Informational

TD-I Revision 2.0

Creation Date: 7/14/2014
Revision Date: 3/4/2019

AEBSF General Information

Introduction

AEBSF (GoldBio Catalog # A-540) permanently inactivates serine proteases, such as proteinase K, trypsin and plasmin, by sulfonylation of a functional group in the active center of the enzyme. AEBSF is a less-toxic substitute for PMSF and DFP. It also reacts at low concentrations and in low molar ratios.

Additional Information

Solubility and Storage: AEBSF is soluble in water as well as ethanol, and it has an acidic pH stability. The stability of AEBSF readily decreases at higher temperatures and in conditions where the pH is higher than 7. Hydrolysis occurs upon reaction with hydroxyl ions above pH 7.5. A stock solution is recommended at a concentration of 20mM or 100mM in water. Stock solutions are stable for up to 2 months at -20°C or one week at 4°C. AEBSF should be added to an assay buffer just before use. AEBSF is inactivated by 50% at 37°C after 5 hours.

Solubility Chart:

Inhibitor	Solubility (g/ml)	
	Water	Alcohol
AEBSF	200.00	75.00
PMSF	0.12 (decreased at high ionic strength)	10. 50
DFP	15.40	20.00

Reaction rates of AEBSF, PMSF, and DFP with different serine proteases
($k2/k1\ L^4\ M^4\ S^1$):

Enzyme	AEBSF	PMSF	DFP
Trypsin	3.06	2.57	6.23
Chymotrypsin	17.80	25.00	39.00
Plasmin	0.32	0.05	0.19
Thrombin	5.12	1.95	1.28
Plasma Kallikrien	0.68	0.07	0.30
Glandular Kallikrein	0.19	0.05	0.05
TPA	1.19	nd	nd
Subtilisin	0.46	nd	nd

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References

Mintz, G. R. (1993) Technical Note: An Irreversible Serine Protease Inhibitor. *BioPharm International,* 6 34-38.