3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone (800) 325-5832 (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

D-Val-Leu-Lys Chloromethyl Ketone

D-VLK-CMK

Product Number **V3763**
Storage Temperature –20 °C

Product Description

Molecular Formula: $C_{18}H_{34}N_4O_3Cl$
Formula Weight: 389.9

D-Val-Leu-Lys chloromethyl ketone (DVLK-CMK) is a cell permeable inhibitor of thrombin.[1]

The glycoprotein thrombin is a serine protease that functions as a regulator in blood coagulation. It is involved with the process of converting fibrinogen to fibrin by cleaving four arginyl-glycyl bonds. Thrombin also is involved in feedback activation of clotting factors V, VIII, and may activate factor XIII and platelets. Thrombin has structural similarities with other serine proteases such as trypsin and chymotrypsin.

CMK is a trapping group responsible for irreversible inhibition and is also non-cytotoxic. Inhibition occurs when the CMK group covalently bonds to the –OH of an serine adjacent residue, or the –SH of an adjacent cysteine residue, on the target protein.[2,3]

Preparation Instructions

Prepare 100 mM stock solutions in DMSO or DMF. Dilute in buffer as needed. Incubation times for optimal inhibition may vary from 10 minutes to several hours.

Storage/Stability

Store product desiccated at –20 °C.

Store stock solutions in frozen aliquots at –20 °C, for up to 1 year.

References

1. Cho, C. Y., et al., Cyclic and linear oligocarbamate ligands for human thrombin. Bioorg. Med. Chem., **7,** 1171-1179 (1999).
2. Kettner C., et al., D-Phe-Pro-Arg CH_2Cl-A selective affinity label for thrombin. Thromb. Res., **14**, 969 (1979).
3. Bock, P. E., Active site selective labeling of serine proteases with spectroscopic probes using thioester peptide chloromethyl ketones: demonstration of thrombin labeling using N alpha-[(acetylthio)acetyl]-D-Phe-Pro-Arg-CH2Cl. Biochemistry, **27,** 6633-6639 (1988).

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