TaKaRa Taq™ and *TaKaRa Ex Taq*® (Cat.# R001A and RR001A)

Application: Comparison of the sensitivity of *TaKaRa Taq*™ and *TaKaRa Ex Taq*® for detection of *Helicobacter pylori* in patient samples*

Helicobacter pylori is the causative agent of gastritis and is associated with a variety of stomach disorders including gastric ulcers. Conventional detection of *H. pylori* in gastric biopsy specimens relies upon culture methods. PCR methods are now recognized as an effective alternative. PCR screening allows sensitive detection, and can provide results in much less time than culture-based methods.

The performance of *TaKaRa Taq*™ and *TaKaRa Ex Taq*® in identifying *H. pylori* in patient samples was compared. Specifically, the polymerases were used to amplify the urease gene (HPUA) of *H. pylori* from gastric biopsy specimens from patients with gastritis. All patient samples were confirmed by culture methods to be positive for *H. pylori*-associated gastritis.

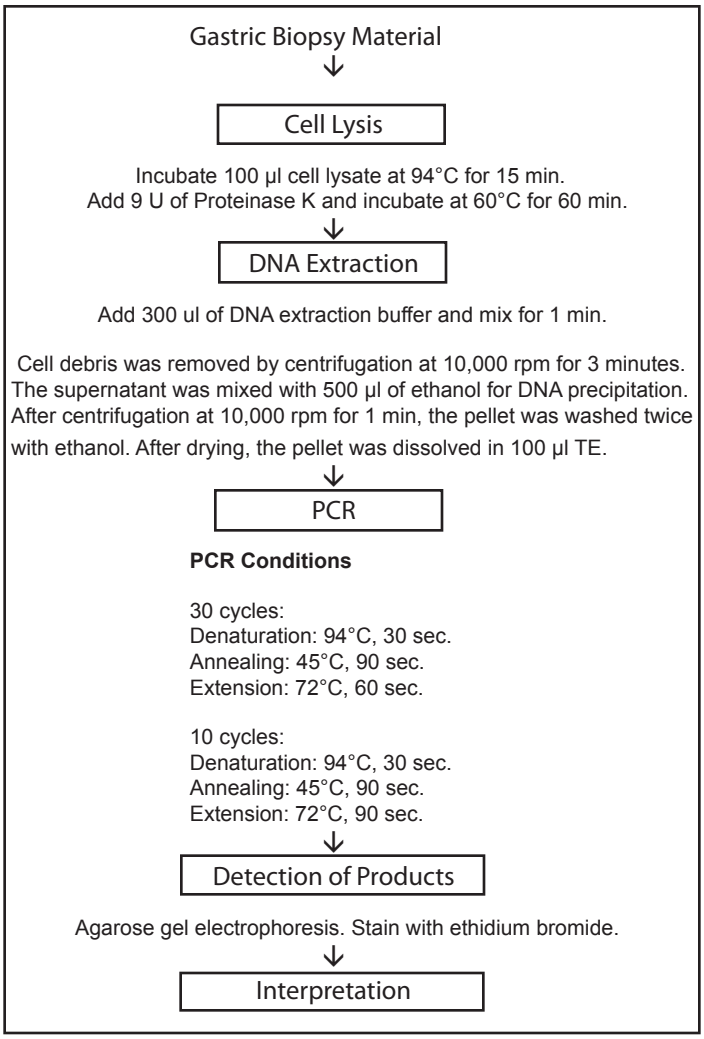

Figure 1. Overview of protocol for detecting *H. pylori* in gastric biopsy samples by PCR.

Table 1. PCR Reaction Mixture Composition

Template DNA	10 µl
TaKaRa Ex Taq or *Taq* DNA Polymerase	2.5 U
10X *Ex Taq* Buffer or PCR Buffer	
dNTP Mixture	200 µM
Primers**	0.2 µM each

**Primers to amplify HPUA
HPUA-1 (5'-GCCAATGGTAAATTAGTT 3': 304-321)
HPUA-2 (5'-CTCCTTAATTGTTTTTAC 3': 714-697)

Results

Reactions performed with *TaKaRa Ex Taq* resulted in a distinct band for all of the biopsy samples, whereas the product was not amplified in all reactions when conventional *Taq* was used (Figure 2).

Taq
Lane 1: *H. pylori* NCTC11637
Lane 2: Gastric biopsy (1)
Lane 3: Gastric biopsy (2)
Lane 4: Gastric biopsy (3)

TaKaRa Ex Taq
Lane 5: *H. pylori* NCTC11637
Lane 6: Gastric biopsy (1)
Lane 7: Gastric biopsy (2)
Lane 8: Gastric biopsy (3)

Lane 9: Marker

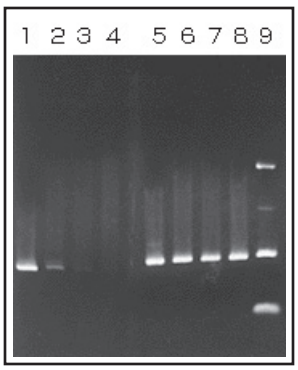

Figure 2. Detection of *H. pylori* (HPUA) amplification products (410 bp). Three gastric biopsy samples (1, 2, 3) and *H. pylori* NCTC11637 (positive control, lane 1 and 5) were amplified with either *Taq* (lanes 1-4) or *Ex Taq* (lanes 5-8).

Conclusion

The results indicate that *TaKaRa Ex Taq* was able to efficiently amplify the *H. pylori* HUPA target from patient specimens. These results suggest that *Ex Taq* minimizes the risk of false-negative results that can occur using conventional *Taq* DNA polymerases.

*Data kindly provided by Dr. Kurokawa, Dr. Nukina, and Dr. Nakanishi (Public Health Research Institute of Kobe City)

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