

CURRICULUM VITAE

Moon Il Kim, Ph. D.

EDUCATION

Doctor of Philosophy (September 2002 ~ August 2006)

Department of Chemical and Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST)

Master of Science (March 2001 ~ August 2002)

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PROFESSIONAL EXPERIENCE

February 2017~Present

Associate Editor of KSBB journal (ISSN: 1225-7117), Korea

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Lead Guest Editor for Special Issue of “Nanotechnologies for Biosensor and Biochip” in Journal of Nanomaterials (ISSN: 1687-4110), USA

March 2014 ~ Present

Assistant Professor, Department of BioNano Technology, College of BioNano Technology, Gachon University

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September 2008 ~ May 2010

Postdoctoral Research Scientist, Department of Chemical and Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST)

September 2006 ~ August 2008

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September 2003 ~ February 2004

Visiting Scientist, Environmental Molecular Science Laboratory in Pacific Northwest National Laboratory (PNNL), USA

JOURNAL PUBLICATIONS

1. Hye Su Kim, Ji Sun Lee and **Moon Il Kim***, “PGA/chitosan hydrogel nanoparticles entrapping glucose oxidase and magnetic nanoparticles for glucose biosensing” (Accepted in *Journal of Nanoscience and Nanotechnology*) (ISSN : 1533-4880, IF: 1.354)
2. Hye-Ji Lee, Ha-Kyoung Kwon, Hye Su Kim, **Moon Il Kim** and Hye-Jin Park*, “Hair growth promoting effect of 4HGF encapsulated with PGA nanoparticles (PGA-4HGF) by β -catenin activation and its related cell cycle molecules” *International Journal of Molecular Sciences* 20(14), 3447 (**2019.07.13**) ((ISSN: 1422-0067, IF: 4.183)
3. Kyung-Min Yeon, Jisung You, Manab Deb Adhikari, Sung-Gil Hong, Inseon Lee, Han Sol Kim, Li Na Kim, Jahyun Nam, Seok-Joon Kwon, **Moon Il Kim**, Warayuth Sajomsang, Jonathan S. Dordick* and Jungbae Kim*, “Enzyme-immobilized chitosan nanoparticles as environmentally friendly and highly effective antimicrobial agents” *Biomacromolecules* 20(7), 2477-2485 (**2019.07.08**) (ISSN: 1525-7797, IF: 5.667)
4. Min Su Kim, Seongyeon Cho, Se Hun Joo, Junsang Lee, Sang Kyu Kwak,* **Moon Il Kim,*** Jinwoo Lee*, “N and B co-doped graphene: A strong candidate to replace natural peroxidase in sensitive and selective bioassays”, *ACS Nano* 13(4), 4312-4321 (**2019.04.23**) (ISSN: 1936-0851, IF: 13.709)
5. Hong Jae Cheon, Manab Deb Adhikari, Minsoo Chung, Tai Duc Tran, Jungbae Kim* and **Moon Il Kim***, “Magnetic nanoparticles-embedded enzyme-inorganic hybrid nanoflowers with enhanced peroxidase-like activity and substrate channeling for glucose

- biosensing”, *Advanced Healthcare Materials* 8(9), 1801507 (2019.05.09) (ISSN: 2192-2640, IF: 5.609)
6. Ha-Kyoung Kwon, Min-Jung Song, Hye-Ji Lee, Tae-Sik Park, **Moon Il Kim**, Hye-Jin Park*, “*Pediococcus pentosaceus*-fermented *Cordyceps militaris* inhibits inflammatory reactions and alleviates contact dermatitis”, *International Journal of Molecular Sciences* 19(11), 3504 (2018.11.07) (ISSN: 1422-0067, IF: 3.687)
 7. Ji Seon Kim, Ji Yeon Jang, Hong Jae Cheon, Seongyeon Cho, In Seung Jang, Byung Jo Yu* and **Moon Il Kim***, “Co₃O₄/Au hybrid nanostructures as efficient peroxidase mimics for colorimetric biosensing”, *Journal of Nanoscience and Nanotechnology* 19(10), 6696-6702 (2019.10.15) (ISSN : 1533-4880, IF: 1.354)
 8. Hyo Yong Kim, Jun Ki Ahn, **Moon Il Kim**, Ki Soo Park and Hyun Gyu Park*, “Rapid and label-free, electrochemical DNA detection utilizing the oxidase-mimicking activity of cerium oxide nanoparticles”, *Electrochemistry Communications* 99, 5-10 (2019.02.15) (ISSN : 1388-2481, IF: 4.660)
 9. Bhagwan S. Batule, Ki Soo Park, Shreedhar Gautam, Hong Jae Cheon, **Moon Il Kim*** and Hyun Gyu Park*, “Intrinsic peroxidase-like activity of sonochemically synthesized protein copper nanoflowers and its application for the sensitive detection of glucose”, *Sensors and Actuators B: Chemical* 283, 749-754 (2019.03.15) (ISSN: 0925-4005, IF: 5.667)
 10. Tai Duc Tran and **Moon Il Kim***, “Organic-inorganic hybrid nanoflowers as potent materials for biosensing and biocatalytic applications”, *BioChip Journal* 12(4), 268-279 (2018.12.20) (ISSN : 1976-0280, IF: 1.400)
 11. Minsoo Chung and **Moon Il Kim***, “Recent advances in research on organic-inorganic hybrid nanoflowers for biotechnological applications”, *KSBB Journal* 33(2), 57-62 (2018.06.30) (ISSN : 1225-7117, IF: Not determined)
 12. Hong Jae Cheon, Sang Min Lee, Seong-Rok Kim, Ho Yun Shin, Yiel Hea Seo, Yong Kyun Cho, Sang Pyo Lee, and **Moon Il Kim***, “Colorimetric detection of MPT64 antibody based on an aptamer adsorbed magnetic nanoparticles for diagnosis of tuberculosis”, *Journal of Nanoscience and Nanotechnology* 19(2), 622-626 (2019.02.15) (ISSN : 1533-4880, IF: 1.483)

13. Seongyeon Cho, Sang Min Lee, Ho Yun Shin, Min Su Kim, Yiel Hea Seo, Yong Kyun Cho, Jinwoo Lee, Sang Pyo Lee* and **Moon Il Kim***, “Highly sensitive colorimetric detection of allergies based on an immunoassay using peroxidase-mimicking nanozymes”, *Analyst* 143(5), 1182-1187 (2018.03.07) (ISSN: 0003-2654, IF: 3.885)
14. Han Pill Song, Ji Yeon Jang, So Hyeon Bae, Seong Bong Choi, Byung Jo Yu and **Moon Il Kim***, “Convenient colorimetric detection of thrombin via aptamer-mediated inhibition and restoration of the oxidase activity of nanoceria”, *Journal of Nanoscience and Nanotechnology* 18(9), 6570-6574 (2018.09.15) (ISSN : 1533-4880, IF: 1.483)
15. Minsoo Chung, Yoon Jung Jang and **Moon Il Kim***, “Convenient colorimetric detection of cholesterol using multi-enzyme co-incorporated organic-inorganic hybrid nanoflowers”, *Journal of Nanoscience and Nanotechnology* 18(9), 6555-6561 (2018.09.15) (ISSN : 1533-4880, IF: 1.483)
16. **Moon Il Kim**, So Young Park, Ki Soo Park, Seong-rok Kim, Jong-Pil Kim, Young-Chul Lee, Hyun Uk Lee* and Hyun Gyu Park*, “Label-free fluorescent detection of alkaline phosphatase with vegetable waste-derived green carbon probes”, *Sensors and Actuators B: Chemical* 262(1), 469-476 (2018.06.01) (ISSN: 0925-4005, IF: 5.401)
17. Seong-Rok Kim, Seongyeon Cho and **Moon Il Kim***, “Highly efficient electrochemical detection of phenolic compounds utilizing superior catalytic activity of nanohybrids consisting of magnetic nanoparticles and gold nanoclusters”, *Journal of Nanoscience and Nanotechnology* 18(2), 1246-1250 (2018.02.15) (ISSN : 1533-4880, IF: 1.338)
18. Han Pill Song, Yongil Lee, Vu Khac Hoang Bui, You-Kwon Oh, Hyun Gyu Park, **Moon Il Kim*** and Young-Chul Lee*, “Effective peroxidase-like activity of Co-aminoclay [CoAC] and its application for glucose detection”, *Sensors* 18(2), 457 (2018.02.03) (ISSN: 1424-8220, IF: 2.677)
19. Minsoo Chung, Tuan Loi Nguyen, Thao Quynh Ngan Tran, Hyon Hee Yoon, Il Tae Kim* and **Moon Il Kim***, “Ultrasochemical synthesis of enzyme-incorporated copper nanoflowers and their application to mediatorless glucose biofuel cell”, *Applied Surface Sciences* 429, 203-209 (2018.01.31) (ISSN : 0169-4332, IF: 3.387)
20. Anil H. Valekar, Bhagwan Sahebrao Batule, **Moon Il Kim**, Kyung-Ho Cho, Do-Young

- Hong, U-Hwang Lee, Jong-San Chang, Hyun Gyu Park* and Young Kyu Hwang*, “Novel amine-functionalized Iron trimesates with enhanced peroxidase-like activity and their applications for the fluorescent assay of choline and acetylcholine”, *Biosensors and Bioelectronics* 100, 161-168 (2018.02.15) (ISSN: 0956-5663, IF: 7.476)
21. Do Hyun Kim, Byung Jo Yu and **Moon Il Kim***, “Chapter 26 (Part V). Advanced genetic engineering of microbial cells for biosensing applications”, *Wiley Advanced Book Series “Emerging Areas in Bioengineering”* WILEY-VCH, pp. 465-476 (2018.01.09) (ISBN 978-3-527-34088-0)
22. Min Su Kim, Soon Ho Kweon, Seongyeon Cho, Seong Soo A. An, **Moon Il Kim***, Junsang Doh* and Jinwoo Lee*, “Pt-decorated magnetic nanozymes for facile and sensitive point-of-care bioassay”, *ACS Applied Materials and Interfaces* 9(40), 35133-35140 (2017.10.11) (ISSN : 1944-8244, IF: 7.504)
23. Hye Rin Lee, Minsoo Chung, **Moon Il Kim*** and Sung Ho Ha*, “Preparation of glutaraldehyde-treated lipase-inorganic hybrid nanoflowers and their catalytic performance as immobilized enzymes”, *Enzyme and Microbial Technology* 105, 24-29 (2017.10.15) (ISSN : 0141-0229, IF: 2.502)
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25. Seongyeon Cho, Ho Yun Shin and **Moon Il Kim***, “Nanohybrids consisting of magnetic nanoparticles and gold nanoclusters as effective peroxidase mimics and their application for colorimetric detection of glucose”, *Biointerphases* 12(1), 01A401, 1-7 (2017.03.11) (ISSN: 1934-8630, IF: 2.105)
26. Ho Yun Shin, Seongyeon Cho and **Moon Il Kim***, “Enzyme-free colorimetric detection of glucose using a composite entrapping gold and magnetic nanoparticles within an agarose gel matrix”, *Journal of Nanoscience and Nanotechnology* 17(11), 7971-7977 (2017.11.15) (ISSN : 1533-4880, IF: 1.338)
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- colorimetric biosensing platform based on nanoceria within an agarose gel matrix”, *Biosensors and Bioelectronics* 93, 226-233 (2017.07.15) (ISSN: 0956-5663, IF: 7.476)
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29. Hye Rin Lee, **Moon Il Kim**, Sang Eun Hong, Jaeyeong Choi, Young Min Kim, Kuk Ro Yoon, Seungho Lee and Sung Ho Ha*, “Effect of functional group on activity and stability of lipase immobilized on silica-coated magnetite nanoparticles with different functional group”, *Analytical Science and Technology* 29(3), 105-113 (2016.06.25) (ISSN: 1225-0163, IF: Not determined)
30. Min-Ah Woo, Jung Hun Park, Daeyeon Cho, Sang Jun Sim, **Moon Il Kim*** and Hyun Gyu Park*, “A whole-cell surface plasmon resonance sensor based on a leucine auxotroph of *Escherichia coli* displaying a gold-binding protein: usefulness for diagnosis of maple syrup urine disease”, *Analytical Chemistry* 88(5), 2871-2876 (2016.03.01) (ISSN: 0003-2700, IF: 5.825)
31. Ye Lim Jung, Jung Hun Park, **Moon Il Kim*** and Hyun Gyu Park*, “Label-free colorimetric detection of biological thiols based on target-triggered inhibition of photoinduced formation of AuNPs”, *Nanotechnology* 27(5), 055501(1-7) (2016.02.05) (ISSN : 0957-4484, IF: 3.821)
32. **Moon Il Kim***, Tae Jung Park, Elena E. Paskaleva, Fangfang Sun, Jin W. Seo, and Krunal K. Mehta, “Nanotechnologies for Biosensor and Biochip”, *Journal of Nanomaterials* 420734, 1-2 (2015.12.03) (ISSN : 1687-4110, IF: 1.644)
33. Kyoung Suk Kang, Hyun Uk Lee, **Moon Il Kim**, So Young Park, Sung-Jin Chang, Ji-Ho Park, Yun Suk Huh, Jouhahn Lee, Mino Yang, Young-Chul Lee* and Hyun Gyu Park*, “In-vitro cytotoxicity assessment of carbon-nanodot-conjugated Fe-aminoclay (CD-FeAC) and its bio-imaging applications”, *Journal of Nanobiotechnology* 13:88, 1-14 (2015.11.26) (ISSN : 1477-3155, IF: 4.115)
34. Ho Yun Shin, Tae Jung Park* and **Moon Il Kim***, “Recent research trends and future

- prospects in nanozymes”, *Journal of Nanomaterials* 756278, 1-11 (2015.11.17) (ISSN : 1687-4110, IF: 1.644)
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36. Eunae Kang, Jinwoo Lee, Byoung Yeon Won, Seongbeen Kim, Sujeong Shin, **Moon Il Kim*** and Hyun Gyu Park*, “Fabrication of conductive nanocomposite entrapping oxidase in mesoporous ceria-carbon for efficient electrochemical biosensor”, *RSC Advances* 96(5), 78747-78753 (2015.09.10) (ISSN : 2046-2069, IF: 3.840)
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39. Do Hyun Kim, **Moon Il Kim*** and Hyun Gyu Park*, “Recent advances in genetic technique of microbial report cells and their applications in cell arrays”, *Biomed Research International*, 182107, 1-8 (2015.08.26) (ISSN : 2314-6133, IF: 1.579)
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41. Bhagwan S. Batule, Ki Soo Park, **Moon Il Kim*** and Hyun Gyu Park*, “Ultrafast sonochemical synthesis of protein-inorganic nanoflowers”, *International Journal of Nanomedicine* 10, 137-142 (2015.08.25) (ISSN : 1178-2013, IF: 4.383)

42. Ji Young Park, Ha Young Jeong, **Moon Il Kim** and Tae Jung Park*, “Colorimetric detection system for *Salmonella Typhimurium* based on peroxidase-like activity of magnetic nanoparticles with DNA aptamers”, *Journal of Nanomaterials* 527126, 1-9 (2015.07.21) (ISSN : 1687-4110, IF: 1.644)
43. Miju Kim, Min Su Kim, Soon Ho Kweon, Sanha Jeong, Mi Hyun Kang, **Moon Il Kim**, Jinwoo Lee*, Junsang Doh*, “Simple and sensitive point-of-care bioassay system based on hierarchically structured enzyme-mimetic nanoparticles”, *Advanced Healthcare Materials* 4(9), 1311-1316 (2015.06.24) (ISSN: 2192-2659, IF: 5.797)
44. Ho Yun Shin, Tae Young Yoon and **Moon Il Kim***, “Recent advances in nanozyme research for disease diagnostics”, *KSBB Journal* 30(1), 1-10 (2015.02.25) (ISSN : 1225-7117, IF: Not determined)
45. Liang Yang, Young-Chul Lee, **Moon Il Kim**, Hyun Gyu Park, Yun Suk Huh, Shao Yating and Hyo-Kyung Han*, “Biodistribution and clearance of aminoclay nanoparticles: Implication for in vivo applicability as a tailor-made drug delivery carrier”, *Journal of Materials Chemistry B* 2(43), 7567-7574 (2014.11.21) (ISSN: 2050-7518, IF: Pending)
46. **Moon Il Kim**, Ki Soo Park and Hyun Gyu Park*, “Ultrafast colorimetric detection of nucleic acids based on the inhibition of the oxidase activity of cerium oxide nanoparticles”, *Chemical Communications* 50(67), 9577-9580 (2014.08.28) (ISSN: 1359-7345, IF: 6.718)
47. Hyun Uk Lee,* So Young Park, Eun Sik Park, Byoungchul Son, Soon Chang Lee, Jae Won Lee, Young-Chul Lee, Kyoung Suk Kang, **Moon Il Kim**, Hyun Gyu Park, Saehae Choi, Yun Suk Huh, Seung-Yeul Lee, Kyung-Bok Lee, You-Kwan Oh and Jouhahn Lee*, “Photoluminescent carbon nanotags from harmful cyanobacteria for drug delivery and imaging in cancer cells”, *Nature Scientific Reports* 4:4665 (2014.04.11) (ISSN: 2045-2322, IF: 5.078)
48. **Moon Il Kim**, Tae Jung Park, Nam Soo Heo, Min-Ah Woo, Sang Yup Lee and Hyun Gyu Park*, “Cell-based method utilizing fluorescent *Escherichia coli* auxotrophs for quantification of multiple amino acids”, *Analytical Chemistry* 86(5), 2489-2496. (2014.03.04) (ISSN: 0003-2700, IF: 5.825)

49. **Moon Il Kim**, Min Su Kim, Min-Ah Woo, Youngjin Ye, Kyoung Suk Kang, Jinwoo Lee* and Hyun Gyu Park*, “Highly efficient colorimetric detection of target cancer cell utilizing superior catalytic activity of graphene oxide-magnetic-platinum nanohybrids”, *Nanoscale* 6(3), 1529-1536. (2014.02.07) (ISSN: 2040-3364, IF: 6.739)
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51. Min-Ah Woo, **Moon Il Kim**, Daeyeon Cho and Hyun Gyu Park*, “Cell-based galactosemia diagnosis system based on a galactose assay using a bioluminescent *Escherichia coli* array”, *Analytical Chemistry* 85(22), 11083-11089. (2013.11.19) (ISSN: 0003-2700, IF: 5.825)
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53. Min-Ah Woo, **Moon Il Kim**, Jae Hwan Jung, Ki Soo Park, Tae Seok Seo and Hyun Gyu Park*, “A novel colorimetric immunoassay utilizing the peroxidase mimicking activity of magnetic nanoparticles”, *International Journal of Molecular Sciences* 14, 9999-10014. (2013.05.10) (ISSN: 1422-0067, IF: 2.339)
54. Young-Chul Lee†, **Moon Il Kim**†, Min-Ah Woo, Hyun Gyu Park* and Jong-In Han*, “Effective peroxidase-like activity of a water-solubilized Fe-aminoclay for use in immunoassay”, *Biosensors and Bioelectronics* 42, 373-378. (2013.04.15) †these authors equally contributed. (ISSN: 0956-5663, IF: 6.451)
55. Ye Lim Jung, Cheulhee Jung, Jung Hun Park, **Moon Il Kim** and Hyun Gyu Park*, “Direct detection of unamplified genomic DNA based on photo-induced silver ion reduction by DNA molecules”, *Chemical Communications* 49(23), 2350-2352. (2013.03.21). (ISSN: 1359-7345, IF: 6.718)
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59. **Moon Il Kim**, Youngjin Ye, Byoung Yeon Won, Sujeong Shin, Jinwoo Lee* and Hyun Gyu Park*, “A highly efficient electrochemical biosensing platform by employing conductive nanocomposite entrapping magnetic nanoparticles and oxidase in mesoporous carbon foam”, *Advanced Functional Materials* 21(15), 2868-2875. (2011.08.09) (ISSN: 1616-3028, IF: 10.439)
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61. Min-Ah Woo, **Moon Il Kim**, Byung Jo Yu, Daeyeon Cho, Nag-Jong Kim, June Hyoung Cho, Byung-Ok Choi, Ho Nam Chang and Hyun Gyu Park*, “Cell-based quantification of homocysteine utilizing bioluminescent *Escherichia coli* auxotrophs”, *Analytical Chemistry* 83(8), 3089-3095. (2011.04.15) (ISSN: 0003-2700, IF: 5.825) *Highlighted as a front cover article*
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64. Hee-Man Yang, Chan Woo Park, Min-Ah Woo, **Moon Il Kim**, Yeong Min Jo, Hyun Gyu Park and Jong-Duk Kim*, “Her2/neu antibody conjugated poly(amino acid)-coated iron oxide nanoparticles for breast cancer MR imaging”, *Biomacromolecules* 11(11), 2866-2872. (2010.11.08) (ISSN: 1525-7797, IF: 5.788)
65. Jong Won Kang, Chang Moon Jeong, Nag Jong Kim, **Moon Il Kim** and Ho Nam Chang*, “On-site removal of H₂S from biogas produced by food waste using an aerobic sludge biofilter for steam reforming processing”, *Biotechnology and Bioprocess Engineering* 15(3), 505-511. (2010.06.30) (ISSN: 1226-8372, IF: 1.220)
66. **Moon Il Kim**, Byung Jo Yu, Min-Ah Woo, Daeyeon Cho, Jonathan S. Dordick, June Hyoung Cho, Byung-Ok Choi and Hyun Gyu Park*, “Multiplexed amino acid array utilizing bioluminescent *Escherichia coli* auxotrophs”, *Analytical Chemistry* 82(10), 4072-4077. (2010.05.15) (ISSN: 0003-2700, IF: 5.825)
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