

# Technical Notes

## Collagenase NB for Tissue Dissociation

### Collagenase for Research

#### Isolation of Pancreatic Islets

Chromatographically highly purified **Collagenase NB 1 Premium Grade** with very low levels of secondary proteolytic activities and endotoxins guarantees high yields and viability of isolated cells. **Neutral Protease NB** is an essential additive, and is provided separately allowing individual dosage and high stability of the enzymes.

#### Isolation of Stem Cells, Hepatocytes and other Cells

Optimal tissue dissociation can be achieved by using collagenase with a balanced ratio of other proteolytic activities:

**Mild and effective** – Collagenase NB 4 Standard Grade is optimal for isolation of a broad variety of cells.

**Function tested** – Collagenase NB 4G Proved Grade is especially suitable for isolation of hepatocytes and chondrocytes.

**Ready to use** – Collagenase NB 5 Sterile Grade is produced under aseptic conditions according to the European Pharmacopoeia.

#### Isolation of Sensitive Cells

Purified **Collagenase NB 8 Broad Range** is characterized by an increased collagenase activity and reduced levels of other proteases and bacterial endotoxins.

**Collagenase NB 7D Gentle Grade** is a partially purified collagenase with slightly higher collagenase activity but low tryptic activities. This allows preservation of cell-surface proteins or other delicate structures.

#### Translational Collagenase NB

Research collagenases are ideal for protocol development, whereas GMP products are suitable for the clinical environment. Nordmark offers both grades with almost identical enzymatic properties to ensure an easy switch from research to the clinic.

### GMP Collagenase for Clinics

#### Good Manufacturing Practice for Cell Isolation

Production of cells by tissue dissociation as well as tissue engineering for transplantation into humans require quality standards according to GMP guidelines:

- > **Collagenase NB 1 GMP Grade**
- > **Neutral Protease NB GMP Grade**
- > **Collagenase NB 6 GMP Grade**
- > **Collagenase AF-1 GMP Grade**

Such enzymes are regarded to be critical raw materials and thus manufactured in compliance with the EU-Guide to Good Manufacturing Practice (GMP) for active pharmaceutical ingredients. Moreover, the production fulfills the requirements of TSE (transmissible spongiform encephalopathy) guidelines according to the European Pharmacopoeia.



All **Collagenase NB** grades are manufactured at the pharmaceutical plant of Nordmark Pharma in Uetersen, Germany, which is the world's largest manufacturer of collagenase. TSE safety of the fermentation product has been certified by the European Authorities, EDQM and by supplier's certificate of origin. Application of pharmaceutical manufacturing standards guarantees a high quality of the products with a reliable lot-to-lot consistency.

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## Product Information

Product	Properties	Application	Cat. No.	Pack Size
Collagenase NB 1 Premium Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Chromatographically highly purified</li> <li>Contains class I and class II collagenases</li> <li>PZ activity* <math>\geq 3.00</math> U/mg lyophilisate</li> <li>Largely free of clostripain, trypsin-like activities and neutral protease</li> <li>Endotoxins <math>\leq 10.0</math> EU/mg lyophilisate</li> </ul>	<ul style="list-style-type: none"> <li>Isolation of pancreatic islets</li> <li>Use in combination with Neutral Protease NB</li> <li>Collagen characterization</li> </ul>	S1745503	$\geq 2000$ PZ U/Vial
Collagenase AF GMP Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Enzymatic properties see Collagenase NB 1 Premium Grade</li> <li>Manufactured according to international GMP guidelines without the use of any animal derived material</li> </ul>	<ul style="list-style-type: none"> <li>Use in combination with Neutral Protease NB GMP Grade</li> </ul>	N0003855	150 PZ U/Vial
Collagenase NB 1 GMP Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Enzymatic properties see Collagenase NB 1 Premium Grade</li> <li>Manufactured according to international GMP guidelines</li> </ul>	<ul style="list-style-type: none"> <li>Isolation of pancreatic islets for transplantation into humans</li> <li>Use in combination with Neutral Protease NB GMP Grade</li> </ul>	N0002937	$\geq 2000$ PZ U/Vial
Collagenase NB 4 Standard Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Contains class I and class II collagenases and a balanced ratio of proteolytic activities</li> <li>PZ activity* <math>\geq 0.1</math> U/mg lyophilisate</li> </ul>	<ul style="list-style-type: none"> <li>Isolation of various cell types e.g. hepatocytes, fibroblasts, adipocytes, muscle and epithelial cells, stem cells</li> </ul>	S1745402 S1745401 S1745403	500 mg 1 g 5 g
Collagenase NB 4G Proved Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Contains class I and class II collagenases as well as a balanced mix of neutral protease, clostripain and trypsin-like activities</li> <li>PZ activity* <math>\geq 0.18</math> U/mg lyophilisate</li> </ul>	<ul style="list-style-type: none"> <li>Isolation of various cell types – especially adipocytes, fibroblasts, hepatocytes, chondrocytes, stem cells and frog oocytes</li> </ul>	S1746501 S1746502 S1746503	500 mg 1 g 5 g
Collagenase NB 5 Sterile Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Enzymatic properties see Collagenase NB 4</li> <li>Aseptic production according to Ph. Eur.</li> </ul>	<ul style="list-style-type: none"> <li>Application fields see Collagenase NB 4</li> <li>Sterile and thus ready to use</li> </ul>	N0002778	1 g
Collagenase NB 6 GMP Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Enzymatic properties see Collagenase NB 4</li> <li>Aseptic production according to Ph. Eur.</li> <li>Manufactured according to international GMP guidelines</li> </ul>	<ul style="list-style-type: none"> <li>Application fields see Collagenase NB 4</li> <li>Production of cells as well as tissue engineering for transplantation into humans</li> </ul>	N0002880 N0002779	100 mg 1 g
Collagenase NB 7D Gentle Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Contains class I and class II collagenases, and reduced trypsin-like activities PZ activity* <math>\geq 0.2</math> U/mg lyophilisate</li> </ul>	<ul style="list-style-type: none"> <li>Isolation of lymphocytes, tumor and lung cells</li> <li>Especially suitable for sensitive cells</li> </ul>	S1747401 S1747402 S1747403	500 mg 1 g 5 g
Collagenase NB 8 Broad Range from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Contains class I and class II collagenases, and reduced levels of clostripain, trypsin-like activities and neutral protease</li> <li>PZ activity* <math>\geq 0.9</math> U/mg lyophilisate</li> <li>Endotoxins <math>\leq 100</math> EU/mg lyophilisate</li> </ul>	<ul style="list-style-type: none"> <li>Isolation of e.g. cardiomyocytes, hepatocytes, pancreatic islets, chondrocytes, tumor and thyroid cells</li> </ul>	S1745601 S1745602	250 mg 1 g
Neutral Protease NB from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Chromatographically purified neutral protease</li> <li>Activity (DMC assay) <math>\geq 0.50</math> U/mg lyophilisate</li> </ul>	<ul style="list-style-type: none"> <li>Cell isolation in combination with Collagenase NB</li> </ul>	S3030111 S3030112	50 DMC U/Vial 100 DMC U/Vial
Neutral Protease AF GMP Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Enzymatic properties see Neutral Protease NB</li> <li>Manufactured according to international GMP Guidelines without the use of any animal derived material</li> </ul>	<ul style="list-style-type: none"> <li>Cell isolation in combination with Collagenase NB GMP Grades for transplantation into humans</li> </ul>	N0003553	$\geq 100$ DMC U/Vial
Neutral Protease NB GMP Grade from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Enzymatic properties see Neutral Protease NB</li> <li>Manufactured according to international GMP guidelines</li> </ul>	<ul style="list-style-type: none"> <li>Cell isolation in combination with Collagenase NB GMP Grades for transplantation into humans</li> </ul>	N0002936	$\geq 100$ DMC U/Vial
Clostripain NB	<ul style="list-style-type: none"> <li>Chromatographically highly purified and largely free from additional enzymatic activities</li> </ul>	<ul style="list-style-type: none"> <li>Cell isolation in combination with Collagenase NB and Neutral Protease NB</li> </ul>	S2020501	$\geq 200$ BAEE U/Vial
Anti-Collagenase ( <i>C. histolyticum</i> ) polyclonal antibody from sheep	<ul style="list-style-type: none"> <li>Specificity against collagenases from <i>C. histolyticum</i></li> <li>IgG fraction purified by Protein G affinity chromatography</li> </ul>	<ul style="list-style-type: none"> <li>Use in ELISA and Western Blot</li> <li>Immunostaining of tissue</li> <li>Analysis of residual collagenase impurities in cell preparations</li> </ul>	S5805001	100 $\mu$ g
Anti-Collagenase HRP ( <i>C. histolyticum</i> ) polyclonal antibody from sheep	<ul style="list-style-type: none"> <li>Specificity against collagenases from <i>C. histolyticum</i></li> <li>IgG fraction purified by affinity chromatography</li> <li>Conjugated with horseradish peroxidase</li> </ul>	<ul style="list-style-type: none"> <li>Use in ELISA and Western Blot</li> <li>Immunostaining of tissue</li> <li>Analysis of residual collagenase impurities in cell preparations</li> </ul>	S5805101	100 $\mu$ g

\*PZ activity according to Wünsch, measured at 25 °C.

Collagenase NB is not for use in humans.

For more information and ordering please contact the Nordmark Biochemicals Team or visit our homepage

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