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Comparison of three human B cell isolation tools for the development of the antibodies neutralizing emerging infectious viruses

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Isolating human B cell cells is inevitable to investigate the development of protective antibodies, as vaccine or therapeutics candidates, against emerging infectious viruses. Single B cell sorting is a powerful tool for define ant-viral B cells. Thus, the acquisition of abundant B cells is essential to synthesize the broad-ranged antibody cDNAs for the screening of the broadly neutralizing monoclonal antibodies against the infectious viruses. In this study, we test and compare the human B cell isolation rates among the three human B cell isolation tools, a fluorescence-activated cell sorting (FACS), EasySep™ human B cell enrichment kit (STEMCELL Technologies), and human CD19 MciroBeads (MACS Miltenyi Biotec). We found that the method using FACS was more suitable to obtain more human B cells than the other methods. In addition, using a CMV tetramer probe or MERS-CoV spike protein probes, the antibody genes against CMV and MERS-CoV were amplified by heavy chain and light chain RT-PCR and nested PCR successfully. These genes were also analyzed by IMGT, resulting that the antibody sequences were proper IgG genes. The results demonstrate that human B cell isolation using FACS are a reliable tool for assisting in the rapid development of prophylactic or therapeutic antibodies neutralizing new emerging infectious diseases.

Biography

Hansaem Lee has completed her PhD from Ulsan University, Republic of Korea and Post-doctoral studies from Mayo Clinic, Minnesota, USA. She is a Staff Scientist at division of Emerging Infectious Diseases and Vector Research, Korea National Institute of Health, Korea Centers for Disease Control and Prevention, Republic of Korea.

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