

About Our Laboratory

The Peptide-Based Physical Pharmaceutics Laboratory in the College of Pharmacy focuses on developing advanced drug delivery technologies by leveraging the physicochemical properties of peptide-based biopharmaceuticals. Our research encompasses the entire drug development pipeline, including in silico, in vitro, in vivo, CMC development, industrialization, and regulatory strategies.

Research Areas

- Design of peptide-based self-assembling nanostructures using generative protein language models
- Development of next-generation cell culture feed supplements using agricultural and biological resource-derived peptides
- Design of multimodal diagnostic peptide microchips for the detection of circulating tumor cells (CTCs) and circulating tumor DNA (ctDNA)
- Development of advanced formulations for gut microbiome modulation using natural metabolite-derived compounds
- AI-driven design and evaluation of cell-penetrating peptides
- Development of AI-based peptide therapeutics for pulmonary fibrosis
- Development of transporter-targeted oral GLP-1 receptor agonist peptide therapeutics

Current Research Funding

- National Research Foundation of Korea (NRF): funded through February 2031
- Ministry of Agriculture, Food and Rural Affairs: funded through December 2030
- Ministry of Science and ICT: funded through July 2027
- Ministry of Food and Drug Safety: funded through December 2026

Who We Are Looking For

We welcome highly motivated students and researchers from a wide range of disciplines, including:

- Biopharmaceutical Sciences
- Artificial Intelligence
- Drug Delivery Systems
- Biomaterials
- Pharmaceutical Engineering
- Life Sciences
- Chemistry
- Chemical Engineering
- and other related fields

If you are passionate about learning cutting-edge technologies, conducting research with real-world translational potential, and contributing to the development of next-generation biopharmaceuticals, we encourage you to join our team.

Open Positions

- **Graduate Programs** - M.S., integrated M.S./Ph.D., and Ph.D. programs in biopharmaceuticals, drug delivery systems, biomaterial design, and related fields.
- **Postdoctoral Researcher** - Research areas include biopharmaceuticals, drug delivery systems (DDS), biomaterial design, and related fields.
- **Research Staff** - Peptide synthesis and characterization; quality control (QC) and analytical research.

Benefits & Research Environment

Stable Support for Research

- Full tuition support for full-time graduate students
- Performance-based scholarships, bonuses, and various research incentives
- Additional rewards for high-quality publications and outstanding research achievements

Global Research Opportunities

- Financial support for participation in domestic and international conferences
- Active support for presenting research at international conferences before graduation
- Opportunities for internships at leading companies and research institutes

Research-Focused Environment

- Personal research workspace and dedicated research computer
- Access to GPU servers for AI model development and training
- State-of-the-art research equipment and laboratory facilities

How to Apply

Applicants interested in internships or graduate positions should send **the following documents** by email to **seho.kweon@jnu.ac.kr**:

- **Statement of Purpose** - Brief introduction, research interests, and motivation for applying
- **Curriculum Vitae (CV)**

Laboratory Website: <https://aptl-cnu.github.io/lab-website/>

General Inquiries: hyejeong@jnu.ac.kr