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EDUCATION

M.S./Ph.D. (Advisor Prof. Pilhan Kim) Feb 2010 – Feb 2016
Thesis: Intravital Imaging of Lymph Node and Small Intestine
In Vivo Micro-Visualization Laboratory (<http://ivmvl.kaist.ac.kr/>)
Graduate School of Nanoscience and Technology
Korea Advanced Institute of Science and Technology (KAIST) Daejeon, Republic of Korea

B.S. Mar 2006 – Feb 2010
Department of Physics
Korea Advanced Institute of Science and Technology (KAIST)

PROFESSIONAL EXPERIENCE

Post-doctoral Researcher Mar 2016 – Present
In Vivo Micro-Visualization Laboratory
KAIST Natural Research Institute
Korea Advanced Institute of Science and Technology (KAIST)

AWARD

Annual Biophotonics Conference 2016, Young Investigator Award 2016
Immunology 2016, AAI Trainee Poster Award 2016
Annual Biophotonics Conference 2015, Excellence Poster Award 2015
The meeting of **Vascular Science and Medicine Organization**, Excellence Poster Award 2015
The Fall Conference of the **Korean Association of Immunologists**, Best Presentation Award 2014
The Spring Conference of the **Korean Association of Immunologists**, Best Presentation award 2013
Optical Society of Korea Summer Meeting, Best Paper Award 2012

PUBLICATIONS

Jang JY, Choi SY, Park I, Park DY, **Choe K**, Kim P, Kim YK, Lee BJ, Hirashima M, Kubota Y, Park JW, Cheng SY, Nagy A, Park YJ, Alitalo K, Shong M, Koh GY, "VEGFR2 but not VEGFR3 governs integrity and remodeling of thyroid angiofollicular unit in normal state and during goitrogenesis". *EMBO Molecular Medicine*, e201607341, 2017.

Jeong YJ, Lee D, **Choe K**, Ahn H, Kim P, Park JH, Kim YC, "Polypeptide-based polyelectrolyte complexes overcoming the biological barriers of oral insulin delivery". *Journal of Industrial and Engineering Chemistry*, 48, 79-87, 2017

Kim K*, **Choe K***, Park I, Kim P, Park Y, "Holographic intravital microscopy for 2-D and 3-D imaging intact circulating blood cells in microcapillaries of live mice", *Scientific Reports*, 6, 33084, 2016. (* co-first authors).

Choe K*, Jang JY*, Park I*, Kim Y, Ahn S, Park DY, Hong YK, Alitalo K, Koh GY, Kim P, "Intravital imaging of intestinal lacteals unveils lipid drainage through contractility", *The Journal of Clinical Investigation*, 125(11), 4042-4052, 2015. (* co-first authors).

- Paper: <http://www.jci.org/articles/view/76509>
- Highlight in 'JCI This Month – Nov. 2015', p7: <http://www.jci.org/this-month/2015/11>
- Highlight in JCI Posts: <http://www.jci.org/posts/339>

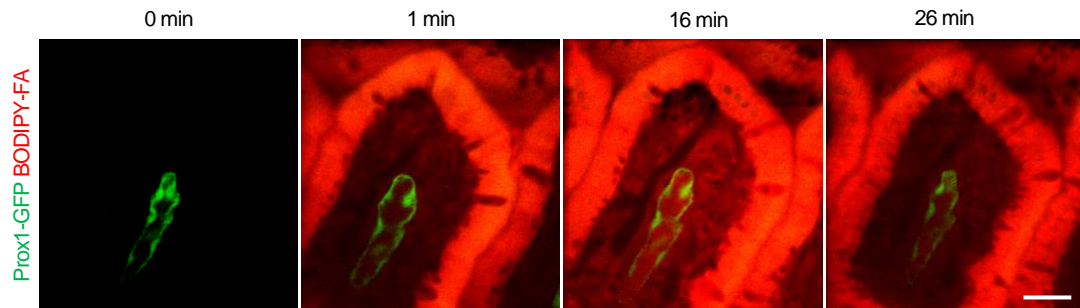


Figure shows dynamic absorption and drainage of BODIPY dye-conjugated fatty acid (BODIPY-FA) through a GFP+ lacteal (initial lymphatic vessel) in a single small intestinal villus. Scale bar, 30µm.

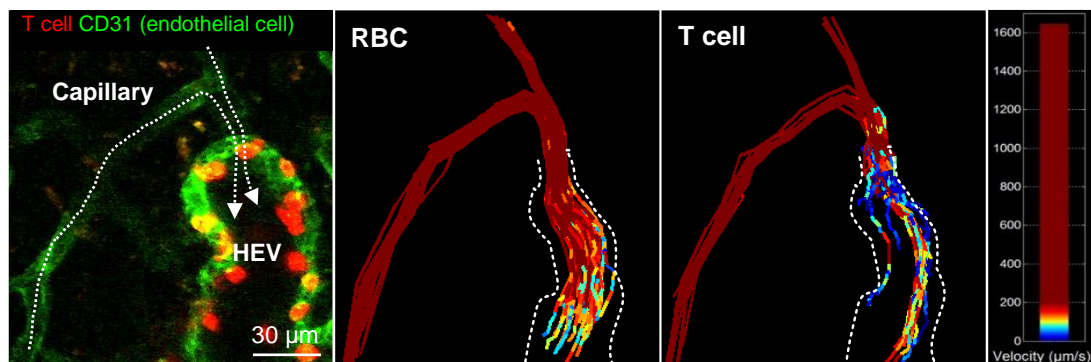
Song E, Seo H, **Choe K**, Hwang Y, Ahn J, Ahn S, Kim, P, "Optical clearing based cellular-level 3D visualization of intact lymph node cortex", *Biomedical Optics Express*, 6(10), 4154, 2015.

Ahn J, **Choe K**, Wang T, Hwang Y, Song E, Kim KH, Kim P, "In vivo longitudinal cellular imaging of small intestine by side-view endomicroscopy", *Biomedical Optics Express*, 6(10), 3963, 2015.

Seo H, Hwang Y, **Choe K**, Kim P, "In vivo Quantitation of Circulating Tumor Cells from Great Saphenous Vein Based on Video-rate Confocal Microscopy", *Biomedical Optics Express*, 6(6), 2158-67, 2015.

Lee D, **Choe K**, Jeong Y, Yoo J, Lee SM, Park JH, Kim P, Kim YC, "Establishment of a controlled insulin delivery system using a glucose-responsive double-layered nanogel". *RSC Advances*, 5(19), 14482–14491. 2015.

Choe K, Hwang Y, Seo H, Kim P, "In vivo high spatiotemporal resolution visualization of circulating T lymphocytes in high endothelial venules of lymph nodes," *Journal of Biomedical Optics*, 18(3):036005, Mar. 2013. (<http://biomedicaloptics.spiedigitallibrary.org/article.aspx?articleid=1661170>)



First figure shows post-capillary high endothelial venule (HEV) and adhered T cells. Arrows indicate tracks of flowing cells from capillaries to HEV. Second and third figures are velocity color-maps for RBC and T cell showing the changing velocity and spatial distribution of them simultaneously.

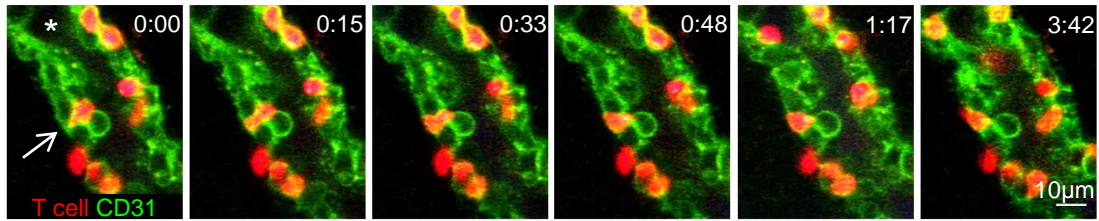


Figure clearly shows **para-cellular** trans-endothelial migration of T cell (arrow) in HEV. Star indicates lumen of HEV. Time scale (min:sec).

PRESENTATIONS

Choe K, Lee SY, Moon J, Song E, Ahn S, Kim P, “Intravital imaging of T and B cell migration in abluminal side of high endothelial venules in mice lymph node”, **2016 Annual Biophotonics Conference (ABC)**, Daejeon, Korea, Nov. 2016. (Oral Presentation)

Choe K, Song E, Lee SY, Ahn S, Moon J, Kim P, “Intravital imaging of T and B cell migration across high endothelial venules in lymph node”, **Immunology 2016**, P971, Seattle, USA, May. 2016. (Poster)

Choe K, Song E, Ahn S, Song S, Koh GY, Kim P, “Intravital imaging of T and B cell trafficking across high endothelial venules in mice lymph node”, **2015 Annual Biophotonics Conference (ABC)**, Seoul, Korea, Oct. 2015. (Poster)

Choe K, Jang JY, Park I, Kim Y, Ahn S, Park DY, Hong YK, Koh GY, Kim P, “Intravital imaging of lipids drainage in small intestinal lacteal”, **2015 Annual Meeting of Vascular Science & Medicine Organization (VSMO)**, P12, Busan, Korea, Oct. 2015. (Poster)

Choe K, Song E, Ahn S, Kim P, “In Vivo Imaging of T and B Cell Trafficking Across High Endothelial Venues in Mice Lymph Node”, **Optical Society of Korea (OSK) Summer Meeting 2015**, M1B-VI4, Jeju, Korea, Aug. 2015. (Oral Presentation)

Choe K, Song E, Ahn S, Song S, Koh GY, Kim P, “Intravital imaging of T and B cell trafficking across high endothelial venules in mice lymph node”, **The 2014 Fall Conference of the Korean Association of Immunologists**, OP-4 and P-219, Seoul, Korea, Nov. 2014. (Oral and Poster Presentation)

Choe K, Jang JY, Park I, Hong YK, Koh GY, Kim P, “Intravital imaging of lipid absorption in small intestine”, **Optical Society of Korea (OSK) Summer Meeting 2014**, W1D-VI2, Jeju, Korea, Aug. 2014. (Oral Presentation)

Choe K, Jang JY, Park I, Hong YK, Koh GY, Kim P, “In vivo imaging of lipid absorption in an individual intestinal villus”, **US-Korea Conference (UKC) 2014**, San Francisco, USA, Aug. 2014. (Poster)

Choe K, Hwang Y, Seo H, Ahn J, Song E, Kim P, “Direct in vivo visualization of dynamic interaction between EC and lymphocytes in HEV of lymph node”, **International Vascular Biology Meeting (IVBM) 2014**, P-291, Kyoto, Japan, Apr. 2014. (Poster)

Choe K, Jang JY, Park I, Hong YK, Koh GY, Kim P, “Intravital visualization of absorption and transport of lipid transport via intestinal lacteals”, **International Vascular Biology Meeting (IVBM) 2014**, P-290, Kyoto, Japan, Apr. 2014. (Poster)

Choe K, Hwang Y, Seo H, Song E, Kim P, “Real-time in vivo imaging of circulating lymphocytes in high endothelial venules of lymph node”, **SPIE Photonics West 2014**, 8944-14, San Francisco, USA, Feb. 2014. (Oral Presentation)

Choe K, Kim K, Hwang Y, Ahn J, Kim I, Kim P, "Intravital Imaging of Hematopoietic Stem Cells Engraftment and Differentiation", **Optical Society of Korea (OSK) Summer Meeting '2013**, F1B-V4, Yeosu, Korea, July. 2013. **(Oral Presentation)**

Choe K, Hwang Y, Seo H, Song E, Ahn J, Kim P, "In Vivo Visualization of Immunological Tissue by Real-time Laser Scanning Confocal Microscopy", **Conference on Institute of Control, Robotics and Systems (ICROS) '2013**, TB05-5, Changwon, Korea, May 23, 2013. **(Oral Presentation)**

Choe K, Hwang Y, Seo H, Song E, Kim P, "In Vivo Visualization of Circulating Lymphocytes in High Endothelial Venules of Lymph Node", **Korean Association of Immunologists Spring Meeting '2013**, OP-1 and P116, Chuncheon, Korea, Apr. 2013. **(Oral and Poster Presentation)**

Choe K, Hwang Y, Seo H, Kim P, "In Vivo Real-time Imaging of Circulating T Lymphocytes in High Endothelial Venules of Lymph Node," **Korean Society of Molecular and Cellular Biology Annual Meeting '2012**, Q-18, Seoul, Korea, Oct. 2012. (Poster)

Choe K, Hwang Y, Seo H, Kim P, "High Spatiotemporal Resolution Imaging of T cells in High Endothelial Venules of Mice Lymph Node," **Optical Society of Korea (OSK) Summer Meeting '2012**, W1C-VI2, Jeju, Korea, Aug. 2012. **(Oral Presentation)**

Choe K, Hwang Y, Kim P, "Real-time in vivo Imaging of Popliteal Lymph Node," **Optical Society of Korea (OSK) Summer Meeting '2011**, TP-VI12, Busan, Korea, Jul. 2011. (Poster)