Diagnosis of Genus *Helicobacter* through a hemi-nested PCR assay of 16S rRNA

Abstract

The present study aimed to establish a genus-specific PCR-based assay to detect *helicobacters* using 16S rRNA gene as the target template. We designed the hemi-nested primers based on sequences of 16S rRNA gene of 34 types of Helicobacter species. The inclusivity, sensitivity, and specificity of the PCR assay using these primers were examined in three different models, comprising feces simulated samples, BLAB/c mice infection model and clinic patients samples. The detection sensitivity of *Helicobacter pylori*, *Helicobacter hepaticus* and *Helicobacter bilis* strains from feces simulated samples was all 102 CFU/ml. We successfully detected *H. hepaticus* and *H. bilis* in the liver, cecum and feces of experimentally infected mice. *H. pylori* was successfully detected in the feces samples from 3 patients infected with *H. pylori* while not in the feces samples from 3 healthy human. However, the C97/C05–C97/C98 PCR assay detected *H. pylori* in the 2 positive samples. Due to the PCR assay’s excellent inclusivity, high sensitivity and specificity it may be used to detect the presence of *Helicobacters*. 