Characterization and chromosome localization of a processed pseudogene related to the bovine laminin receptor gene family

Abstract:

A bovine BAC clone containing a processed laminin receptor pseudogene (LAMR1P) has been isolated and characterized. A 2,901-bp sequence was produced from the clone, of which 1,187 bp represented seven identifiable exon-like domains, but no intervening sequences. The pseudogene sequence reveals several transversions and transitions, as well as insertions and deletions. A premature stop codon motif is present at nucleotide position 115 located in the exon-2-like domain. Physical mapping of the gene was performed by FISH and RH panel mapping and assigned LAMR1P to BTA4q24→q26 with the closest linkage to BM6458 (19 cR, LOD score of 11.6). The functional laminin receptor putatively plays an important role in the transmission of bovine spongiform encephalopathy (BSE). In this process, the receptor supposedly acts as the binding site for prion proteins to enter mammalian cells. Considering the existence of several human laminin receptor pseudogenes forming a complex family, any knowledge of even pseudogene sequences might be helpful to isolate the functional bovine laminin receptor gene.