

Dohyeon Kim

Postdoctoral Researcher

Molecular Pharmacology Program

Memorial Sloan Kettering Cancer Center (MSKCC), New York, USA

E-mail kimd22@mskcc.org

EDUCATION & POSTDOCTORAL TRAINING

Memorial Sloan Kettering Cancer Center

Research Scholar in Molecular Pharmacology Program

Prof. Daniel A.Heller

New York, USA

Apr 2025 - Current

Korea Advanced Institute of Science and Technology

M.S./ Ph.D. in Biological Sciences

Prof. Sangyong Jon

Daejeon, Republic of Korea

Feb 2025

Korea Advanced Institute of Science and Technology

B.S. in Department of Biological Sciences

Dean's List

Daejeon, Republic of Korea

Feb 2019

RESEARCH INTERESTS

- | Nanomedicine (drug or gene delivery) for targeted disease therapy
- | Translational research and clinical applications
- | Biomaterials

SCHOLARSHIPS, GRANTS AND AWARDS

KAIST Institutes Excellent Researcher Award, KAIST Institutes, 2024

Graduate Student Outstanding Paper Award, KAIST, 2024, ~\$ 1,000

Glycocalyx-mimicking nanoparticles with differential organ selectivity for drug delivery and therapy

Silver Prize in Humantech Paper Awards, Samsung Electronics Co. Ltd., 2024, ~\$ 10,000

Kim Young-Han Global Leadership Award, Office of Student Affairs, KAIST, 2022, ~\$ 4,000

Short Term Innovative Research, Department of Biological Sciences, KAIST, 2022, ~\$ 5,000

Systematic engineering and in vivo screening of glyco-nanoparticle library for organotropic drug delivery

National Science & Technology Scholar, Korea Student Aid Foundation, 2018, ~\$ 7,000

KAIST Academic Scholar, Alumni Academic Scholarship Foundation, KAIST, 2016 - 2018, ~\$ 12,000

TEACHING EXPERIENCE

Teaching Assistant

Cell Biology Experiments

Spring 2022

Virology

Fall 2020 & 2021

Mentoring

Bio-Undergraduate Research Program

Winter 2023

Department of Biological Sciences, KAIST

Undergraduate Research Program

Fall 2020

Office of Research Affairs, KAIST

PUBLICATIONS

15. J. J. Yan, H. Kim, B. Kim, H. Piao, J. Y. Jang, T. K. Kang, W. B. Lee, **D. Kim** ... J. Yang* & Jon, S (2025). Synthetic Bilirubin-Based Nanomedicine Protects Against Renal Ischemia/Reperfusion Injury Through Antioxidant and Immune-Modulating Activity. **Advanced Healthcare Materials**, 2403846.

14. **D. Kim**[†], H. Keum[†], R. Kim[†], J. Choi, M. C. Prayogo, H. Kim, ... C. O. Park* & S. Jon* (2025). Synthetic bilirubin-based nanomedicine alleviates atopic dermatitis by reducing oxidative stress and modulating immune responses. **Advanced Therapeutics**, 2400403. († Equal contribution)

13. W. Jung[†], M. Asaduddin[†], D. Yoo, D. Y. Lee, Y. Son, **D. Kim**, ... S. -H. Park* & S. Jon* (2024). Noninvasive ROS imaging and drug delivery monitoring in the tumor microenvironment. **Biomaterials**, 122633. († Equal contribution)

12. **D. Kim**[†], C. -H. Whang[†], J. Hong, M. C. Prayogo, W. Jung, S. Lee, ... H. -S. Lee* & S. Jon* (2024). Glycocalyx-mimicking nanoparticles with differential organ selectivity for drug delivery and therapy. **Advanced Materials**, 2311283. († Equal contribution)

11. W. Jung[†], M. Asaduddin[†], H. Keum, Y. Son, D. Yoo, **D. Kim**, ... S. -H. Park* & S. Jon* (2024). Longitudinal magnetic resonance imaging with ROS-responsive bilirubin nanoparticles enables monitoring of nonalcoholic steatohepatitis progression to cirrhosis. **Advanced Materials**, 2305830. († Equal contribution)

10. T. W. Kim[†], C. -H. Whang[†], **D. Kim**, & S. Jon* (2024). Prodrug celecoxib-derived nanoparticles potentiate the efficacy of cancer immunotherapy by remodeling the tumor microenvironment. **Advanced Therapeutics**, 2300321. († Equal contribution)

9. D. Yoo[†], C. -H. Whang[†], J. Hong, **D. Kim**, M. C. Prayogo, Y. Son, ... H. -S. Lee* & S. Jon* (2023). Anti-inflammatory glycocalyx-mimicking nanoparticles for colitis treatment: construction and in vivo evaluation. **Angewandte Chemie**, 135(34), e202304815. († Equal contribution)

8. C. W. Choi[†], H. Keum[†], S. Yang[†], B. M. Kang, **D. Kim**, H. Piao, ... S. W. Youn* & S. Jon* (2023). Bilirubin nanomedicine alleviates inflammation and angiogenesis in a rosacea mouse model. **Advanced Therapeutics**, 6(4), 2200223. († Equal contribution)

7. S. Seo[†], N. Hong[†], J. Song[†], **D. Kim**, Y. Choi, D. Lee, ... S. Jon* & H. Kim* (2022). Polymer thin film promotes tumor spheroid formation via JAK2-STAT3 signaling primed by fibronectin-integrin α5 and sustained by LMO2-LDB1 complex. **Biomedicines**, 10(11), 2684. († Equal contribution)

6. C. -H. Whang[†], J. Hong[†], **D. Kim**, H. Ryu, W. Jung, Y. Son, ... H. -S. Lee* & S. Jon* (2022). Systematic screening and therapeutic evaluation of glyconanoparticles with differential cancer affinities for targeted cancer therapy. **Advanced Materials**, 2203993. († Equal contribution)
5. H. Keum[†], **D. Kim**[†], C. -H. Whang, A. Kang, S. Lee, W. Na, & S. Jon* (2022). Impeding the medical protective clothing contamination by a spray coating of trifunctional polymers. **ACS Omega**, 7(12), 10526-10538. († Equal contribution)
4. H. Keum, **D. Kim**, J. Kim, T. W. Kim, C. -H. Whang, W. Jung, & S. Jon* (2021). A bilirubin-derived nanomedicine attenuates the pathological cascade of pulmonary fibrosis. **Biomaterials**, 275, 120986.
3. I. Noh, Y. Son, W. Jung, M. Kim, **D. Kim**, H. Shin, ... & S. Jon* (2021). Targeting the tumor microenvironment with amphiphilic near-infrared cyanine nanoparticles for potentiated photothermal immunotherapy. **Biomaterials**, 275, 120926.
2. H. Keum, J. Kim, D. Yoo, T. W. Kim, C. Seo, **D. Kim**, & S. Jon* (2021). Biomimetic lipid nanocomplexes incorporating STAT3-inhibiting peptides effectively infiltrate the lung barrier and ameliorate pulmonary fibrosis. **Journal of Controlled Release**, 332, 160-170.
1. H. Keum, T. W. Kim, Y. Kim, C. Seo, Y. Son, J. Kim, **D. Kim**, ... & S. Jon* (2020). Bilirubin nanomedicine alleviates psoriatic skin inflammation by reducing oxidative stress and suppressing pathogenic signaling. **Journal of Controlled Release**, 325, 359-369.

PATENTS

1. Sangyong Jon, Hee-Seung Lee, Chang-Hee Whang, Jungwoo Hong, **Dohyeon Kim**. Library Comprising Glyconanoparticles for Screening and Identification of Cancer-Targeting Nanomedicines and Use Thereof. KR Patent Application No. 10-2022-0062664.
2. Sangyong Jon, Jun Hyuk Song, Changjin Seo, **Dohyeon Kim**. Culture plates for producing stem cell spheroids and Method for producing stem cell spheroids using thereof. KR Patent Application No. 10-2021-0006236.

CONFERENCE PRESENTATIONS

1. Organ-Selective Glyconanoparticles Enable Targeted Treatments of the Diseased Liver, kidney and spleen, **2023**, Controlled Release Society Annual Meeting & Expo, **Poster Presentation**.
2. Systematic Engineering and In vivo Screening of Glyco-Nanoparticle Library for Organotropic Drug Delivery, **2022**, Korean Society for Molecular and Cellular Biology International Conference, **Poster Presentation**.
3. Systematic Engineering and In vivo Screening of Glyco-Nanoparticle Library for Organotropic Drug Delivery, **2022**, Nano Korea Symposium, **Poster Presentation**.