

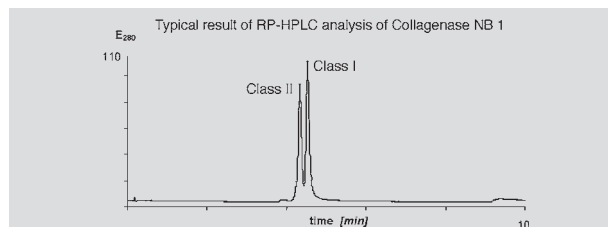
# Technical Notes

## Collagenase NB for Tissue Dissociation

### Collagenase Products

#### 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 Sensitive Cells

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

#### Isolation of Various Cell Types

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

- > **Collagenase NB 4 Standard Grade**
- > **Collagenase NB 4G Proved Grade**
- > **Collagenase NB 5 Sterile Grade**

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

**Function tested** – Collagenase NB 4G Proved Grade is especially suitable for isolation of adipocytes, fibroblasts, hepatocytes, frog oocytes, chondrocytes and stem cells.

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

### Production Compliant to GMP

#### 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**

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.

For incoming goods inspection according to GMP, **Reference Collagenases** are available.



All **Collagenase NB** grades are manufactured at the pharmaceutical plant of Nordmark Arzneimittel 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

Collagenase	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 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, cardiomyocytes, pancreatic islets, cells, chondrocytes, tumor cells, fibroblasts, adipocytes, muscle and epithelial cells, stem cells, gangliocytes</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> <li>Function tested for cell isolation</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 European requirements for medicinal products (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 European requirements for medicinal products (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 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
Collagenase N Reference Content from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Contains class I and class II collagenases and other proteolytic enzymes</li> <li>Collagenase activity is regularly re-evaluated</li> </ul>	<ul style="list-style-type: none"> <li>Reference substance for enzyme activity determination</li> </ul>	S1746301	$\geq 50$ mg
Collagenase N Reference Identity from <i>C. histolyticum</i>	<ul style="list-style-type: none"> <li>Contains class I and class II collagenases and other proteolytic enzymes</li> </ul>	<ul style="list-style-type: none"> <li>Reference substance for SDS-PAGE analysis, performed for incoming goods inspection according to GMP</li> </ul>	S1746401	$\geq 50$ mg
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>Tissue dissociation</li> <li>Cell isolation in combination with Collagenase NB</li> </ul>	S3030111 S3030112	50 DMC U/Vial 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>Tissue dissociation</li> <li>Cell isolation in combination with Collagenase NB GMP Grades for transplantation into humans</li> </ul>	N0002936	$\geq 100$ DMC 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 experiments</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 experiments</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.

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