

Immobilization-free SELEX assisted by Graphene Oxide

박지웅, Rameshwar Tatavarty, 김대우¹, 정희태¹, 구만복*
고려대학교; ¹KAIST
(mbgu@korea.ac.kr*)

Aptamers are ssDNA or RNA oligonucleotides with high affinity and high specificity to their targets. We have used graphene oxide (GO) to obtain aptamers which bind to model protein, Nampt. The π - π interaction of ssDNA to GO forms the basis for simplified, immobilization-free approach to systematic evolution of ligands by exponential enrichment (SELEX). The GO in the GO-SELEX is utilized as a material tool that can not only separate unbound ssDNA from the target protein-aptamer complex in the SELEX process but also recover the target inducing released ssDNA from the GO surface in the counter-SELEX process by affinity based desorption. Thus relatively cheap single layer GO sheets can be used and applied to identify aptamers specific to any target of interest. In this presentation, new aptamer screening method assisted by GO and the affinity and specificity of these finally screened aptamers will be discussed.