

## 세미나 초록

<b>성명</b>	곽민석
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<b>발표 주제</b>	Amphiphilic oligonucleotides interacting with cell membrane: experimental and computational studies
<b>발표 내용</b>	<p>This presentation will focus on lipid-modified DNAs with synthetic hydrophobic segments covalently connected to oligonucleotides. The self-assembled lipid-DNA micelle is a versatile delivery platform where biomolecules such as DNA, RNA, and peptide are co-loaded within the carrier for anti-cancer therapeutics or elsewhere. These materials exhibit both the complementary nucleobase recognition of DNA and the aggregation behavior of amphiphilic macromolecules. Here, successful in vivo utilization of the materials in immunology and gene silencing will be demonstrated. Furthermore, we performed molecular dynamics (MD) simulations and experiments to understand the underlying mechanism for phenomena at cell membranes, such as docking and endosome formation. Using fluorescence microscopy and MD simulation, we demonstrated that the interaction between lipid-DNA micelles and cell membranes depended on the presence of lipid moiety. Lastly, the images obtained by confocal microscopy showed that the lipid-DNA accumulated on the cell membrane, and the accumulation induced cellular internalization. Then, we observed that the membrane-docked lipid-DNAs were internalized by forming the endosome into cells using electron microscopy.</p> 