



**Bridgewater Biotechnology
Company***
(BBC)

Employee Manual

Spring 2006

Chief Scientific Officer:

Frank R. Gorga, Ph.D.
fgorga@bridgew.edu
508-531-2827

* Also known as Advanced
Biochemistry Laboratory
(CH466)

Introduction

Welcome to Bridgewater Biotechnology Company Ltd. (BBC). BBC is a discovery organization looking for novel uses of enzymes. Specifically, we are interested in endowing naturally occurring enzymes with novel properties using site-directed mutagenesis and over-expression of the mutant enzymes to obtain useful quantities.

Our basic work unit is a small group (three or four individuals, ideally) of scientists working collaboratively. The enzyme of current interest is alkaline phosphatase. Teams will begin their work with library-based research in order to find information about the purification (from *E. Coli*) and assays of alkaline phosphatase as well as information about its active site and mechanism. Groups will obtain the pdb file for alkaline phosphatase and use all of the information they have collected to propose mutants that have altered kinetic properties (higher activity, lower activity, altered substrate specificity, etc.) The remainder of the semester will be spent constructing the proposed mutants, expressing and purifying the mutant protein and, finally, comparing the activity of the mutants with the wild type enzyme.

Required Materials

There is no text or laboratory manual; you will spend a significant amount of time using the library! A permanently bound (not loose-leaf or spiral bound) lab notebook is required.

The Employee's Responsibility

The staff of BPDFL is expected to report for duty Tuesdays from 12:15 to 4:05 PM. Additional time in the library and/or laboratory will be required as the projects demand.

Success in the laboratory depends on preparation; one cannot walk into a laboratory and expect to properly perform an experiment without significant forethought and preparation. Most experiments entail preparations that need to be completed (and recorded in the lab notebook) before arriving in the lab. Plan ahead!

Employees are expected to keep an accurate and up to date laboratory notebook. Submission of all reports in a timely manner is expected. Deadlines and meeting dates will be announced well ahead of time.

Evaluation of Employee's Performance

Employees will be evaluated on their performance as follows: progress reports approximately every two weeks (40%), a written final report (20%) and an oral presentation (20%). Each of these is described in more detail below. The remaining 20% of an employee's evaluation will be determined by miscellaneous factors including the CSO's observation of each employee in the lab and the lab notebook.

Progress reports will take the format of a "group meeting" common in research environments. Each team will spend 15-20 minutes informally presenting the work they have accomplished since the last meeting. A small number of unpolished handouts are appropriate for these presentations. A discussion of the results and new directions will be intermingled with each presentation. Additionally, each group will submit a written summary of their progress within 24 hours of each group meeting. The responsibility for this report will rotate among the group members.

Each individual will independently prepare a final written report in the style of a journal article (either J. Biol. Chem. or Biochemistry). This paper should be 6-8 single spaced pages long.

The poster presentation is a group effort. Team members are expected to contribute equally to the preparation of the presentation. Posters will be displayed in the hallway of the science building.

Schedule for Spring 2006

Progress reports: 31 Jan, 21 Feb, 21 Mar, 4 Apr, 25 Apr

Poster presentations: Ready for hanging by noon on 3 May. Presenters available to discuss posters from 4-5 PM on 4 May.

Written reports due: 5 PM on 10 May.

Company holidays: 21 Feb (Monday class schedule), 7 Mar and 14 Mar.
(no work scheduled)