New From BioVectra™dcl

Vectrase™–P
Protein Folding Catalyst(s)

BACKGROUND

Protein production by recombinant methods in *E. coli* or other bacterial systems often results in unfolded or misfolded proteins forming insoluble aggregates known as inclusion bodies. Inclusion bodies occur because bacterial cells lack the protein folding mechanisms (chaperone proteins, etc.) that are usually present in higher organisms. There is a definite advantage to inclusion bodies, since they are easy to isolate from cytoplasmic proteins by centrifugation, thus simplifying the purification procedure. Once the inclusion bodies have been isolated, they must be solubilized (denatured) and refolded into the native, active state of the protein.

Proteins that possess disulfide bonds present additional challenges, since the folding of the protein is dependent upon correct disulfide bond formation; disulfides formed between the wrong residues lead to aggregated or misfolded proteins, which are generally inactive.

The Vectrase™–P Folding Kit uses a proprietary small molecule to assist in the proper folding of proteins, in particular promoting the reshuffling of incorrect disulfide bonds *in vitro* to obtain the native protein.

PRODUCT CONCEPT

Vectrase™–P is a new protein-folding tool available to the biomedical and biopharmaceutical research community. Currently, BioVectra™dcl is working in conjunction with researchers in both academic and commercial settings to characterize the levels of improvement in active, folded protein yields which Vectrase™–P can generate, depending on protein type and conditions used. Initial data has been generated to demonstrate a 14% improvement in activity. The product may be purchased from BioVectra in experimental quantities, supported by our research and technical staff, to evaluate the performance in individual settings.

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APPLICATIONS

Vectrase™–P is a useful reagent to promote correct folding of proteins that possess disulfide bonds. Potentially, there are three types of proteins in which folding may be examined by Vectrase™–P, and the three types require slightly different procedures.

The most common type of protein likely to be investigated is found in inclusion bodies isolated from *E. coli* or an alternate biological source. In this case, the protein in question must be denatured with a strong denaturing buffer and a reducing agent (such as dithiothreitol, DTT). If possible, the protein should then be isolated from the reducing agent used in the denaturing step. Finally, the denatured protein should be diluted into a folding buffer containing Vectrase-P. In this case, the folding must be done on air to allow re-oxidation of the disulfide bonds in the protein.

Alternatively, the starting substrate may consist of partially purified, fully reduced protein. For this substrate, the reduced protein should be diluted into a folding buffer containing Vectrase-P and allowed to air oxidize during the folding procedure.

Finally, the starting substrate may be an oxidized, inactive protein with scrambled disulfide bonds. In this case, best results are obtained by dilution with a folding buffer containing Vectrase-P and kept under an argon atmosphere during the entire folding procedure; since Vectrase-P is a reducing agent, it loses some effectiveness when oxidized by air.

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PRODUCT FEATURE	VALUE-ADDED BENEFIT
Vectrase™–P promotes disulfide bond isomerization	Catalyzes the correct folding of mis-folded proteins
Vectrase™–P has been demonstrated to improve active, folded protein recovery up to 14%	Recovers additional, valuable protein
Vectrase™–P is stable	Readily useable over extended periods of time

PRODUCT AVAILABILITY

Vectrase™-P is available in 1 mg and 10 mg quantities.

Catalogue Number: 1313-1 mg
1313-10 mg

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ORDERING INFORMATION

To Place An Order
Customers may place orders directly by MAIL, PHONE, FAX, E-MAIL, or ON-LINE.

Canada
BioVectra™dcl
16 McCarville Street
Charlottetown, PE
C1E 2A6 Canada
Tel: 800-565-0265
Fax: 902-566-2498

United States
BioVectra™dcl
160 Christian Street
Oxford, CT
06478 USA
Tel: 800-325-2436
Fax: 203-888-1143

On-Line/E-Mail
Contact: orders@biovectra.com
Website: www.biovectra.com

On-Line Ordering (with Visa® card payment)
BioVectra, in conjunction with the Scotiabank of Canada, is pleased to offer a secure method of placing orders on line. Visit our website at **www.biovectra.com** or contact us at **info@biovectra.com.**

Pricing
All prices are Net 30 days, FOB Charlottetown, PE, Canada or Oxford, CT, United States. Prices are subject to change without notice. Where applicable, taxes will be added.

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Shipping
North American orders are shipped via Federal Express, UPS or appropriate alternative carriers. International shipments are shipped via Federal Express or the best alternative air freight carrier. Air freight charges are prepaid and added to the invoice.

Returns, Warranty, Product Toxicity and Hazards
Please refer to the BioVectra price list or our website for our published policies.

CALL FOR RESEARCH SITE EVALUATIONS

BioVectra™dcl maintains an external scientific consultancy network and works with academic institutions to generate performance data on our products during the development stage. If you wish to evaluate Vectrase™-P, please contact:

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