

# Instructions for Use

## Oligonucleotide Calibration Standard

**Oligonucleotide mixture for calibration of matrix-assisted laser desorption and ionization time-of-flight mass spectrometers (MALDI-TOF MS)**

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**Language: en**

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## 1 Product Description

Oligonucleotide Calibration Standard is a mixture of three standard oligonucleotides which allows calibration and testing of MALDI-TOF mass spectrometers.

Oligonucleotide Calibration Standard is supplied in five tubes per package. Each tube contains 25 pmol Oligo 12, 125 pmol Oligo 20 and 500 pmol Oligo 30. The quantity of substance allows 5x100 calibration points.

The following table lists the three oligonucleotides and their molecular masses.

Oligonucleotide	[M+H] <sup>+</sup> Average	[M] Average
<b>Oligo 12 (12mer)</b> ACG TAC GTA CGT	3646.4	3645.4
<b>Oligo 20 (20mer)</b> ACG TAC GTA CGT ACG TAC GT	6118.0	6117.0
<b>Oligo 30 (30mer)</b> ACG TAC GTA CGT ACG TAC GTA CGT ACG TAC	9192.0	9191.0

### Ordering Information

Product	Part No.
Oligonucleotide Calibration Standard, 5 tubes	# 8206200

## 2 Storage and Stability

Oligonucleotide Calibration Standard is shipped at ambient temperatures. After arrival, we recommend storing Oligonucleotide Calibration Standard at 0°C or below.

Dissolved samples should be aliquoted and frozen. We do not recommend refreezing samples after thawing.

**Note** Do not apply repeated freeze-thaw cycles to the material.

## 3 Risk and Safety Information

Oligonucleotide Calibration Standard is not classified according to Regulation (EC) No. 1272/2008 and is therefore not classified according to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). In the manufacturer's experience, the product has no harmful effect when used and handled according to specifications.

Additional chemicals may be required for procedures described in these Instructions for Use. Carefully read the Material Safety Data Sheet provided by the supplier and follow general safety regulations when handling chemicals or biohazardous material.

## 4 Sample Preparation Procedure

### Preliminary remarks

Poor sample preparation will degrade sensitivity, yield low resolution and poor reproducibility. The generation of ions through MALDI depends on the production of a suitable composite material, consisting of the matrix substance and the analyte. For best results use only chemicals of highest purity available.

### Chemicals and materials required

- 3-Hydroxypicolinic acid (3-HPA) (# 8201224, Bruker Daltonics GmbH & Co. KG.)
- Acetonitrile (ACN)
- Diammonium hydrogen citrate in ultra pure water (100 mg/mL) (AHC solution)

### Equipment and tools required

- Centrifuge
- Vortex mixer or shaker
- Ultrasonic device
- Pipettes and pipette tips
- MALDI target plate

### 1. Preparation of Oligonucleotide Calibration Standard solution

Dissolve the content of one tube of Oligonucleotide Calibration Standard in 100  $\mu$ L ultrapure water and vortex/shake for several seconds. Resulting oligonucleotide concentration: Oligo 12 = 0.25 pmol/ $\mu$ L, Oligo 20 = 1.25 pmol/ $\mu$ L and Oligo 30 = 5 pmol/ $\mu$ L.

### 2. Preparation of 3-HPA matrix solution

#### ***For standard steel targets:***

Prepare a solution of 3-HPA in ultrapure water / ACN (1:1 v/v) with a resulting 3-HPA concentration of 50 mg/mL. Assist the solution process by using an ultrasonic device. Then mix 3-HPA solution with AHC solution (10:1 v/v).

**For AnchorChip targets:**

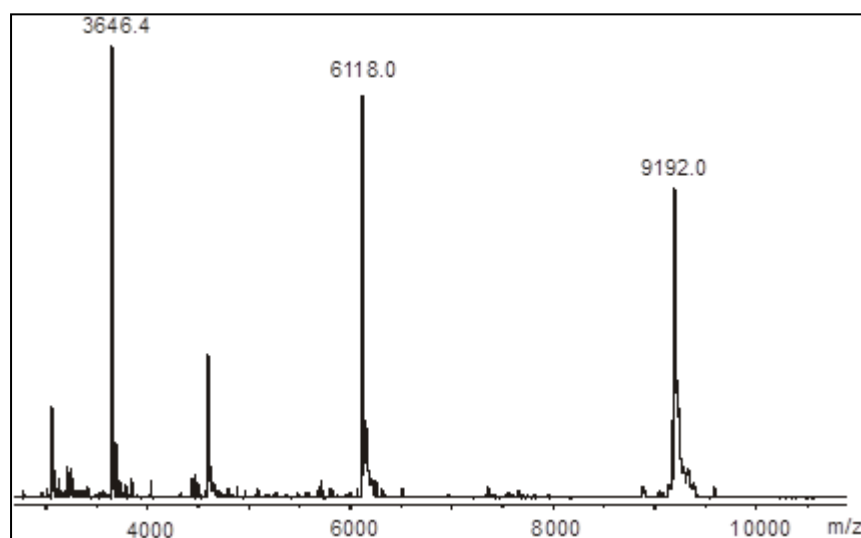
Mix 10 mg 3-HPA and 10  $\mu$ L AHC solution in 990  $\mu$ L ultrapure water. Assist solution process by using an ultrasonic device.

**3. Preparation of a sample onto a MALDI target plate**

Apply 1  $\mu$ L 3-HPA matrix solution onto a MALDI target plate position and let the sample spot dry at room temperature. Add 1  $\mu$ L Oligonucleotide Calibration Standard solution and let the sample spot dry at room temperature

## 5 Result of Measurement of Oligonucleotide Calibration Standard

Oligonucleotide Calibration Standard is tested on a Bruker Daltonics autoflex MALDI-TOF mass spectrometer. Figure 1 shows a typical MALDI-TOF mass spectrum of Oligonucleotide Calibration Standard obtained from a MALDI target preparation with 3-HPA matrix.



**Figure 1 MALDI-TOF mass spectrum of Oligonucleotide Calibration Standard**

## 6 Manufacturer



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