Recombinant Human IgG antibodies against Human Cytomegalovirus

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Objective To study the passive immunization with human monoclonal antibodies as for prophylaxis of human cytomegalovirus (HCMV) infection. Methods Fab monoclonal antibodies to HCMV were recovered by repertoire cloning of mRNA from a HCMV infected individual. Antigen binding specificity, CDR sequence of V\(\text{H}\) and V\(\text{L}\) and neutralizing activity on HCMV AD169 strain were analyzed in vitro. The light and heavy chain Fd fragment genes of Fab antibodies were further cloned into a recombinant baculovirus expression vector pAc-c-Fc to express intact IgG Secreted products were purified with affinity chromatography using protein G. Results SDS-PAGE and Western blot confirmed the expression of the intact IgG. Immuno-blotting and -precipitation were used to identify HCMV proteins. One Fab monoclonal antibody recognized a conformational HCMV protein. Conclusion IgG antibodies can neutralize the HCMV AD169 strain efficiently at a titer of 2.5 \(\mu\)g/mL and may prove valuable for passive immunoprophylaxis against HCMV infection in humans.

Key words: Human cytomegalovirus; Human engineering antibody; Phage display; Recombinant baculovirus expression

REFERENCES

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