



BSE inoculation to prion diseases-resistant sheep reveals tricky silent carriers

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Abstract

The possible transmission of bovine spongiform encephalopathy (BSE) agent to sheep contributed to select genetically sheep considered as ◀resistant▶ to prion diseases i.e., with PrP ARR/ARR genotype. Here, we report the infection of two PrP ARR/ARR genotype sheep using the cattle BSE agent inoculated by peripheral routes. Disease-associated prion protein (PrP^d) was detected in the brain for one case (at 2191 days post-infection (dpi)) and only in the nervous enteric system for the other one (at 673 dpi). The electrophoretic pattern of PrP^d from the obex region in this BSE challenged sheep was shown to be closer from that found in naturally ◀scrapie▶-affected sheep with regard to the apparent molecular mass of the unglycosylated PrP^d. Importantly, the absence of any clinical symptoms up to 6 years following experimental challenge suggests that silent carriers of the BSE agent may exist among ARR homozygous sheep.