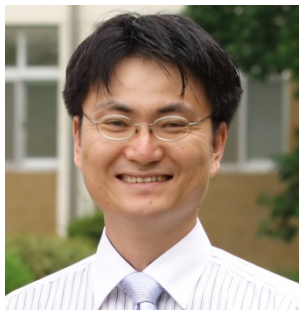


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September 17, 2024

PRESENT POSITION



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PROFESSIONAL EXPERIENCES

- 2024.09 – Current Professor, [Department of Systems Biotechnology](#), Konkuk university
- 2019.03 – 2020.02 Head, [Department of Systems Biotechnology](#), Konkuk university
- 2018.03 – 2024.08 Associate Professor, [Department of Systems Biotechnology](#), Konkuk university
- 2016.03 – 2018.02 Assistant Professor, [Department of Systems Biotechnology](#), Konkuk university
- 2014.03 – 2016.02 Professor, [Biosystems & Bioengineering \(시스템생명공학\)](#), [University of Science and Technology \(UST\)](#), Daejeon, Korea
- 2013.03 – 2016.02 Principal Research Scientist (책임연구원), Synthetic Biology and Bioengineering Research Center (바이오합성연구센터), KRIBB
- 2009.03 – 2011.12 Postdoctoral Fellow, [Baliga Lab, Institute for Systems Biology \(ISB\)](#), Seattle, USA
- 2006.09 – 2010.08 Lecturer (강사), Functional Genomics Major, [University of Science and Technology \(UST\)](#), Daejeon, Korea
- 2003.07 – 2013.02 Senior Researcher (선임연구원), Systems Microbiology Research Center (시스템미생물연구센터) / Systems & Synthetic Biology Research Center, KRIBB
- 2002.11 – 2003.06 Post Doc. [Korea Research Institute of Bioscience and Biotechnology \(KRIBB\)](#)
- 1998.03 – 2002.02 Teaching Assistant, [Department of Chemical Engineering, Korea Advanced Institute of Science and Technology \(KAIST\)](#)

EDUCATION

- 1998.03 – 2002.08 Department of Chemical & Biomolecular Engineering, KAIST (Ph.D.)
(Dissertation: Development of *Escherichia coli* DNA microarray and global gene expression profiling in *Escherichia coli*, Supervisor: Sang Yup Lee)
(대장균 DNA microarray 개발 및 이를 이용한 유전체 발현 연구)
- 1996.03 – 1998.02 Department of Chemical Engineering, KAIST (M.S.)

(Dissertation: Development of fermentation strategies for the production of poly (γ -glutamic acid) and insulin-like growth factor I, Supervisor: Sang Yup Lee)

(Poly(γ -glutamic acid) 와 insulin-like growth factor I 생산을 위한 유가식 배양 전략의 개발)

1992.03 – 1996.02 Department of Chemical Engineering, KAIST (B.S.)

ACTIVITIES IN ACADEMIC SOCIETIES

2025	한국미생물·생명공학회, 학술위원
2024	한국미생물학회, 재무위원회 위원장
2024-2026	Journal of Microbiology, Editor
2023	한국미생물학회, 공익위원회 위원장
2020 - Current	한국미생물·생명공학회, 미생물유전체 학술분과 부위원장
2018.10-Current	Genes & Genomics , Editorial Board
2020.10.12-16	Local convener & speaker for a Workshop session on “Metabolic Engineering and Synthetic Biology”, International Union of Microbiological Societies Congress (IUMS) 2000, Daejeon Convention Complex
2019-2020	한국미생물학회, 학술위 실무위원
2017.02 - 2020	BMC Systems Biology, Associate Editor
2016 - 2017	한국미생물학회, 학술위 실무위원
2013	한국미생물·생명공학회, 홍보간사
2013.07.03	Session organizer and chair, “Systems Biology: Reshaping Biology into a Predictive Science” 한국미생물·생명공학회 국제심포지엄
2010.09 - 2011.10	Founding member, Secretary, Korean BioMedical Society (KBMS) at Seattle
2008 - 2011	Recent Patents on Biotechnology , Editorial Advisory Board Member
2003 - 2006	Korean Society for Bioinformatics (KSBI), Committee Member

RESEARCH INTERESTS

Systems Biology

Systems Biotechnology / Metabolic Engineering / Synthetic Biology

Bioinformatics / Omics Analysis

Pathogenomics / Host-Pathogen Interaction

ad hoc Reviewer

ACS Synthetic Biology / Applied Microbiology and Biotechnology / Anaerobe / Bioprocess and Biosystems Engineering / Biotechnology and Bioengineering / Biotechnology and Bioengineering Engineering / Biotechnology Journal / BMC Bioinformatics / BMC Genomics / BMC Microbiology / BMC Systems Biology / Communications Biology / Computer Methods and Programs in Biomedicine / Gene / Genomics and Informatics / Journal of Analytical Science and Technology / Journal of Microbiology / Journal of Microbiology

and Biotechnology / Korean Society for Biotechnology and Bioengineering Journal / mBio / Metabolic Engineering / Microbial Cell Factories / Molecular Systems Biology / Nucleic Acids Research / PLoS ONE / Process Biochemistry / Recent Patents on Biotechnology / Scientific Reports

AWARDS

- 2022.10.31 [한국미생물학회 메디톡스 학술상 \(선도과학자\)](#)
- 2014.02.01 Award for excellent staff, KRIBB (우수직원상)
- 2007.02.01 Award for excellent staff, KRIBB (우수직원상)
- 2002.04.13 Award for most excellent poster, Korean Society for Biotechnology and Bioengineering (최우수 포스터상, 한국생물공학회)

MEDIA RECOGNITION

- 2024.02.14 인공지능으로 복잡한 미생물 대사 과정 풀었다 - 영양 조건에 따른 미생물 성장 핵심 대사 반응 규명: [연구재단](#), [연합뉴스](#), [조선비즈](#), [오마이뉴스](#), [동아사이언스](#), [머니투데이](#), [전자신문](#), [E헬스통신](#), [뉴스체크](#), [뉴스통](#), [보건의료연합신문](#), [산업종합저널](#), [전국매일신문](#), [충남일보](#), [테크튜브](#), [특허뉴스](#), [브릭](#), [건국대](#)
- 2019.02. [실험실 탐방: 건국대학교 시스템생명공학과 시스템생명공학 연구실 / 윤성호](#): 한국미생물생명공학회 e-생물산업 32권 02호
- 2018.10.11 **[KU프런티어]** [윤성호 교수, 산업대장균 유전체 정보 규명](#): Konkuk Dream (건국대학교 매거진) vol.153
- 2017.05.24 '맞춤형 세포공장' 한걸음 더...산업대장균 생체정보 확보 : [매일경제](#)
- 2017.04.18 바이오산업 이끄는 산업 대장균 유전체 정보 해독: [연합뉴스](#), [조선비즈](#), [매일경제](#), [뉴스1](#), [디지털타임스](#), [전자신문](#), [일요신문](#), [금강일보](#), [베리타스알파](#), [미디어펜](#), [대학저널](#), [뉴스천지](#), [메트로](#), [헬로디디](#), [이닥터스](#), [충청의약뉴스](#), [뉴스와이어](#), [브릿지경제](#), [사이언스타임즈](#), [시사뉴스피플](#), [디지털밸리뉴스](#)
- 2014.10.22 병원성·항생제 내성 유전자 DB 개발: [연합뉴스](#), [매일경제](#), [전자신문](#), [디지털타임스](#), [HelloDD](#), [경북도민일보](#)
- 2014.07.15 메탄생성균의 메탄생성과정 비밀 풀다 - 메탄가스 감축에 활용 기대: [전자신문](#)
- 2013.08.29 한번에 미생물 배양·분석 끝내는 기술 개발: [서울경제](#), [매일경제](#), [뉴스1](#), [뉴시스](#), [디지털타임스](#), [아주경제](#), [연합뉴스](#), [HelloDD](#), [중앙일보](#)
- 2012.07.20 대장균 핵심 생체정보 규명; '산업미생물' 대장균, 바이오산업 활용 길 열어: [연구재단](#) [YTN TV](#), [연합뉴스](#), [아시아뉴스통신](#), [뉴스1](#), [메디컬투데이](#), [헬스코리아뉴스](#), [한겨레](#), [디지털타임스](#), [서울신문](#), [대전일보](#), [매일경제](#), [파이낸셜뉴스](#), [이투데이](#), [뉴시스](#), [아주경제](#), [더사이언스](#), [중앙일보헬스미디어](#), [현대건강신문](#), [디지털](#)

[보사](#), [금강일보](#), [한국경제](#), [e-메디코파마뉴스](#), [메디칼통신](#), [중부매일](#), [NEWS&](#), [e수원뉴스](#), [메디컬헤럴드](#), [YTN사이언스](#)

- 2009.10.19 유전체 진화경로 규명..생명진화 신기원: [MBC TV](#), [YTN TV](#), [연합뉴스 TV](#), [VJ투데이](#)
- 2007.02.06 21세기를 여는 과학자: [Daejonilbo \(newspaper\)](#), “[Scientist opening 21 century – Dr. Sung Ho Yoon](#)”
- 2006.11.28 병원성 유전자 검색 DB 개발: [YTN TV](#), [MBC TV news today](#), [디지털타임스](#), [파이낸셜뉴스](#), [연합뉴스](#), [동아일보](#), [한국일보](#), [HelloDD](#), [뉴스와이어](#), [약업신문](#), [메티컬업저버](#), [매일신문](#)
- 2003.01.24 대장균 생리시스템 수준서 규명: 한국일보, [디지털타임스](#), [KOSEFnews](#), [대전매일](#), [대전일보](#), [한국경제](#), [한겨레](#), [연합뉴스](#), [중앙일보](#), [HelloDD](#), [아이뉴스24](#), [충청투데이](#), [전자신문](#)

JOURNAL PUBLICATIONS

Google Scholar Citations to the following publications

- 41) Na H-H, Kim S, Kim J-S, Lee S, Kim Y, Kim S-H, Lee C-H, Kim D, **Yoon SH**, Jeong H, Kweon D, Seo HW, and Ryu C-M “[Facemask acne attenuation through modulation of indirect microbiome interactions](#)” *NPJ Biofilms Microbiomes* 10(1):50 (2024.06)
- 40) Woo H, Kim Y, Kim D, and **Yoon SH** “[Machine learning identifies key metabolic reactions in bacterial growth on different carbon sources](#)” *Molecular Systems Biology* 20(3):170-186 (2024.03) *Hanbitsa*
- 39) Han S, Kim D, Kim Y, and **Yoon SH** “[Genome-scale metabolic network model and phenome of solvent-tolerant *Pseudomonas putida* S12](#)” *BMC Genomics* 25:63 (2024.01)
- 38) Hong SH, Seo K, **Yoon SH**, Kim SK, and Chon J “[Gold nanoparticle and polymerase chain reaction \(PCR\)-based colorimetric assay for the identification of *Campylobacter* spp. in chicken carcass](#)” *Food Science of Animal Resources* 43(1):73-84 (2023.01)
- 37) Ha J†, Kim D†, Yeon J, Kim Y, Yoo SM, and **Yoon SH** “[Identification of a gene cluster for D-tagatose utilization in *Escherichia coli* B2 phylogroup](#)” *iScience* 25(12):105655 (2022.12)
- 36) Kim D†, Kim Y†, and **Yoon SH** “[Development of a genome-scale metabolic model and phenome analysis of the probiotic *Escherichia coli* strain Nissle 1917](#)” *International Journal of Molecular Sciences* 22(4):2122 (2021.02.20)
- 35) Kim S, Kim Y, Suh DH, Lee CH, Yoo SM, Lee SY, and **Yoon SH** “[Heat-responsive and time-resolved transcriptome and metabolome analyses of *Escherichia coli* uncover thermo-tolerant mechanisms](#)” *Scientific Reports* 10(1):17715 (2020.10.19)
- 34) Kim H, Kim S, Kim D, and **Yoon SH** “[A single amino acid substitution in aromatic hydroxylase \(HpaB\) of *Escherichia coli* alters substrate specificity of the structural isomers of hydroxyphenylacetate](#)” *BMC Microbiology* 20:109 (2020.05.06)

- 33) Sarak S, Jeon H, Patil MD, Khobragade TP, Pagar AD, Sung S, Yoo H-W, Kim B-G, **Yoon SH**, and Yun H "[Enzymatic synthesis of aliphatic primary \$\omega\$ -amino alcohols from \$\omega\$ -amino fatty acids by carboxylic acid reductase](#)" *Catalysis Letters* 150:3079-3085 (2020.04.25)
- 32) Kim E-Y, Ashlock D, and **Yoon SH** "[Identification of critical connectors in the directed reaction-centric graphs of microbial metabolic networks](#)" *BMC Bioinformatics* 20(1):328 (2019.06)
- 31) Kim S, Kim Y, and **Yoon SH** "[Overexpression of YbeD in *Escherichia coli* enhances thermotolerance](#)" *Journal of Microbiology and Biotechnology* 29(3):401-409 (2019.03)
- 30) Kim H, Kim S, and **Yoon SH** "[Metabolic network reconstruction and phenome analysis of the industrial microbe, *Escherichia coli* BL21\(DE3\)](#)" *PLoS ONE* 13(9):e0204375 (2018.09)
- 29) Nguyen AD, Hwang IY, Lee OK, Hur DH, Jeon YC, Hadiyati S, Kim M-S, **Yoon SH**, Jeong H, and Lee EY "[Functional analysis of *Methylobomonas* sp. DH-1 genome as a promising biocatalyst for bioconversion of methane to valuable chemicals](#)" *Catalysts* 8(3), 117 (2018.03)
- 28) Kim SK†, Lee D-H†, Kim OC, Kim JF, and **Yoon SH** "[Tunable control of an *Escherichia coli* expression system for the overproduction of membrane proteins by titrated expression of a mutant *lac* repressor](#)" *ACS Synthetic Biology* 6(9):1766-1773 (2017.09)
- 27) Jeong H, Lee S-W, Kim SH, Kim E-Y, Kim S, and **Yoon SH** "[Global functional analysis of butanol-sensitive *Escherichia coli* and its evolved butanol-tolerant strain](#)" *Journal of Microbiology and Biotechnology* 27(6):1171–1179 (2017.06)
- 26) Kim S, Jeong H, Kim E-Y, Kim JF, Lee SY, and **Yoon SH** "[Genomic and transcriptomic landscape of *Escherichia coli* BL21\(DE3\)](#)" *Nucleic Acids Research* 45(9):5285-5293 (2017.05)
- 25) **Yoon SH** (corresponding), Park YK, and Kim JF "[PAIDB v2.0: exploration and analysis of pathogenicity and resistance islands](#)" *Nucleic Acids Research* 43:D624-D630 (2015.01)
- 24) **Yoon SH**, Turkarslan S, Reiss DJ, Pan M, Burn JA, Costa KC, Lie TJ, Slagel J, Moritz RL, Hackett M, Leigh JA, and Baliga NS "[A systems level predictive model for global gene regulation of methanogenesis in a hydrogenotrophic methanogen](#)" *Genome Research* 23(11):1839-1851 (2013.11) *Hanbitsa*
- 23) Dai J, **Yoon SH** (co-first), Sim HY, Yang YS, Oh TK, Kim JF, and Hong JW "[Charting microbial phenotypes in multiplex nanoliter batch bioreactors](#)" *Analytical Chemistry* 85(12):5892-5899 (2013.06)
- 22) Costa KC, **Yoon SH**, Pan M, Burn JA, Baliga NS, and Leigh JA "[Effects of H₂ and formate on growth yield and regulation of methanogenesis in *Methanococcus maripaludis*](#)" *Journal of Bacteriology* 195(7):1456-1462 (2013.04)
- 21) **Yoon SH**, Han MJ, Jeong H, Lee CH, Xia XX, Lee DH, Shim JH, Lee SY, Oh TK, and Kim JF "[Comparative multi-omics systems analysis of *Escherichia coli* strains B and K-12](#)" *Genome Biology* 13(5):R37 (2012.05) *Hanbitsa*
- 20) **Yoon SH**, Reiss DJ, Bare JC, Tenenbaum D, Pan M, Slagel J, Moritz RL, Lim S, Hackett M, Menon AL, Adams MW, Barnebey A, Yannone SM, Leigh JA, and Baliga NS "[Parallel evolution of transcriptome architecture during genome reorganization](#)" *Genome Research* 21(11):1892-1904 (2011.11) *Hanbitsa*
- 19) **Yoon SH**, Kim SK, and Kim JF "[Secretory production of recombinant proteins in *Escherichia coli*](#)" *Recent*

Patents on Biotechnology 4(1):23-29 (2010.01) [Hanbitsa \(Highly cited\)](#)

- 18) Jeong H, Barbe V, Lee CH, Vallenet D, Yu D-S, Choi S-H, Couloux A, Lee S-W, **Yoon SH**, Cattolico L, Hur C-G, Park H-S, Ségurens B, Kim SC, Oh TK, Lenski RE, Studier FW, Daegelen P, and Kim JF “[Genome sequences of *Escherichia coli* B strains REL606 and BL21\(DE3\)](#)” *Journal of Molecular Biology* 394(4):644-652 (2009.12) (Featured as a Cover)

[News Releases in AlphaGalileo \(Nov. 26,2009\)](#)

- 17) Barrick JE, Yu D-S, **Yoon SH**, Jeong H, Oh TK, Schneider D, Lenski RE, and Kim JF “[Genome evolution and adaptation in a long-term experiment with *Escherichia coli*](#)” *Nature* 461(7268):1243-1247 (2009.10) [Hanbitsa](#)

Article paper. [Evaluated Exceptional with F1000 Article Factor 19 by Faculty of 1000](#); [News and Views in Nature \(Oct. 29, 2009\)](#); [Research Highlights in Nat. Rev. Genet. \(Dec. 2009\)](#); [Dispatch in Curr. Biol. \(Jan. 12, 2010\)](#); [News and Analysis in Nat. Rev. Microbiol. \(Feb. 2010\)](#); [News Releases in AlphaGalileo \(Nov. 26, 2009\)](#); [Highlights in A-IMBN Research \(Jan. 13, 2010\)](#); Highly cited paper in [Hanbitsa](#)

- 16) Kim JF, Jeong H, Yu DS, Choi S-H, Hur C-G, Park M-S, **Yoon SH**, Kim D-W, Ji GE, Park H-S, and Oh TK “[Genome sequence of the probiotic bacterium *Bifidobacterium animalis* subsp. *lactis* AD011](#)” *Journal of Bacteriology* 191(2):678-679 (2009.01)

- 15) Jeong H, **Yoon SH**, Yu D-S, Oh TK, and Kim JF “[Recent progress of microbial genome projects in Korea](#)” *Biotechnology Journal* 3(5):601-611 (2008.05)

- 14) Nam D, **Yoon SH**, and Kim JF “[Ensemble learning of genetic networks from time-series expression data](#)” *Bioinformatics* 23(23):3225-3231 (2007.12)

- 13) **Yoon SH**, Park YK, Lee S, Choi D, Oh TK, Hur C-G, and Kim JF “[Towards pathogenomics: a web-based resource for pathogenicity islands](#)” *Nucleic Acids Research* 35:D395-D400 (2007.01)

- 12) Jiang H, Shang L, **Yoon SH**, Lee SY, and Yu Z “[Optimal production of poly-γ-glutamic acid by metabolically engineered *Escherichia coli*](#)” *Biotechnology Letters* 28(16):1241-1246 (2006.08)

- 11) Hur C-G, Kim S, Kim CH, **Yoon SH**, In YH, Kim C, and Cho HG “[FASIM: Fragments assembly simulation using biased-sampling model and assembly simulation for microbial genome shotgun sequencing](#)” *Journal of Microbiology and Biotechnology* 16(5):683-688 (2006.05)

- 10) Jeong H, **Yoon SH**, Lee HK, Oh TK, and Kim JF “[Lessons from the sea: genome sequence of an algicidal marine bacterium *Hahella chejuensis* \(적조 살상 해양 미생물 *Hahella chejuensis* 의 유전체 구조\)](#)” *Korean Journal of Microbiology and Biotechnology* 34(1):1-6 (2006.03)

- 9) Jeong H, Yim JH, Lee C, Choi SH, Park YK, **Yoon SH**, Hur CG, Kang HY, Kim D, Lee HH, Park KH, Park SH, Park HS, Lee HK, Oh TK, and Kim JF “[Genomic blueprint of *Hahella chejuensis*, a marine microbe producing an algicidal agent](#)” *Nucleic Acids Research* 33(22):7066-7073 (2005.12)

- 8) **Yoon SH**, Hur C-G, Kang HY, Kim YH, Oh TK, and Kim JF “[A computational approach for identifying pathogenicity islands in prokaryotic genomes](#)” *BMC Bioinformatics* 6:184 (2005.07)

- 7) **Yoon SH**, Han MJ, Lee SY, Jeong KJ, and Yoo JS "[Combined transcriptome and proteome analysis of *Escherichia coli* during the high cell density culture](#)" *Biotechnology and Bioengineering* 81(7):753-767 (2003.03) *Hanbitsa (Highly cited)*
- 6) **Yoon SH** and Lee SY "[Comparison of transcript levels by DNA microarray and metabolic flux based on flux analysis for the production of poly-γ-glutamic acid in recombinant *Escherichia coli*](#)" *Genome Informatics* 13:587-588 (2002.12)
- 5) Kim JS, **Yoon SH**, and Lee SY "[Development of database systems by integrating heterogeneous metabolic databases](#)" *Genome Informatics* 13:486-487 (2002.12)
- 4) Heo WJ, **Yoon SH**, and Lee SY "[Global gene expression profiling of *E. coli* and its mutant unable to produce acetate](#)" *Genome Informatics* 13:270-271 (2002.12)
- 3) **Yoon SH**, Do JH, Lee SY, and Chang HN "[Production of poly-γ-glutamic acid by fed-batch culture of *Bacillus licheniformis*](#)" *Biotechnology Letters* 22(7):585-588 (2000.04)
- 2) Chung BH, Choi YJ, **Yoon SH**, Lee SY, and Lee YI "[Process development for production of recombinant human insulin-like growth factor-I in *Escherichia coli*](#)" *Journal of Industrial Microbiology and Biotechnology* 24(2):94-99 (2000.02)
- 1) **Yoon SH**, Choi J, and Lee SY "[Development of DNA chip microarrayer](#)" *Journal of Microbiology and Biotechnology* 10(1):21-26 (2000.02)

BOOK CHAPTERS

- 1) **Yoon SH**, Jeong H, Kwon S-K, and Kim JF "[Genomics, biological features, and biotechnological applications of *Escherichia coli* B: "Is B for better?!"](#)", pp. 1-17, *In: Systems Biology and Biotechnology of E. coli*, Lee SY (ed.) Springer, Berlin, Germany, ISBN 978-1-4020-9394-4 (2009.04)

PATENTS

- 9) **Yoon SH** and Kim S "High-temperature resistant microorganism overexpressing YbeD protein and method for culturing of high-temperature resistant microorganism using the same" Korean Patent number 10-2410382 (2022.06.14)

윤성호, 김신연 "YbeD 단백질을 과발현하는 고온 내성 미생물 및 이를 이용한 고온 내성 미생물의 배양 방법" 특허출원번호: 10-2018-0009345 (2018.01.25), 특허등록번호: 10-2410382 (2022.06.14)

- 8) **Yoon SH**, Kim H "Mutant enzyme of HpaB with modified substrate specificity and uses thereof" Korean Patent: appl. 10-2020-0116319 (2020.09.10)

윤성호, 김한설 "변형된 기질 특이성을 갖는 HpaB의 돌연변이 효소 및 이의 용도" 특허출원번호: 10-2020-0116319 (2020.09.10)

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