tanaka S, Okuno H, Yamazawa K, Watanabe H, Oda M, Kaneda R, Matsuzaki Y, Nagai T, Okano H, Yagami KI, Tanaka M, Fukuda K. H1foo Has a Pivotal Role in Qualifying Induced Pluripotent Stem Cells. **Stem Cell Reports.** 2016;6:825-833.
17. Tohyama S, Fujita J, Hishiki T, Matsuura T, Hattori F, Ohno R, Kanazawa H, Seki T, Nakajima K, Kishino Y, Okada M, Hirano A, Kuroda T, Yasuda S, Sato Y, Yuasa S, Sano M, Suematsu M, Fukuda K. Glutamine Oxidation Is Indispensable for Survival of Human Pluripotent Stem Cells. **Cell Metab.** 2016;23:663-74.
18. Tohyama S, Fujita J, Fujita C, Yamaguchi M, Kanaami S, Ohno R, Sakamoto K, Kodama M, Kurokawa J, Kanazawa H, Seki T, Kishino Y, Okada M, Nakajima K, Tanosaki S, Someya S, Hirano A, Kawaguchi S, Kobayashi E, Fukuda K. Efficient Large-Scale 2D Culture System for Human Induced Pluripotent Stem Cells and Differentiated Cardiomyocytes. **Stem Cell Reports.** 2017;9:1406-1414.

19. Tohyama S, Fukuda K. Safe and Effective Cardiac Regenerative Therapy With Human-Induced Pluripotent Stem Cells: How Should We Prepare Pure Cardiac Myocytes? **Circ Res.** 2017;120:1558-1560.
20. Shimojima M, Yuasa S, Motoda C, Yozu G, Nagai T, Ito S, Lachmann M, Kashimura S, Takei M, Kusumoto D, Kunitomi A, Hayashiji N, Seki T, Tohyama S, Hashimoto H, Kodaira M, Egashira T, Hayashi K, Nakanishi C, Sakata K, Yamagishi M, Fukuda K. Emerin plays a crucial role in nuclear invagination and in the nuclear calcium transient. **Sci Rep.** 2017;7:44312.
21. Tohyama S, Tanosaki S, Someya S, Fujita J, Fukuda K. Manipulation of Pluripotent Stem Cell Metabolism for Clinical Application. **Curr Stem Cell Rep.** 2017;3:28-34.
22. Sadahiro T, Isomi M, Muraoka N, Kojima H, Haginiwa S, Kurotsu S, Tamura F, Tani H, Tohyama S, Fujita J, Miyoshi H, Kawamura Y, Goshima N, Iwasaki YW, Murano K, Saito K, Oda M, Andersen P, Kwon C, Uosaki H, Nishizono H, Fukuda K, Ieda M. Tbx6 Induces Nascent Mesoderm from Pluripotent Stem Cells and Temporally Controls Cardiac versus Somite Lineage Diversification. **Cell Stem Cell.** 2018;23:382-395.
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