In situ PCR for detection and differentiation of infectious bursal disease virus strains in chickens

ABSTRACT

An *In situ* PCR method for detection and differentiation of infectious bursal disease virus (IBDV) strains is described. In one study, 15 specific pathogen free (SPF) 14 day old chickens were infected orally with very virulent (vv) IBDV strain with a titre of $10^{7.5}$ EID_{50}/0.1 mL. Six non-infected chickens were used as controls. Chickens were sacrificed at various intervals and tissue samples taken for histological examination. Immunoperoxidase staining (IPS) was done, and an *In situ* PCR was developed using a specific probe for IBDV's VP1 gene. The *In situ* PCR was significantly ($p < 0.05$) more sensitive than IPS. In another study todifferentiate strains by *In situ* PCR, ten, 42 day old SPF chickens were infected with virulent ($10^{4.83}$ EID_{50}/0.1 mL) or classical (ca) NDV strains ($10^{3.0}$ EID_{50}/0.1 mL) with 5 non-infected controls. Tissue samples infected with virulent, classic and controls tested with a virulent specific probe were positive only in tissues infected by the virulent strain whereas classical strain probe were positive only to tissue infected by classical strain. These results suggest that our *In situ* PCR differentiated virulent from classical NDV strains.

Keyword: *In situ* PCR; specific probe, infectious bursal disease virus (IBDV), very virulent IBDV, classical IBDV, detection and differentiation