<u>세미나 초록</u>

발표주제	**Generation of highly potent neutralizing antibodies**
발표내용	Antibody therapy is most effective in preventing and initial treatment of viral infection. Since the coronavirus disease outbreak in 2019, several antibody therapeutics have been developed to treat severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections. These therapeutics target the spike protein of SARS-CoV-2; however, emerging mutations in this protein reduce their efficiency. We developed a highly potent SARS-CoV-2 neutralizing antibody. We generated a humanized mAb, MG1141A, against the receptor binding domain of the spike protein through traditional mouse immunization. We confirmed that MG1141A could effectively neutralize live viruses, with an EC50 of 92 pM, and that it exhibited effective Fc-mediated functions. Additionally, it retained its neutralizing activity against the alpha, beta, and gamma variants of SARS-CoV-2 and we confirmed that it could bind the most variants than competing antibodies. Another virus, the Respiratory syncytial virus (RSV), which is a major cause of lower respiratory tract infections in infants and young children. RSV infection is relevant to 6.7% of the mortality of children aged < 1 year and no effective therapeutics has been developed yet. Interestingly, almost people have experienced RSV infection in their lifetime and about 98% of young health males were anti-RSV antibody positive. For this reason, we performed B cell immune profiling of the PBMCs of healthy donors and conducted screening of the recombinant antibody libraries to isolate effective anti-RSV antibodies. As a result, we found that various 'paired' V-gene repertoires of single B cells from healthy donors, and expressed whole IgGs in mammalian cells. Accordingly, this presentation will describe two case studies of antibody generation against SARS-CoV-2 and RSV. Taken together, our study contributes to the development of a novel antibody therapeutic approach, which can effectively combat emerging virus.