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Auto-Induction for Protein Production in Inducible T7 Expression Systems. F. William Studier, Biology Dept., Brookhaven National Laboratory, Upton, NY 11973.

Inducible T7 expression systems are highly efficient in producing a wide range of proteins in *E. coli*. Systematic analysis of different components of fully defined or complex growth media has led to the development of auto-inducing media in which expression strains grow to high density with little or no induction and then spontaneously induce high-level production of target protein. Auto-induction relies on appropriate mixtures of carbon sources and typically produces 5-20 times as much target protein per volume of culture as is obtained by conventional induction with IPTG. Non-inducing media were also developed to allow convenient propagation and stable maintenance of expression strains. Non-inducing and auto-inducing media simplify the testing of many strains in parallel for expression and solubility of target proteins, because cultures are simply inoculated and grown to saturation without having to synchronize cultures, monitor growth or add inducer at the proper time. Fully defined, auto-inducing media provide good yields of proteins labeled with selenomethionine for x-ray crystallography or isotopically labeled proteins for NMR spectroscopy.

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