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Tumor specific antigen targeted antibody fused with MICA stimulates NKG2D mediated immunosurveillance and exhibits potent anti-tumor activity against malignancies

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MHC class I-related chain A (MICA) is a principal immunoligand of the natural killer (NK) cell receptor NK group 2, member D (NKG2D) and plays a key role in NK cell-mediated immune recognition. Shedding of MICA from tumor cells leads to immunosuppression. To trigger NKG2D-mediated immunosurveillance, we designed antibody fusion protein which consisted of human MICA and antibody component. These bispecific proteins maintained the properties of the parental antibodies. Upon binding to the tumor-associated antigens, the MICA portion was expected to promote the recognition of tumor cells by NK cells and to enhance NK cell-mediated cytotoxicity. In tumor-bearing nude mice, these fusion proteins specifically targeted to relevant tumor tissues, where they effectively recruited NK cells and induced the release of cytokines. The MICA based antibody fusion proteins have attractive potentials for clinical applications and this design provides a new approach for tumor-targeting immunotherapy.

Biography

Juan Zhang is currently working as an Associate Professor of Microbiology & Biochemical Pharmaceutics. She has obtained her BSc in Microbiological Pharmacy, MSc and Doctor's degree (PhD) from China Pharmaceutical University. In 2007, she was trained at Department of Chemical Engineering, Imperial College London as a co-supervised PhD Student and a Visiting Scholar at University of California, Los Angles (UCLA) from 2013 to 2014. She was awarded with Sanofi-Aventis Young Scientist Prize in Biological Medicine in 2011 and 333-Project Talent of Jiangsu Province in 2013, Young-and-Middle Aged Leading Academic Professor of Jiangsu Province in 2014. She is an Editorial Board Member of *Chinese Journal of Biochemical Pharmaceutics* and Youth Member of Jiangsu Society of Biochemistry and Molecular Biology. Currently her research focuses on the discovery of novel antibodies using phage display fully human antibody library and Hybridoma Technology. One of the antibodies she invented was transferred and evaluated in cell therapy. A number of bispecific antibodies she designed exhibit promising anti-cancer efficacy.

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