



Cambridge Isotope Laboratories, Inc.

INSECT CELL MEDIA

BioExpress® 2000 Insect Cell Media

High Resolution NMR studies of isotopically labeled proteins expressed from bacterial cell systems provide a wealth of information leading to characterization of protein structure and dynamics. These prokaryotic expression systems coupled with the use of stable isotopes have allowed the development and refinement of NMR techniques to propel the field of Structural Biology and Small Molecule Drug Discovery toward the more complex field of Proteomics. The expression of eukaryotic proteins can be effected using the bacterial cells systems with one very major draw back: The proteins are expressed without post-translational modification or the proper 3-dimensional fold. In order to study eukaryotic proteins that are glycosylated and exhibit proper folding with intact disulfide bridges, it is necessary to express the protein in a eukaryotic cell system. Yeast systems can and have been used for this purpose but many proteins of interest require a higher order system such as insect-based expression systems.

To this end, Cambridge Isotope Laboratories, Inc. has developed a proprietary medium specifically for the expression of isotopically labeled proteins from insect cells. The CIL media is designed for many types of labeling systems, from uniform ¹³C; ¹⁵N labeling of all amino acids in the protein to selective labeling of one or more amino acid residues with any of the labeling patterns in CIL's amino acids.

This media has been tested for growth rates and expression levels in Baculovirus-infected SF-9 cells with results comparable to that using unlabeled commercial media. (See table above—results courtesy of Andre Strauss and colleagues, Novartis Phama Ltd., Basel.) In addition, isotopic incorporation was measured on a test protein to be 94%.

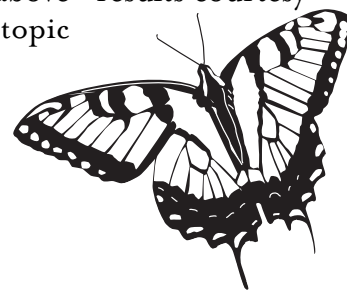
Growth and Expression Comparison for SF9/Baculovirus System

	BioExpress 2000		ExCell 420
	Unlabeled	¹³ C; ¹⁵ N Labeled (partially)	
Growth (cell density at harvest, 10 ⁶ c/ml)	1.6	1.8	2.3
Protein expression (band intensity on SDS-PAGE)	++(+)	+++ (~50 mg/ L)	+++
Isotope Incorporation (by Mass Spec)	N/A	94%	N/A

General Protocol

1. Grow SF9 cells in SF900 II media for 3 days @ 27°C in shake flasks to OD of 3 x 10⁶ c/mL.
2. Centrifuge and transfer the cells to BioExpress 2000® at a cell density of ~1.5 x 10⁶ c/mL.
3. Infect the cells with recombinant Baculovirus and incubate for 3 days.
4. Harvest the cells and purify the protein.

Samples of unlabeled BioExpress® 2000 are available for CIL customers to test protein expression in their laboratories. Please contact your CIL Sales Rep or call CIL for more information.



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