2022 PSK-이녹스 신진연구자 웨비나

2022년 11월 30일(수) AM 10:00 - 12:00 | 온라인 상

https://kaist.zoom.us/j/81259895159

주최 한국고분자학회 주관 의료용고분자 부문위원회 후원 INNOX

○ 초대의 글

최근 코로나 19 사태의 장기화로 인해 연구자 간 교류의 장이 축소되고 있는 상황에서 한국고분자학회는 우수한 신진연구자와 교류의 장을 확대하고자 노력하고 있습니다. 'PSK-이녹스 신진연구자 세미나'는 우수한 연구역량을 가진 신진연구자를 발굴하여 교류의 장을 넓히고자 ㈜이녹스의 후원과 한국고분자학회 주최로 마련한 온라인 세미나입니다. 고분자 분야의 선도연구를 수행하는 신진연구자의 우수한 연구성과를 공유하는 온라인 세미나에 관심있는 많은 분들의 참여를 부탁드립니다.

○ 일정

AM 10:00 - 11:00	Design of Lipid Self-assembly for Cellular Delivery: Non-lamellar Structures Hojun Kim (김호준), cuboplex@kist.re.kr (Advanced Biomolecular Recognition Center, Korea Institute of Science and Technology)
	ABSTRACT : Since its discovery in the mid-60s, liposome has been perceived as an excellent candidate for the cellular delivery vehicle. After 60 years of research, however, it turns out liposomal structure is not very effective in delivering cargo across the resilient cellular membrane. In fact, elasticity theory by Helfrich predicted that the liposome-mediated membrane fusion process is a thermodynamically unfavorable. Non-lamellar structures of lipids, on the other hand, can be highly fusogenic. For example, inverse bicontinuous cubic structures has positive Gaussian modulus which is similar to fusion structures. Despite of high fusogenicity, non-lamellar structures are highly viscous and have a low structural symmetry with foreign substances due to their limited pore size. In addition, the conventional formulation method is poorly compatible with such structures. In this talk, I will discuss our approaches including the microfluidic formulation method and super-swelling phenomena to utilize cubic structures in translational research. Our study indicates the importance of design principles of lipid structures in biomedical applications.
AM 11:00 - 12:00	Soft Materials for Tough Problems in Human Health Hyunwoo Yuk (육현우), hyunwooyuk@sanaheal.com (Massachusetts Institute of Technology, Cambridge, MA)
	ABSTRACT : As the COVID-19 pandemic has painfully demonstrated, tough problems in human health are one of the most challenging fronts for our society that require innovations and breakthroughs in a highly multi- and cross-disciplinary manner. In particular, biomaterials – materials that interface and interact with biological systems – are one of the key players in solving tough problems in human health. Among many biomaterial classes, soft materials such as hydrogels and elastomers have been the most promising class of biomaterials owing to their close similarity to biological tissues. However, despite the widespread adoption of soft materials in various wearable, implantable, biomedical, and clinical applications, there have been lingering fundamental challenges that necessitate innovations and their ultimate translational uses in practice. Among several fundamental challenges in soft materials, my research has focused on two key areas of innovation: bioadhesives for mechanical and hydrogel bioelectronics for electrical interfacing with the human body. In this talk, I will share two series of projects on bioadhesives and hydrogel bioelectronics under the shared theme of soft materials for tough problems in human health. In each example, the collaborative interplay between rationally-guided design principles, translationally-informed biomaterials development, and applications will be discussed. In the concluding remarks, the lessons learned from my personal journey through academic research to commercial translation will also be discussed.

○ 연간일정 (일정은 부문위원회 사정에 따라 변동될 수 있습니다.)

콜로이드 및 분자조립 부문위원회	1, 5, 9월 마지막 주 수요일
의료용고분자 부문위원회	2, 6, 11월 마지막 주 수요일
분자전자 부문위원회	3, 8, 12월 마지막 주 수요일

한국고분자학회
The Polymer Society of Korea