

**International Blood Group  
Reference Laboratory**

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**Antigen** Human Blood Group Rh D (ISBT No. 4001) / CD240D

**Clone** MAD 2

**Product Code** 9487

**Immunoglobulin Class** Human IgM, Lambda light chain

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and Production Unit**
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**Antigen Description and Distribution**

The Rh D antigen (Rh<sub>1</sub> or Rh<sub>0</sub>) is clinically the most important of the Rh blood group system. It is expressed on the extracellular loops of a transmembrane polypeptide of around Mr 30000<sup>1</sup>. Estimated numbers of Rh D sites recognised by MAD-2 on Rh D positive cells are between 12,200 to 15,800 on CDe/cDE (R<sub>1</sub>R<sub>2</sub>) cells<sup>2</sup>. In humans the Rh D antigen is expressed solely on the erythrocytes of Rh D positive individuals. 85% of Caucasians are Rh D positive.

**Clone**

The cell line producing MAD-2 is a human heterohybridoma derived from the fusion of EBV transformed B cells, from the peripheral blood of a donor producing high levels of anti-D, with X63Ag8.653 myeloma cells<sup>3</sup>. MAD-2 reacts as a direct agglutinin with all Rh D positive red cells except those of D<sup>VI</sup> type confirming the designated epitope as epD6/7c<sup>4,5,6,7</sup>. MAD-2 reacts with HMi, HMii Rh types but not DFR, DBT or R<sub>0</sub>HAr Rh D types<sup>5</sup>. MAD-2 has a functional affinity constant of 1.4 x 10<sup>7</sup> M<sup>-1</sup> at normal ionic strength<sup>2</sup>. On reducing the ionic strength by one third to 0.05M NaCl, the affinity constant increases to 1.4 x 10<sup>8</sup>.

**References**

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3. Melamed *et al* (1987) J. Immunol. Methods, **104**, 245-251.
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5. Jones J. *et al*, (1996) Vox Sang **71**, 176-183.
6. Lloyd-Evans *et al* (1999) British J. Immunol. **104**, 621-625.
7. Avent *et al* (1997) Blood **89**, 2568-2577.