



Iris
Biotech

RHODAMINE 110

Fluorescent Protease Substrates



Shine Bright like Rhodamine

Upon proteolytic cleavage, the Rhodamine-bound substrate shows a fluorescent increase by a factor around 3500.

page 1

Symmetric Rhodamine 110 protease substrates undergo two cleavage reactions.

page 1

Asymmetric Rh110 protease substrates undergo only one proteolytic cleavage.

page 2

Rh110 substrates for other protease targets can be provided on demand!

Please inquire



Version: IF7_3

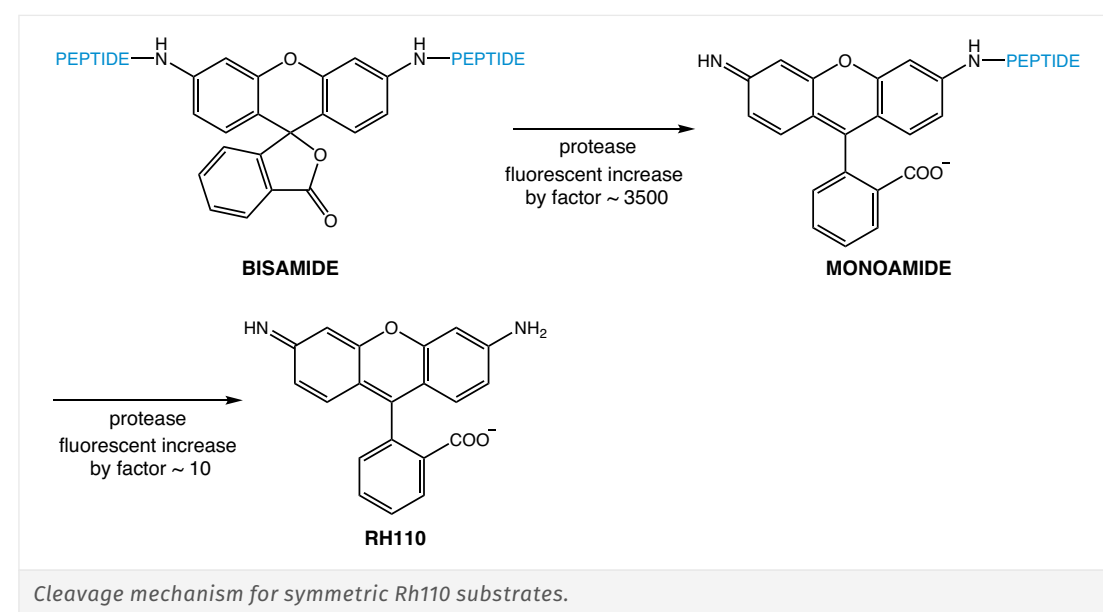
Rhodamine 110

Fluorescent Protease Substrates

Rhodamines are a group of fluorescent dyes that belong to the family of fluorone dyes. Rhodamine dyes have a 300-fold higher sensitivity than analogous coumarin derivatives and generate less background noise. Due to the red-shifted excitation and emission wavelengths, Rhodamine 110 interferes less with components of color-based assays compared to coumarin derivatives such as aminomethylcoumarin (AMC: Ex 380 nm / Em 460 nm vs. Rh110: Ex 492 nm / Em 529 nm).

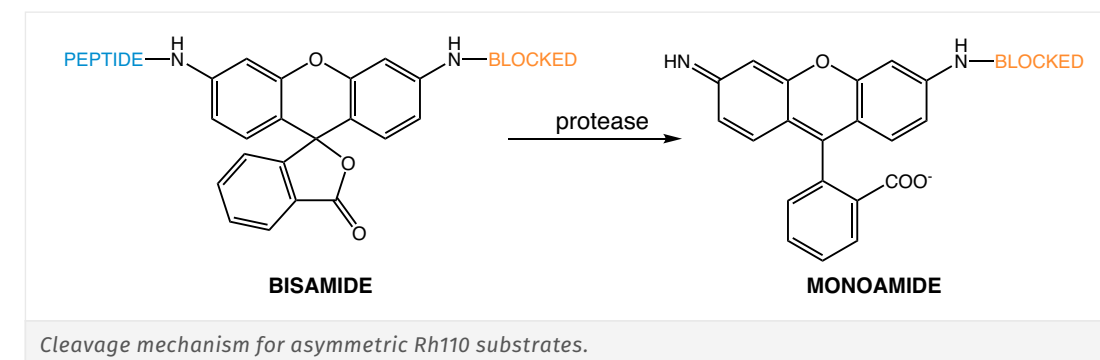
Available Substrates	Target	Code	λ_{Ex} [nm]	λ_{Em} [nm]
Ac-LRSR-Rh110-(D-Pro)	MALT1	LS-3560	492	529
Bz-QAR-Rh110-(D-Pro)	Trypsin, prostatin, matriptase	LS-3530	492	529
Succ-LLVY-Rh110-(D-Pro)	Calpain	LS-3540	492	529
Z-DEVD-Rh110-(D-Pro)	Caspase-3	LS-3550	492	529
KTSAVLQ-Rh110-gammaGlu	SARS-CoV-2 main protease M ^{pro}	LS-4190	492	529

Symmetric and asymmetric Rhodamine 110 substrates are clearly differentiated by their reaction and cleavage mechanisms.



In the case of symmetric Rh110 derivatives, the dye is bound via both amino functionalities to short identical amino acid sequences forming a bisamide. Cleavage of the first peptide bond to Rhodamine 110 significantly increases the compound's fluorescence by approx. 3500, which is one of the advantages of these substrates. However, symmetric Rh110 substrates undergo a second proteolytic cleavage step, which complicates the determination of protease kinetics.

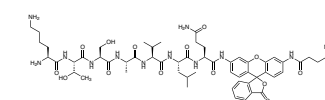
Asymmetric substrates offer significantly simpler kinetics and are thus preferentially used for the determination of protease kinetics. Due to the blocking group (e.g., D-proline), the entire reaction terminates after one cleavage step.



LS-4190 KTSAVLQ-Rh110-gammaGlu

Lysyl-threonyl-seryl-alanyl-valyl-leucyl-glutaminyll-Rh110-gamma-glutamyl

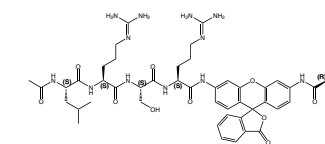
Formula $C_{57}H_{78}N_{12}O_{16}$
Mol. weight 1187,30 g/mol



LS-3560 Ac-LRSR-Rh110-p TFA salt

N-Acetyl-leucyl-arginyl-seryl-arginyl-Rh110-D-proline TFA salt

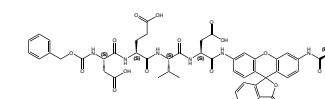
Formula $C_{48}H_{63}N_{13}O_{10}$
Mol. weight 982,09 g/mol

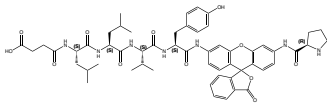

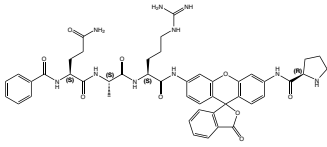



LS-3550 Z-DEVD-Rh110-p

N-Benzyloxycarbonyl-aspartyl-glutamyl-valyl-aspartyl-Rh110-D-proline

Formula $C_{51}H_{53}N_7O_{16}$
Mol. weight 1020,02 g/mol



		Product details	
<p>LS-3540 Succ-LLVY-Rh110-p</p> <p>N-Succinimidyl-leucyl-leucyl-valyl-tyrosyl-Rh110-D-proline</p> <p>Formula $C_{55}H_{65}N_7O_{12}$</p> <p>Mol. weight 1016,14 g/mol</p>			
<p>LS-3530 Bz-QAR-Rh110-p</p> <p>N-Benzoyl-glutaminy-alanyl-arginyl-Rh110-D-proline</p> <p>Formula $C_{46}H_{50}N_{10}O_9$</p> <p>Mol. weight 886,95 g/mol</p>			

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