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TKM-011, ANTI-CD20 ANTIBODY CONFERS MULTI-PROPERTIES AGAINST BURKITT'S LYMPHOMA IN COMPARABLE EFFICACY TO RITUXIMAB AND OBINUTUZUMABJutatip Panaampon*, Seiji Okada. *Kumamoto University, Kumamoto, Japan*

Background Burkitt's lymphoma (BL), an aggressive non-Hodgkin B-cell lymphoma needs an intensive chemotherapy regimen for the treatment. Immunotherapy plays significant roles in the treatment of BL. Rituximab (RTX) treatment regimens display the correlation with a positive prognosis. Yet, there is the subset of patients failed to respond to RTX treatment or became the resistance to RTX treatment. Newer generation of monoclonal anti-CD20 antibodies such as Obinutuzumab (OBI) have shown to inhibit B cell malignancies. TKM-011, the novel anti-CD20 antibody that binds to different CD20 epitope has been established. In this study, we studied the efficacy of TKM-011, RTX, and OBI against BL cell lines both *in vitro* and *in vivo*.

Methods We screened the antibody-dependent cytotoxicity (ADCC) and antibody-dependent cell phagocytosis (ADCP) by using the luciferase effector bioassay-based Jurkat cells with the expression of Fc receptor to evaluate ADCC and ADCP activities of RTX, TKM-011, and OBI. Raji and Ramos cell lines were used as the target cells. Flowcytometric analysis was performed to confirm ADCC by using KHYG-1 (CD16⁺) and N6 (CD16 transduced KHYG-1) NK cell lines. In order to determine ADCP, we generated monocyte-derived macrophages from healthy donors and performed ADCP assay. Moreover, we also tested the efficacy of these antibodies *in vivo* model by using Raji cells xenografted-immunodeficient mice.

Results TKM-011 exerted ADCC and ADCP activities in the similar levels compared to that of RTX and OBI. Moreover, TKM-011 also showed a potent CDC activity against BL cells. By performing MTT assay, all 3 antibodies presented an induction of cell death. The results of an *in vivo* experiment demonstrated an equivalent inhibitory level of tumor growth by the three tested antibodies.

Conclusions TKM-011 shows multi-activities against BL cell lines. The efficacy of TKM-011 reaches the level of standard RTX antibody. Considering the different binding epitopes in CD20, TKM-011 can be an alternative antibody therapy for the treatment of BL.

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