



HOKKAIDO UNIVERSITY

Title	TYPING OF CHLAMYDIA SPP. BY RESTRICTION ENDONUCLEASE ANALYSIS COMBINED WITH POLYMERASE CHAIN REACTION (PCR)
Author(s)	KOMATSU, Mayumi
Citation	Japanese Journal of Veterinary Research, 40(1), 39-39
Issue Date	1992-05-29
Doc URL	https://hdl.handle.net/2115/2372
Type	departmental bulletin paper
File Information	KJ00002377564.pdf



TYPING OF *CHLAMYDIA* SPP. BY RESTRICTION
ENDONUCLEASE ANALYSIS COMBINED WITH
POLYMERASE CHAIN REACTION (PCR)

Mayumi KOMATSU

*Department of Veterinary Public Health
Faculty of Veterinary Medicine
Hokkaido University, Sapporo 060, Japan*

In order to perform an epidemiological survey of chlamydiosis and to establish a appropriate treatment and preventive measures, a simple procedure was developed for the direct typing of chlamydial DNA. The procedure consisted of polymerase chain reaction (PCR) and restriction endonuclease analysis.

The results can be summarised as follows.

- 1) Three primers were designed according to the published sequences of chlamydial major outer membrane protein genes (MOMP gene; omp 1). It was possible to amplify omp 1 of *Chlamydia psittaci*, *C. pneumoniae*, and *C. trachomatis* by PCR using these primers without propagation of organisms in tissue culture.
- 2) With *Sph*I endonuclease digestion of omp 1, *C. trachomatis* could be differentiated from *C. psittaci* and *C. pneumoniae*.
- 3) *Hind*III digestion analysis could differentiate *C. psittaci* from *C. pneumoniae*.
- 4) Endonuclease digestion analysis with three enzymes gave various patterns for 7 strains of *C. psittaci* regardless of their host origins.
- 5) This typing method could be applied for *Chlamydia* in the feces of budgerigars. The analysis showed that genomic diversity exists in avian strains of *C. psittaci*.
- 6) Omp1 sequences of *C. trachomatis* 7 serovars (A, B, C, E, F, H, and L2) were analyzed by computer software for DNA sequence analysis (DNASIS program) to predict the digestion patterns. Digestion analysis with 3 enzymes, *Hae*III, *Hind*III, and *Cfo*I could successfully differentiate these 7 serovars.
- 7) The typing method was also applied for clinical specimens from humans. A sample from a conjunctivitis patient (a swab from a conjunctiva) was identified as *C. trachomatis* serovar C and a sample from a child with pneumonia (stomach content) as serovar E.