Equine herpesvirus type 1 quantification in different types of samples by a real-time PCR*

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Abstract

Equine herpesvirus type 1 (EHV-1) is one of the major viral agents causing diseases in horses common worldwide. A variety of techniques, including PCR, have been used to diagnose EHV-1 infections. In this paper, an attempt of real-time PCR has been described, which uses specific fluorochrome-labeled TaqMan probes for detection of viral DNA. This method does not require post-amplification manipulations, thereby reducing the risk of cross-contamination. The assay was sensitive enough to detect EHV-1 sequences in different clinical samples, as well in mice neuronal cell cultures. The technique was also very specific – there was no cross reaction with other human and equine herpesviruses. Compared to previously used nested PCR technique, the test was more sensitive and should be useful for the common diagnosis based on its specificity and rapidity.

Key words: EHV-1, real-time PCR, molecular detection, horses

Introduction

Equine herpesvirus type 1 (EHV-1) is a member of h-Herpesvirinae subfamily, prevalent in various geographical areas (Davison et al. 2005) and responsible for respiratory tract disorders, infections of the central nervous system and abortions in pregnant mares (Allen et al. 1986, Studdert et al. 1999).

Infections of the upper respiratory tract affect mostly animals younger than 3 years of age, with predominance in the group of foals younger than 12 months. In EHV-1 infections, incubation period ranges from 3 to 10 days, and initial symptoms involve increased body temperature (38.9-41.1°C), weakness, drowsiness and appearance of nasal discharge (Harelss et al. 2006). In case of further complications, clinical symptoms persist for next 2-7 days. In young horses, bronchopneumonia can appear, as a result of secondary bacterial infection. In animals with high innate immunity, course of the infection may be sub-

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* Work partially supported by grant of Polish Ministry of Science and Higher Education No. N308 3096 33