USBiological Life Sciences

Technical Data

Z1004

Zymolyase 100T (Lyticase, Yeast Lytic Enzyme)

Arthrobacter luteus

CAS Number
37340-57-1

Grade
Molecular Biology Grade

MDL Number
MFCD00131560

EU Commodity Code
38220090

Shipping Temp
Blue Ice

Storage Temp
4°C

Zymolyase, produced by a submerged culture of Arthrobacter luteus (1), is an enzyme preparation which effectively lyses cell walls of viable yeast cells. An essential enzyme responsible for lysis of viable yeast cells in this preparation is b-1, 3-glucan laminaripentaohydrolase. It hydrolyzes linear glucose polymers with b-1,3-linkages and releases laminaripentaose specifically as the main and minimum product unit (4,5,10,11). This lytic activity releases spheroplasts and protoplasts in the preparation of yeast DNA prior to restriction enzyme digestion and Southern Blot analysis. The extent of lysis of yeast cells by Zymolyase varies with yeast strain, growth stage of yeast and cultural condition (6-8). Further information related to Zymolyase is obtained in the references below.

Applications
Protoplast/Spheroplast Preparation Yeast Cell Fusion Yeast Cell Transformation

Appearance
Lyophilized powder

Activity
≥100U/mg

Unit Definition
One unit of lytic activity is defined as that amount which indicates 30% of decrease in absorbance at 800nm (A800). Refer to Assay for Enzymatic Activity.

Synonyms
Lyticase*, Yeast Lytic Enzyme

Source
Arthrobacter luteus

Essential Enzyme
b-1,3-glucan laminaripentaohydrolase

Contaminants
DNase, Rnase: Trace levels detected.

Other Activities Contained
b-1,3-glucanase: ~1.5x10e3u/mg Protease: ~15u/mg Mannanase: ~1.5x10e3u/mg Amylase, xylanase, phosphatase: Minute amounts (See reference No. 3 as to the definition of each enzyme unit. Each activity varies more of less among lots.)

Optimum pH
For cell wall lysis: 7.5, 35°C For yeast glucan hydrolysis: 6.5, 45°C
Stable pH: 5-10

Heat Stability
The lytic activity is lost on incubation at 60°C for 5 minutes.

Non-susceptible strains
Specificity (lytic spectrum)(5): Ashbya, Candida, Debaryomyces, Eremothecium, Endomyces, Hansenula, Hanseniaspora, Kloekera, Kluyveromyces, Lipomyces, Metschikowia, Pichia, Pullularia, Torulopsis, Saccharomyces, Saccharomcopsis, Saccharomycodes, Schwanniomyces, etc Ashbya, Endomyces, Kloekera, Kluyveromyces, Pullularia, Saccharomyces Candida, Debaryomyces, Eremothecium, Hansenula, Hanseniaspora, Lipomyces, Metschnikowia, Saccharomycopsis, Saccharomycodes, Schizosaccharomyces, Selenozyma, Trigonopsis, Wickerhamia Bretanomyces, Cryptococcus, Nadsonia, Picia, Rodosporidium, Schwanniomyces, Stephnoascus, Torulopsis Bullera, Pityosporum, Rhosotorula, Sporidiobolus, Sporobolomyces, Stetigmatomyces, Trichosporon

Activators
SH compound such as cystein, 2-mercaptoethanol of dithiothreitol

Storage and Stability
Stable for 1 year at 4°C. About 90% of the lytic activity is lost when stored at 30°C for 3 months.

Companion Products
Z1000: Zymolyase 20T Z1001: Zymolyase 20T Concentrate 50mg/ml, 0.1M Sorbitol Zymolyase 20T shows 20u/mg of the lytic activity, defined after, toward brewer's yeast cells (Saccharomyces cerevisiae, resting stage) or toward yeast cells of Saccharomyces cerevisiae IFO 0565 cultured statically in malt extract medium (Malt extract 2g, peptone 0.5g, water 100ml) at 20°C for 34 hours. Z1004: Zymolyase 100T Z1005: Zymolyase 100T Concentrate 10mg/ml, 0.1M Sorbitol Zymolyase 100T, further purified, whose specific activity is 100u/mg.

Note

Zymolyase100T is less soluble than 20T and may not be completely dissolved in buffers. If this is the case use as a suspension.

See useful publication on the use of USBio's Zymolyase titled

A Comparison of Zymolyase, Lyticase and Glusulase by Dr. David Burden.

Important Note

This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications without the expressed written authorization of United States Biological.

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References

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