Production of the humanized antibody with an antigen specificity for tumor associated glycoprotein-72 by plant cell culture

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Abstract

It has been suggested that plant cell culture is the most suitable system for producing small-to-medium quantities of specialized, expensive, and high-purity proteins, especially multimeric proteins and proteins requiring posttranslational modification for their activities. Here, we report that a heterodimeric protein, monoclonal antibody, was expressed and secreted into culture medium in a biologically active form. In order to produce humanized F(ab')2 antibody with an antigen specificity for tumor associated glycoprotein-72 (TAG-72) was used. The humanized F(ab')2 antibody gene was carried by a plant expression vector. Regulated expression and secretion of humanized F(ab')2 antibody from this vector achieved using the promoter, signal peptide, and terminator from a rice alfa-amylase gene *Amy3D*. Expression and secretion of assembled antibody was observed in transgenic rice suspension culture by Western blot analysis. Futhermore, we purified and confirmed that humanized F(ab')2 antibody recognize a mucin (like TAG-72 protein) by Western blot analysis and ELISA assay (This work was supported by a grant from the NRL program of the Korean Ministry of Science and Technology. Kwon, T.-H. have been supported by a Korea Research Foundation Grant (99-005-D00070).

References

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