



•Field Virology  
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## ■ Educational background

- 2007-2013 Icahn School of Medicine at Mount Sinai (Ph.D.-Microbiology)
- 1997-2005 Sungkyunkwan University (BS-Genetic Engineering)

## ■ Major careers

- 2018-Present Assistant Professor, Department of Microbiology, College of Medicine, Hallym University
- 2013-2018 Research Instructor, Department of Microbiology, College of Medicine, Korea University
- 2013-2013 Postdoctoral Fellow, Department of Pathobiology, Veterinary School of Medicine, University of Pennsylvania
- 2010-2013 Visiting Scholar, Department of Pathobiology, Veterinary School of Medicine, University of Pennsylvania
- 2007 Research Assistant, Division of Hematology, School of Medicine, University of Utah
- 2006-2007 Research Assistant, Vaccine Research Institute of San Diego

## ■ Publications

- 1) Sungwoo Lee, Seonghyeon Lee, Woongkyu Park, Soohyun Lee, Sunwoo Kwon, Myeong Jin Oh, MohammadNavid Haddadnezhad, Insub Jung, Bohyeon Kim, Jieun Park, Kyu Sung Shin, Hyungdon Lee, Junsang Yoo\*, Won-Keun Kim\* and Sungho Park\*, Plasmonic Annular Nanotrenches with 1-nm Nanogaps for Detection of SARS-CoV-2 using SERS-based Immunoassay, *Nano Letters*, <http://doi.org/10.1021/acs.nanolett.4c00451> (2024) \***Co-correspondence**

- 2) Samuel M. Goodfellow, Robert A. Nofchissey, Dustin Arsnoe, Chunyan Ye, Seonghyeon Lee, Jieun Park, **Won-Keun Kim**, Kartik Chandran, Shannon LM Whitmer, John D. Klena, Jonathan W. Dyal, Trevor Shoemaker, Diana Riner, Mary Grace Stobierski, Kimberly Signs, Steven B. Bradfute, First Reported Orthohantavirus Infection Case in Michigan, USA, *Emerging Infectious Diseases*, 30(4); 10.3201/eid3004.231138 (2024)
- 3) Sara P. Prayitno, Seonghyeon Lee, Choon-Mee Kim, You Mi Lee, Kyungmin Park, Seong-Gyu Kim, Jongwoo Kim, Jieun Park, Augustine Natasha, Shivani Rajoriya, Jin-Won Song\*, Dong-Min Kim\*, **Won-Keun Kim**\*, Etiological agent and clinical characteristics of haemorrhagic fever with renal syndrome in the southern Republic of Korea: A genomic surveillance study, *Clinical Microbiology and Infection*, <https://doi.org/10.1016/j.cmi.2024.02.014> (2024) \***Co-correspondence**
- 4) Taehun Lim, Shivani Rajoriya, Bohyeon Kim, Augustine Natasha, Hyeonjoo Im, Hyun Soo Shim, Junsang Yoo, Jongwoo Kim, Eun-Woo Lee, Hye Jin Shin, Soon Ha Kim, **Won-Keun Kim**, *In vitro* broad-spectrum antiviral activity of MIT-001, a mitochondria-targeted reactive oxygen species scavenger, against severe acute respiratory syndrome coronavirus 2 and multiple zoonotic viruses, *Virus Research*, 324; <https://doi.org/10.1016/j.virusres.2024.199325> (2024)
- 5) Kyungmin Park, Jongwoo Kim, Juyoung Noh, Kijin Kim, Eunyoung Yang, Seong-Gyu Kim, Hee-Kyung Cho, Kwan Soo Byun, Ji Hoon Kim, Young-Sun Lee, Jung Ok Shim, Minsoo Shin, **Won-Keun Kim**, and Jin-Won Song, First detection and characterization of hepatitis E virus (Rocahepevirus rattii) from urban Norway rats (*Rattus norvegicus*) in the Republic of Korea, *Journal of Medical Virology*, 96:e29401; <https://doi.org/10.1002/jmv.29401> (2024)
- 6) Jongwoo Kim, Kyungmin Park, Kijin Kim, Juyoung Noh, Seong-Gyu Kim, Eunyoung Yang, Hee-Kyung Cho, Seung-Ho Lee, Jin Sun No, Geum-Young Lee, Daesang Lee, Dong-Hyun Song, Se Hun Gu, Man-Seong Park, Nam-Hyuk Cho, Seong Tae Jeong, **Won-Keun Kim**, and Jin-Won Song, High-resolution phylogeographical surveillance of Hantaan orthohantavirus using rapid amplicon-based Flongle sequencing, Republic of Korea, *Journal of Medical Virology*, 96:e29346; <https://doi.org/10.1002/jmv.29346> (2024)
- 7) Yeonsu Oh, Dongseob Tark, Gwang-Seon Ryoo, Dae-Sung Yoo, Woo H. Kim, Won-Il Kim, Choi-Kyu, Park, **Won-Keun Kim**, Ho-Seong Cho, Decadal analysis of livestock tuberculosis in Korea (2013~2022): Epidemiological patterns and trends, *Korean Journal of Veterinary Service*, 46(4):293-302 (2023)
- 8) Soo Yong Shin, Joo Hee Lee, Jin Woo Kim, Wonkyun Im, Kongara Damodar, Hyung Ryeol Woo, **Won-Keun Kim**, Jeong Lee, Sung-Ho Jeon, Evaluation of the antiviral activity of Tabamide A and its structural derivatives against influenza virus, *International Journal of Molecular Sciences*, 24(24), 17296; <https://doi.org/10.3390/ijms242417296> (2023)
- 9) Kyungmin Park, Juyoung Noh, Kijin Kim, Jongwoo Kim, Hee-Kyung Cho, Seong-Gyu Kim, Eunyoung Yang, **Won-Keun Kim**, Jin-Won Song, A Development of Rapid Whole-Genome Sequencing of Seoul orthohantavirus Using A Portable One-Step Amplicon-based High Accuracy Nanopore System, *Viruses*, 15(7), 1542; <https://doi.org/10.3390/v15071542> (2023)
- 10) Geum-Young Lee, Young-Sun Lee, Ji Hoon Kim, Kwan Soo Byun, Seung Ho Lee, Kyungmin Park, Jongwoo Kim, **Won-Keun Kim** and Jin-Won Song, Molecular Diagnosis of Patients with Hepatitis A Virus Infection Using Amplicon-based Nanopore Sequencing, *PLoS One*, 18(7): e0288361. <https://doi.org/10.1371/journal.pone.0288361> (2023)

- 11) Eun-A Kim, Nalae Kang, Seong-Yeong Heo, Jae-Young Oh, Seung-Hong, Lee, Seon-Heui Cha, **Won-Keun Kim**, Soo-Jin Heo, Antioxidant, antiviral, and anti-inflammatory activities of lutein-enriched extract of *Tetraselmis* species, *Marine Drugs*, 21(7), 369 (2023)
- 12) Kijin Kim, Kyungmin Park, Seung-Ho Lee, Seong Hyeon Lee, Seung-Hwan Baek, Na-Kyung Lee, Tae-Hun Lim, Hyebin Jung, Jongwoo Kim, Balachandran Manavalan, Jin-Won Song\*, **Won-Keun Kim\***, VirPipe: an easy and robust pipeline for detecting customized viral genomes obtained by Nanopore sequencing, *Bioinformatics*, 39(5), btad293 (2023)  
**\*Co-correspondence**
- 13) Seonghyeon Lee, Seung Hwan Baek, Shivani Rajoriya, Sara Puspareni, **Won-Keun Kim**, Genomic Epidemiology and Surveillance of Zoonotic Viruses Using Targeted Next-generation Sequencing, *Korean Journal of Veterinary Service*, 46(1):93-106 (2023) **Review article**
- 14) Kyungmin Park, Seung-Ho Lee, Jongwoo Kim, Jingyeong Lee, Geum-Young Lee, Seungchan Cho, Seung Ho Lee, Jeewan Choi, Juwon Park, Dong-Hyun Song, Se Hun Gu, Hyeongseok Yun, Jeong Eun Kim, Daesang Lee, Gyeong Haeng Hur, Seong Tae Jeong, **Won-Keun Kim**, and Jin-Won Song, A portable diagnostic assay, genetic diversity, and isolation of Seoul virus from *Rattus norvegicus* collected in Gangwon Province, Republic of Korea, *Pathogens*, 11(9), 1047; <https://doi.org/10.3390/pathogens11091047> (2022)
- 15) Jingyeong Lee, Kyungmin Park, Jongwoo Kim, Seung-Ho Lee, Geum-Young Lee, Seungchan Cho, Heung-Chul Kim, Terry A. Klein, Seung Ho Lee, Jeong-Ah Kim, Jeewan Choi, Juwan Park, Dong-Hyun Song, Se Hun Gu, Hyeongseok Yun, Jeong Eun Kim, Daesang Lee, Gyeong Haeng Hur, Seong Tae Jeong, Il-Ung Hwang, **Won-Keun Kim** and Jin-Won Song, Whole-genome sequencing and genetic diversity of severe fever with thrombocytopenia syndrome virus using multiplex PCR-based nanopore sequencing, Republic of Korea, *PLoS Neglected Tropical Diseases*, 16(9): e0010763. <https://doi.org/10.1371/journal.pntd.0010763> (2022)
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- 17) Geum-Young Lee\*, **Won-Keun Kim\***, Jin Sun No\*, Hayne Cho Park, Yongjin Yi, Seung-Chan Cho, Jingyeong Lee, Seung-Ho Lee, Kyungmin Park, Jongwoo Kim, and Jin-Won Song, Clinical and immunological predictors of hemorrhagic fever with renal syndrome outcome during the early phase, *Viruses*, 14(3), 595; <https://doi.org/10.3390/v14030595> (2022) **\*Equal contribution**
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- 19) Yong Jin Yi, Minsun Kang, **Won-Keun Kim**, Kyungmin Huh, Jonas Klingström, Jin-Won Song, Jaehun Jung, Association between hemorrhagic fever with renal syndrome and cancers, *International Journal of Infectious Diseases*, <https://doi.org/10.1016/j.ijid.2021.10.014> (2021)

- 20) Seung-Ho Lee, Sung-Tae Chong, Heung-Chul Kim, Terry A. Klein, Kyungmin Park, Jinyeong Lee, Jeong-Ah Kim, **Won-Keun Kim**, and Jin-Won Song, Surveillance and Molecular Identification of *Borrelia* species in Ticks collected at U.S. Army Garrison Humphreys, Republic of Korea, 2018-2019, *Journal of Medical Entomology*, tjab170, <https://doi.org/10.1093/jme/tjab170> (2021)
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- 22) Seungchan Cho\*, **Won-Keun Kim\***, Jin Sun No\*, Jaehun Jung, Yongjin Yi, Hyane Cho Park, Seung-Ho Lee, Geum-Young Lee, Kyungmin Park, Jeong-Ah Kim, Jongwoo Kim, Jinyeong Lee, Daesang Lee, Dong Hyun Song, Se Hun Gu, Seong Tae Jeong, Jin-Won Song, Urinary Genome Detection and Tracking of Hantaan Virus from Hemorrhagic Fever with Renal Syndrome Patients Using Multiplex PCR-based Next-generation Sequencing, *PLoS Neglected Tropical Diseases*, 15(9):e0009707 (2021) **\*Equal contribution**
- 23) Seung-Ho Lee, Jin Sun No, Kijin Kim, Shailesh Budhathoki, Kyungmin Park, Geum Young Lee, Seungchan Cho, Hyeok Sun Choi, Bong-Hyun Kim, Seunghee Cho, Jong Woo Kim, Jin Gyeong Lee, Seung Hye Cho, Heung-Chul Kim, Terry A. Klein, Chang-Sub Uhm, **Won-Keun Kim\***, Jin-Won Song\*, Novel Paju Apodemus Paramyxovirus 1 and 2, Harbored by *Apodemus agrarius* in The Republic of Korea, *Virology*, 562: 40-49 (2021) **\*Co-correspondence**
- 24) Kyungmin Park\*, **Won-Keun Kim\***, Seung-Ho Lee, Jongwoo Kim, Jinyeong Lee, Seungchan Cho, Geum-Young Lee, Jin Sun No, Keun Hwa Lee, and Jin-Won Song, A novel genotype of Hantaan Orthohantavirus harbored by *Apodemus agrarius chejuensis* as a potential etiologic agent of Hemorrhagic Fever with Renal Syndrome in Republic of Korea, *PLoS Neglected Tropical Diseases*, 15(5):e0009400 (2021) **\*Equal contribution**
- 25) Kyungmin Park, Seung-Ho Lee, Jongwoo Kim, Jinyeong Lee, Geum-Young Lee, Seungchan Cho, Seung Ho Lee, Kkothanahreum Park, Jin Sun No, Shailesh Budhathoki, Yu-Jin Kim, Young-Su Kim, Heung-Chul Kim, Terry A. Klein, **Won-Keun Kim**, and Jin-Won Song, Multiplex PCR-based Nanopore Sequencing and Epidemiological Surveillance of Hantaan orthohantavirus in *Apodemus agrarius*, Republic of Korea, *Viruses*, 13(5), 847 (2021)
- 26) Gunsup Lee, Shailesh Budhathoki, Geum-Young Lee, Kwang-ji Oh, Yeon Kyoung Ham, Young Jun Kim, Ye Rin Lim, Phuong Thi Hoang, Yongjun Lee, Seok-Won Lim, Jun-Mo Kim, Seungchan Cho, Tai-Hyun Kim, Jin-Won Song, Sukchan Lee\* and **Won-Keun Kim\***, Broad-spectrum antiviral activity of 3D8, a nucleic acid-hydrolyzing single chain variable fragment (scFv), targeting SARS-CoV-2 and multiple coronaviruses *in vitro*, *Viruses*, 13(4), 650 (2021) **\*Co-correspondence**
- 27) Seungchan Cho, Jon C. Allison, Kkothanahreum Park, Jin Sun No, Seung-Ho Lee, Kyungmin Park, Jongwoo Kim, Terry A. Klein, Heung-Chul Kim, **Won-Keun Kim**, Jin-Won Song, A Clinical Case of Scrub typhus in The United States Forces Korea Patient with Eschar and Genetic Identification of *Orientia tsutsugamushi* using Multiplex PCR-based Next-generation Sequencing, *Pathogens*, 10(4), 424, <https://doi.org/10.3390/pathogens10040424> (2021)
- 28) Byoung Kwon Park, Jinsoo Kim, Sangkyu Park, Dongbum Kim, Minyoung Kim, Kyeongbin Baek, Joon-Yong Bae,

Man-Seong Park, **Won-Keun Kim**, Younghee Lee, Hyung-Joo Kwon, MERS-CoV and SARS-CoV-2 replication can be inhibited by targeting the interaction between the viral spike protein and the nucleocapsid protein, *Theranostics*, 11(8):3853-3867 (2021)

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- 30) Geum-Young Lee\*, **Won-Keun Kim**\*, Kyungmin Park\*, Seung-Ho Lee, Jusun Hwang, Jin Sun No, Seungchan Cho, Daesang Lee, Dong-Hyun Song, Se Hun Gu, Man-Seong Park, Seung Tae Jung, Young-Su Kim, and Jin-Won Song, Phylogeographic Diversity and Hybrid Zone of Hantaan orthohantavirus Collected in Gangwon Province, Republic of Korea, *PLoS Neglected Tropical Diseases*, 14(10): e0008714 (2020) **\*Equal contribution**
- 31) **Won-Keun Kim**, Coronavirus disease COVID-19 *Journal of Disaster Prevention*, ISSN 1976-4294, 22 (2), 20-31 (2020) [http://www.kodipa.or.kr/HyAdmin/view.php?&bbs\\_id=bo01&page=&doc\\_num=131](http://www.kodipa.or.kr/HyAdmin/view.php?&bbs_id=bo01&page=&doc_num=131)
- 32) Seung-Ho Lee\*, Jin Sun No\*, **Won-Keun Kim**\*, Ewa Gajda, Agnieszka Perek-Matysiak, Jeong-Ah Kim, Joanna Hildebrand, Richard Yanagihara, and Jin-Won Song, Molecular epidemiology and genetic diversity of orthohantaviruses in small mammals in western Poland, *American Journal of Tropical Medicine and Hygiene*, 103(1): 193-199 (2020) **\*Equal contribution**
- 33) Seung-Ho Lee\*, **Won-Keun Kim**\*, Kyungmin Park, Jin Sun No, Geum Young Lee, Heung-Chul Kim, Terry A. Klein, Mi-Sook Min, Seo-Jin Lee, Jusun Hwang, Man-Seong Park, and Jin-Won Song, Genetic Diversity and Phylogeography of Jeju Orthohantavirus (Hantaviridae) in the Republic of Korea, *Virology*, 543:13-19 (2020) **\*Equal contribution**
- 34) **Won-Keun Kim**, Jin Sun No, Daesang Lee, Jaehun Jung, Hayne Park, Yongjin Yi, Jeong-Ah Kim, Seung-Ho Lee, Yujin Kim, Sunhye Park, Seungchan Cho, Geum-Young Lee, Dong Hyun Song, Se Hun Gu, Kkothanahreum Park, Heung-Chul Kim, Michael R. Wiley, Patrick S. G. Chain, Seong Tae Jeong, Terry A. Klein, Gustavo Palacios, and Jin-Won Song, Active Targeted Surveillance to Identify Sites of Emergence of Hantavirus, *Clinical Infectious Diseases*, Mar. 20<sup>th</sup>, 70(3) 464-473 (2020)
- 35) Jin Sun No\*, **Won-Keun Kim**\*, Seungchan Cho\*, Seung-Ho Lee, Jeong-Ah Kim, Daesang Lee, Dong Hyun Song, Se Hun Gu, Seong Tae Jeong, Michael R. Wiley, Gustavo Palacios, and Jin-Won Song, "Comparison of targeted next-generation sequencing for whole-genome sequencing of Hantaan orthohantavirus in *Apodemus agrarius* lung tissues, *Scientific Reports*, 9: 16631 (2019) **\*Equal contribution**
- 36) Heung-Chul Kim\*, **Won-Keun Kim**\*, Jin Sun No, Seung-Ho Lee, Se Hun Gu, Sung-Tae Chong, Terry A. Klein, and Jin-Won Song, Urban Rodent Surveillance, Climatic Association and Genomic Analysis of Seoul Virus Collected at U.S. Army Garrison, Seoul, Republic of Korea, 2006-2010, *American Journal of Tropical Medicine and Hygiene*, 99(2): 470-476 (2018) **\*Equal contribution**
- 37) **Won-Keun Kim**\*, Jin Sun No\*, Seung-Ho Lee, Dong Hyun Song, Daesang Lee, Jeong-Ah Kim, Se Hun Gu, Sunhye Park, Seong Tae Jeong, Heung-Chul Kim, Terry A. Klein, Michael R. Wiley, Gustavo Palacios, Jin-Won Song, Multiplex PCR-based next-generation sequencing and global diversity of Seoul virus in humans and rats, *Emerging Infectious*

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[\[http://science.ytn.co.kr/program/program\\_view.php?s\\_mcd=0082&s\\_hcd=0006&key=201703271155517458\]](http://science.ytn.co.kr/program/program_view.php?s_mcd=0082&s_hcd=0006&key=201703271155517458)
- 40) Dong Hyun Song\*, **Won-Keun Kim\***, Se Hun Gu, Daesang Lee, Jeong-Ah Kim, Jin Sun No, Seung-Ho Lee, Michael R. Wiley, Gustavo Palacios, Jin-Won Song, Seong Tae Jeong Sequence-Independent, Single-Primer Amplification Next-Generation Sequencing of Hantaan virus cell culture-based isolates, *American Journal of Tropical Medicine and Hygiene*, 96: 389-394 (2017) \*Equal contribution
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## ■ Research Interests

- 1) Development of antivirals
- 2) Next-generation sequencing: Comparative genomics
- 3) Virus-host interaction: Virology, Immunology, Epidemiology
- 4) Metagenomic analysis of virome

## ■ Patents

- 1) Composition for detecting Hepatitis A virus comprising multiplex primer set, kit for diagnosing Hepatitis A and

method for obtaining Hepatitis A virus whole genome sequence (Patent number: 10-2207348)

2) Hantavirus Whole Genome Sequence Identification Methods Using a Multiplex PCR-based Next-Generation Sequencing and Uses Thereof (Patent number: 10-1815105)