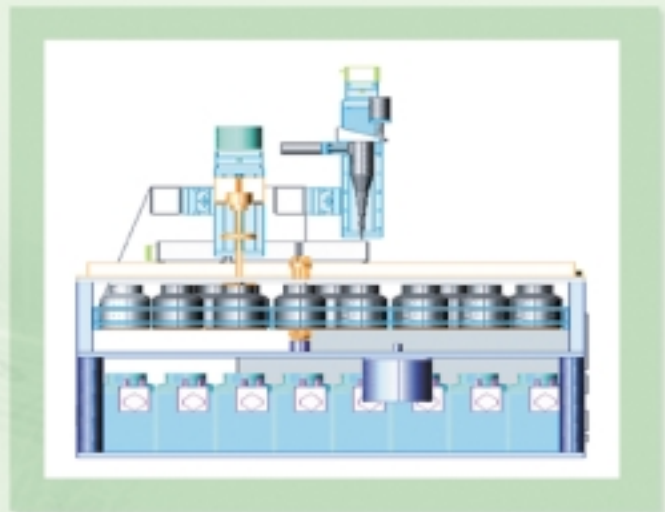


Unique Technologies for  
High Throughput Protein Refolding  
ProteomTech, Inc.



PTR Automated Refolding System



## the proteomics challenge

Formation of inclusion bodies during protein expression poses a severe bottleneck in the efficient progress of medical research, drug discovery and therapeutic development. Fortunately, with ProteomTech's Pt-Fold technology, we turn inclusion bodies into highly active proteins.

### Automated Refolding Screening in Your Lab



ProteomTech has developed the PTR, an automated system for high throughput screening of protein refolding conditions.

- Based on patented, "universal" refolding principle
- Gain access to 20 years of protein refolding experience with turnkey PTR placed in your laboratory
- Full technical application support and in-lab service warranty included
- 50% success rate guaranteed (subject to candidate criteria)
- Low cost per protein screened compared to any other method
- Optional scale-up either in-house with technical support or at ProteomTech to 10 mg to gram quantities
- Optional refolding optimization at ProteomTech for difficult proteins of high interest

### The Pt-Fold Technology

Pt-Fold is a unique, proprietary protein refolding technology, which offers a fast and cost-effective way to obtain pure, active proteins expressed in *E. coli*. An array of industrialized, high-throughput refolding procedures, Pt-Fold is used for the production of research quantities of recombinant human proteins and for large-scale production of proteins of therapeutic interest. Using Pt-Fold, ProteomTech has efficiently refolded over 250 recombinant proteins such as  $\beta$ -secretase and pro-urokinase. ProteomTech now offers the Pt-Fold technology as a service to life science researchers across the world. The process is executed with high precision and success rate:

- You send us inclusion bodies or the clone for expression in *E. coli*.
- We isolate the inclusion bodies to high purity.
- Next we solubilize the inclusion bodies in a chaotropic buffer solution.
- Protein refolding now begins, using procedures designed for the specific class of protein. The process takes the following sequence:
  - a. Rapid dilution and shift to high pH
  - b. Shift to lower pH over time
  - c. Optimization of buffer conditions to maximize yield, functionality and stability over time
- Once refolding is complete, we reconcentrate the protein by ultrafiltration and purify by chromatography procedures
- Finally, we perform the necessary assays and other analyses to ensure purity and activity

## The Advantages of Pt-Fold Technology

- *E. coli* expression is more efficient and less expensive compared to mammalian, insect, and yeast cultures.
- Some proteins are harmful to the host when expressed in their native forms; thus, insoluble expression is the ideal way to obtain large quantities of the recombinant proteins.
- Recombinant proteins are more stable in their inclusion body form; thus, the common problems of degradation and instability related to recombinant protein production can be avoided.
- High levels of expression can be achieved for most proteins (200 to 600 mg of inclusion bodies per liter of bacterial culture is routinely obtained).
- The inclusion bodies are easily purified to greater than 90% purity with a simple freeze/thaw and detergent washing procedure.
- *E. coli* expression is the preferred means of producing recombinant proteins suitable for crystallization trials and structure determination
- Several therapeutic proteins on the market are manufactured by inclusion body processes, including human insulin, G-CSF (Neupogen) and alpha-interferon.

## Protein Drug Development

Besides helping our customers accelerate their protein drug development efforts, we are utilizing the Pt-Fold technology for internal programs to develop protein drug candidates. Our unique Pt-Fold platform enables us to manufacture protein drugs more efficiently and faster than by any other means. Since several protein drugs currently on the market are manufactured by inclusion body processes, Pt-Fold processes are fully scalable, validatable and approvable for human use. ProteomTech's immediate strategy is to develop protein therapeutics to early stage and out-license, with a longer-term goal of becoming an integrated protein drug development and manufacturing company.

If your R & D requires proteins that form inclusion bodies during *E. coli* expression, ProteomTech can provide you with active, pure proteins quickly and cost-effectively. Or, refold them yourself with our PTR Automated Refolding System.

## Refolded Proteins Include

Cell Receptors  
Proteinases  
Proteinase Inhibitors  
Signal Transduction Related  
Kinases  
Phosphatases  
Extracellular Matrix  
Transcription Factors  
Oncogenes  
Cytokines  
Splicing Factors  
Adaptor Proteins  
Angiogenesis Related  
G protein Regulatory Proteins  
G Protein Family  
Cellular Enzymes  
Calcium Binding Proteins  
Mitochondrial Proteins  
Hypothetical Proteins  
CD Protein Extracellular Domain



Crystal Structure of BACE1 (beta-secretase), published in Science (290:150-153, 2000)  
This Alzheimer's disease related protein was produced using Pt-Fold technology.



## ProteomTech, Inc.

Founded in April, 2001 by Dr Charles Gao and Dr Xinli Lin, ProteomTech's mission is to contribute significantly to easing human suffering caused by disease and in strengthening human health and longevity, by providing human proteins for medical research, drug development and for therapeutics.

Since completion of the Human Genome Project, Pharmaceutical and Biotech companies are in urgent need of various human proteins for drug development and for healthcare research (of more than 100,000 human proteins, less than 500 are commercially available). The problem is how to get sufficient quantities of a large number of proteins quickly and at reasonable cost. ProteomTech's unique and proprietary Pt-Fold refolding technology is capable of producing a large number of biologically active human proteins at low cost and with high throughput. We believe this unique contribution will aid in accelerating the development of new drugs based on the biotech revolution.

With its proven protein refolding technology, talented scientific and management direction, and automation on the horizon, ProteomTech is the perfect partner for removing inclusion bodies from your research path.

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