

**ProteoMassä MALDI-MS
Individual Matrix**

Product Codes **C8982** and **S8313**
Store at Room Temperature

TECHNICAL BULLETIN**Product Description**

The individual matrices, α -cyano-4-hydroxycinnamic acid (α -cyano, CHCA) and 3,5-dimethoxy-4-hydroxycinnamic acid (sinapinic acid) are used to enhance ionization of protein or peptide standards and samples in matrix assisted laser desorption ionization (MALDI) mass spectrometers.

Each individual matrix is provided as ten 2.0 ml amber tubes, each containing 10 mg of recrystallized, high purity matrix.

Table 1.
MALDI Matrices

Product Code [CAS number]	Product	Common Name
C8982 [28166-41-8]	α -Cyano- 4-hydroxycinnamic acid	α -cyano, CHCA
S8313 [530-59-6]	3,5-Dimethoxy- 4-hydroxycinnamic acid	Sinapinic acid

A guide to matrix selection is given in Table 2 with the suggested matrix for use with individual proteins.

Precautions and Disclaimers

This product is for laboratory use only, not for drug, household or other uses. Consult the MSDS for information regarding hazards and safety handling practices.

Each matrix has been tested on the Shimadzu Biotech Kompact SEQ and AXIMA-CFR to meet certain performance criteria in selected modes of positive ion MALDI mass spectrometric analysis (linear, reflectron, or PSD). This does not preclude the use of these matrices in other modes (i.e. negative ion mode) or with instruments made by other manufacturers.

Performance may vary depending on the age and maintenance of the instrument in addition to the manufacturer's own specifications.

Preparation Instructions

For optimal performance, each standard or sample requires specific preparation conditions. The conditions for the preparation of standard stock solutions, MALDI matrices, and samples, along with methods for applying samples to the MALDI target, may be viewed on our web site (www.sigmaaldrich.com) in the technical bulletin for the ProteoMass™ Peptide and Protein MALDI-MS Calibration Kit (Product Code MS-CAL1). The technical bulletin can be accessed by clicking on instructions in the product information section of the web site listing for MS-CAL1.

Preparation of MALDI Matrices

Dissolve the contents of a 10 mg tube of matrix in 1 ml of the 50% acetonitrile (ACN) in 0.05% trifluoroacetic acid (TFA) solution. For best performance, once in solution, a matrix should be stored in the dark and used for 1 week, then discarded. Using the 50% ACN in 0.05% TFA solvent, both α -cyano and sinapinic acid form nearly saturated solutions at room temperature. Some residual crystals may be visible in the matrix solution. The ACN concentration can be adjusted to suit individual preferences. A mixture of 70% ACN and 30% of a 0.1% TFA solution is often used.

Storage/Stability

The product is stored at room temperature and is shipped at ambient temperature. After reconstitution in solvent the matrix is stable for approximately one week at room temperature, if protected from light.

Related Products

MALDI Solvents: High purity, low alkali metal solvents are supplied in high density polyethylene bottles.

0.1% Trifluoroacetic acid (TFA) solution	
Product Code T3443	30 ml
Acetonitrile (ACN)	
Product Code A8596	30 ml
1% Trifluoroacetic acid (TFA) solution	
Product Code T3693	4 ml

MALDI Peptide and Protein Standards: The individual dry, salt free peptide and protein standards are listed in Table 2.

MALDI Calibration Kits:

ProteoMass Peptide & Protein MALDI-MS Calibration Kit - Product Code MS-CAL1
ProteoMass Peptide MALDI-MS Calibration Kit Product Code MS-CAL2
ProteoMass Protein MALDI-MS Calibration Kit Product Code MS-CAL3

References

1. <http://www.ncbi.nlm.nih.gov/entrez>
2. <http://physics.nist.gov/PhysRefData/contents.html>

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Table 2.

Suggested Matrices for Sigma ProteoMass Peptide and Protein Standards (Masses are based on NCBI¹ sequences using NIST standard atomic weights and isotopic masses.²)

Product Code [EC or CAS number]	Product	(M+H) ⁺ Monoisotopic or Average	NCBI ¹ Reference	Formula (M+H) ⁺	Suggested Matrix
B4181 [23815-87-4]	Bradykinin fragment 1-7	757.3997 (Mono)	KNG_HUMAN	C ₃₅ H ₅₃ N ₁₀ O ₉	α-cyano
A8846 [68521-88-0]	Angiotensin II (human)	1,046.5423 (Mono)	ANGT_HUMAN	C ₅₀ H ₇₂ N ₁₃ O ₁₂	α-cyano
P2613	P ₁₄ R (synthetic peptide)	1,533.8582 (Mono)	N/A	C ₇₆ H ₁₁₃ N ₁₈ O ₁₆	α-cyano
A8346 [53917-42-3]	ACTH fragment 18-39 (human)	2,465.1989 (Mono)	COLI_HUMAN	C ₁₁₂ H ₁₆₆ N ₂₇ O ₃₆	α-cyano
I6154 [30003-72-6]	Insulin oxidized B chain (bovine)	3,494.6513 (Mono)	INS_BOVIN	C ₁₅₇ H ₂₃₃ N ₄₀ O ₄₇ S ₂	α-cyano
I6279 [11070-73-8]	Insulin (bovine)	5,730.6087 (Mono) 5,734.51 (Ave)	INS_BOVIN	C ₂₅₄ H ₃₇₈ N ₆₅ O ₇₅ S ₆	α-cyano or sinapinic acid
C8857	Cytochrome c (equine)	12,361.96 (Ave)	CYC_HORSE	C ₅₆₀ H ₈₇₆ N ₁₄₈ O ₁₅₆ S ₄ Fe	α-cyano or sinapinic acid
A8971 [9008-45-1]	Apomyoglobin (equine)	16,952.27 (Ave)	MYG_HORSE	C ₇₆₉ H ₁₂₁₃ N ₂₁₀ O ₂₁₈ S ₂	α-cyano or sinapinic acid
A9096 [4.1.2.13]	Aldolase (rabbit muscle)	39,212.28 (Ave)	ALFA_RABIT	C ₁₇₃₃ H ₂₇₇₄ N ₄₈₉ O ₅₂₅ S ₁₁	sinapinic acid
A8471 [9048-46-8]	Albumin (bovine serum)	66,430.09 (Ave)	ALBU_BOVIN	C ₂₉₃₅ H ₄₅₈₃ N ₇₈₀ O ₈₉₉ S ₃₉	sinapinic acid

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