Nobuko Hagiwara, M.S., Ph.D.

Clinical Interests

Nobuko Hagiwara has expertise in the field of molecular genetics. She completed postdoctoral training at the University of Iowa in biological sciences and the University of California, Irvine, in anatomy and neurobiology. She also was a postdoctoral fellow at the Fox Chase Cancer Center Institute for Cancer Research in Philadelphia, PA, and the University of Arizona College of Medicine in Tucson. The Hagiwara lab studies development of the heart and skeletal muscle at the molecular and cellular levels. We are researching the Sox6 mutant heart to understand the progression of early stages of heart failure. A deficiency of the Sox6 transcription factor shows cardiac and skeletal muscle degeneration and arrhythmia. Another interesting phenotype is fiber type distortion in skeletal muscle. Since specialization of slow- and fast-twitch fiber type is crucial for physiological function of skeletal muscle, Sox6 should play an important role in normal fetal muscle development as well as in muscle degenerative diseases. To understand the role of Sox6 in skeletal muscle development, we are investigating downstream targets and cofactors of the Sox6 protein. To conduct our research, we utilize genetic, molecular and cellular biology techniques.

Title

Assistant Professor

Specialty

Cardiovascular Medicine, Internal Medicine

Department

Internal Medicine

Division

Cardiovascular Medicine

Center/Program Affiliation

Cardiovascular Services

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Education

Ph.D., University of Tokyo, Tokyo, 1995
B.S., Ochanomizu Women's University, Tokyo, 1984
M.S., Ochanomizu Women's University, Tokyo, 1987

Professional Memberships

American Heart Association
Society for Developmental Biology
Society for Neuroscience

Honors and Awards

Japanese Ministry of Education Scholarship for graduate studies abroad., 1986

Select Recent Publications

Odeh H, Hunker KL, Belyantseva IA, Azaiez H, Avenarius MR, Zheng L, Peters LM, Gagnon LH,

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Hagiwara N, Skynner MJ, Brilliant MH, Allen ND, Riazuddin S, Johnson KR, Raphael Y, Najmabadi H, Friedman TB, Bartles JR, Smith RJ, Kohrman DC. Mutations in Grxcr1 are the basis for inner ear dysfunction in the pirouette mouse. Am. J. Genet. 2010;86:148-160.

Wang Y, Chen L, Hagiwara N, Knowlton AA. Regulation of heat shock protein 60 and 72 expression in the failing heart. J. Mol. Cell. Cardiol. 2010;48:360-366.

Hagiwara, N., Yeh M, and Liu A. (2007) Sox6 is required for normal fiber type differentiation of fetal skeletal muscle in mice. Dev. Dynamics 236: 2062-2076

Yi, Z., Cohen-Barak, O., Hagiwara, N., Kingsley, P.D., Fuchs, D.A., Erickson, D.T., Epner, E.M., Palis, J., and Brilliant, M.H. (2006) Sox6 directly silences epsilon globin expression in definitive erythropoiesis. PLoS Genetics 2: e14

Hagiwara, N., Ma, B., and Ly, A. (2005) Slow and fast fiber isoform gene expression is systematically altered in skeletal muscle of the Sox6 mutant, p100H. Dev. Dynamics 234:301-311

Odeh H, Hagiwara N, Skynner M, Mitchem KL, Beyer LA, Allen N, Brilliant M, Lebart MC, Dolan DF, Raphael Y and Kohrman DC. Characterization of two transgene insertional mutations at pirouette, a mouse deafness focus. Audiol. neurootol. 2004;9:303-314.

Cohen-Barak, O., Yi, Z., Hagiwara, N., Monzen, K., Komuro, I., and Brilliant, M. H. (2003) Sox6 regulation of cardiac myocytes development. Nuc. Acids Res. 31: 5941-5948.

Hagiwara, N., Katarova, Z., Siracusa, L.D., and Brilliant, M.H. (2003) Non-neuronal expression of the GABAA ??3 subunit gene is required for normal palate development in mice. Dev. Biol. 254:93-101.

Cohen-Barak, O., Hagiwara, N., Arlt, M.F., Horton, J.P., and Brilliant, M.H. Cloning, characterization and chromosome mapping of the human SOX6 gene. Gene 265: 157-164, 2001.

Newton, J.M., Cohen-Barak, O., Hagiwara, N., Gardner J.M., Davisson, M.T., King, R.A., Brilliant M.H. Mutations in the human orthologue of the mouse underwhite (uw) gene underlie a new form of oculocutaneous albinism, OCA4. Am. J. Hum. Genet. 69:981-988, 2001.

Hagiwara, N., Klewer, S.E., Samson, R.A., Erickson, D.T., Lyon, M.F., and Brilliant, M.H. Sox6 is a candidate gene for p100H myopathy, heart block and sudden neonatal death. Proc. Natl. Acad. Sci. USA 97: 4180-4185, 2000.

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