



## Product Information

### Monoclonal Anti-Human Factor V

Clone HV-1

Purified Immunoglobulin

Product Number **F 2145**

#### Product Description

Monoclonal Anti-Human Factor V (mouse IgG1 isotype) is derived from the HV-1 hybridoma produced by the fusion of mouse Sp2/0-Ag14 myeloma cells and splenocytes from immunized BALB/c mice. Factor V, purified from human plasma was used as the immunogen. The isotype is determined using the Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay, using the Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-Factor V, recognizes factor V by using immunoblots of non-denatured, non-reduced antigen. The antibody inhibits the activity of factor V.

Blood coagulation factor V is an essential constituent of the intrinsic and extrinsic coagulation pathways. It is a large asymmetric single chain glycoprotein with a molecular weight of 330,000 daltons. It is composed of 3 A domains, a B domain, and 2 C domains in a domain structure of (A<sub>1</sub> - A<sub>2</sub> - B - A<sub>3</sub> - C<sub>1</sub> - C<sub>2</sub>). The cDNA cloning of factor V<sup>1,2</sup> predicted a sequence of 2224 amino acids for factor V. Human plasma concentration of factor V is approximately 7 µg/ml (10<sup>-8</sup> M). Platelets contain stored factor V which constitutes about 20% of the total amount of factor V present in whole blood.<sup>3</sup> Circulating factor V possesses no activity, but following limited proteolysis by thrombin expresses cofactor activity (factor Va) that is included in the prothrombinase complex. During activation of factor V, thrombin cleaves factor V in three locations to produce an NH<sub>2</sub>-terminal-derived heavy chain (MW 94,000), a COOH-terminal-derived light chain (MW 74,000) and activation peptides derived from the B domain. The light and the heavy chains remain combined in a non-covalent, but Ca<sup>2+</sup>-dependent manner and constitute the factor Va cofactor activity. Factor V can also be activated by factor Xa.

Assays of factor V levels are useful for detection of hereditary and acquired deficiency states and for studies of the mechanisms of thrombin generation by the intrinsic and extrinsic coagulation pathways. The antibody is useful for preparation of factor V depleted plasma.

#### Reagents

The product is provided as purified antibody in 10 mM HEPES, 140 mM NaCl, pH 7.4, containing 0.05% sodium azide as a preservative.

#### Precautions and Disclaimer

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

#### Storage/Stability

Store at 2-8 °C. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

#### Product Profile

##### Antibody Performance

1. The antibody at a concentration of 5-10 µg/ml stains blots of non-denatured, non-reduced human factor V.
2. The antibody at a concentration of 10 µg/ml inhibits >90% factor V activity in human plasma as measured by the Prothrombin Time (PT) assay.

## References

1. Jenny, R. J., et al., Proc. Natl. Acad. Sci. USA, **84**, 4846 (1987).
2. Kane, W. H., and E. W. Davie, E. W., Proc. Natl. Acad. Sci. USA, **83**, 6800 (1986).
3. Tracy, P. B., et al., Blood, **60**, 59 (1982).

JWM/daa 8/03

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