Assignment¹ of the CD163 antigen (*Cd163*) to mouse chromosome 6 band F2 by radiation hybrid mapping

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¹ To our knowledge this is the first time this gene has been mapped in mouse.

Rationale and significance

The CD163 antigen is a member of the scavenger receptor cysteine rich (SRCR) protein family (Law et al., 1993). It is a type I membrane glycoprotein and has recently been identified as the macrophage receptor for hemoglobin-haptoglobin (Hb-Hp) complexes (Kristiansen et al., 2001). By mediating the clearance of free hemoglobin the receptor may have a central role in hemoglobin and iron metabolism. Furthermore, efficient uptake and thus detoxification of hemoglobin may be a crucial step in the wound healing process and during the resolving phase of acute inflammatory reactions. The macrophage restricted molecule is functionally induced by glucocorticoids (Schaer et al., 2002), suggesting anti-inflammatory properties of CD163. To further characterize the biological significance of CD163 in vivo, we have recently reported the cloning and molecular characterization of the mouse CD163 homologue (Schaer et al., 2001).

Fig. 1. Localization of Cd163 on mouse chromosome 6.

This study was supported by grant no.32-55180.98 from the Swiss National Science Foundation.

Received 16 December 2002; manuscript accepted 13 January 2003.

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Materials and methods

For radiation hybrid mapping PCR was applied to the mouse panel developed at Whitehead/MIT (T31 panel, Research Genetics, Huntsville USA). Using standard PCR conditions and protocol, a 191-bp murine specific genomic fragment was amplified using the primer pair gmCd163 which was derived from a *Cd163* fragment under accession number BH140859. (gmCd163: 5'-CTTGTACCCACAGCAGGGAT and 5'-AGCTCCACTCT-TCCCTACA). Sequence specificity of the amplification reaction was confirmed by sequencing. The results were scored for the presence (1) or absence (0) of a PCR product of the expected size. The data vector for mouse *Cd163* was: 01100 01010 00000 00001 01010 00001 00010 00101 00000 00100 01000 10101 00000 00111 10101 01001 10010 00000 00001 00001. The vector was tested against the framework map (<http://www.jax.org/resources/documents/cmdata/rhmap/rh.html>).

Results

Cd163 is located on distal mouse chromosome 6, closely linked to D6Mit331, D6Mit134 and D6Mit255 (Lod scores 20, 15.9 and 13.4), between D6Mit331 proximal (6cR) and D6Mit134 distal. These markers are located between the C-type lectin superfamily member 6 (*Clecsf6*) and the leukocyte antigen CD4 (*Cd4*) on chromosome 6 band F2 on the cytogenetic map. This position is supported by linkage of *Cd163* to a cluster of homologous genes on mouse chromosome 6 and human chromosome 12p13.3, the position of the human CD163 orthologue. Among these closely linked genes are *Clecsf1*, *Cd4* and von Willebrand factor (*Vwf*).

References

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