

***Bacillus* and *Streptomyces* spp. as hosts for production of industrially relevant enzymes**

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Table S1. Representative industrially relevant enzymes produced by microorganisms and commercially available at <https://www.sigmaaldrich.com/>

Protein class/Application	Protein	Source	Heterologous host	Activity	Cat. No.
Proteases/peptidases EC 3.4.X.Y Pharmaceutical, Leather, Food and Waste processing industry; Animal feed preparation; Life sciences (Proteomics; Protein structure analysis and sequence analysis)	Alkaline protease	<i>Aspergillus saitoi</i>	-	$\geq 0.6 \text{ U mg}^{-1}$	P2143
	Flavourzyme	<i>Aspergillus oryzae</i>	-	$\geq 500 \text{ U g}^{-1}$	P6110
	Proteinase	<i>Aspergillus melleus</i>	-	$\geq 3 \text{ U mg}^{-1}$	P4032
	Carboxypeptidase Y	<i>Saccharomyces cerevisiae</i>	-	$\geq 50 \text{ U mg}^{-1}$	C3888
	Rennin	<i>Mucor miehei</i>	-	$\sim 0.1 \text{ U mg}^{-1}$	83553
	Pronase E	<i>Streptomyces</i> sp. <i>Streptomyces griseus</i>	-	$\geq 15 \text{ U mg}^{-1}$ $\geq 3.5 \text{ U mg}^{-1}$	P0652 P5147
	Aminopeptidase I	<i>S. griseus</i>	-	$\geq 200 \text{ U mg}^{-1}$	A9934
	Promatex	<i>Bacillus</i> sp.	-	$\geq 1.5 \text{ U mg}^{-1}$	P0029
	Subtilisin A	<i>Bacillus licheniformis</i>	-	-	P3910
	Neutrase 0.8L	<i>Bacillus amyloliquefaciens</i>	-	$\geq 800 \text{ U mg}^{-1}$	P1236
	Keratinase	<i>B. licheniformis</i>	<i>E. coli</i>	$300\text{-}1000 \text{ U mg}^{-1}$	K4519
	Alkaline Protease	<i>B. licheniformis</i>	-	$7.0\text{-}14.0 \text{ U mg}^{-1}$	P8038
	Thimet Oligopeptidase	<i>B. licheniformis</i>	<i>E. coli</i>	-	T7705
	Acidic protease	<i>Rhizopus</i> sp.	-	$\geq 0.2 \text{ U mg}^{-1}$	P0107
	Alpha-lytic protease	<i>Lysobacter enzymogenes</i>	-	$\geq 0.0005 \text{ U mg}^{-1}$	A6362
	Endoproteinase Lys-C	<i>L. enzymogenes</i>	-	$\geq 200 \text{ U mg}^{-1}$	324715
	Endoproteinase Glu-C	<i>Staphylococcus aureus</i>	-	$\geq 15 \text{ U mg}^{-1}$	324713
	Endoproteinase Glu-C	<i>Staphylococcus aureus</i> V8		$500\text{-}1\,000 \text{ U mg}^{-1}$	P2922
	Thermolysin	<i>Geobacillus stearothermophilus</i>	-	$30\text{-}350 \text{ U mg}^{-1}$	P1512
	Aminopeptidase	<i>Vibrio proteolyticus</i>	<i>E. coli</i>	$50\text{-}100 \text{ U mg}^{-1}$	A4987
	Proline Specific Endopeptidase	<i>Flavobacterium</i> sp.	-	$\geq 5 \text{ U mg}^{-1}$	E1411
	Endopeptidase Lys-C	<i>Achromobacter lyticus</i>	-	$\geq 2 \text{ U mg}^{-1}$	324796
	Endoproteinase Asp-N	<i>Pseudomonas fragi</i>	-	$\geq 20 \text{ U g}^{-1}$	324708
	Carboxypeptidase G	<i>Pseudomonas</i> sp.	-	$\geq 3 \text{ U mg}^{-1}$	C9658
	Methionine Aminopeptidase	<i>Pyrococcus furiosus</i>	<i>E. coli</i>	0.5 U mg^{-1}	M6435
	Pyroglutamate Aminopeptidase	<i>P. furiosus</i>	<i>E. coli</i>	$\geq 5 \text{ U mg}^{-1}$	P6236
	Clostripain	<i>Clostridium histolyticum</i>	-	$\geq 20 \text{ U mg}^{-1}$	C0888
	Aminopeptidase	<i>Aeromonas proteolytica</i>	-	$50\text{-}150 \text{ U mg}^{-1}$	A8200
Glycosyl hydrolases EC 3.2.1.X Food industry, Agricultural industry (improvement the nutritive value of poultry feed, control of	Cellulase	<i>Aspergillus niger</i>	-	$\sim 0.8 \text{ U mg}^{-1}$	22178
	Lyticase	<i>Arthrobacter luteus</i>	-	$\geq 2 \text{ U g}^{-1}$	L2524
	Chitinase	<i>S. griseus</i> <i>Trichoderma viride</i>	-	$>200 \text{ U mg}^{-1}$ $\geq 600 \text{ U g}^{-1}$	SAE0158 C8241

pathogens); Pharmaceutical industry (preparation of chitooligosaccharides and N-acetyl D glucosamine); Treatment of chitinous waste; Life sciences (Isolation of protoplasts from fungi and yeast)					
Lipase/Esterase EC 3.1.1.X The synthesis of biosurfactants, organic chemical processing, application in dairy industry, oleochemical industry, detergent formulations, paper, cosmetics, nutrition, and the pharmaceutical industry; The synthesis of dextran fatty acid esters for various industrial applications; Producing biodiesel from waste; Biocatalysis; Life sciences; Diagnostic application	Lipase	<i>A. niger</i> <i>Rhizomucor miehei</i> <i>Candida antarctica</i> <i>Candida rugosa</i> <i>Chromobacterium viscosum</i> <i>Rhizopus oryzae</i> <i>Rhizopus niveus</i> <i>Pseudomonas cepacia</i> <i>M. miehei</i> <i>Mucor javanicus</i>	-	200 U mg ⁻¹ ≥20000 U g ⁻¹ ~0.3 U mg ⁻¹ ≥700 U mg ⁻¹ ≥2.5 U g ⁻¹ ≥30 U mg ⁻¹ ≥1.5 U mg ⁻¹ ≥30 U mg ⁻¹ ≥4 U g ⁻¹ ≥300 U mg ⁻¹	62301 L4277 02569 L1754 437707 80612 62310 62309 L9031 L8906
	Lipoprotein Lipase	<i>Burkholderia sp.</i>	-	≥50 U g ⁻¹	L9656
	Amano Lipase	<i>Pseudomonas fluorescens</i>	-	≥20 U g ⁻¹	534730
	Esterase	<i>Bacillus stearothermophilus</i> <i>Bacillus subtilis</i> <i>Pseudomonas fluorescens</i>	<i>E. coli</i>	≥4.0 U mg ⁻¹ ≥10 U mg ⁻¹ ≥4 U mg ⁻¹	79302 96667 75742
	Esterase	<i>R. oryzae</i>	-	> 20 U g ⁻¹	79208
	Cholesterol Esterase	<i>P. fluorescens</i>	-	≥10 U g ⁻¹	C9281
Oxidoreductase EC 1.X.Y.Z Biofuel production, teeth whitening, textile dyeing, and in other applications that require the removal of oxygen; Waste and water treatment; Delignification, paper processing, waste detoxification, Food and pharmaceutical industries; glucose biosensors	Laccase	<i>Agaricus bisporus</i> <i>Trametes versicolor</i> <i>Aspergillus sp.</i>	-	≥4 U/mg ≥0.5 U/mg -	40452 38429 SAE0050
	Manganese peroxidase	<i>Phanerochaete chrysosporium</i>	-	≥10000 U mg ⁻¹	93014
	Glucose oxidase	<i>A. niger</i>	-	100000 -250000 U g ⁻¹	G7141
	ω-transaminase	<i>Aspergillus fumigatus</i> <i>Aspergillus terreus</i> <i>Neosartorya fischeri</i>	<i>E. coli</i>	≥0.20 U mg ⁻¹ ≥0.10 U mg ⁻¹ ≥0.4 U mg ⁻¹	77087 40972 93006
Phosphatases EC 3.1.3.X Different applications in life sciences (ELISA, Western blotting, and histochemical detection)	Phosphatase, Alkaline	<i>E. coli</i>	-	30-60 U mg ⁻¹	P5931
	Streptavidin-Alkaline Phosphatase	<i>Streptomyces avidinii- E. coli</i>	<i>E. coli</i>	≥700 U mg ⁻¹	S2890
	Protein A, Alkaline Phosphatase Conjugate	<i>S. aureus, E. coli</i>	<i>E. coli</i>	-	539251
Nucleases EC 3.1.3X.Y Different applications in life sciences (protein extraction, microbiome	Nuclease S7	<i>S. aureus</i>	-	~15000 U mg ⁻¹	10107921001
	Nuclease P1	<i>Penicillium citrinum</i>	-	≥200 U mg ⁻¹	N8630
	Nuclease	<i>S. aureus</i>	-	≥15000 U mg ⁻¹	492899
	Nuclease micrococcal	<i>S. aureus</i>	-	100-300 U mg ⁻¹	N3755

research, and bioprocessing, degradation of DNA and RNA, RNA sequencing experiments, nucleic acids structural analysis,); industrial production of 5'-mononucleotides	Benzonase® Nuclease	<i>Serratia marcescens</i>	<i>E. coli</i>	$\geq 250\,000\text{ U mL}^{-1}$	E1014
	Nuclease S1	<i>A. oryzae</i>	-	$\geq 100\,000\text{ U mL}^{-1}$	N5661
	Turbonuclease	<i>S. marcescens</i>	<i>E. coli</i>	$\geq 200\,000\text{ U mL}^{-1}$	T4330
Polymerases EC 2.7.7.7	Taq DNA Polymerase	<i>Thermus aquaticus</i>	<i>E. coli</i>	5000 U mL^{-1}	D4545
Life sciences: Polymerase chain reaction	KOD DNA Polymerase	<i>Thermococcus kodakarensis</i>	<i>E. coli</i>	2500 U mL^{-1}	71085