Monoclonal Mouse Anti-Human CD34, Class II
Clone QBEnd 10
Code No. M 7165
Lot 101, Edition 24.09.01

Introduction
The CD34 antigen is a single chain transmembrane protein of approximately 116,000 Mr, expressed on immature haematopoietic stem/progenitor cells, small-vessel endothelial cells, embryonic fibroblasts and some cells in fetal and adult nervous tissue (1). CD34 appears to be expressed at its highest level on the earliest progenitors, and to decrease progressively with maturation (2). CD34 is a stage specific, rather than a lineage specific, leucocyte differentiation antigen. The most immature definable B-lymphoid precursors (CD19+/CD10+/TdT+) are CD34+. Based on marrow transplant data and the expression of CD34 on rare cases of T cell leukaemias, CD34 is presumably expressed on progenitors for T cells as well (2).

The antigen is encoded by a gene located on chromosome 1q (3).

Monoclonal antibodies to CD34 can be confined to three main classes, class I, class II and class III, defined by the differential sensitivity of the corresponding CD34 epitopes to degradation by specific enzymes. The QBEnd 10 antibody is a class II monoclonal antibody that recognizes a CD34 epitope which is resistant to neuraminidase, and sensitive to glycoprotease and chymopapain (4, 5).

The expression of CD34 in malignancies appears to parallel normal cellular expression. The following haematopoietic malignancies are CD34+: some acute myeloid leukaemias, undifferentiated leukaemias and acute lymphoblastic leukaemias (2, 6-8). In contrast, chronic lymphocytic leukaemias, lymphomas, myelomas and non-haematopoietic malignancies are CD34- (2, 6-8).

Presentation
Monoclonal mouse antibody supplied in liquid form as tissue culture supernatant (RPMI 1640 medium containing fetal calf serum) dialysed against 0.05 mol/L Tris/HCl, pH 7.2 containing 15 mmol/L NaN3.

Mouse Ig concentration: 40 mg/L.
Isotype: IgG1, kappa.
Total protein concentration: 0.9 g/L.

Storage
2-8 °C

Clone
QBEnd 10 (9).

Immunogen
Isolated human endothelial venules.

Specificity/Reactivity
Anti-CD34, QBEnd 10, was included in the Fourth and Fifth International Workshops and Conferences on Human Leucocyte Differentiation Antigens (Vienna 1989, Boston 1993), and studies by different laboratories confirmed its reactivity with the CD34 antigen (2, 9) and the class II epitope (9).

The antibody labels KG-1a cells (a primitive myeloid leukaemia cell line, known to be CD34+) in flow cytometry. Immunohistochemistry reveals staining of capillary endothelial cells in tonsil.

Staining Procedures
Formalin-fixed and paraffin-embedded sections
Can be used on formalin-fixed, paraffin-embedded tissue sections. Antigen retrieval, such as by heating in 10 mmol/L citrate buffer, pH 6.0, or in DAKO Target Retrieval Solution, code No. S 1700 is mandatory. The slides should not be allowed to dry out during this treatment or during the following immunohistochemical staining procedure.

For tissue sections sensitive staining techniques are recommended, such as the LSAB®+ or the EnVision™+ system.

The antibody may be used at a dilution of 1:25-1:50 with the EnVision™+ system when applied on formalin-fixed, paraffin-embedded sections of human tonsil.

Frozen sections and cell smears
Can be used on acetone-fixed frozen sections or fixed cell smears.

The antibody may be used at a dilution of 1:25-1:50 in the APAAP system when applied on fixed cell smears of normal human blood.

The antibody may be used at a dilution of 1:25-1:50 in the EnVision™+ system when applied on acetone-fixed frozen sections of normal human tonsil.

This is a guideline only; an optimal dilution should be determined by the individual laboratory.

Flow Cytometry
Product-specific limitations

It has been reported that binding of CD34 monoclonal antibodies may be reduced when using fixatives. Hence, fixatives should be used with caution if the monoclonal antibody is to be used for enumeration purposes (10, 11).

References


