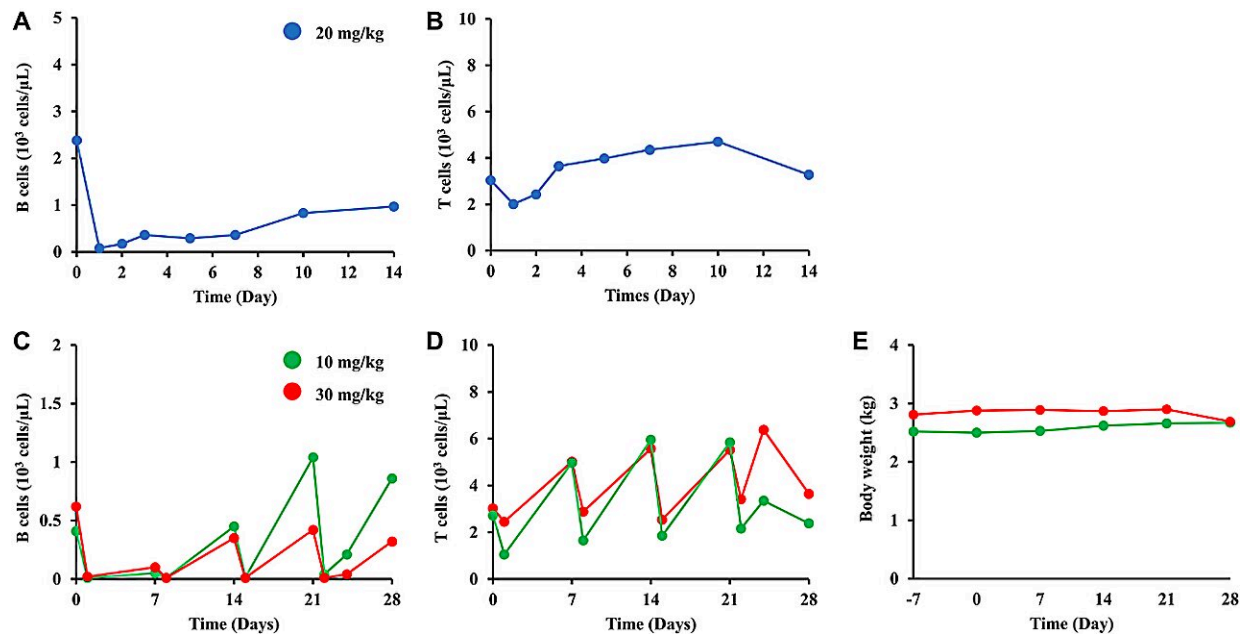


Novel therapeutic bispecific antibodies for B-cell lymphoma

April 16 2024



B-cell depletion of BTA106 in cynomolgus monkeys. Credit: 2024 Ohashi et al.

A new research paper was published in *Oncotarget* entitled, "[Novel therapeutic bispecific antibodies for B-cell lymphoma targeting IgM and other antigens on the B-cell surface.](#)"

The B-cell receptor regulates B-cell proliferation and apoptosis. Aberrations in BCR signaling are associated with the development and progression of B-cell malignancies, such as [mantle cell lymphoma](#), diffuse large B-cell lymphoma, and [chronic lymphocytic leukemia](#), many of which express the IgM type of BCR on their cellular surface.

Therefore, IgM is an attractive target for [therapeutic antibodies](#) against B-cell malignancies. However, soluble IgM competitively binds to anti-IgM antibodies in the serum, and these antibodies show insufficient cytotoxic activity. Thus, antibody therapy targeting IgM is hindered by the presence of soluble IgM in the blood.

In this new study, researchers Takahiro Ohashi, Sayuri Terada, Shinsuke Hiramoto, Yuko Nagata, Hirokazu Suzuki, Hitoshi Miyashita, Tetsuo Sasaki, Yasukatsu Tsukada, and Keiko Fukushima from ZENOAQ (Zenyaku Kogyo Co., Ltd.) used a bispecific antibody to address this problem.

"In this study, we aimed to produce IgM-dependent bispecific antibodies targeting IgM and the other B-cell antigens such as CD20, CD32b (FcγRIIB), CD79b, and [human leukocyte antigen](#) (HLA)-DR using the Cys1m technology [10, 43–45]. Additionally, the correct IgG-like bispecific antibody structures were confirmed, and their efficacies in the presence of soluble IgM were analyzed."

The researchers generated bispecific antibodies bound to IgM and other B-cell antigens, such as CD20 and HLA-DR, using their own bispecific antibody-producing technology, Cys1m. These bispecific antibodies directly inhibited [cell proliferation](#) via cell-cycle arrest and apoptosis in vitro, although large amounts of soluble IgM were present. Additionally, a bispecific antibody bound to IgM and HLA-DR (BTA106) depleted B-cells in cynomolgus monkeys.

"These data suggest that anti-IgM/B-cell surface antigen-binding specific antibodies are promising therapeutic agents for B-cell malignancies. Moreover, the bispecific antibody modality can potentially overcome problems caused by soluble antigens."

More information: Takahiro Ohashi et al, Novel therapeutic bispecific antibodies for B-cell lymphoma targeting IgM and other antigens on the B-cell surface, *Oncotarget* (2024). [DOI: 10.18632/oncotarget.28578](https://doi.org/10.18632/oncotarget.28578)

Provided by Impact Journals LLC

Citation: Novel therapeutic bispecific antibodies for B-cell lymphoma (2024, April 16) retrieved 2 May 2024 from <https://medicalxpress.com/news/2024-04-therapeutic-bispecific-antibodies-cell-lymphoma.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.