

Contact Information

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Education

- 2004. 3 ~ 2010. 8 **Ph. D.**, Department of Chemistry, KAIST
Advisor : Prof. Bongsoo Kim
Dissertation : Development of nanowire based SERS sensor:
Optical properties and biomedical applications
- 2000. 3 ~ 2004. 2 **B. S.**, Department of Chemistry, KAIST

Appointments

- 2017. 9 ~ Present **Adjunct Professor**, Department of Biological Sciences, KAIST
- 2017. 3 ~ Present **Associate Professor**, Department of Nanobiotechnology, KRIBB School of Biotechnology, UST
- 2012. 10 ~ Present **Senior Researcher**, Bionanotechnology Research Center KRIBB
- 2014. 1 ~ 2017. 4 **Senior Researcher**, BioNano Health Guard Research Center in Global Frontier Program, KRIBB
- 2015. 3 ~ 2017. 2 **Assistant Professor**, Major of Nanobiotechnology and Bioinformatics, UST
- 2010. 9 ~ 2012. 8 **Post-doctoral Researcher**, Department of Chemistry, KAIST

Awards & Honor

Awards

1. [Korea Center for Women in Science, Engineering, and Technology Award Winner, 2018](#)
[Highlighted in Domestic Newspapers]
2. [Selected People Glorifying Korea by BRIC, 2017](#)
3. [7th Samsung Electro-Mechanics Inside Edge Thesis Award Silver Prize Winner, 2011](#)
4. [Selected People Glorifying Korea by BRIC, 2010](#)

Editorial Service

1. Vacuum Magazine, **Jun. 1, 2017 ~ May 31, 2020**

Reviewer Service

1. ACS Sensors, **2019 (1), 2016 (1)**
2. ACS Applied Bio Materials, **2019 (1)**
3. Biosensors and Bioelectronics, **2018 (2), 2017 (1)**
4. ACS Applied Materials & Interfaces, **2018 (1)**
5. Scientific Report, **2018 (1)**
6. Analyst, **2018 (1)**
7. Advances in Optics and Photonics, **2018 (1)**
8. Toxins, **2018 (3)**
9. Toxicon, **2018 (1)**
10. Food Chemistry, **2017 (1)**
11. Electroanalysis, **2017 (1)**
12. Superlattices and Microstructures, **2017 (1)**
13. Bulletin of the Korean Chemical Society, **2017(1), 2014 (1)**
14. Journal of Nanoscience and Nanotechnology, **2013 (2)**
15. Samsung HumanTech Paper Award, **2018(2), 2017 (3), 2016 (7), 2015 (1), 2014 (5), 2013 (3), 2012 (2)**

Educational Service

1. UST Examination Problem Bank Construction Committee Member, **2018**

Conferences

1. **Committee**, Nano Korea 2019, KINTEX, Ilsan, Korea, **Jul. 3 ~ 5, 2019**
2. **Session Chair**, The 26th International Conference on Raman Spectroscopy (ICORS 2018), ICC, Jeju, Korea, **Aug. 26 ~ 31, 2018**
3. **Panel of Judges for Best Poster Award**, The 26th International Conference on Raman Spectroscopy (ICORS 2018), ICC, Jeju, Korea, **Aug. 26 ~ 31, 2018**
4. **Session Chair**, Nano Convergence Conference 2018, aT Center, Seoul, Korea, **Jan. 10 ~ 11, 2018**

5. **Panel of Judges for Best Poster Award**, 3rd BioNano Health Guard Research Center Workshop, Maison Glad Jeju, Jeju, Korea, **Jan. 18 ~ 19, 2016**
6. **Panel of Judges for Best Poster Award**, 45th Summer Meeting of the Korean Vacuum Society, Yeosu the Ocean Resort, Yeosu, Korea, **Aug. 21 ~ 23, 2013**
7. **Session Chair**, 2nd Bio Convergent Diagnosis R&D Partnering & Technology Transfer Forum, The Shilla Jeju, Jeju, Korea, **Feb. 27 ~ Mar. 1, 2013**

Memberships

1. The Korean Chemical Society
2. The Korean Society for Biotechnology and Bioengineering
3. Korea Nano Technology Research Society
4. The Korean BioChip Society
5. Korean Society of Food Science and Technology
6. The Korean Vacuum Society

Projects

Ongoing

1. **KRIBB Initiative Research Program**
"Development of Theragnosis Platforms Based on Bionanotechnology"
Participating Researcher, Ministry of Science and ICT, Korea, **Jan. 1, 2018 ~ Present**
2. **Future Leading Technology Development Program**
"Development of Point-Of-Care-Test for Discriminating Safety of Fresh Meat - Development of Bioelectronic Noses for Measuring Meat Freshness"
Participating Researcher, Ministry of Science and ICT, Korea, **Aug. 17, 2018 ~ Present**
3. **Bio Medical Technology Development Program**
"Development of exoNA Diagnosis Device for Companion Diagnostics and Monitoring of HER2 Overexpressed Cancer - Development of High-Precision, High-Sensitive exoNA Detection Technology based on Fluorescence Signal Amplification Probe"
Participating Researcher, Ministry of Science and ICT, Korea, **Apr. 1, 2018 ~ Present**
4. **Global Frontier Program**
"BioNano Health Guard Research - Development of Practical Technologies and System for Early Detection & Diagnostics of Infectious Pathogens - Securement of Bio-Contents for H-GUARD System and Development of Practical Technologies for Early Detection & Diagnostics - Development of Nanobio Interfacing Platform Technologies for Health Guard"

Principal Investigator (Consignment Research Project), Ministry of Science and ICT, Korea, **Mar. 1, 2018 ~ Present**

"BioNano Health Guard Research - Development of Fabrication Technologies for 3D Nano-micro Hybrid Structures for Nano Health Guard and its Application - Technology Developments for Design and Application of 3D Nanostructures to Control the Biomolecular Sensing Signals"

Principal Investigator (Unit Research Project), Ministry of Science and ICT, Korea, **Sep. 1, 2014 ~ Feb. 28, 2018**

Finished

1. **KRIBB Initiative Research Program**

"Development of Nanobiomedical Convergence Technology" [[Highlighted in Domestic Newspapers](#)]

Participating Researcher, Ministry of Science and ICT, Korea, **Jan. 1, 2015 ~ Dec. 31, 2018**

2. **KRIBB R&D Planning Program**

"Development Project of Convergence Nanomaterials for Smart Patch which Can Recognize and Control the Biological Function"

Planning Committee Member, Ministry of Science and ICT, Korea, **Mar. 1, 2018 ~ Dec. 31, 2018**

3. **Environmental Technology Development Program**

"Development of Safety Test Technology for Mixed Biocide Based on AOP - Product Development of Biocide Detector Based on AOP"

Participating Researcher, Ministry of Environment, Korea, **Jun. 1, 2018 ~ Dec. 31, 2018**

4. **Convergence Cluster Support Program**

"Convergence Cluster for the Development of Nanomedicine Innovative Technology-based Disease Response Platform"

Participating Researcher, National Research Council of Science & Technology, Korea, **Dec. 26, 2016 ~ Dec. 25, 2017**

5. **Public Welfare & Safety Research Program**

"Technology Development for Rapid On-Site Screening of Food Poisoning Pathogens - Development of Detection Technologies and Integrated Module Systems for Rapid Screening of Food Poisoning pathogens" [[Highlighted in Domestic Newspapers](#)] [[Highlighted in The Science & Technology](#)] - **A Grade**

Principal Investigator (Unit Research Project), Ministry of Science, ICT & Future Planning, Korea, **Sep. 1, 2013 ~ Jul. 31, 2017**

Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Dec. 1, 2012 ~ Aug. 31, 2013**

6. **Global Frontier Program**

"BioNano Health Guard Research - Development of Technologies for Acquisition and

- Application of Biocontents for BioNano Convergence Health Guard - Development of Platform Technologies for Acquisition/Modification/Application and Analysis of Biocontents for BioNano Convergence Health Guard” [[Highlighted in Nano Insight](#)] [[Highlighted in YTN](#)] [[Highlighted in YTN SCIENCE](#)] [[Highlighted in Domestic Newspapers](#)] [[Highlighted in Chemistry World](#)] [[Highlighted in APBN](#)] [[Highlighted in Nano Insight](#)]
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Jan. 1, 2014 ~ Apr. 31, 2017**
7. **Research Planning and Evaluation Program**
“A Study on the Technology for Collection and Detection of Hazardous Biosubstances”
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Jul. 1, 2016 ~ Oct. 31, 2016**
 8. **K-Valley RED&B Program**
“Development of Ultrasensitive SERS Sensor for Early Diagnosis of Cancer”
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Mar. 1, 2016 ~ Aug. 31, 2016**
 9. **Foreign Technology Information Program**
“Collection of NBIT Convergence Theragnosis Technology Information for the Realization of Personalized Medicine”
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Nov. 16, 2015 ~ Mar. 31, 2016**
 10. **Pioneer Research Center Program**
“Development of Nanopore based Biomolecular Sensing/Control System - Design of Protein-based Bio Contents and Technology Development for Nanopore Application”
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Dec. 1, 2012 ~ Feb. 28, 2015**
 11. **KRIBB Initiative Research Program**
“Development of Nanobiomedical Convergence Technology for Disease Diagnosis/Therapy”
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Nov. 1, 2012 ~ Dec. 31, 2014**
 12. **K-Valley RED&B Program**
“Optical Metasurface for Measuring Fine Refractive Index Change/Distribution and Analyzing Low-index Nano-biomaterials”
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **May 12, 2014 ~ Dec. 11, 2014**
 13. **SMEs Technology Mentoring Program**
“Technology Development for Real-time Monitoring of Bacteria in Pipes during Preparation, Transportation, and Supply of Beverages” [[Highlighted in Domestic Newspapers](#)]
Representative Mentor, Ministry of Science, ICT & Future Planning, Korea, **Apr. 3,**

2014 ~ Sep. 30, 2014

14. **Bio Medical Technology Development Program**
"Production and Application of Biomolecules for Bio-electronical Devices"
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Mar. 1, 2013 ~ Mar. 31, 2014**
15. **Pioneer Research Center Program**
"Bio Switch based Diagnostics·Imaging Convergence Research - Development of Novel Molecular Diagnosis and Imaging Technology Using Switch Molecules"
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Mar. 1, 2013 ~ Feb. 28, 2014**
16. **Establishment of National Nanotechnology Map**
"2nd National Nanotechnology Map (2014 ~ 2025)" [[Highlighted in YTN SCIENCE](#)]
[[Highlighted in Domestic Newspapers](#)]
Establishment Committee Member (Nanobio Subcommittee), Ministry of Science, ICT & Future Planning, Korea, **Jan. 1, 2014 ~ Feb. 28, 2014**
17. **Preliminary Feasibility Study**
"National Future Mega-Growth Engine Finding Program in a Viewpoint of Research Institutes Founded by Government - Health and Safety Society - Strengthening Techniques for Resilience against Multiple Compound Disasters"
Planning Committee Member (4th Subcommittee), Ministry of Science, ICT & Future Planning, Korea, **Nov. 1, 2013 ~ Dec. 31, 2013**
18. **Research Planning and Evaluation Program**
"Technology Convergence for Smart Health Monitoring using Innovative Nanotoxicity-free Biomolecular Nanomaterials with High Probe Activity"
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **Feb. 18, 2013 ~ Jul. 31, 2013**
19. **Research Planning and Evaluation Program**
"A Study on the BINT Convergence Health Guard Research" - **Selected as Global Frontier Program** [[Highlighted in Domestic Newspapers](#)] [[Highlighted in Domestic Newspapers](#)]
Participating Researcher, Ministry of Science, ICT & Future Planning, Korea, **May 1, 2013 ~ Jun. 28, 2013**
20. **KIRBB New Business Planning Program**
"Bio Convergent Mediation Research Center Construction Program" - Suspended
Planning Committee Member, Ministry of Science, ICT & Future Planning, Korea, **Jan. 1, 2013 ~ Apr. 10, 2013**
21. **KRIBB R&D Planning Program**
"Nanohealth Guard Research" - **1st Grade**
Planning Committee Member, Ministry of Education, Science, and Technology, Korea, **Nov. 1, 2012 ~ Dec. 31, 2012**

Publications

Submitted

1. B. Kang, J. Lim, H. Son, Y. Choi, **T. Kang**, J. Jung, Y.-M. Huh,* S. Haam,* E.-K. Lim*
"PEGylated magnetic nanoberries as contrast agents for effective T2-weighted MR imaging"
2. S. Yang, M. Kim, S. Park, H. Kim, J. Jeong, J. Jung, E.-K. Lim, M.-K. Seo, B. Kim,* and **T. Kang***
"Intra-Nanogap Controllable Au Plates as Efficient, Robust, and Reproducible Surface-Enhanced Raman Scattering-Active Platforms"
3. H. Kim, H. Jang, J. Moon, J. Byun, J. Jeong, J. Jung, E.-K. Lim, and **T. Kang***
"Corrosion-Resistant Silver Nanowire Surface-enhanced Raman Scattering Platform with Metal-Organic Framework Coating"
4. S. Yang, K. Park, **T. Kang**,* and B. Kim*
"Low-Temperature Synthesis of Single-Crystalline Gold Nanostructures: Towards Exceptional Electrocatalytic Activity for Methanol Oxidation Reaction"
5. G. Eom, A. Hwang, S. Yang, D. K. Lee, S. Song, K. Ha, J. Jeong, J. Jung, E.-K. Lim,* and **T. Kang***
"Diagnosis of Tamiflu-Resistant Influenza Virus in Human Nasal Fluid and Saliva using Surface-enhanced Raman Scattering"

Published

1. K. Guk, H. Kim, M. Lee, Y.-A. Choi, S. G. Hwang, G. Han, H.-N. Kim, H. Kim, H. Park, **T. Kang**,* E.-K. Lim,* and J. Jung*
"Development of Novel A4 Antibody for Detection of Antiviral Multidrug-Resistant Influenza Virus"
Nat. Commun. *In Revision*
2. J. Moon, J. Byun, H. Kim, J. Jeong, E.-K. Lim, J. Jung, W. K. Cho, and **T. Kang***
"Surface-Independent and Oriented Immobilization of Antibody via One-step Polydopamine/Protein G Coating: Application to Influenza Virus Immunoassay"
Macromol. Biosci. *In Revision*
3. S. B. Seo, S. U. Son, J. Lim, D. K. Lee, **T. Kang**, J. Jung,* and E.-K. Lim*
"Polydiacetylene (PDA)-based point-of-care testing platform for influenza A (H1N1) virus detection"
Sens. Actua. B *In Revision*
4. G. Eom, A. Hwang, D. K. Lee, K. Guk, J. Moon, J. Jeong, J. Jung, B. Kim, E.-K. Lim,* and **T. Kang***
"Superb Specific, Ultra Sensitive, and Rapid Identification of Oseltamivir-Resistant H1N1 Virus: Naked-eye and SERS Dual-Mode Assay using Functional Gold Nanoparticles"
ACS Appl. Bio Mater. **2019**, *In Press*

5. K. Guk, S. G. Hwang, J. Lim, H. Son, Y. Choi, Y.-M. Huh, **T. Kang**, J. Jung,* and E.-K. Lim*
"Fluorescence amplified sensing platform enabling miRNA detection by self-circulation of molecular beacon circuit"
Chem. Commun. **2019**, ASAP [[PDF](#)] [[Supporting Information](#)]
6. K. Park,[†] M. S. Kim,[†] ([†]co-first author) M. Kang, **T. Kang**,* B. Kim,* and S. T. Lee*
"Successful genetic modification of porcine spermatogonial stem cells via an electrically responsive Au nanowire injector"
Biomaterials **2019**, *193*, 22. [[PDF](#)] [[Supporting Information](#)]
7. W. S. Lee,[†] H.-J. Cho,[†] E. Kim,[†] ([†]co-first author) Y. H. Huh, H.-J. Kim, M. Y. Kim, B. Kim, **T. Kang**, J.-S. Lee,* and J. Jeong*
"Bioaccumulation of polystyrene nanoplastics enhances the toxicity of gold ion in zebrafish embryos"
Nanoscale **2019**, *11*, 3173. [[PDF](#)] [[Supporting Information](#)] [[Inside Back Cover](#)] [[Highlighted in Domestic Newspapers](#)] [[Highlighted in KBS](#)] [[Highlighted in MBC](#)] [[Highlighted in SBS](#)] [[Highlighted in YTN](#)]
8. J. Lim, J. M. Choi, K. Guk, S. U. Son, D. K. Lee, **T. Kang**, J. Jung, and E.-K. Lim*
"Peptidoglycan binding protein (PGBP)-modified magnetic nanobeads for efficient magnetic capturing of Staphylococcus aureus associated with sepsis in blood"
Sci. Rep. **2019**, *9*, 129. [[PDF](#)] [[Supporting Information](#)]
9. M. Lee,[†] H. Kim,[†] ([†]co-first author) E. Kim, S. Y. Yi, S. G. Hwang, S. Yang, E.-K. Lim, B. Kim,* J. Jung,* and **T. Kang***
"Multivalent Antibody-Nanoparticle Conjugates To Enhance the Sensitivity of Surface-Enhanced Raman Scattering-based Immunoassays"
ACS Appl. Mater. Interfaces **2018**, *10*, 37829. [[PDF](#)] [[Supporting Information](#)]
10. S. G. Hwang,[†] K. Ha,[†] ([†]co-first author) K. Guk, D. K. Lee, G. Eom, S. Song, **T. Kang**, H. Park, J. Jung,* and E.-K. Lim*
"Rapid and simple detection of Tamiflu-resistant influenza virus: Development of Oseltamivir derivative-based lateral flow biosensor for point-of-care (POC) diagnostics"
Sci. Rep. **2018**, *8*, 12999. [[PDF](#)] [[Supporting Information](#)] [[Highlighted in Domestic Newspapers](#)]
11. W. S. Lee,[†] E. Kim,[†] ([†]co-first author) H.-J. Cho, **T. Kang**, B. Kim, M. Y. Kim, Y. S. Kim, N. W. Song, J.-S. Lee, J. Jeong*
"The Relationship between Dissolution Behavior and the Toxicity of Silver Nanoparticles on Zebrafish Embryo in Different Ionic Environments"
Nanomaterials **2018**, *8*, 652. [[PDF](#)] [[Supporting Information](#)]
12. J. Moon, J. Byun, H. Kim, E.-K. Lim, J. Jeong, J. Jung, and **T. Kang***
"On-site Detection of Aflatoxin B1 in Grains by a Palm-sized Surface Plasmon Resonance Sensors"
Sensors **2018** *18*, 598. [[PDF](#)]

13. W. S. Lee, **T. Kang**, S.-H. Kim, and J. Jeong*
"An Antibody-Immobilized Silica Inverse Opal Nanostructure for Label-Free Optical Biosensors"
Sensors **2018**, *18*, 307. [[PDF](#)] [[Supporting Information](#)]
14. K. J. Lee,[†] W. S. Lee,[†] ([†]co-first author) A. Hwang, J. Moon, **T. Kang**, K. Park,* and J. Jeong*
"Simple and rapid detection of bacteria using a nuclease-responsive DNA probe"
Analyst **2018**, *143*, 332. [[PDF](#)] [[Supporting Information](#)]
15. S. U. Son, J. Lim, **T. Kang**, J. Jung,* and E.-K. Lim*
"Hyaluronan-Based Nanohydrogels as Effective Carriers for Transdermal Delivery of Lipophilic Agents: Towards Transdermal Drug Administration in Neurological Disorders"
Nanomaterials **2017**, *7*, 427. [[PDF](#)] [[Supporting Information](#)]
16. J. M. Lee,[†] A. Hwang,[†] ([†]co-first author) H. J. Choi, Y. Jo, B. Kim,* **T. Kang**,* and Y. Jung*
"A Multivalent Structure-Specific RNA Binder with Extremely Stable Target Binding but Reduced Interactions to Nonspecific RNAs"
Angew. Chem. Int. Ed. **2017**, *56*, 15998. [[PDF](#)] [[Supporting Information](#)] [[Highlighted in BRIC](#)] [[Highlighted in Domestic Newspapers](#)] [[Highlighted in YTN](#)]
17. S. Yang,[†] H. Kim,[†] ([†]co-first author) K. J. Lee, S. G. Hwang, E.-K. Lim, J. Jung, T. J. Lee, H.-S. Park,* **T. Kang**,* and B. Kim*
"Attomolar detection of extracellular microRNAs released from living prostate cancer cells by a plasmonic nanowire interstice sensor"
Nanoscale **2017**, *9*, 17387. [[PDF](#)] [[Supporting Information](#)] [[Highlighted in Clinical Laboratory International](#)]
18. Y. Yoo,[†] H. Lee,[†] ([†]co-first author) H. Lee, M. Lee, S. Yang, A. Hwang, S. Kim, J. Y. Park, J. Choo, **T. Kang**,* and B. Kim*
"Surfactant-Free Vapor-Phase Synthesis of Single-Crystalline Gold Nanoplates for Optimally Bioactive Surfaces"
Chem. Mater. **2017**, *29*, 8747. [[PDF](#)] [[Supporting Information](#)]
19. K. Park,[†] K. C. Kim,[†] ([†]co-first author) H. Lee, Y. Sung, M. Kang, Y. M. Lee, J. Y. Ahn, J. M. Lim, **T. Kang**, B. Kim,* and E. J. Lee*
"Development of Au nanowire injector system to deliver plasmid into mouse embryo"
Data in Brief **2017**, *14*, 48. [[PDF](#)]
20. G. Eom,[†] H. Kim,[†] ([†]co-first author) A. Hwang, H.-Y. Son, Y. Choi, J. Moon, D. Kim, M. Lee, E.-K. Lim, J. Jeong, Y.-M. Huh, M.-K. Seo, **T. Kang**,* and B. Kim*
"Nanogap-Rich Au Nanowire SERS Sensor for Ultrasensitive Telomerase Activity Detection: Application to Gastric and Breast Cancer Tissue Diagnosis"
Adv. Funct. Mater. **2017**, *27*, 1701832. [[PDF](#)] [[Supporting Information](#)] [[Inside Front Cover](#)]
21. K. Park,[†] K. C. Kim,[†] ([†]co-first author) H. Lee, Y. Sung, M. Kang, Y. M. Lee, J. Y. Ahn, J. M. Lim, **T. Kang**, B. Kim,* and E. J. Lee*

- "Suppressing mosaicism by Au nanowire injector-driven direct delivery of plasmids into mouse embryos"
Biomaterials **2017**, *138*, 169. [[PDF](#)] [[Supporting Movie](#)]
22. K. Guk, J. O. Keem, S. G. Hwang, H. Kim, **T. Kang**, E.-K. Lim,* and J. Jung*
"A facile, rapid and sensitive detection of MRSA using a CRISPR-mediated DNA FISH method, antibody-like dCas9/sgRNA complex"
Biosens. Bioelectron. **2017**, *95*, 67. [[PDF](#)] [[Supporting Information](#)]
23. S. Y. Yi,[†] S. Hwang,[†] ([†]co-first author) J. Moon, G. Eom, A. Hwang, J. Sim, E.-K. Lim, J. Jeong, B. Kim, **T. Kang**,* and J. Jung*
"Naked Eye Detection of *Salmonella Typhimurium* using Scanometric Antibody Probe"
J. Nanosci. Nanotechnol. **2017**, *17*, 4608. [[PDF](#)]
24. M. Yang,[†] S. W. Jeong,[†] ([†]co-first author) S. J. Chang, K. H. Kim, M. Jang, C. H. Kim, N. H. Bae, G. S. Sim, **T. Kang**, S. J. Lee,* B. G. Choi,* K. G. Lee*
"Flexible and Disposable Sensing Platforms based on Newspaper"
ACS Appl. Mater. Interfaces **2016**, *8*, 34978. [[PDF](#)] [[Supporting Information](#)] [[Supporting Movie 1](#)] [[Supporting Movie 2](#)] [[Highlighted in Nanowerk](#)]
25. J. Moon, S. Y. Yi, A. Hwang, G. Eom, J. Sim, J. Jeong, E.-K. Lim, B. H. Chung, B. Kim, J. Jung,* and **T. Kang***
"Facile and sensitive detection of influenza viruses using SERS antibody probes"
RSC Adv. **2016**, *6*, 84415. [[PDF](#)] [[Supporting Information](#)]
26. K. Guk, H. Kim, Y. Kim, **T. Kang**, E.-K. Lim,* and J. Jung*
"Label-free nanoprobe for antibody detection through an antibody catalysed water oxidation pathway"
RSC Adv. **2016**, *6*, 79998. [[PDF](#)] [[Supporting Information](#)]
27. S. Song,[†] K. Ha,[†] ([†]co-first author) K. Guk, S. Hwang, J. M. Choi, **T. Kang**, P. Bae, J. Jung,* and E.-K. Lim*
"Colorimetric detection of influenza A (H1N1) virus by a peptide-functionalized polydiacetylene (PEP-PDA) nanosensor"
RSC Adv. **2016**, *6*, 48566. [[PDF](#)] [[Supporting Information](#)]
28. H. Lee, Y. Yoo, **T. Kang**, J. Lee, E. Kim, X. Fang, S. Lee,* and B. Kim*
"Stereo-epitaxial Growth of Single-crystal Ni Nanowires and Nanoplates from Aligned Seed Crystals"
Nanoscale **2016**, *8*, 10291. [[PDF](#)] [[Supporting Information](#)]
29. H. Kim,[†] M.-L. Seol,[†] ([†]co-first author) D.-I. Lee, J. Lee, I.-S. Kang, H. Lee, **T. Kang**,* Y.-K. Choi,* and B. Kim*
"Single Nanowire on Graphene (SNOG) as an Efficient, Reproducible, and Stable SERS-Active Platform"
Nanoscale **2016**, *8*, 8878. [[PDF](#)] [[Supporting Information](#)]
30. R. Gwak,[†] H. Kim,[†] ([†]co-first author) S. M. Yoo, S. Y. Lee, G.-J. Lee, M.-K. Lee, C.-K.

- Rhee, **T. Kang**,* and B. Kim*
"Precisely Determining Ultralow level UO_2^{2+} in Natural Water with Plasmonic Nanowire Interstice Sensor"
Sci. Rep. **2016**, *6*, 19646. [[PDF](#)] [[Supporting Information](#)]
31. M. Kong,[†] J. Sim,[†] ([†]co-first author) **T. Kang**, H. H. Nguyen, H. K. Park, B. H. Chung,* and S. Ryu*
"A novel and highly specific phage endolysin cell wall binding domain for detection of *Bacillus cereus*"
Eur. Biophys. J. **2015**, *44*, 437. [[PDF](#)] [[Supporting Information](#)]
32. S. Kim,[†] G. Eom,[†] ([†]co-first author) M. Kang, **T. Kang**, H. Lee, A. Hwang, H. Yang,* and B. Kim*
"Composition-Selective Fabrication of Ordered Intermetallic Au-Cu Nanowires and Their Application to Nano-Size Electrochemical Glucose Detection"
Nanotechnology **2015**, *26*, 245702. [[PDF](#)] [[Supporting Information](#)]
33. M. Kang, H. Lee, **T. Kang**, and B. Kim*
"Synthesis, Properties, and Applications of Perfect Crystal Gold Nanowires"
J. Mater. Sci. Technol. **2015**, *31*, 573. [[PDF](#)]
34. **T. Kang**,[†] H. Kim,[†] ([†]co-first author) J. M. Lee, H. Lee, Y.-S. Choi, G. Kang, M.-K. Seo, B. H. Chung,* Y. Jung,* and B. Kim*
"Ultra-Specific Zeptomole MicroRNA Detection by Plasmonic Nanowire Interstice Sensor with Bi-Temperature Hybridization"
Small **2014**, *10*, 4200. [[PDF](#)] [[Supporting Information](#)]
35. M. Kang,[†] S. Jung,[†] ([†]co-first author), H. Zhang, **T. Kang**, H. Kang, Y. Yoo, J.-P. Hong, J.-P. Ahn, J. Kwak, D. Jeon,* N. A. Kotov,* and B. Kim*
"Subcellular Neural Probes from Single-Crystal Gold Nanowires"
ACS Nano **2014**, *8*, 8182. [[PDF](#)] [[Supporting Information](#)]
36. H. Lee,[†] K.-Y. Jeong,[†] ([†]co-first author) **T. Kang**, M. Seo,* and B. Kim*
"A twin-free single-crystal Ag nanoplate plasmonic platform: hybridization of the optical nano-antenna and surface plasmon active surface"
Nanoscale **2014**, *6*, 514. [[PDF](#)] [[Supporting Information](#)]
37. **T. Kang**,[†] H. Kim,[†] ([†]co-first author) H. Lee, H. Ryoo, S. M. Yoo, and B. Kim*
"Facile Fabrication of Multi-targeted and Stable Biochemical SERS Sensors"
Chem. Asian. J. **2013**, *8*, 3010. [[PDF](#)] [[Supporting Information](#)]
38. S. M. Yoo,[†] M. Kang,[†] ([†]co-first author) **T. Kang**, D. M. Kim, S. Y. Lee,* and B. Kim*
"Electro-triggered, Spatioselective, Quantitative Gene Delivery into a Single Cell Nucleus by Au Nanowire Nanoinjector"
Nano Lett. **2013**, *13*, 2431. [[PDF](#)] [[Supporting Information](#)] [[Highlighted in Domestic Newspapers](#)]
39. **T. Kang**, S. M. Yoo, M. Kang, H. Lee, H. Kim, S. Y. Lee, and B. Kim*

- "Single-step multiplex detection of toxic metal ions by Au nanowires-on-chip sensor using reporter elimination"
Lab Chip **2012**, *12*, 3077. [[PDF](#)]
40. **T. Kang**, W. Choi, I. Yoon, H. Lee, M.-K. Seo,^{*} Q.-H. Park,^{*} and B. Kim^{*}
"Rainbow Radiating Single-Crystal Ag Nanowire Nanoantenna"
Nano Lett. **2012**, *12*, 2331. [[PDF](#)] [[Supporting Information](#)] [[Highlighted in Domestic Newspapers](#)] [[Highlighted in KAIST Institute](#)]
41. H. Lee, Y. Yoo, **T. Kang**, J. In, M.-K. Seo, and B. Kim^{*}
"Topotaxial Fabrication of Vertical Au_xAg_{1-x} Nanowire Arrays: Plasmon-Active in the Blue Region and Corrosion Resistant"
Small **2012**, *8*, 1527. [[PDF](#)] [[Supporting Information](#)]
42. **T. Kang**,[†] S. M. Yoo,[†] ([†]co-first author) H. Kang, H. Lee, M. Kang, S. Y. Lee,^{*} and B. Kim^{*}
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45. H. Yoon, **T. Kang**, J. M. Lee, S.-I. Kim, K. Seo, J. Kim, W. I. Park, and B. Kim^{*}
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46. M.-L. Seol, J.-H. Kim, **T. Kang**, H. Im, S. Kim, B. Kim, and Y.-K. Choi^{*}
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47. **T. Kang**, S. M. Yoo, I. Yoon, S. Lee, J. Choo, S. Y. Lee, and B. Kim^{*}
"Au Nanowire-on-Film SERRS Sensor for Ultrasensitive Hg²⁺ Detection"
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48. Y.-K. Baek, S. M. Yoo, **T. Kang**, H.-J. Jeon, K. Kim, J.-S. Lee, S. Y. Lee, B. Kim, and H.-T. Jung^{*}
"Large-Scale Highly Ordered Chitosan-Core-Au-Shell Nanopatterns with Plasmonic Tunability: A Top-Down Approach to Fabricate Core-Shell Nanostructure"
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49. **T. Kang**,[†] S. M. Yoo,[†] ([†]co-first author) I. Yoon, S. Y. Lee,^{*} and B. Kim^{*}

- "Patterned Multiplex Pathogen DNA Detection by Au Particle-on-Wire SERS Sensor"
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50. **T. Kang**, I. Yoon, J. Kim, H. Ihee, and B. Kim*
"Au Nanowire-Au Nanoparticles Conjugated System which Provides Micrometer Size Molecular Sensors"
Chem. Eur. J. **2010**, *16*, 1351. [[PDF](#)]
51. J.-H. Kim, **T. Kang**, S. M. Yoo, S. Y. Lee, B. Kim,* and Y.-K. Choi*
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52. **T. Kang**, I. Yoon, K.-S. Jeon, W. Choi, Y. Lee, K. Seo, Y. Yoo, Q.-H. Park, H. Ihee, Y. D. Suh,* and B. Kim*
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53. **T. Kang**, J. Sung, W. Shim, H. Moon, J. Cho, Y. Jo, W. Lee, and B. Kim*
"Synthesis and Magnetic Properties of Single-Crystalline Mn/Fe-Doped and Co-doped ZnS Nanowires and Nanobelts"
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54. I. Yoon, **T. Kang**, W. Choi, J. Kim, Y. Yoo, S.-W. Joo, Q.-H. Park, H. Ihee,* and B. Kim*
"Single Nanowire on a Film as an Efficient SERS-Active Platform"
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55. P. Mohanty, I. Yoon, **T. Kang**, K. Seo, K. S. K. Varadwaj, W. Choi, Q.-H. Park, J. P. Ahn, Y. D. Suh, H. Ihee, and B. Kim*
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56. P. Mohanty, **T. Kang**, B. Kim,* and J. Park
"Synthesis of Single Crystalline Tellurium Nanotubes with Triangular and Hexagonal Cross Section"
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Proceeding

1. M. Kang, H. Kang, **T. Kang**, J. Kwak, and B. Kim*
"Fabrication and Characterization of Single-Crystalline Au Nanowire Electrodes"

IEEE Nanotechnology Materials and Devices Conference 2011, 342. [[PDF](#)]

Patents

Issued

1. J. Jung, E. K. Lim, K. H. Guk, J. O. Keem, and **T. Kang**
"Method for detecting a target gene using a dCas9/gRNA complex and fluorescence marker"
Korea 2019, 10-1942947
2. B. Kim, M.-K. Seo, H. Lee, and **T. Kang**
"Optical Nano Antenna Using Single-Crystalline Ag Nanoplate, and Nano Optical Equipment Including the Same"
Korea 2014, 10-1382258
3. B. Kim, M. Kang, and **T. Kang**
"Transition Metal Nano Electrode and a Method of Fabricating Thereof"
Korea 2014, 10-1358989
4. B. Kim, H. Lee, and **T. Kang**
"Method of Fabricating an AuAg Nanowire"
Korea 2013, 10-1339962
5. B. Kim, **T. Kang**, and I. Yoon
"Optical Nano Antenna Using Single-Crystalline Ag Nanowire, Method of Manufacturing the Same and Optical Nano Antenna Using Single-Crystalline Metal Nanowire"
Korea 2013, 10-1251379
6. B. Kim, **T. Kang**, I. Yoon, S. Y. Lee, and S. M. Yoo
"Detection Method of Bio-Chemical Material using Surface-Enhanced Raman Scattering"
Korea 2011, 10-1059896
7. B. Kim, I. Yoon, and **T. Kang**
"Spectra Sensor for Surface-enhanced Raman Scattering"
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8. W. Lee, B. Kim, W. Jung, K. Lee, S. Shim, and **T. Kang**
"Room Temperature Ferromagnetic ZnS Nanobelts and the Fabrication Method Thereof"
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Pending

1. J. Jung, K. H. Gook, E.-K. Lim, **T. Kang**
"Composition of detecting Listeriolysin O by liposome including split GFP"
Korea 2018, 10-2018-0130684
2. E.-K. Lim, J. Jung, **T. Kang**, J. W. Lim, S. J. Jang, S. U. Son
"Naked-eye Detection of Influenza A H1N1 Virus by Polydiacetylene PDA Based Paper Sensor as A Point-of-care Diagnostic Platform"

- Korea 2018**, 10-2018- 0129366
- O. S. Kwon, **T. Kang**, S. J. Park, C. S. Park, K. H. Kim, J. Y. Kim, J. Lee, C-S. Lee
"Carbene Compound, Carbene-Metal Nanoparticle Complex and Method for Manufacturing Thereof"
Korea 2018, 10-2018-0120648
 - T. Kang**, K. G. Lee, A. R. Hwang, K. H. Kim, N. H. Bae, J. Y. Jeong, D. E. Yoo, D. W. Lee, M. K. Lee, S. J. Lee, W. S. Lee, T. J. Lee, E.-K. Lim, J. Jung, J. Moon, J. Byun
"System and Method for Capturing and Assaying Hazardous Biomaterials Using Hybrid Nano-structures"
Korea 2018, 10-2018-0000810
 - E. K. Lim, S. U. Son, J. Lim, **T. Kang**, and J. Jung
"Composition comprising hyaluronan-based nanohydrogels"
Korea 2017, 10-2017-0156036
 - T. Kang**, J. Moon, J. Y. Jeong, W. S. Lee, E. K. Lim, and J. Jung
"Immobilization method of Antibodies using Polydopamine"
Korea 2017, 10-2017-0034619
 - J. Jung, E. K. Lim, K. H. Guk, J. O. Keem, and **T. Kang**
"Method for detecting a target gene using a dCas9/gRNA complex and fluorescence marker"
PCT 2017, KR2017-001618
 - B. H. Chung, **T. Kang**, and H. K. Park
"Surface Plasmon Resonance Sensor System Capable of Real-time Monitoring of the Sample and Analysis Method using the Same"
Korea 2016, 10-2016-0026273, **2013**, 10-2013-0118167
 - B. Kim, **T. Kang**, and I. Yoon
"Optical Nano Antenna Using Single-Crystalline Ag Nanowire, Method of Manufacturing the Same and Optical Nano Antenna Using Single-Crystalline Metal Nanowire"
USA 2012, 13/625,384, **Japan 2012**, 2012-203996, **EU 2012**, 12006884.6
 - B. Kim, **T. Kang**, I. Yoon, S. Y. Lee, and S. M. Yoo
"Detection Method of Bio-Chemical Material using Surface-Enhanced Raman Scattering"
USA 2011, 12/900,248, **Japan 2010**, 2010-229292, **EU 2010**, 10187095.4
 - B. Kim, I. Yoon, and **T. Kang**
"Spectra Sensor for Surface-enhanced Raman Scattering"
USA 2009, 12/654,665, **Japan 2009**, 2010-514582

Presentations

Invited Seminars

- "Synthesis of Noble Metal Nanostructures and Biomedical Applications"
Philosys, Seong-Nam, Korea, **Dec. 18, 2018**

2. "Synthesis of Noble Metal Nanostructures and Biomedical Applications"
Material Chemistry Research Institute, Chungnam National University, Daejeon, Korea, **Nov. 22, 2018**
3. "Convergence Research on Food Science and Biotechnology"
Food Science and Biotechnology Major, College of Agriculture and Life Sciences, Seoul National University, Seoul, Korea, **Nov. 20, 2018**
4. "Synthesis of Noble Metal Nanostructures and Biomedical Applications"
Annual Biophotonics Conference 2018, Asia Culture Center, Gwangju, Korea, **Oct. 26 ~ 27, 2018**
5. "Synthesis of Nanostructures and Biomedical Applications"
Department of Chemistry, Kongju National University, Kongju, Korea, **Sep. 17, 2018**
6. "Synthesis of Au Nanostructures and Biomedical Applications"
The 26th international Conference on Raman Spectroscopy (ICORS 2018), ICC, Jeju, Korea, **Aug. 26 ~ 31, 2018**
7. "Convergence Research on Food Science and Biotechnology"
Food Science and Biotechnology Major, College of Agriculture and Life Sciences, Seoul National University, Seoul, Korea, **Jun. 18, 2018**
8. "Noble Metal Nanowires for Biomedical Applications"
Department of Optics & Mechatronics Engineering, Pusan National University, Pusan, Korea, **Dec. 19, 2017**
9. "Noble Metal Nanowires for Biomedical Applications"
46th International Symposium on High Performance Liquid Phase Separations and Related Techniques (HPLC 2017 Jeju), ICC, Jeju, Korea, **Nov. 5 ~ 9, 2017**
10. "Synthesis of Au Nanostructure and Biosensing Application"
KRIBB Conference, Hazards Monitoring Bionano Research Center, KRIBB, Daejeon, Korea, **Nov. 1, 2017**
11. "Nanobio Sensing using Gold Nanowire"
The 3rd International Conference on Nano-Bio Sensing, Imaging & Spectroscopy, ICC, Jeju, Korea, **Feb. 22 ~ 24, 2017**
12. "BioNano Health Guard"
2016 Fall Meeting of the Korean BioChip Society, Hanwha Resort Haeundae Tivoli, Busan, Korea, **Oct. 26 ~ 28, 2016**
13. "Synthesis of Noble Metal Nanostructures and Biomedical Applications"
Department of Chemistry, Gyeongsang National University, Jinju, Korea, **Oct. 29, 2015**
14. "Introduction of BioNano Health Guard Research Center"
KRIBB Conference, Super Bacteria Research Center, KRIBB, Daejeon, Korea, **Mar. 26, 2014**

15. "Noble Metal Nanowires for Biomedical Applications"
The Seo Group, Interdisciplinary School of Green Energy, UNIST, Ulsan, Korea, **Jan. 17, 2014**
16. "Noble Metal Nanowires for Biomedical Applications"
Germany-Korea Nano Bio Material Expert Workshop, KIST Europe, Saarbrückent, Germany, **Oct. 15 ~ 17, 2013** [[Highlighted in Domestic Newspapers](#)]
17. "Noble Metal Nanowire based SERS Sensor"
45th Summer Meeting of the Korean Vacuum Society, Yeosu the Ocean Resort, Yeosu, Korea, **Aug. 21 ~ 23, 2013**
18. "Nanobio Sensors"
I²DEA Laboratory, Department of Industrial Design, KAIST, Daejeon, Korea, **Jul. 25, 2013**
19. "Noble Metal Nanowires for Biomedical Applications"
Germany-Korea Nano Technology Forum, KRICT, Daejeon, Korea, **Jul. 15, 2013**
20. "Noble Metal Nanowires for Biomedical Applications"
BioNanotechnology Research Center, KRIBB, Daejeon, Korea, **Aug. 28, 2012**
21. "Nanowire based Surface-enhanced Raman Scattering Sensor"
BioNanotechnology Research Center, KRIBB, Daejeon, Korea, **Oct. 10, 2011**

International Conferences

1. H. Kim and **T. Kang**
"Nanowire based Surface-enhanced Raman Scattering Platform for Biochemical Sensing"
The 26th international Conference on Raman Spectroscopy (ICORS 2018), ICC, Jeju, Korea, **Aug. 26 ~ 31, 2018**
2. **T. Kang**
"Multivalent antibody-nanoparticle conjugates to enhance the sensitivity of SERS-based immunoassays"
SPIE Nanoscience + Engineering, San Diego Convention Center, San Diego, USA, **Aug. 19 ~ 23, 2018**
3. W. S. Lee, **T. Kang**, and J. Jeong
"Label-Free Detection of Influenza Virus Using Biomimetic Nanopillar-Based Biosensor"
2017 MRS Fall Meeting, Hynes Convention Center, Boston, USA, **Nov. 26 ~ Dec. 1, 2017**
4. **T. Kang**
"Nanogap-Rich Au Nanowire SERS Sensor for Ultrasensitive Telomerase Activity Detection: Application to Gastric and Breast Cancer Tissue Diagnosis"
EMN Meeting on Colloid and Interface, Chatrium Hotel, Bangkok, Thailand, **Nov. 12 ~ 16, 2017**
5. G. Eom, A. Hwang, B. Kim, and **T. Kang**

- "Au Nanoparticles-deposited Au Nanowire SERS Sensor for Telomerase Activity Detection in Cancer Cells and Tissues"
BIEN 2017, The Plaza Hotel, Seoul, Korea, **Aug. 31 ~ Sep. 2, 2017**
6. K. Park, B. Kim, and **T. Kang**
"Fabrication of nanowire-based nonviral vector for effective delivery of DNA into stem cell"
BIEN 2017, The Plaza Hotel, Seoul, Korea, **Aug. 31 ~ Sep. 2, 2017**
7. K. Guk, S. Hwang, J. M. Choi, **T. Kang**, P. Bae, J. Jung, and E.-K. Lim
"Colorimetric detection of influenza A (H1N1) virus by a peptide-functionalized polydiacetylene (PEP-PDA) nanosensor"
BIEN 2017, The Plaza Hotel, Seoul, Korea, **Aug. 31 ~ Sep. 2, 2017**
8. J. Moon and **T. Kang**
"Facile Immobilization of Antibody using Polydopamine and Protein G Mixture: Towards Substrate-Free Influenza Virus Detection"
Nano Korea 2017, KINTEX, Ilsan, Korea, **Jul. 12 ~ 14, 2017**
9. A. Hwang, H. Lee, **T. Kang**, and B. Kim
"Well-Ordered Troponin Apatamers on Ultraflat, Ultraclean Gold Nanoplates for Early-Diagnosis of Acute Myocardial Infarction"
Nano Korea 2017, KINTEX, Ilsan, Korea, **Jul. 12 ~ 14, 2017**
10. G. Eom, B. Kim, and **T. Kang**
"Sensitive and Specific Detection of Telomerase Activity using Au Nanoparticles-deposited Au Nanowire SERS Sensor"
Nano Korea 2017, KINTEX, Ilsan, Korea, **Jul. 12 ~ 14, 2017**
11. K. Park, **T. Kang**, and B. Kim
"Efficient Transportation of Biomolecules for Living Cells by Novel Metal Nanowire"
Nano Korea 2017, KINTEX, Ilsan, Korea, **Jul. 12 ~ 14, 2017**
12. **T. Kang**, G. Eom, A. Hwang, and J. M
"A novel and highly specific phage endolysin cell wall binding domain for detection of *Bacillus cereus*"
10th World Congress on Nutrition & Food Sciences, Hyatt Regency Osaka, Osaka, Japan, **May 29 ~ 31, 2017**
13. J. Moon, G. Eom, A. Hwang, J. Byun, and **T. Kang**
"Real-time Detection of Aflatoxin B1 using Portable SPR"
The 3rd SPIE's International Conference on Nano-Bio Sensing, Imaging & Spectroscopy, ICC, Jeju, Korea, **Feb. 22 ~ 24, 2017**
14. R. Gwak, H. Kim, **T. Kang**, and B. Kim
"Selective Monitoring of H₂O₂ Release from a Mechanically Stimulated Single HeLa Cell Using Prussian Blue modified Au Nanowire Electrode"
The 3rd SPIE's International Conference on Nano-Bio Sensing, Imaging &

Spectroscopy, ICC, Jeju, Korea, **Feb. 22 ~ 24, 2017**

15. **T. Kang**

"Single nanowire on graphene (SNOG) as an efficient, reproducible, and stable SERS-active platform"

11th International Conference and Expo on Nanoscience and Molecular Nanotechnology, Holiday Inn Rome Aurelia, Rome, Italy, **Oct. 20 ~ 22, 2016**

16. J. Moon, S. Y. Yi, A. Hwang, G. Eom, J. Sim, J. Jeong, E.-K. Lim, B. H. Chung, B. Kim, J. Jung, and **T. Kang**

"Facile and sensitive identification of influenza viruses using SERS antibody probes"

Nano Korea 2016, KINTEX, Ilsan, Korea, **Jul. 13 ~ 15, 2016**

17. J. Sim, M. Kong, **T. Kang**, S. Ryu, and B. H. Chung

"A Novel and Highly Specific Phage Endolysin Cell Wall Binding Domain for Detection of Foodborne Pathogens by Surface Plasmon Resonance"

ICCB 2015, University Paris 8, Paris, France, **Jul. 20 ~ 22, 2015**

18. G. Eom, **T. Kang**, and B. Kim

"Ultrasensitive Detection of Telomerase Activity by Au-sputtered Au Nanowire SERS Sensor"

ICCB 2015, University Paris 8, Paris, France, **Jul. 20 ~ 22, 2015**

19. A. Hwang, **T. Kang**, and B. Kim

"Ultrasensitive Targeting from Well-ordered Antibodies on Ultraflat Single-crystalline Au Nanoplates for Attomolar Detection of C-reactive Protein"

ICCB 2015, University Paris 8, Paris, France, **Jul. 20 ~ 22, 2015**

20. G. Eom, **T. Kang**, and B. Kim

"Ultrasensitive detection of disease biomarker by Au nanoplate-Au nanoparticle platform"

Nano Korea 2015, COEX, Seoul, Korea, **Jul. 1 ~ 3, 2015**

21. J. Sim, M. Kong, **T. Kang**, S. Ryu, and B. H. Chung

"Highly Sensitive Detection of *Bacillus cereus* Food Poisoning using Magnetic Nanoparticles"

Nano Korea 2015, COEX, Seoul, Korea, **Jul. 1 ~ 3, 2015**

22. **T. Kang**, A. Hwang, H. Lee, M. Lee, E. Kim, and B. Kim

"Ultrasensitive Targeting from Well-ordered Antibodies on Ultraflat Single-crystalline Au Nanoplates for Detection of C-reactive Protein"

Nano Korea 2015, COEX, Seoul, Korea, **Jul. 1 ~ 3, 2015**

23. M. Kong, J. Sim, **T. Kang**, B. H. Chung, and S. Ryu

"Surface Plasmon Resonance Detection of *Bacillus cereus* using a Cell Wall Binding Domain of a Phage Endolysin"

EMBO Conference on Viruses and Microbes III, ETH Zurich, Zurich, Switzerland, **Jul. 14 ~ 18, 2014**

24. **T. Kang**, H. Kim, J. M. Lee, H. Lee, Y.-S. Choi, G. Kang, M.-K. Seo, B. H. Chung, and B.

Kim

"Ultra-Specific Zeptomole MicroRNA Detection by Plasmonic Nanowire Interstice Sensor with Bi-Temperature Hybridization"

Nano Korea 2014, COEX, Seoul, Korea, **Jul. 2 ~ 4, 2014**

25. G. Eom, S. Kim, M. Kang, **T. Kang**, H. Lee, A. Hwang, H. Yang, and B. Kim
"Composition-Selective Fabrication of Ordered Intermetallic Au-Cu Nanowires; Application in Interference-Free Electrochemical Glucose Sensors"
Nano Korea 2014, COEX, Seoul, Korea, **Jul. 2 ~ 4, 2014**

26. J. Sim, M. Kong, **T. Kang**, S. Ryu, and B. H. Chung
"Surface Plasmon Resonance Detection of Foodborne Pathogens by Phage Endolysin Cell Wall Binding Domains and Magnetic Nanoparticle"
Nano Korea 2014, COEX, Seoul, Korea, **Jul. 2 ~ 4, 2014**

27. H. Kim, **T. Kang**, J. M. Lee, H. Lee, G. Kang, Y. Jung, B. H. Chung, and B. Kim
"Detection of Multiple MicroRNAs by Patterned Plasmonic Nanowire Sensor"
2013 DASAN CONFERENCE on Photonic Nanostructure-Based Bio-Detection Technologies, Sheraton Grande Walkerhill, Seoul, Korea, **Sep. 25 ~ 27, 2013**

28. **T. Kang**, H. Kim, H. Lee, S. M. Yoo, S. Y. Lee, and B. Kim
"Facile Fabrication of Multi-targeted and Stable Biochemical SERS Sensors"
ASIASENSE 2013, Ramada Plaza Melaka, Melaka, Malaysia, **Aug. 27 ~ 29, 2013**
[[Highlighted in BT News](#)]

29. **T. Kang**
"Noble Metal Nanowires for Biomedical Applications"
Thailand-Korea Bio Nano Joint Symposium 2013, Intercontinental Hotel Bangkok, Bangkok, Thailand, **Mar. 29 ~ 30, 2013**

30. S. M. Yoo, **T. Kang**, B. Kim, and S. Y. Lee
"Diagnosis of Genetic Disease using S1 Enzymatic Reaction-combined Nanowire Sensor"
2012 the Korea Society for Biotechnology and Bioengineering & International Symposium, Changwon Exhibition Convention Center, Changwon, Korea, **Apr. 11 ~ 13, 2012**

31. S. M. Yoo, **T. Kang**, B. Kim, and S. Y. Lee
"SERRS Sensor coupled with Target Recycling Reaction for Ultrasensitive and Multiplex Identification of Pathogenic Fungi"
2012 the Korea Society for Biotechnology and Bioengineering & International Symposium, Changwon Exhibition Convention Center, Changwon, Korea, **Apr. 11 ~ 13, 2012**

32. **T. Kang**, H. Kim, S. M. Yoo, S. Y. Lee, and B. Kim
"Aptameric Nanowire SERS Sensor for Molecular Detection"
2012 NTHU-KAIST Junior Chemists Symposium, National Tsing Hua University, Hsinchu, Taiwan, **Feb. 14 ~ 17, 2012**

33. M. Kang, H. Kang, **T. Kang**, J. H. Kwak, and B. Kim
"Fabrication and Characterization of Single-Crystalline Au Nanowire Electrode and its Biological Application"
2011 IEEE Nanotechnology Materials and Devices Conference, The Shilla Jeju, Jeju, Korea, **Oct. 18 ~ 21, 2011**
34. S. M. Yoo, **T. Kang**, I. Yoon, B. Kim, and S. Y. Lee
"Multiple Detection of Pathogenic Bacteria using Patterned Au Particle-on-Wire SERS Sensor"
International Conference on Cellular & Molecular Bioengineering, Nanyang Technological University, Nanyang, Singapore, **Aug. 2 ~ 4, 2010**
35. **T. Kang**, I. Yoon, W. Choi, Q.-H. Park, K.-S. Jeon, Y. D. Suh, J. Kim, H. Ihee, and B. Kim
"SERS active Platforms based on Noble Metal Nanowires"
AMN4 Conference, University of Otago, Dunedin, New Zealand, **Feb. 8 ~ 12, 2009**
36. **T. Kang**, I. Yoon, and B. Kim
"SERS-active Systems based on Noble Metal Nanowires"
10th KAIST-KYOTO Chemistry Symposium (1st KAIST-KYOTO-TSING HUA Chemistry Symposium), KAIST, Daejeon, Korea, **Dec. 20 ~ 23, 2008**
37. **T. Kang**, P. Mohanty, I. Yoon, K. Seo, K. S. K. Varadwaj, W. Choi, Q.-H. Park, J. P. Ahn, Y. D. Suh, H. Ihee, and B. Kim
"Simple Vapor Phase Synthesis of Single-crystalline Ag NWs and Single NW Surface-enhanced Raman Scattering"
2008 BK International Symposium, Ramada Plaza Jeju Hotel, Jeju, Korea, **Feb. 21 ~ 23, 2008**
38. **T. Kang**, P. Mohanty, I. Yoon, K. Seo, K. S. K. Varadwaj, W. Choi, Q.-H. Park, J. P. Ahn, Y. D. Suh, H. Ihee, and B. Kim
"Simple Vapor Phase Synthesis of Single-crystalline Ag NWs and Single NW Surface-enhanced Raman Scattering"
2008 KAIST-NTHU Junior Chemists Workshop, KAIST, Daejeon, Korea, **Jan. 30 ~ Feb. 1, 2008**
39. **T. Kang**, J. Sung, P. Mohanty, B. Kim, W. Shim, and W. Lee
"Room Temperature Ferromagnetism in Mn and Fe co-doped ZnS Nanobelts"
2005 International Conference on Nanoscience and Nanotechnology, GIST, Gwangju, Korea, **Nov. 10 ~ 11, 2005**

Domestic Conferences

1. H. Kim, and **T. Kang**
"Metal-Organic Framework coated Corrosion-resistant Silver Nanowire Surface-enhanced Raman Scattering Platform"
Nano Convergence Conference 2019, Elysian Gangchon, Chuncheon, Korea, **Jan. 17 ~ 18, 2019**

2. G. Eom, B. Kim, and **T. Kang**
"Au-sputtered Au Nanowire SERS Sensor for Telomerase Activity Detection"
2016 Fall Meeting of Materials Research Society of Korea, Hotel Hyundai
Gyeongju, Gyeongju, Korea, **Nov. 16 ~ 18, 2016**
3. A. Hwang, **T. Kang**, and B. Kim
"Well-oriented Antibodies on Ultraclean Single-crystalline Au Nanoplate for Attomolar
Detection of CRP"
2016 Fall Meeting of Materials Research Society of Korea, Hotel Hyundai
Gyeongju, Gyeongju, Korea, **Nov. 16 ~ 18, 2016**
4. W. S. Lee, **T. Kang**, and J. Jeong
"Detection of Influenza Virus using Inverse Opal Nanostructure-based Biosensor"
2016 Fall Meeting of Materials Research Society of Korea, Hotel Hyundai
Gyeongju, Gyeongju, Korea, **Nov. 16 ~ 18, 2016**
5. J. Moon and **T. Kang**
"Facile and sensitive identification of influenza viruses using SERS antibody probes"
2016 Fall Meeting of Materials Research Society of Korea, Hotel Hyundai
Gyeongju, Gyeongju, Korea, **Nov. 16 ~ 18, 2016**
6. J. Moon, S. Y. Yi, A. R. Hwang, G. Eom, J. Sim, B. H. Chung, B. Kim, J. Jung, and **T. Kang**
"Facile and sensitive identification of influenza viruses using SERS antibody probes"
Nano Convergence Conference 2016, Seoul National University, Seoul, Korea, **Jan. 21 ~ 22, 2016**
7. J. Moon, S. Y. Yi, A. R. Hwang, G. Eom, J. Sim, B. H. Chung, B. Kim, J. Jung, and **T. Kang**
"Facile and sensitive identification of influenza viruses using SERS antibody probes"
3rd BioNano Health Guard Research Center Workshop, Maison Glad Jeju, Jeju,
Korea, **Jan. 18 ~ 19, 2016**
8. G. Eom, **T. Kang**, and B. Kim
"Ultrasensitive detection of disease biomarker by Au nanoplate-Au nanoparticle platform"
115th Spring Meeting of the Korean Chemical Society, KINTEX, Ilsan, Korea, **Apr. 15 ~ 17, 2015**
9. G. Eom, H. Kim, and **T. Kang**, and B. Kim
"Au-Sputtered Au Nanowire SERS Platform for Telomerase Activity Detection"
114th Fall Meeting of the Korean Chemical Society, KIMDAEJUNG Convention
Center, Gwangju, Korea, **Oct. 15 ~ 17, 2014**
10. G. Eom, H. Kim, and **T. Kang**, and B. Kim
"Highly sensitive assay for Telomerase Activity Detection on Au-sputtered Au Nanowire
SERS Platform"
2nd BioNano Health Guard Research Center Workshop, Jeju Grand Hotel, Jeju,
Korea, **Feb. 12 ~ 14, 2015**

11. A. Hwang, H. Lee, M. Lee, E. Kim, **T. Kang**, and B. Kim
"SERS based Immunoassay using Single Crystalline Gold Nanoplate and Cysteine-tagged Protein G for Detection of C-reactive Protein (CRP)"
114th Fall Meeting of the Korean Chemical Society, KIMDAEJUNG Convention Center, Gwangju, Korea, **Oct. 15 ~ 17, 2014**
12. G. Eom, H. Kim, **T. Kang**, and B. Kim
"Ultrasensitive Detection of Telomerase Activity by Au-Sputtered Au Nanowire SERS Sensor"
2014 Fall Meeting of the Korean Society for Biotechnology and Bioengineering, Changwon Exhibition Convention Center, Changwon, Korea, **Oct. 5 ~ 7, 2014**
13. A. Hwang, H. Lee, **T. Kang**, and B. Kim
"Detection of C-reactive Protein (CRP) using Single Crystalline Gold Nanoplate and Cysteine-tagged Protein G based SERS Platform"
2014 Fall Meeting of the Korean Society for Biotechnology and Bioengineering, Changwon Exhibition Convention Center, Changwon, Korea, **Oct. 5 ~ 7, 2014**
14. J. Sim, M. Kong, **T. Kang**, S. Ryu, and B. H. Chung
"Specific Detection of *Bacillus cereus* by Surface Plasmon Resonance Using Phage Endolysin Cell Wall Binding Domains"
2014 Spring Meeting of the Korean Society for Biotechnology and Bioengineering, Hyundai Hotel, Gyeongju, Korea, **Apr. 9 ~ 11, 2014**
15. **T. Kang**
"Noble Metal Nanowires for Biomedical Applications"
Symposium of Division of Convergent BioMedical Research of KRIBB, KRIBB, Daejeon, Korea, **Dec. 20, 2012**
16. M. Kang, **T. Kang**, J. H. Kwak, and B. Kim
"Fabrication and Characterization of Single-Crystalline Au Nanowire Electrode"
107th Spring Meeting of the Korean Chemical Society, ICC, Jeju, Korea, **Apr. 28 ~ 29, 2011**
17. **T. Kang** and B. Kim
"Detection of Single Nucleotide Polymorphism by Au Nanowire-on-Film SERS Sensor Coupled with S1 Nuclease Treatment"
107th Spring Meeting of the Korean Chemical Society, ICC, Jeju, Korea, **Apr. 28 ~ 29, 2011**
18. Y. Yoo, **T. Kang**, and B. Kim
"Epitaxially-driven Stereoaligned Growth of Pt Nanowires from Oriented Seed Crystals"
107th Spring Meeting of the Korean Chemical Society, ICC, Jeju, Korea, **Apr. 28 ~ 29, 2011**
19. **T. Kang**, J. Ahn, I. Yoon, W. Choi, Q.-H. Park, and B. Kim
"Plasmonic Properties of Single Nanowire on a Film"
105th Spring Meeting of the Korean Chemical Society, Songdo Convensia, Incheon,

Korea, **Apr. 29 ~ 30, 2010**

20. **T. Kang**, S. M. Yoo, I. Yoon, S. Lee, J. Choo, S. Y. Lee, and B. Kim
"Ultrasensitive Single-Nanowire-on-Film SERS Sensor for Hg²⁺ Detection"
105th Spring Meeting of the Korean Chemical Society, Songdo Convensia, Incheon, Korea, **Apr. 29 ~ 30, 2010**
21. **T. Kang**, S. M. Yoo, I. Yoon, S. Y. Lee, and B. Kim
"Patterned Multiplex Pathogen DNA Detection by Au Particle-on-Wire SERS Sensor"
105th Spring Meeting of the Korean Chemical Society, Songdo Convensia, Incheon, Korea, **Apr. 29 ~ 30, 2010**
22. **T. Kang**, I. Yoon, J. Kim, H. Ihee, and B. Kim
"Au Nanowire-Au Nanoparticles Conjugated System Provides Micrometer Size Molecular Sensor"
104th Fall Meeting of the Korean Chemical Society, DCC, Daejeon, Korea, **Oct. 28 ~ 30, 2009**
23. **T. Kang**, I. Yoon, W. Choi, K.-S. Jeon, K. Seo, Y. Yoo, J. Kim, H. Ihee, Y. D. Suh, Q.-H. Park, and B. Kim
"Surface-enhanced Raman Scattering Sensor based on Noble Metal Nanostructures"
Summer Symposium of Division of Physical Chemistry of the Korean Chemical Society, Haeundae Grand Hotel, Busan, Korea, **Oct. 28 ~ 30, 2009**
24. **T. Kang**, I. Yoon, K.-S. Jeon, W. Choi, Y. Lee, K. Seo, Y. Yoo, Q.-H. Park, H. Ihee, Y. D. Suh, and B. Kim
"Creating Well-Defined Hot Spots for Surface-enhanced Raman Scattering by Single-Crystalline Noble Metal Nanowire Pairs"
103th Spring Meeting of the Korean Chemical Society, COEX, Seoul, Korea, **Apr. 16 ~ 17, 2009**
25. I. Yoon, **T. Kang**, J. Kim, H. Ihee, and B. Kim
"Single Nanowire on a Film as an Efficient SERS-Active Platform"
103th Spring Meeting of the Korean Chemical Society, COEX, Seoul, Korea, **Apr. 16 ~ 17, 2009**
26. **T. Kang**, P. Mohanty, I. Yoon, K. Seo, K. S. K. Varadwaj, W. Choi, Q.-H. Park, J. P. Ahn, Y. D. Suh, H. Ihee, and B. Kim
"Simple Vapor Phase Synthesis of Single-crystalline Ag NWs and Single NW Surface-enhanced Raman Scattering"
2007 BK Student Symposium, KAIST, Daejeon, Korea, **Dec. 17, 2007**
27. **T. Kang**, I. Yoon, and B. Kim
"Surface-enhanced Raman Scattering of Individual Metallic Nanostructures"
99th Spring Meeting of the Korean Chemical Society, COEX, Seoul, Korea, **Apr. 19 ~ 20, 2007**
28. **T. Kang**, J. Sung, and B. Kim

"Synthesis and Characterization of ZnS Nanostructures and its doping"

96th Fall Meeting of the Korean Chemical Society, Yonsei University, Wonju, Korea,
Oct. 21 ~ 22, 2005

29. **T. Kang**, J. Sung, and B. Kim

"Synthesis and Characterization of ZnS Nanostructures and its doping"

Summer Symposium of Division of Physical Chemistry of the Korean Chemical Society, Deogyusan Resort, Muju, Korea, **Jul. 4 ~ 5, 2005**

30. **T. Kang** and B. Kim

"Fabrication of Nanodevices using Optical Microscope"

2nd ABRL Workshop, Arpina Youth Hostel, Busan, Korea, **Aug. 17 ~ 18, 2004**

Teaching Experience

Lecturer

1. 2018. 9 ~ 2018. 12 **Bioanalytical Technology**
Department of Biological Sciences, KAIST
2. 2018. 3 ~ 2018. 6 **Nanomaterials**
Department of Nanobiotechnology,
KRIBB School of Biotechnology, UST
3. 2017. 9 ~ 2017. 12 **Bioanalytical Technology**
Department of Biological Sciences, KAIST
4. 2016. 9 ~ 2016. 12 **Laboratory Research on the Synthesis and Application of Nanomaterials**
Major of Nanobiotechnology and Bioinformatics, UST
5. 2016. 3. 31 **Nanobiotechnology**
Department of Chemistry, Catholic University of Korea
6. 2014. 12. 17 **Nanobiotechnology**
Department of Chemistry, Chungnam National University

Graduate Student Committee

1. *Si Yeong Yang, Ph. D.* **Ph. D. Thesis Examination Committee Member**
Department of Chemistry, KAIST, Nov. 21, 2018
Ph. D. Preliminary Examination Committee Member
Department of Chemistry, KAIST, Nov. 20, 2015
2. *Mi Yeon Lee, Ph. D.* **Ph. D. Thesis Examination Committee Member**
Department of Chemistry, KAIST, May. 31, 2018
Ph. D. Preliminary Examination Committee Member
Department of Chemistry, KAIST, Nov. 20, 2015

3. *Ah Reum Hwang, Ph. D.* **Ph. D. Thesis Examination Committee Member**
Department of Chemistry, KAIST, Nov. 20, 2017
Ph. D. Preliminary Examination Committee Member
Department of Chemistry, KAIST, May 20, 2014
4. *Gayoung Eom, Ph. D.* **Ph. D. Thesis Examination Committee Member**
Department of Chemistry, KAIST, Nov. 20, 2017
Ph. D. Preliminary Examination Committee Member
Department of Chemistry, KAIST, Nov. 26, 2013
5. *Hongki Kim, Ph. D.* **Ph. D. Thesis Examination Committee Member**
Department of Chemistry, KAIST, May 16, 2017
Ph. D. Preliminary Examination Committee Member
Department of Chemistry, KAIST, Jun. 11, 2013
6. *Raekeun Gwak, Ph. D.* **Ph. D. Thesis Examination Committee Member**
Department of Chemistry, KAIST, Nov. 15, 2016
Ph. D. Preliminary Examination Committee Member
Department of Chemistry, KAIST, Dec. 6, 2012
7. *Si-in Kim, Ph. D.* **Ph. D. Thesis Examination Committee Member**
Department of Chemistry, KAIST, May 20, 2014
8. *Hyoban Lee, Ph. D.* **Ph. D. Thesis Examination Committee Member**
Department of Chemistry, KAIST, Nov. 22, 2013
9. *Jaewoo Lim* **Ph. D. Preliminary Examination Committee Member**
Department of Nanobiotechnology,
KRIBB School of Biotechnology, UST, Jun. 26, 2018
10. *Wang Sik Lee* **Ph. D. Preliminary Examination Committee Member**
Department of Nanobiotechnology,
KRIBB School of Biotechnology, UST, Apr. 2, 2018
11. *Seul-Gee Hwang* **Ph. D. Preliminary Examination Committee Member**
Major of Nanobiotechnology, KRIBB School, UST,
Mar. 29, 2017
12. *Narae Cho* **Ph. D. Preliminary Examination Committee Member**
Major of Nanobiotechnology, KRIBB School, UST,
Mar. 14, 2017
13. *Dung Tran* **Ph. D. Preliminary Examination Committee Member**
Major of Nanobiotechnology and Bioinformatics, UST,
Sep. 23, 2016
14. *Eungwang Kim* **Ph. D. Preliminary Examination Committee Member**
Department of Chemistry, KAIST, Nov. 28, 2014

15. *Jiyoung Lee*

Ph. D. Preliminary Examination Committee Member

Department of Chemistry, KAIST, Nov. 28, 2014

16. *Yujeong Kim*

M. S. Thesis Examination Committee Member

Major of Nanobiotechnology and Bioinformatics, UST,
Nov. 21, 2016

Teaching Assistant

1. 2010. 3 ~ 2010. 10

High school Research Program (Laboratory)

Department of Chemistry, KAIST

2. 2010. 2 ~ 2010. 5

Undergraduate Research Program (Laboratory)

Department of Chemistry, KAIST

3. 2009. 2 ~ 2009. 5

Undergraduate Research Program (Laboratory)

Department of Chemistry, KAIST

4. 2008. 9 ~ 2008. 12

Molecular Spectroscopy (Theory)

Department of Chemistry, KAIST

5. 2008. 2 ~ 2008. 5

Nano Science (Theory)

Interdisciplinary Program for Nano Science and Technology,
KAIST

6. 2006. 3 ~ 2006. 6

Physical Chemistry Experiment (Laboratory)

Department of Chemistry, KAIST