# O-17 Identification of putative pathogens in endodontic infections by 16S rRNA polymerase chain reaction

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## Ⅰ. Objectives

The causative microbes of endodontic infections were not clearly identified. Several researches revealed the putative pathogens were related with endodontic infections. However, the epidemiological studies about this field were not enough in Korea. Therefore, the purpose of this study was to investigate the frequency of putative 7 pathogens in endodontic infections by polymerase chain reaction based on 16S rRNA genes.

## Ⅱ. Material and Methods

### Specimen Sampling

The specimens were collected from infected pulpal tissue of patients who had been referred for root canal treatment to the department of conservative dentistry, Chosun University, Gwang-Ju. Samples were collected aseptically. Teeth and surrounding field were then cleansed with 3% hydrogen peroxide and decontaminated with a 3% sodium hypochlorite solution. Samples were initially collected by means of a barbed broach with handle cut off. Afterward paper points were placed in the canal for 10 sec. The cut barbed broachs and paper points were transferred to eppendorf tube containing 500 $\mu l$ of 1 X PBS.

### PCR

DNA was extracted by direct DNA extraction method using lysis buffer (0.5% EDTA, 1% Triton X-100). Identification of putative 7 pathogens were performed by PCR based on 16S rRNA genes. The target species were as follows: *Porphyromonas endodontalis, Porphyromonas giginvalis, Prevotella intermedia, Prevotella nigrescens, Bacteroides forsythus, Actinobacillus actinomycetemcomitans,* and *Treponema denticola.*

## Ⅲ. Results

The PCR assay used in this study allowed detection of black-pigmented anaerobes in 88.6%(39/44/) of examined teeth. *P. endodontalis* was found in 88.6%(39/54/). *P. gingivalis* was found in 52.3%(23/44). *P. nigrescens* in 18.2%(8/44). *P. intermedia* in 15.9%(7/44). *B. forsythus* in 18.2%(8/44), *A. actinomycetemcomitans* in 2.3%(1/44), *T. denticola* in 25%(11/44/) of the samples.

## Ⅳ. Conclusion

The high prevalence of *P. endodontalis* and *P. gingivalis* suggests that they can play an important role in the etiology of endodontic infections in Korean.