PUBLICATION LIST (Original papers)

1. Watanabe-Takano H., Kato K., Oguri-Nakamura E., Ishii T., Kobayashi K., Murata T., Tsujikawa K., Miyata T., Kubota Y., Hanada Y., Nishiyama K., Watabe T., Fässler R., Ishii H., Mochizuki N., Fukuhara S. Endothelial cells regulate alveolar morphogenesis by constructing basement membranes acting as a scaffold for myofibroblasts. **Nat. Commun.** 2024 Mar 4;15(1):1622. doi: 10.1038/s41467-024-45910-y.
2. Yamamoto K., Watanabe-Takano H., Oguri-Nakamura E., Matsuno H., Horikami D., Ishii T. Ohashi R., Kubota Y., Nishiyama K., Murata T., Mochizuki N., Fukuhara S.* Rap1 small GTPase is essential for maintaining pulmonary endothelial barrier function in mice. **FASEB J.** 2023 Dec;37(12):e23310. doi: 10.1096/fj.202300830RR.
3. Mizukami K., Higashiyama H., Arima Y., Ando K., Okada N., Kose K., Yamada S., Takeuchi J.K., Koshiba-Takeuchi K., Fukuhara S., Miyagawa-Tomita S., Kurihara H. Coronary artery established through amniote evolution. **eLife** 2023; 12:e83005. https://doi.org/10.7554/eLife.83005
4. Yuge S, Nishiyama K., Arima Y., Hanada Y., Oguri-Nakamura E., Hanada S., Ishii T., Wakayama Y., Hasegawa U., Tsujita K., Yokokawa R., Miura T., Itoh T., Tsujita K., Mochizuki N., Fukuhara S.* Mechanical loading of intraluminal pressure mediates wound angiogenesis by regulating the TOCA family of F-BAR proteins. **Nat. Commun.** 2022 May 12;13(1):2594. doi: 10.1038/s41467-022-30197-8.
5. Ando K., Tong L., Peng D., Vázquez-Liébanas E., Chiyoda H., He L., Liu J., Mochizuki N., Fukuhara S., Grutzendler J., Betsholtz C. KCNJ8/ABCC9-containing K-ATP channel modulates brain vascular smooth muscle development and neurovascular coupling. **Dev. Cell** 2022 Jun 6;57(11):1383-1399.e7. doi: 10.1016/j.devcel.2022.04.019.
6. Nishimura Y.**, Ishii T.**, Ando K., Yuge S., Nakajima H., Zhou W., Mochizuki N., Fukuhara S.* Blood flow regulates glomerular capillary formation in zebrafish pronephros. **Kidney360** April 2022, 3 (4) 700-713; DOI: https://doi.org/10.34067/KID.0005962021
**Equal contribution.
7. Sasaki Y., Higashijima Y., Suehiro J., Sugasawa T., Oguri-Nakamura E., Fukuhara S., Nagai N., Hirakawa Y., Wada Y., Nangaku M., Kanki Y. Lysine demethylase 2B regulates angiogenesis via Jumonji C dependent suppression of angiogenic transcription factors. **Biochem Biophys Res Commun.** 2022 May 21;605:16-23. doi: 10.1016/j.bbrc.2022.03.054.
8. Peng D., Ando K., Hußmann M., Gloger M., Skoczylas R., Mochizuki N., Betsholtz C., Fukuhara S., Schulte-Merker S., Lawson ND., Koltowska K. Proper migration of

lymphatic endothelial cells requires survival and guidance cues from arterial mural cells. **eLife** 2022 Mar 22;11:e74094. doi: 10.7554/eLife.74094.

9. Watanabe-Takano H., Fukumoto M., Fukuhara S., Mochizuki N. Protocol for whole-mount X-gal staining combined with tissue clearing in embryo and adult mouse using CUBIC. **STAR Protoc.** 3: 101127, March 18, 2022.

10. Okasato R., Kano K., Kise R., Inoue A., Fukuhara S., Aoki J. An ATX-LPA$_6$-Gα_{13}-ROCK axis shapes and maintains caudal vein plexus in Zebrafish. **iScience** 2021 Oct 12;24(11): 103254. doi: 10.1016/j.isci.2021.103254.

11. Watanabe-Takano H., Ochi H., Chiba A., Matsuo A., Kanai Y., Fukuhara S., Ito N., Sako K., Miyazaki T., Tainaka K., Harada I., Sato S., Sawada Y., Minamino N., Takeda S., Ueda H.R., Yasoda A., Mochizuki N. Mechanical load regulates bone growth via periosteal Osteocrin. **Cell Reports** 2021 Jul 13;36(2):109380. doi: 10.1016/j.celrep.2021.109380.

12. Ando K., Shih Y.-H., E. Lwaki, Grosse A, Portman D., Chiba A., Mattonet K., Gerri C., Stainier D.Y.R, Mochizuki N., Fukuhara S., Betsholtz C, Lawson N.D. Conserved and context-dependent roles for Pdgfrb signaling during zebrafish vascular mural cell development. **Dev. Biol.** 2021 Nov;479: 11-22. doi: 10.1016/j.ydbio.2021.06.010. Epub 2021 Jul 24.

13. Rho S., Oguri-Nakamura E., Ando K., Yamamoto K., Takagi Y., Fukuhara S.* Protocol for analysis of integrin-mediated cell adhesion of lateral plate mesoderm cells isolated from zebrafish embryos. **STAR Protoc.** 2021 Mar 31;2(2):100428. doi: 10.1016/j.xpro.2021.100428. eCollection 2021 Jun 18.

14. Abdelhakim M., Dohi T., Yamato M., Takada H., Sakai A., Suzuki H., Ema M., Fukuhara S., Ogawa R. A new model for specific visualization of skin graft neoangiogenesis using Flt1-tdsRed BAC transgenic mice. **Plast. Reconstr. Surg.** 2021 Jul 1;148(1):89-99. doi: 10.1097/PRS.0000000000008039.

15. Fukushima Y., Nishiyama K., Kataoka H., Fruttiger M. Fukuhara S., Nishida K., Mochizuki N., Kurihara H., Nishikawa S., Uemura A. RhoJ integrates attractive and repulsive cues in directional migration of endothelial cells. **EMBO J.** 2020 Jun 17;39(12):e102930. doi: 10.15252/embj.2019102930.

16. Kobayashi I., Kobayashi-Sun J., Hirakawa Y., Ouchi M., Yasuda K., Kamei H., Fukuhara S., Yamaguchi M. Dual role of Jam3b in early hematopoietic and vascular development. **Development** 2020 Jan 8;147(1). pii: dev181040. doi: 10.1242/dev.181040.

17. Simmons S., Sasaki N., Umemoto E., Uchida Y., Fukuhara S., Kitazawa Y., Okudaira M., Inoue A., Tohya K., Aoi K., Aoki J., Mochizuki N., Matsuno K., Takeda K., Miyasaka M., Ishii M. High-endothelial cell-derived S1P regulates dendritic cell localization and vascular integrity in the lymph node. **eLife** 2019 Oct 1;8. pii: e41239. doi: 10.7554/eLife.41239.

１８. Shin M., Nozaki N., Idrizi I., Isogai S., Ogasawara K., Ishida K., Yuge S., Roscoe B., Wolfe S.A., Fukuhara S., Mochizuki N, Deguchi T., Lawson N.D. Valves are a conserved feature of the zebrafish lymphatic system. **Dev. Cell** 2019 Nov 4;51(3):374-386.e5. doi: 10.1016/j.devcel.2019.08.019.

１９. Rho S., Kobayashi I., Oguri-Nakamura E., Ando K., Fujiwara M., Kamimura N., Hirata H., Iida A., Iwai Y., Mochizuki N., Fukuhara S. (Corresponding author). Rap1b promotes Notch signal-mediated hematopoietic stem cell development by enhancing integrin-mediated cell adhesion. **Dev. Cell** 2019 Jun 3;49(5):681-696.e6. doi: 10.1016/j.devcel.2019.03.023.

２０. Noishiki C.**, Yuge S.**, Ando K., Wakayama Y., Mochizuki N., Ogawa R., Fukuhara S. (Corresponding author). Live imaging of angiogenesis during cutaneous wound healing in adult zebrafish. **Angiogenesis** 2019 May;22(2):341-354. doi: 10.1007/s10456-018-09660-y. **Equal contribution.

２１. Ando K., Wang W., Peng D. Chiba A., Barske L., Crump J.G., Stainier D.Y.R., Lendahl U., Lagendijk A., Koltowska K., Hogan B.M., Fukuhara S., Mochizuki N., Betsholtz C. Peri-arterial specification of vascular mural cells from naïve mesenchyme requires Notch signaling. **Development** 2019 Jan 25;146(2). pii: dev165589. doi: 10.1242/dev.165589.

２２. Takara K., Eino D., Ando K., Yasuda D., Naito H., Tsukada Y., Iba T., Wakabayashi T., Muramatsu F., Kidoya H., Fukuhara S., Mochizuki N., Ishii S., Kishima H., Takakura N. Lysophosphatidic acid receptor 4 activation augments drug delivery in tumors by tightening endothelial cell-cell contact. **Cell Reports** 2017 Aug 29;20(9):2072-2086. doi: 10.1016/j.celrep.2017.07.080.

２３. Miura K., Nojiri T., Akitake Y., Ando K., Fukuhara S., Zenitani M., Kimura T., Hino J., Miyazato M., Hosoda H., Kangawa K. CCM2 and PAK4 act downstream of atrial natriuretic peptide signaling to promote cell spreading. **Biochem. J.** 474: 1897-1918 (2017). doi: 10.1042/BCJ20160841.

２４. Nakajima H., Yamamoto K., Agarwala S., Terai K., Fukui H., Fukuhara S., Ando K., Miyazaki T., Yokota Y., Schmelzer E., Belting H.-G., Affolter M., Lecaudey V., Mochizuki N. Flow-dependent endothelial YAP regulation contributes to vessel maintenance. **Dev. Cell** 2017 Mar 27;40(6):523-536.e6. doi: 10.1016/j.devcel.2017.02.019.

２５. Chiba A., Watanabe-Takano H., Terai K., Fukui H., Miyazaki T., Uemura M., Hashimoto H., Hibi M., Fukuhara S., Mochizuki N. Osteocrin, a peptide secreted from the heart and other tissues, contributes to cranial osteogenesis and chondrogenesis in zebrafish. **Development** 2017 Jan 15;144(2):334-344. doi: 10.1242/dev.143354.

２６. Ando K., Fukuhara S. (Co-corresponding author), Izumi N., Nakajima H., Fukui H., Kelsh R.N., Mochizuki N. Clarification of mural cell coverage of vascular endothelial cells by

live imaging of zebrafish. **Development** 2016 Apr 15;143(8):1328-39. doi: 10.1242/dev.132654.

２７. Chávez-Vargas L., Adame-García S.R., Cervantes-Villagrana R.D., Castillo-Kauil A., Bruystens J.G.H., Fukuhara S., Taylor S.S., Mochizuki N., Reyes-Cruz G., Vázquez-Prado J. Protein kinase A (PKA) Type I interacts with P-Rex1, a Rac guanine nucleotide exchange factor: Effect on PKA localization and P-Rex1 signaling. **J. Biol. Chem.** 291: 6182-6199 (2016). doi: 10.1074/jbc.M115.712216

２８. Yokota Y., Nakajima H., Wakayama Y. Muto A., Kawakami K. Fukuhara S., Mochizuki N. Endothelial Ca2+ oscillations reflect VEGFR signaling-regulated angiogenic capacity in vivo. **eLife** 2015 Nov 20;4. pii: e08817. doi: 10.7554/eLife.08817.

２９. Kim J.-D., Park K.-E., Ishida J., Kako K., Hamada J., Kani S., Takeuchi M., Namiki K., Fukui H., Fukuhara S., Hibi M., Kobayashi M., Kanaho Y., Kasuya Y., Mochizuki N., Fukamizu A. PRMT8 as a phospholipase maintains dendrite formation of Purkinje cells. **Science Advances** 2015 Dec 4;1(11):e1500615. doi: 10.1126/sciadv.1500615.

３０. Sugihara K., Nishiyama K., Fukuhara S., Uemura A., Arima S., Kobayashi R., Kohn-Luque A., Mochizuki N., Suda T., Ogawa H., Kurihara H. Autonomy and non-autonomy of angiogenic cell movements revealed by experiment-driven mathematical modeling. **Cell Reports** 2015 Dec 1;13(9):1814-27. doi: 10.1016/j.celrep.2015.10.051.

３１. Hongu T., Funakoshi Y., Fukuhara S., Suzuki T., Sakimoto S., Takakura N., Ema M., Takahashi S., Itoh S., Kato M., Hasegawa H., Mochizuki N., Kanaho Y. Arf6 regulates tumor angiogenesis and growth through HGF-induced endothelial β1 integrin recycling. **Nat. Commun.** 2015 Aug 4;6:7925. doi: 10.1038/ncomms8925.

３２. Vanhollebeke B., Stone O., Bostaille N., Cho C., Zhou Y., Maquet E., Gauquier A., Cabochette P., Fukuhara S., Mochizuki N., Nathans J., Stainier D.Y.R. Tip cell specific requirement for an atypical Gpr124 and Reck-dependent Wnt/β-catenin pathway during brain angiogenesis. **eLife** 2015 Jun 8;4:e06489. doi: 10.7554/eLife.06489.

３３. Mikelis C.M., Simaan M., Ando K., Fukuhara S., Sakurai A., Amornphimoltham P., Masedunskas A., Weigert R., Chavakis T., Adams R., Offermanns S., Mochizuki N., Zheng Y., Gutkind J.S. RhoA and ROCK mediate histamine-induced vascular leakage and anaphylactic shock. **Nat. Commun.** 2015 Apr 10;6:6725. doi: 10.1038/ncomms7725.

３４. Wakayama Y., Fukuhara S. (Corresponding author), Ando K., Matsuda M., Mochizuki N. Cdc42 mediates Bmp-induced sprouting angiogenesis through Fmnl3-driven assembly of endothelial filopodia in zebrafish. **Dev. Cell** 2015 Jan 12;32(1):109-22. doi: 10.1016/j.devcel.2014.11.024.

３５. Kashiwada T., Fukuhara S. (Co-corresponding author), Terai K., Tanaka T., Wakayama Y., Ando K., Nakajima H., Fukui H., Yuge S., Saito Y., Gemma A., Mochizuki N. β-Catenin-

dependent transcription is central to Bmp-mediated formation of venous vessels. **Development** 2015 Feb 1;142(3):497-509. doi: 10.1242/dev.115576.

３６. Fukui H., Terai K., Nakajima H., Chiba A., Fukuhara S., Mochizuki N. S1P-Yap1 signaling regulates endoderm formation required for cardiac precursor cell migration in zebrafish. **Dev. Cell** 31: 128-136 (2014).

３７. Fukuhara S. (Co-corresponding author), Zhang J., Yuge S., Ando K., Wakayama Y., Sakaue-Sawano A., Miyawaki A., Mochizuki N. Visualizing the cell-cycle progression of endothelial cells in zebrafish. **Dev. Biol.** 393: 10-23 (2014).

３８. Odagiri H., Kadomatsu T., Endo M., Masuda T., Morioka M.S., Fukuhara S., Miyamoto T., Kobayashi E., Miyata K., Aoi J., Horiguchi H., Nishimura N., Terada K., Yakushiji T., Manabe I., Mochizuki N., Mizuta M., Oike Y. The secreted protein ANGPTL2 promotes metastasis of osteosarcoma cells through integrin $\alpha_5\beta_1$, p38 MAPK, and matrix metalloproteinases. **Sci. Signal.** 7: ra7 (2014).

３９. Nakajima K., Shibata Y., Hishikawa Y., Suematsu T., Mori M., Fukuhara S., Koji T., Sawase T., Ikeda T. Coexpression of Ang1 and Tie2 in odontoblasts of mouse developing and mature teeth―a new insight into dentinogenesis. **Acta Histochem. Cytochem.** 47: 19-25 (2014).

４０. Ando K., Fukuhara S. (Co-corresponding author), Moriya T., Obara Y. Nakahata N., Mochizuki N. Rap1 potentiates endothelial cell junctions by spatially controlling myosin II activity and actin organization. **J. Cell Biol.** 202: 901-916 (2013).

４１. Kwon H.B., Fukuhara S., Asakawa K., Ando K., Kashiwada T., Kawakami K., Hibi M., Kwon Y.G., Kim K.W., Alitalo K., Mochizuki N. The parallel growth of motoneuron axons with the dorsal aorta depends on Vegfc/Vegfr3 signal in zebrafish. **Development** 140: 4081-4090 (2013).

４２. Mikelis C.M., Palmby T.R., Simaan M., Li W., Szabo R., Lyons R., Martin D., Yagi H., Fukuhara S., Chikumi H., Galisteo R., Mukouyama Y., Bugge T.H., Gutkind J.S. PDZ-RhoGEF and LARG are essential for embryo development, and provide a link between thrombin and LPA receptors and Rho activation. **J. Biol. Chem.** 288: 12232-12243 (2013).

４３. Fukuhara S. (Co-corresponding author), Simmons S., Kawamura S., Inoue A., Orba Y., Tokudome T., Sunden Y., Arai Y., Moriwaki K., Ishida J., Uemura A, Kiyonari H., Abe T., Fukamizu A., Hirashima M., Sawa H., Aoki J., Ishii M, Mochizuki N. The sphingosine-1-phosphate transporter Spns2 expressed on endothelial cells regulates lymphocyte trafficking in mice. **J. Clin. Invest.** 122: 1416-1426 (2012).

４４. Kusuhara S., Fukushima Y., Fukuhara S., Jakt L.M., Okada M., Shimizu Y., Hata M., Nishida K., Negi A., Hirashima M., Mochizuki N., Nishikawa S., Uemura A. Arhgef15 promotes retinal angiogenesis by mediating VEGF-induced Cdc42 activation and

potentiating RhoJ inactivation in endothelial cells. **PLoS One** 7: e45858 (2012).

４５. Takenouchi T., Iwamaru Y., Imamura M., Fukuhara S., Sugama S., Sato M., Mochizuki N., Hashimoto M., Yokoyama T., Mohri S., Kitani H. Cytochalasin D enhances the accumulation of a protease-resistant form of prion protein in ScN2a Cells: Involvement of PI3 kinase/Akt signaling pathway. **Cell Biol. Int.** 36: 1223-1231 (2012).

４６. Endo M., Nakano M., Kadomatsu T., Fukuhara S., Kuroda H., Mikami S., Hato T., Aoi J., Horiguchi H., Miyata K., Odagiri H., Masuda T., Harada M., Horio H., Hishima T., Nomori H., Ito T., Yamamoto Y., Minami T., Okada S., Takahashi T., Mochizuki N., Iwase H., Oike Y. Tumor cell-derived angiopoietin-like protein ANGPTL2 is a critical driver of metastasis. **Cancer Res.** 72: 1784-1794 (2012).

４７. Makita N., Seki A., Sumitomo N., Chkourko H., Fukuhara S., Watanabe H., Shimizu W., Bezzina C.R., Hasdemir C., Mugishima H., Makiyama T., Baruteau A., Baron E., Horie M., Hagiwara N., Wilde A.A., Probst V., Le Marec H., Roden D.M., Mochizuki N., Schott J.J., Delmar M. A connexin 40 mutation associated with a malignant variant of progressive familial heart block type-1. **Circ. Arrhythm. Electrophysiol.** 5: 163-172 (2012).

４８. Minami M., Koyama T., Wakayama Y., Fukuhara S. (Corresponding author), Mochizuki N. EphrinA/EphA signal facilitates insulin-like growth factor-I-induced myogenic differentiation through suppression of the Ras/extracellular signal-regulated kinase 1/2 cascade in myoblast cell lines. **Mol. Biol. Cell** 22: 3508-3519 (2011).

４９. Zhang J., Fukuhara S. (Co-corresponding author), Sako K., Takenouchi T., Kitani H., Kume T., Koh G.Y., Mochizuki N. Angiopoietin-1/Tie2 signal augments basal Notch signal controlling vascular quiescence by inducing delta-like 4 expression through AKT-mediated activation of β-catenin. **J. Biol. Chem.** 286: 8055-8066 (2011).

５０. Noda K., Zhang J., Fukuhara S. (Co-corresponding author), Kunimoto S., Yoshimura M., Mochizuki N. Vascular endothelial-cadherin stabilizes at cell-cell junctions by anchoring to circumferential actin bundles through α- and β-catenins in cyclic AMP-Epac-Rap1 signal-activated endothelial cells. **Mol. Biol. Cell** 21: 584-596 (2010).

５１. Fujimoto C., Ozeki H., Uchijima Y., Suzukawa K., Mitani A., Fukuhara S., Nishiyama K., Kurihara Y., Kondo K., Aburatani H., Kaga K., Yamasoba T., Kurihara H. Establishment of mice expressing EGFP in the placode-derived inner ear sensory cell lineage and FACS-array analysis focused on the regional specificity of the otocyst. **J. Comp. Neurol.** 518: 4702-4722 (2010).

５２. Tabata M., Kadomatsu T., Fukuhara S., Miyata K., Ito Y., Endo M., Urano T., Zhu H.J., Tsukano H., Tazume H., Kaikita K., Miyashita K., Iwawaki T., Shimabukuro M., Sakaguchi K., Ito T., Nakagata N., Yamada T., Katagiri H., Kasuga M., Ando Y., Ogawa H., Mochizuki N., Itoh H., Suda T., Oike Y. Angiopoietin-like protein 2 promotes chronic adipose tissue

inflammation and obesity-related systemic insulin resistance. **Cell Metabolism** 10: 178-188 (2009).

５３. Sako K., Fukuhara S. (Corresponding author), Minami T., Hamakubo T., Song H., Kodama T., Fukamizu A., Gutkind J.S., Koh G.Y., Mochizuki N. Angiopoietin-1 induces Krüppel-Like Factor 2 expression through a phosphoinositide 3-kinase/AKT-dependent activation of myocyte enhancer factor 2. **J. Biol. Chem.** 284: 5592-5601 (2009).

５４. Fukuhara S. (Co-corresponding author), Sako K., Minami T., Noda K., Kim H.Z., Kodama T., Shibuya M., Takakura N., Koh G.Y., Mochizuki N. Differential function of Tie2 at cell-cell contacts and cell-substratum contacts regulated by angiopoietin-1. **Nat. Cell Biol.** 10: 513-526 (2008).

５５. Mukai H., Kikuchi M., Fukuhara S., Kiso Y., Munekata E. Cryptide signaling: amphiphilic peptide-induced exocytosis mechanisms in mast cells. **Biochem. Biophys. Res. Commun.** 375: 22-26 (2008).

５６. Makita N., Behr E., Shimizu W., Horie M., Sunami A., Crotti L., Schulze-Bahr E., Fukuhara S., Mochizuki N., Makiyama T., Itoh H., Christiansen M., McKeown P., Miyamoto K., Kamakura S., Tsutsui H., Schwartz P.J., George Jr A. L., Roden D. M. The E1784K mutation in SCN5A is associated with mixed clinical phenotype of type 3 long QT syndrome. **J. Clin. Invest.** 118: 2219-2229 (2008).

５７. Yasuda N., Miura S., Akazawa H., Tanaka T., Qin Y., Kiya Y., Imaizumi S., Fujino M., Ito K., Zou Y., Ge J., Fukuhara S., Kunimoto S., Mochizuki N., Fukuzaki K., Sato T., Nakaya H., Saku K., Komuro I. Conformational switch of angiotensin II type 1 receptor underlying mechanical stress-induced activation. **EMBO Rep.** 9: 179-186 (2008).

５８. Kamide K., Kokubo Y., Fukuhara S., Hanada H., Yang J., Kada A., Nagura J., Takiuchi S., Horio T., Kawano Y., Okayama A., Tomoike H., Miyata T. Protein Tyrosine Kinase 2β as a Candidate Gene for Hypertension. **Pharmacogenet. Genomics.**17: 931-939 (2007).

５９. Yamaguchi Y., Nagase T., Tomita T., Nakamura K., Fukuhara S., Amano T., Yamamoto H., Ide Y., Suzuki M., Teramoto S., Asano T., Kangawa K., Nakagata N., Ouchi Y., Kurihara H. β-defensin overexpression induces progressive muscle degeneration in mice. **Am. J. Physiol. Cell Physiol.** 292: C2141-C2149 (2007).

６０. Sakurai A., Fukuhara S., Yamagishi A., Sako K., Kamioka Y., Masuda M., Nakaoka Y., Mochizuki N. MAGI-1 is required for Rap1 activation upon cell-cell contact and for enhancement of vascular endothelial cadherin–mediated cell adhesion. **Mol. Biol. Cell** 17: 966-976 (2006).

６１. Somekawa S., Fukuhara S., Nakaoka Y., Fujita H., Saito Y., Mochizuki N. Enhanced functional gap junction neoformation by PKA-dependent and Epac-dependent signals downstream of cAMP in cardiac myocytes. **Circ. Res.** 97: 655-662 (2005).

６２. Ohkawara H., Ishibashi T., Sakamoto T., Sugimoto K., Nagata K., Yokoyama K., Sakamoto N., Kamioka M., Matsuoka I., Fukuhara S., Sugimoto N., Takuwa Y., Maruyama Y. Thrombin-induced rapid geranylgeranylation of RhoA as an essential process for RhoA activation in endothelial cells. **J. Biol. Chem.** 280: 10182-10188 (2005).

６３. Fujita H., Fukuhara S., Sakurai A., Yamagishi A., Kamioka Y., Nakaoka Y., Masuda M., Mochizuki N. Local activation of Rap1 contributes to directional vascular endothelial cell migration accompanied with extension of microtubules on which RapL, a Rap1-associating molecule, localizes. **J. Biol. Chem.** 280: 5022-5031 (2005).

６４. Fukuhara S., Sakurai A., Sano H., Yamagishi A., Somekawa S., Takakura N., Saito Y., Kangawa K., Mochizuki N. Cyclic AMP potentiates VE-cadherin–mediated cell-cell contact to enhance endothelial barrier function through an Epac-Rap1 signaling pathway. **Mol. Cell. Biol.** 25: 136-146 (2005).

６５. Fukuhara S., Kurihara Y., Arima Y., Yamada N., Kurihara H. Temporal requirement of signaling cascade involving endothelin-1/endothelin receptor type A in branchial arch development. **Mech. Dev.** 121: 1223-1233 (2004).

６６. Kamioka Y., Fukuhara S., Sawa H., Nagashima K., Masuda M., Matsuda M., Mochizuki N. A novel dynamin-associating molecule, forming-binding protein 17, induces tubular membrane invaginations and participates in endocytosis. **J. Biol. Chem.** 279: 40091-40099 (2004).

６７. Murakami M., Kataoka K., Fukuhara S., Nakagawa O., Kurihara H. Akt-dependent phosphorylation negatively regulates the transcriptional activity of dHAND by inhibiting the DNA binding activity. **Eur. J. Biochem.** 271: 3330-3339 (2004).

６８. Endo A., Fukuhara S., Masuda M., Ohmori T., Mochizuki N. Selective inhibition of vascular endothelial growth factor receptor-2 (VEGFR2) identifies a central role for VEGFR2 in human aortic endothelial cell response to VEGF. **J. Recept. Signal Transduct. Res.** 23: 239-54 (2003).

６９. Chikumi H., Fukuhara S., Gutkind J.S. Regulation of G protein-linked guanine nucleotide exchange factors for Rho, PDZ-RhoGEF and LARG, by tyrosine phosphorylation: Evidence of a role for FAK. **J. Biol. Chem**. 227: 12463-12467 (2002).

７０. Yamaguchi Y., Nagase T., Makita R., Fukuhara S., Tomita T., Tominaga T., Kurihara H., Ouchi Y. Identification of multiple novel epididymis-specific β-defensin isoforms in the humans and mice. **J. Immunol.** 169: 2516-2523 (2002).

７１. Yamaguchi Y., Fukuhara S., Nagase T., Tomita T., Hitomi S., Kimura S., Kurihara H., Ouchi Y. A novel mouse β-defensin, mBD-6, predominantly expressed in skeletal muscle. **J. Biol. Chem.** 276: 31510-31514 (2001).

７２. Fukuhara S., Chikumi H., Gutkind J.S. Leukemia-associated Rho guanine nucleotide

exchange factor (LARG) links heterotrimeric G proteins of the G_{12} family to Rho. **FEBS Lett.** 485: 183-188 (2000).

７３. Fukuhara S., Marinissen M.J., Chiariello M., Gutkind J.S. Signaling from G protein-coupled receptors to ERK5/BMK1 involves $G\alpha_q$ and $G\alpha_{12/13}$ families of heterotrimeric G proteins: Evidence for the existence of a novel Ras and Rho-independent pathway. **J. Biol. Chem.** 275: 21730-21736 (2000).

７４. Chiang Y.J., Kole H.K., Brown K., Naramura M., Fukuhara S., Hu R.-J., Jang I.K., Gutkind J.S., Shevach E., Gu H. Cbl-b regulates the CD28 dependence of T-cell activation. **Nature** 403: 216-220 (2000).

７５. Murga C., Fukuhara S., Gutkind J.S. A novel role for phosphatidylinositol 3-kinase β in signaling from G protein-coupled receptors to Akt. **J. Biol. Chem.** 275: 12069-12073 (2000).

７６. Pirone D.M., Fukuhara S., Gutkind J.S., Burbelo P.D. SPECs, small binding proteins for Cdc42. **J. Biol. Chem.** 275: 22650-22656 (2000).

７７. Fukuhara S., Murga C., Zohar M., Igishi T., Gutkind J.S. A novel PDZ-domain containing guanine nucleotide exchange factor links heterotrimeric G proteins to Rho. **J. Biol. Chem.** 274: 5868-5879 (1999).

７８. Igishi T., Fukuhara S., Patel V., Katz B.-Z., Yamada K.M., Gutkind J.S. Divergent signaling pathways link focal adhesion kinase to mitogen-activated protein kinase cascades: Evidence for a role of paxillin in c-Jun NH_2-terminal kinase activation. **J. Biol. Chem.** 274: 30738-30746 (1999).

７９. Fukuhara S., Shimizu M., Matsushima H., Mukai H., Munekata E. Signaling pathways via NK_1 receptors and their desensitization in an AR42J cell line. **Peptides** 19: 1349-1357 (1998).

８０. Fukuhara S., Mukai H., Munekata E. Activin A and all-trans-retinoic acid cooperatively enhanced the functional activity of L-type Ca^{2+} channels in the neuroblastoma C1300 cell line. **Biochem. Biophys. Res. Commun.** 241: 363-368 (1997).

８１. Fukuhara S., Mukai H., Kako K., Nakayama K., Munekata E. Further identification of neurokinin receptor types and mechanisms of calcium signaling evoked by neurokinins in the murine neuroblastoma C1300 cell line. **J. Neurochem**. 67: 1282-1292 (1996).

８２. Fukuhara S., Mukai H., Munekata E. Pharmacological evidence for neurokinin receptors in murine neuroblastoma C1300 cells. **Peptides** 16: 211-214 (1995).