

Kwangwoo Kim, PhD

Associate Professor
Department of Biology, Kyung Hee University
26 Kyunghee-daero, Dongdaemun-gu
Seoul 02447, South Korea
e-mail: kkim@khu.ac.kr
Website: <https://kimlab.khu.ac.kr/>

PROFESSIONAL SUMMARY

Kwangwoo Kim is a geneticist and Associate Professor of Biology at Kyung Hee University, Seoul, Republic of Korea. His research focuses on understanding genomic variants associated with common complex inflammatory diseases such as rheumatoid arthritis, systemic lupus erythematosus, and inflammatory bowel disease. He employs a wide range of genomic, transcriptomic, epigenetic, and metagenomic data across various research projects, utilizing cutting-edge Omics technologies including next-generation sequencing, along with various statistical and bioinformatic methods. Prof. Kim's human genetic studies on common autoimmune diseases have identified numerous genetic loci associated with disease susceptibility, highlighting HLA variants and many variants in noncoding elements that may have allele-specific regulatory effects in relevant tissues. By leveraging both emerging publicly available multi-Omics data and patient-specific Omics data, he uses computational approaches to understand how genetic variants influence disease genes, functionally relevant cell types, and biological pathways involved in impaired immune processes and disease phenotypes. Consequently, his work suggests potential drug targets and identifies potentially repurposable drugs.

Prof. Kim obtained his PhD from Korea Advanced Institute of Science and Technology (KAIST; Daejeon, Republic of Korea). He received training at Hanyang University (Seoul, Republic of Korea), Harvard Medical School (Boston, Massachusetts, USA), Brigham & Women's Hospital (Boston, Massachusetts, USA) and Broad Institute of MIT and Harvard (Cambridge, Massachusetts, USA). He conducted sabbatical research at the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) at the National Institutes of Health (NIH; Maryland, USA).

PROFESSIONAL POSITIONS

Associate Professor <i>Department of Biology & Department of Biomedical and Pharmaceutical Sciences Kyung Hee University (Seoul, Korea)</i>	2020-Present
Adjunct Professor Kyung Hee University Hospital at Gang Dong (Seoul, Korea)	2023-present
Special Volunteer National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) National Institutes of Health (MD, USA)	2023-Present
Department Chair <i>Department of Biology, Kyung Hee University (Seoul, Korea)</i>	2021-2023
Assistant Professor <i>Department of Biology, Kyung Hee University (Seoul, Korea)</i>	2016-2020
Research Assistant Professor <i>Hanyang University Hospital for Rheumatic Diseases (Seoul, Korea) (Mentor: Sang-Cheol Bae, MD, PhD, MPH)</i>	2015-2016
Research Fellow <i>Harvard Medical School Brigham & Women's Hospital Broad Institute (MA, USA) (Mentors: Robert M. Plenge, MD, PhD; Elizabeth W. Karlson, MD; Soumya Raychaudhuri, MD, PhD)</i>	2013-2014
Senior Scientist (책임연구원) <i>Bio Tech Group, Advanced Tech Center, Samsung Techwin (Seongnam, Korea)</i>	2011-2012

EDUCATIONS

Korea Advanced Institute of Science and Technology (KAIST) PhD: Human Genetics at the Department of Biological Sciences <i>Thesis: Genetic variations Associated with Susceptibility to Systemic Lupus Erythematosus and Response to Cyclophosphamide (Advisor: Changwon Kang, PhD)</i>	2007-2011
Korea Advanced Institute of Science and Technology (KAIST) MSc: Human Genetics at the Department of Biological Sciences <i>Thesis: Single Nucleotide Polymorphisms in CDKN1A and P2RX5 Associated with Susceptibility to Systemic Lupus Erythematosus (Advisor: Changwon Kang, PhD)</i>	2005-2007
Pusan National University BS: Department of Molecular Biology	2000-2005

RESEARCH GRANTS (PI: Kwangwoo Kim)

[Funder: The National Research Foundation]	
2023K2A9A2A06059626	2023 – 2025
2022R1A2C2092164	2022 – 2027
2017R1E1A1A01076388	2017 – 2022
2015R1C1A1A02036527	2015 – 2018
2013R1A6A3A03023016	2013 – 2014
[Funder: The Ministry for Health and Welfare]	
HI15C3182	2015 – 2018

SELECTED PUBLICATIONS (^: co-first authors, *: corresponding authors)

- 57. Development of an MHC imputation panel highlights independent contributions of HLA amino acid residues and C4 copy number variations to SLE risk**
Chae-Yeon Yu[^], Dong Mun Shin[^], Sung Min Kim, Yui Taek Lee, Sungwon Jeon, Sehwan Chun, So-Young Bang, Hye-Soon Lee, Xianrong Yin, Yong Cui, Xuejun Zhang, Jong Bhak, Soon Ji Yoo, Young Jin Kim*, Bong-Jo Kim*, Sang-Cheol Bae*, Kwangwoo Kim*. *Annals of the Rheumatic Diseases*. Published online [July, 2025] (doi: 10.1016/j.ard.2025.06.2121) [IF=20.6]
- 55. Genetic burden of lupus increases the risk of transition from normal to preclinical autoimmune conditions via antinuclear antibody development**
Sehwan Chun[^], So-Young Bang[^], Ayeong Kwon, Chan Young Kim, Soojin Cha, Young-Chang Kwon, Young Bin Joo, Soo-Kyung Cho, Chan-Bum Choi, Yoon-Kyoung Sung, Ji-Young Han, Tae-Hwan Kim, Jae-Bum Jun, Dae Hyun Yoo, Hye-Soon Lee, Kwangwoo Kim*, Sang-Cheol Bae*. *Annals of the Rheumatic Diseases*. 84(5):789-797. [May, 2025] (doi: 10.1016/j.ard.2025.01.015) [IF=20.6]
- 52. Transcriptomic network analysis reveals key drivers of response to anti-TNF biologics in patients with rheumatoid arthritis**
Chae-Yeon Yu, Hye-Soon Lee, Young Bin Joo, Soo-Kyung Cho, Chan-Bum Choi, Yoon-Kyoung Sung, Tae-Hwan Kim, Jae-Bum Jun, Dae Hyun Yoo, Sang-Cheol Bae, Kwangwoo Kim*, So-Young Bang*. *Rheumatology (Oxford)*. 63(5):1422-1431. [May, 2024] (doi: 10.1093/rheumatology/kead403) [IF=4.4]
- 50. Higher genetic risk loads confer more diverse manifestations and higher risk of lupus nephritis in systemic lupus erythematosus**
Young-Chang Kwon[^], Eunji Ha[^], Hyuk-Hee Kwon, Dae Jin Park, Jung-Min Shin, Young Bin Joo, Won Tae Chung, Dae-Hyun Yoo, Hye-Soon Lee, Kwangwoo Kim*, Sang-Cheol Bae*, So-Young Bang*. *Arthritis Rheumatol*. 75(9):1566-1572. [September, 2023] (doi: 10.1002/art.42516) [IF=10.9]
- 49. Distinct transcriptome architectures underlying lupus establishment and exacerbation**
Masahiro Nakano, Mineto Ota, Yusuke Takeshima, Yukiko Iwasaki, Hiroaki Hatano, Yasuo Nagafuchi, Takahiro Itamiya, Junko Maeda, Ryochi Yoshida, Saeko Yamada, Aya Nishiwaki, Haruka Takahashi, Hideyuki Takahashi, Yuko Akutsu, Takeshi Kusuda, Hiroyuki Suetsugu, Lu Liu, Kwangwoo Kim, Xianrong Yin, So-Young Bang, Yong

Cui, Hye-Soon Lee, Hirofumi Shoda, Xuejun Zhang, Sang-Cheol Bae, Chikashi Terao, Kazuhiko Yamamoto, Tomohisa Okamura, Kazuyoshi Ishigaki*, Keishi Fujio*. *Cell*. 185(18):3375-3389.e21. [September, 2022] (doi: 10.1016/j.cell.2022.07.021) [IF=42.5]

48. Biological insights into systemic lupus erythematosus through an immune cell-specific transcriptome-wide association study

Xianying Yin[^], Kwangwoo Kim[^], Hiroyuki Suetsugu[^], So-Young Bang, Leilei Wen, Masaru Koido, Eunji Ha, Lu Liu, Yuma Sakamoto, Sungsin Jo, Rui-Xue Leng, Nao Otomo, Young-Chang Kwon, Yujun Sheng, Nobuhiko Sugano, Mi Yeong Hwang, Weiran Li, Masaya Mukai, Kyungheon Yoon, Minglong Cai, Kazuyoshi Ishigaki, Won Tae Chung, He Huang, Daisuke Takahashi, Shin-Seok Lee, Mengwei Wang, Kohei Karino, Seung-Cheol Shim, Xiaodong Zheng, Tomoya Miyamura, Young Mo Kang, Dongqing Ye, Junichi Nakamura, Chang-Hee Suh, Yuanjia Tang, Goro Motomura, Yong-Beom Park, Huihua Ding, Takeshi Kuroda, Jung-Yoon Choe, Chengxu Li, Hiroaki Niino, Youngho Park, Changbing Shen, Takeshi Miyamoto, Ga-Young Ahn, Wenmin Fei, Tsutomu Takeuchi, Jung-Min Shin, Keke Li, Yasushi Kawaguchi, Yeon-Kyung Lee, Yong-Fei Wang, Koichi Amano, Dae Jin Park, Wanling Yang, Yoshifumi Tada, Yu Lung Lau, Ken Yamaji, Zhengwei Zhu, Masato Shimizu, Takashi Atsumi, Akari Suzuki, Takayuki Sumida, Yukinori Okada, Koichi Matsuda, Keitaro Matsuo, Yuta Kochi, Japanese Research Committee on Idiopathic Osteonecrosis of the Femoral Head; Kazuhiko Yamamoto, Koichiro Ohmura, Tae-Hwan Kim, Sen Yang, Takuaki Yamamoto, Bong-Jo Kim, Nan Shen, Shiro Ikegawa, Hye-Soon Lee, Xuejun Zhang, Chikashi Terao*, Yong Cui*, Sang-Cheol Bae*. *Annals of the Rheumatic Diseases*. 24;81(9):1273-80. [May, 2022] (doi: 10.1136/annrheumdis-2022-222345) [IF=20.6]

46. Recent advances in understanding the genetic basis of systemic lupus erythematosus

Eunji Ha, Sang-Cheol Bae*, Kwangwoo Kim*. *Seminars in Immunopathology*, 44(1):29-46. [January, 2022] (doi: 10.1007/s00281-021-00900-w) [IF=9.2]

45. Genetic variants shape rheumatoid arthritis-specific transcriptomic features in CD4⁺ T cells through differential DNA methylation, explaining a substantial proportion of heritability

Eunji Ha[^], So-Young Bang[^], Jiwoo Lim, Jun Ho Yun, Jeong-Min Kim, Jae-Bum Bae, Hye-Soon Lee, Bong-Jo Kim*, Kwangwoo Kim*, Sang-Cheol Bae*. *Annals of the Rheumatic Diseases*, 80(7):876-883. [July, 2021] (doi: 10.1136/annrheumdis-2020-219152) [IF=20.6]
[resource] DEG/DMR/QTL summary statistics: <https://doi.org/10.5061/dryad.w0vt4b8pw>

44. Large-scale meta-analysis across East Asian and European populations updated genetic architecture and variant-driven biology of rheumatoid arthritis, identifying 11 novel susceptibility loci

Eunji Ha, Sang-Cheol Bae*, Kwangwoo Kim*. *Annals of the Rheumatic Diseases*, 80(5):558-565. [May, 2021] (doi: 10.1136/annrheumdis-2020-219065) [IF=20.6]
*featured in Research Highlight of Nature Reviews Rheumatology (<https://www.nature.com/articles/s41584-021-00580-8>).
[resource] Association summary statistics: <https://doi.org/10.5061/dryad.ns1rn8pr0>

43. Meta-analysis of 208370 East Asians identifies 113 susceptibility loci for systemic lupus erythematosus

Xianying Yin[^], Kwangwoo Kim[^], Hiroyuki Suetsugu[^], So-Young Bang, Leilei Wen, Masaru Koido, Eunji Ha, Lu Liu, Yuma Sakamoto, Sungsin Jo, Rui-Xue Leng, Nao Otomo, Viktoryia Laurynenka, Young-Chang Kwon, Yujun Sheng, Nobuhiko Sugano, Mi Yeong Hwang, Weiran Li, Masaya Mukai, Kyungheon Yoon, Minglong Cai, Kazuyoshi Ishigaki, Won Tae Chung, He Huang, Daisuke Takahashi, Shin-Seok Lee, Mengwei Wang, Kohei Karino, Seung-Cheol Shim, Xiaodong Zheng, Tomoya Miyamura, Young Mo Kang, Dongqing Ye, Junichi Nakamura, Chang-Hee Suh, Yuanjia Tang, Goro Motomura, Yong-Beom Park, Huihua Ding, Takeshi Kuroda, Jung-Yoon Choe, Chengxu Li, Hiroaki Niino, Youngho Park, Changbing Shen, Takeshi Miyamoto, Ga-Young Ahn, Wenmin Fei, Tsutomu Takeuchi, Jung-Min Shin, Keke Li, Yasushi Kawaguchi, Yeon-Kyung Lee, Yongfei Wang, Koichi Amano, Dae Jin Park, Wanling Yang, Yoshifumi Tada, Ken Yamaji, Masato Shimizu, Takashi Atsumi, Akari Suzuki, Takayuki Sumida, Yukinori Okada, Koichi Matsuda, Keitaro Matsuo, Yuta Kochi, Japanese Research Committee on Idiopathic Osteonecrosis of the Femoral Head, Leah C. Kottyan, Matthew T. Weirauch, Sreeja Parameswaran, Shruti Eswar, Hanan Salim, Xiaoting Chen, Kazuhiko Yamamoto, John B. Harley, Koichiro Ohmura, Tae-Hwan Kim, Sen Yang, Takuaki Yamamoto, Bong-Jo Kim, Nan Shen, Shiro Ikegawa, Hye-Soon Lee, Xuejun Zhang, Chikashi Terao*, Yong Cui*, Sang-Cheol Bae*. *Annals of the Rheumatic Diseases*, 80(5):632-640. [May, 2021] (doi: 10.1136/annrheumdis-2020-219209) [IF=20.6]

42. Allele-specific quantification of HLA-DRB1 transcripts reveals imbalanced allelic expression that modifies the amino acid effects in HLA-DRβ1

Sehwan Chun[^], So-Young Bang[^], Eunji Ha, Jing Cui, Ki-Nam Gu, Hye-Soon Lee, **Kwangwoo Kim^{*}**, Sang-Cheol Bae^{*}. *Arthritis & Rheumatology*, 73(3):381-391. [March, 2021] (doi: 10.1002/art.41535) [IF=10.9]

41. Genome-wide association study in a Korean population identifies six novel susceptibility loci for rheumatoid arthritis

Young-Chang Kwon[^], Jiwoo Lim[^], So-Young Bang[^], Eunji Ha, Mi Yeong Hwang, Kyunghoon Yoon, Jung-Yoon Choe, Dae-Hyun Yoo, Shin-Seok Lee, Jisoo Lee, Won Tae Chung, Tae-Hwan Kim, Yoon-Kyoung Sung, Seung-Cheol Shim, Chan-Bum Choi, Jae-Bum Jun, Young Mo Kang, Jung-Min Shin, Yeon-Kyung Lee, Soo-Kyung Cho, Bong-Jo Kim, Hye-Soon Lee, **Kwangwoo Kim^{*}**, Sang-Cheol Bae^{*}. *Annals of the Rheumatic Diseases*, 79(11):1438-1445. [November, 2020] (doi: 10.1136/annrheumdis-2018-214297) [IF=20.6]

33. Massive false-positive gene–gene interactions by Rothman’s additive model

Kwangwoo Kim^{*}. *Annals of the Rheumatic Diseases*, 78(3):437-439. [March, 2019] (doi: 10.1136/annrheumdis-2018-214297) [IF=20.6]

27. A missense variant in NCF1 is associated with susceptibility to multiple autoimmune diseases

Jian Zhao^{^*}, Jianyang Ma[^], Yun Deng, Jennifer A. Kelly, **Kwangwoo Kim**, So-Young Bang, Hye-Soon Lee, Quan-Zhen Li, Edward K. Wakeland, Rong Qiu, Mengru Liu, Jianping Guo, Zhanguo Li, Wenfeng Tan, Astrid Rasmussen, Christopher J. Lessard, Kathy L. Sivils, Bevra H. Hahn, Jennifer M. Grossman, Diane L. Kamen, Gary S. Gilkeson, Sang-Cheol Bae, Patrick M. Gaffney, Nan Shen^{*}, Betty P. Tsao^{*}. *Nature Genetics*, 49(3):433-437. [March, 2017] (doi: 10.1038/ng.3782) [IF=29.0]

25. Update on the genetic architecture of rheumatoid arthritis

Kwangwoo Kim, So-Young Bang, Hye-Soon Lee, and Sang-Cheol Bae^{*}. *Nature Reviews Rheumatology*, 13(1):13-24. [January, 2017] (doi: 10.1038/nrrheum.2016.176) [IF=32.7]

20. Identification of a systemic lupus erythematosus risk locus spanning ATG16L2, FCHSD2, and P2RY2 in Koreans

Christopher J. Lessard[^], Satria Sajuthi[^], Jian Zhao[^], **Kwangwoo Kim[^]**, John A. Ice, He Li, Hannah Ainsworth, Astrid Rasmussen, Jennifer A. Kelly, Mindy Marion, So-Young Bang, Young Bin Joo, Jeongim Choi, Hye-Soon Lee, Young Mo Kang, Chang-Hee Suh, Won Tae Chung, Soo-Kon Lee, Jung-Yoon Choe, Seung Cheol Shim, Ji Hee Oh, Young Jin Kim, BokGhee Han, Nan Shen, Hwee Siew Howe, Edward K. Wakeland, QuanZhen Li, Yeong Wook Song, Patrick M. Gaffney, Marta E. Alarcón-Riquelme, Lindsey A. Criswell, Chaim O. Jacob, Robert P. Kimberly, Timothy J. Vyse, John B. Harley, Kathy L. Sivils, Sang-Cheol Bae^{*}, Carl D. Langefeld, and Betty P. Tsao^{*}. *Arthritis & Rheumatology*, 68(5):1197-209. [May, 2016] (doi: 10.1002/art.39548) [IF=10.9]

19. High-density genotyping of immune-related loci identifies new SLE risk variants in individuals with Asian ancestry

Celi Sun[^], Julio E. Molineros[^], Loren L. Looger[^], Xu-jie Zhou[^], **Kwangwoo Kim[^]**, Yukinori Okada, Jianyang Ma, Yuan-yuan Qi, Xana Kim-Howard, Prasenjeet Motghare, Krishna Bhattacharai, Adam Adler, So-Young Bang, Hye-Soon Lee, Tae-Hwan Kim, Young Mo Kang, Chang-Hee Suh, Won Tae Chung, Yong-Beom Park, Jung-Yoon Choe, Seung Cheol Shim, Yuta Kochi, Akari Suzuki, Michiaki Kubo, Takayuki Sumida, Kazuhiko Yamamoto, Shin-Seok Lee, Young Jin Kim, Bok-Ghee Han, Mikhail Dozmorov, Kenneth M. Kaufman, Jonathan D. Wren, John B. Harley, Nan Shen, Kek Heng Chua, Hong Zhang, Sang-Cheol Bae^{*}, and Swapan K. Nath^{*}. *Nature Genetics*, 48(3):323-30. [March, 2016] (doi: 10.1038/ng.3496) [IF=29.0]
[resource] Association summary statistics: Supplementary Data Set

17. Interactions between amino-acid-defined MHC class II variants and smoking for seropositive rheumatoid arthritis.

Kwangwoo Kim[^], Xia Jiang[^], Jing Cui[^], Bing Lu, Karen H. Costenbader, Jeffrey A. Sparks, So-Young Bang, Hye-Soon Lee, Yukinori Okada, Soumya Raychaudhuri, Lars Alfredsson, Sang-Cheol Bae^{*}, Lars Klareskog^{*}, and Elizabeth W. Karlson^{*}. *Arthritis & Rheumatology*, 67(10):2611-23. [October, 2015] (doi: 10.1002/art.39228) [IF=10.9]

16. High-Density Genotyping of Immune Loci in Koreans and Europeans Identifies 8 New Rheumatoid Arthritis Risk Loci

Kwangwoo Kim, So-Young Bang, Hye-Soon Lee, Soo-Kyung Cho, Chan-Bum Choi, Yoon-Kyoung Sung, Tae-Hwan Kim, Jae-Bum Jun, Dae Hyun Yoo, Young Mo Kang, Seong-Kyu Kim, Chang-Hee Suh, Seung-Cheol Shim, Shin-Seok Lee, Jisoo Lee, Won Tae Chung, Jung-Yoon Choe, Hyoung Doo Shin, Jong-Young Lee, Bok-Ghee Han, Swapan K. Nath, Steve Eyre, John Bowes, Dimitrios A. Pappas, Joel M. Kremer, Miguel A Gonzalez-Gay, Luis Rodriguez-Rodriguez, Lisbeth Årlestig, Yukinori Okada, Dorothée Diogo, Katherine P. Liao, Elizabeth W. Karlson, Soumya Raychaudhuri, Solbritt Rantapää-Dahlqvist, Javier Martin, Lars Klareskog, Leonid Padyukov, Peter K. Gregersen, Jane Worthington, Jeffrey D. Greenberg, Robert M. Plenge*, and Sang-Cheol Bae*. *Annals of the Rheumatic Diseases*, 74(3):e13. [May, 2015] (doi: 10.1136/annrheumdis-2013-204749) [IF=20.6]

14. The HLA-DRβ1 Amino Acid Positions 11-13-26 Explain the Majority of SLE-MHC Associations

Kwangwoo Kim, So-Young Bang, Hye-Soon Lee, Yukinori Okada, Buhm Han, Woei-Yuh Saw, Yik-Ying Teo, and Sang-Cheol Bae*. *Nature Communications*, 5:5902. [December, 2014] (doi: 10.1038/ncomms6902) [IF=15.7]

10. Ethnic specificity of lupus-associated loci identified in a genome-wide association study in Korean women

Hye-Soon Lee[^], Taehyeung Kim[^], So Young Bang, Young Ji Na, Il Kim, **Kwangwoo Kim**, Jae-Hoon Kim, Yeun-Jun Chung, Hyoung Doo Shin, Young Mo Kang, SeungCheol Shim, Chang-Hee Suh, Yong-Beom Park, Jong-Sung Kim, Changwon Kang*, and Sang-Cheol Bae*. *Annals of the Rheumatic Diseases*, 73(6), 1240-1245. [June, 2014] (doi: 10.1136/annrheumdis-2012-202675) [IF=20.6]

7. Variation in the ICAM1-ICAM4-ICAM5 locus is associated with systemic lupus erythematosus susceptibility in multiple ancestries

Kwangwoo Kim[^], Elizabeth E. Brown[^], Chan-Bum Choi, Marta E. Alarcón-Riquelme on behalf of BIOLUPUS, Jennifer A. Kelly, Stuart B. Glenn, Joshua O. Ojwang, Adam Adler, Hye-Soon Lee, Susan A. Boackle, Lindsey A. Criswell, Graciela S. Alarcón, Jeffrey C. Edberg, Anne M. Stevens, Chaim O. Jacob, Gary S. Gilkeson, Diane L. Kamen, Betty P. Tsao, Juan-Manuel Anaya, Joel M. Guthridge, Swapan K. Nath, Bruce Richardson, Amr H. Sawalha, Young Mo Kang, Seung Cheol Shim, Chang-Hee Suh, Soo-Kon Lee, Chang-sik Kim, Joan T. Merrill, Michelle Petri, Rosalind Ramsey-Goldman, Luis M. Vilá, Timothy B. Niewold, Javier Martin, Bernardo A. Pons-Estel on behalf of GENLES, Timothy J. Vyse, Barry I. Freedman, Kathy L. Moser, Patrick M. Gaffney, Adrienne Williams, Mary Comeau, John D. Reville, Judith A. James, R. Hal Scofield, Carl D. Langefeld, Kenneth M. Kaufman, John B. Harley, Changwon Kang*, Robert P. Kimberly*, and Sang-Cheol Bae*. *Annals of the Rheumatic Diseases*, 71 (11), 1809-1814. [October, 2012] (doi: 10.1136/annrheumdis-2011-201110) [IF=20.6]

5. Replicated Association of a Regulatory Polymorphism in the Interferon-gamma Gene with Lupus Susceptibility

Kwangwoo Kim[^], So-Yeon Park[^], Taehyeung Kim, Young Mo Kang, Seung-Cheol Shim, Chang-Hee Suh, Yong-Beom Park, Chang-sik Kim, Changwon Kang*, and Sang-Cheol Bae*. *Annals of the Rheumatic Diseases*, 70 (10) 1878-1879. [October, 2011] (doi: 10.1136/ard.2010.147249) [IF=20.6]

4. Interferon-gamma Gene Polymorphisms Associated with Susceptibility to Systemic Lupus Erythematosus

Kwangwoo Kim[^], Soo-Kyung Cho[^], Andrea Sestak, Bahram Namjou, Changwon Kang*, and Sang-Cheol Bae*. *Annals of the Rheumatic Diseases*, 69 (6), 1247-1250. [June, 2010] (doi: 10.1136/ard.2009.117572) [IF=20.6]