

Production of polyclonal antibody against alkyl hydroperoxide reductase of *Helicobacter pylori* and its antigenicity

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Abstract

Stool-antigen detection kits for diagnosis of *Helicobacter pylori* infection have been widely used because of their full non-invasive nature. Because *Helicobacter pylori* strains show a distinctive genetic diversity, it is important to find a protein that is a common antigen of various strains and shows a strong immunogenicity for the development of a stool- antigen detection kit. Alkyl hydroperoxide reductase (AhpC) of *Helicobacter pylori* strongly reacts with the sera of patients with gastritis and peptic ulcer. Therefore, AhpC seems to be an excellent candidate as a target protein for this study. Accordingly, polyclonal antiserum against AhpC was produced in adult New Zealand white rabbits by using AhpC in the gel bands without adding Freund's adjuvant. In addition, isolation and purification of AhpC were performed by preparative sodium dodecyl sulfate polyacrylamide gel electrophoresis and electroelution. In this study, a simple method was used for rapid production of polyclonal antibody against AhpC of *H. pylori*, which avoids both the long-term AhpC purification and the addition of Freund's adjuvant. One-dimensional preparative gel electrophoresis allows a single and short purification step; the high-resolution capacity of this technique leads to a high level of purity of the protein and consequently to a very high specificity of the antibody. Moreover, this method avoids contamination by other non-specific proteins, which often appear during the purification process by column chromatographic techniques, which may also decrease the purity of the immunogen. The present method is simple, rapid and cost-effective, and also makes it possible to produce antibody for stool-antigen enzyme immunoassay in a short time and at low cost. © Copyright 2008, Mary Ann Liebert, Inc.

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Indexed Keywords

EMTREE drug terms: bacterial enzyme; hydroperoxide reductase; oxidoreductase; polyclonal antibody; rabbit antiserum; unclassified drug

EMTREE medical terms: animal experiment; antibody production; antigenicity; article; controlled study; drug targeting; elution; feces analysis; *Helicobacter* infection; *Helicobacter pylori*; nonhuman; polyacrylamide gel electrophoresis; priority journal; protein isolation; protein purification; rabbit

MeSH: Animals; Antibodies; Antibodies, Bacterial; Antigens; Antigens, Bacterial; Bacterial Proteins; Dose-Response Relationship, Immunologic; Electrophoresis, Polyacrylamide Gel; Enzyme-Linked Immunosorbent Assay; *Helicobacter* Infections; *Helicobacter pylori*; Immunoenzyme Techniques; Peroxidases; Peroxiredoxins; Rabbits
Medline is the source for the MeSH terms of this document.

Species Index: *Helicobacter pylori*; *Oryctolagus cuniculus*