Asymmetric Rhodamine 110 Protease Substrates

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Advantages of Asymmetric Rhodamine 110 Substrates

Compared to symmetric Rh110-substrates, asymmetric substrates offer significantly simpler kinetics upon analysis. Due to the blocking group, the entire reaction terminates after one cleavage step, as opposed to symmetric Rh110-substrates which undergo a second proteolytic cleavage step involving more complex kinetics.

Biosyntan is the only company that offers asymmetric Rh110-substrates commercially on a custom synthesis basis.

Purity: 95% (HPLC)

Sequence: Synthesis of substrates over a wide range of proteases

Asymmetric type PEPTIDE-**Rh110**-(*D*-Pro)

Different blocking groups for asymmetric substrates available, as well as symmetric Rh110-substrates.

Analytical data: HPLC-trace and MALDI-MS

Absorption/Emission: 492 nm / 529 nm

Available quantities: 1 – 100 mg
For other quantities please inquire.

Target	Substrate
caspase-3	Z-DEVD-Rh110-(*D*-Pro)
MALT1	Ac-LRSR-Rh110-(D-Pro) [1]
calpain	Succ-LLVY-Rh110-(*D*-Pro)
trypsin, prostatin, matriptase	Bz-QAR-Rh110-(*D*-Pro)

Rh110-substrates for many other protease targets are available on demand. The substrates have to be designed in a manner that the primed site of the recognition motif is replaced by Rh110 [...-P_3-P_2-P_1-Rh110-(*D*-Pro)]. If you are interested in symmetric or asymmetric Rhodamine 110-substrates, do not hesitate to contact us.

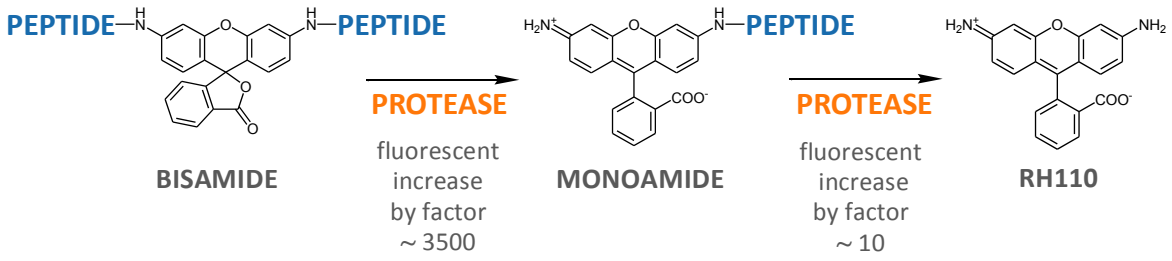
[1] *C. Wiesmann et al., J. Mol. Biol.,* ***2012****, 419, 4-21.*

Advantages of Rhodamine 110 Protease Substrates

Colored components interfere with fluorescence measurements, resulting in high background noise and reduced sensitivity. This is particularly significant with fluorophores which absorb or emit in the ultraviolet region, such as AMC.

Consequently, Rh110 assays deliver fewer false positive hits in synthetic product libraries when compared with AMC substrates [1] or AMC labeled proteins such as ubiquitin [2].

Furthermore, bis-substituted Rh110-substrates are virtually non-fluorescent, while the cleavage of a single amide bond yields a highly fluorescent monoamide product. Cleavage of the second amide bond yields the free Rh110 which is accompanied by a further moderate increase of fluorescence [3].



Advantages:

- Up to 300-fold higher sensitivity than analogous coumarin-derivatives (AMC, AFC)
- Less interference with colored assay components due to red-shifted excitation and emission wavelengths (AMC: Ex 380 nm / Em 460 nm vs. Rh110: Ex 492 nm / Em 529 nm)
- While the intact substrate is virtually non-fluorescent, fluorescence intensity largely increases upon cleavage (positive read-out)
- Fewer false positive hits
- Synthesis of substrates over a wide range of proteases

If you are interested in Rhodamine 110-substrates, please do not hesitate to contact us.

*[1] S.K. Grant et al., J. Biomol. Screen., **2002**, 7(6), 531-540.*
*[2] U. Hassiepen et al., Anal. Biochem., **2007**, 371, 201-207.*
*[3] S.P. Leytus et al., Biochem. J., **1983**, 209, 299-307.*