

# EXPLORE

## The Benzonase® endonuclease Portfolio

Ensuring efficiency and regulatory compliance — The smart solution for DNA removal in biopharmaceutical production

Benzonase® endonucleases vary in purity, non-animal origin certification, and analytical technologies applied for product release as shown in the table below.

**Note:** Benzonase® Salt Tolerant endonuclease Emprove® Expert has a different amino acid sequence from the other Benzonase® endonucleases in our portfolio and is therefore considered a different enzyme.

### The Benzonase® endonuclease portfolio – Comparison table

Features	Benzonase® endonuclease (purity grade II => 90 %)	Benzonase® endonuclease Emprove® Expert	Benzonase® endonuclease Safety Plus Emprove® Expert	Benzonase® Salt Tolerant endonuclease Emprove® Expert <span style="background-color: #ff69b4; padding: 2px;">NEW</span>
Catalog code	1.01654/1.01656	1.01695/1.01697	1.03773	1.04445
Origin	<i>Serratia marcescens</i> , Production: <i>E. coli</i> K12 strain W3110; 30 kDa; PI 6.85; sequence homology proven			Proprietary protein engineering platform
Purity	=> 90 %	99 %	99 %	99 %
IPEC-PQG GMP	No	Yes	Yes	Yes
Monovalent Cation concentration (Na+, K+...)	0-200 mM Effective* 0-20 mM Optimal*	0-200 mM Effective* 0-20 mM Optimal*	0-200 mM Effective* 0-20 mM Optimal*	200 mM-1M Effective* 300 mM-600 mM Optimal*
FDA Master File (BBMF or DMF) available & Emprove® Expert Dossiers	No	Yes	Yes	Emprove® Expert Dossiers available, FDA DMF available through 2024.
Non-Animal-Origin (NAO), recombinant from <i>E.Coli</i> in chemically defined production medium	Recombinant from <i>E.Coli</i> with casamino acid in production medium	Recombinant from <i>E.Coli</i> with casamino acid in production medium	Yes	Yes
Shipment with temperature strips	No	No	Yes	Yes
Lot release <i>in vitro</i> test for adventitious viruses (3 cell lines)	No	No	Yes	Available as a custom**
Mycoplasma test	No	No	Yes	Yes
Tailgate samples for large pack size	No	No	Yes (with 5M unit size)	Yes (with 4M unit size)
Endotoxins (LAL) microbial testing	Not specified < 10 CFU/100,000 U	< 0.25 EU/1,000 U < 10 CFU/100,000 U	< 0.25 EU/1,000 U < 10 CFU/100,000 U	< 0.25 EU/1,000 U < 10 CFU/100,000 U
Main application	Process Development & sample preparation	Biomanufacturing of viral drug products	Biomanufacturing of viral drug products	Biomanufacturing of viral drug products
Custom Certificate of Analysis &/or Pack size*	No	No	Available**	Available**
Detection method	Benzonase® ELISA Kit III: Cat:1.04358 and EZBNZ3-160K			Detection kits available throughout 2024

\* "Optimal" is defined as the condition under which Benzonase® endonuclease retains > 90 % of its activity.

\* "Effective" is defined as the condition under which Benzonase® endonuclease retains > 15 % of its activity

\*\*Custom options might come with additional fees

# EXPLORE The Benzonase® endonuclease Portfolio

## Why the Benzonase® endonuclease portfolio is the right choice?

Our Benzonase® endonuclease portfolio has exceptionally high purity and activity for your application.

Importantly, these enzymes have no protease activity nor the viral contaminants that can accompany enzymes isolated from natural sources. Benzonase® endonuclease products are available in different purity grades to meet a wide range of processing and cost requirements.

### **NEW** Benzonase® Salt Tolerant endonuclease EMPROVE® EXPERT

- Benzonase® endonuclease Safety Plus EMPROVE® EXPERT
- Benzonase® endonuclease EMPROVE® EXPERT
- Benzonase® endonuclease for Biotechnology

Enzymes of the Benzonase® endonucleases portfolio are endonucleases produced in *Escherichia coli* (*E. coli*) strain W3110, a mutant of strain K12.

## Benefits of the Benzonase® endonuclease portfolio

- Degrades all forms of DNA and RNA
- No detectable proteolytic activity
- Operates over a wide range of conditions
- Meets industry requirements for high quality (IPEC-PQG GMP)
- Supports research and highly regulated applications
- Available in bulk quantities
- Redundant production sites ensure supply security
- Supported by EMPROVE® Dossiers
- Supported by FDA Master Files
- Available ELISA Detection Kits
- Customization options for specifications and packaging

## All Benzonase® endonucleases are designed for drug manufacturing applications including

- Cell and Gene Therapy • Oncolytic Virus Production • Viral Vaccines Production

## Ordering Information

### Benzonase® Salt Tolerant endonuclease EMPROVE® EXPERT

Designation	Package Size	Order No.
Benzonase® salt tolerant endonuclease EMPROVE® EXPERT	80,000 U/vial	1.04445.1010
Benzonase® salt tolerant endonuclease EMPROVE® EXPERT	400,000 U/vial	1.04445.0001
Benzonase® salt tolerant endonuclease EMPROVE® EXPERT + Tailgate sample in same outer package	4,000,000 U/vial + 40,000 U	1.04445.0010

### Legacy Benzonase® endonuclease products

Designation	Package Size	Order No.
Benzonase® endonuclease, for biotechnology	100,000 U/vial	1.01654.0001
Benzonase® endonuclease, for biotechnology	500,000 U/vial	1.01656.0001
Benzonase® endonuclease, suitable for biopharmaceutical production EMPROVE® EXPERT	100,000 U/vial	1.01695.0001
Benzonase® endonuclease EMPROVE® EXPERT	500,000 U/vial	1.01697.0001
Benzonase® endonuclease EMPROVE® EXPERT	5,000,000 U/vial	1.01697.0010
Benzonase® endonuclease Safety Plus EMPROVE® EXPERT	100,000 U	1.03773.1010
Benzonase® endonuclease Safety Plus EMPROVE® EXPERT	500,000 U	1.03773.0001
Benzonase® endonuclease Safety Plus EMPROVE® EXPERT + Tailgate sample in same outer package	5,000,000 U/vial + 50,000 U	1.03773.0010
Benzonase® endonuclease ELISA Kit III for the immunological detection of Benzonase® endonuclease	5 plates (8x12) plus reagents	1.04358*
Benzonase® endonuclease ELISA	1 plate or 5 plates (8x12) plus reagents	EZBNZ3-160K

\* 1.04358.001 for all countries except US and Canada (1.04358.002)

For additional information, please visit [SigmaAldrich.com](https://SigmaAldrich.com)

To place an order or receive technical assistance, please visit [SigmaAldrich.com/offices](https://SigmaAldrich.com/offices)

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MilliporeSigma  
400 Summit Drive  
Burlington, MA 01803

