INTRODUCTION

Proteins are the engines of biological systems and nearly all pharmaceuticals act on proteins. Also, proteins themselves are increasingly used therapeutically. As biology enters the post-genomic era, researchers have begun to embrace the exciting opportunity of investigating proteins in high throughput experiments. The study of proteins includes a vast array of techniques ranging from enzyme catalysis assays to interaction and structural studies. Many of these methods depend on purified protein availability sometimes difficult to isolate from native sources. Alternative Biotechnology offers ways to overcome this problem and allow the production and purification of high quantities of functional proteins. The high diversity of expression systems and improved purification techniques available nowadays, assure the production of virtually any functional protein, which become a powerful tool both in fundamental research and in applied therapeutics.

COURSE DESCRIPTION

The course is intended for graduate and post-graduate students who wish to learn about the process of production of recombinant proteins and are willing to gather more information on currently available expression systems and protein purification techniques. It is a three day course that includes lectures on advanced and cutting-edge techniques used for heterologous protein production and purification as well as hands-on practical work in the laboratory with the state-of-the-art equipment and methods. The aim of the course is to provide an in-depth evaluation of strategies to achieve maximum optimization of recombinant protein production and purification experiments, by offering laboratory training covering all steps of production, purification and characterization of recombinant proteins expressed in E. coli cells, ranging from cells transformation, inoculation and growth, protein purification by affinity chromatography, and protein analysis by SDS-PAGE and Western blot.

PARTICIPANTS

Graduate students and researchers interested in the field of heterologous protein production and purification. No previous experience is required. Course corresponds to 2,5 ECTS.

REGISTRATION

The registration fee is 250 euros. To register please visit:
www.ccmar.ualg.pt

THREE DAY COURSE
ON **STRATEGIES**
FOR **RECOMBINANT**
PROTEIN PRODUCTION

FOR MORE INFORMATION:
www.ccmar.ualg.pt

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13 - 15
JULY 2011

THREE DAY COURSE ON **STRATEGIES** FOR **RECOMBINANT PROTEIN PRODUCTION**

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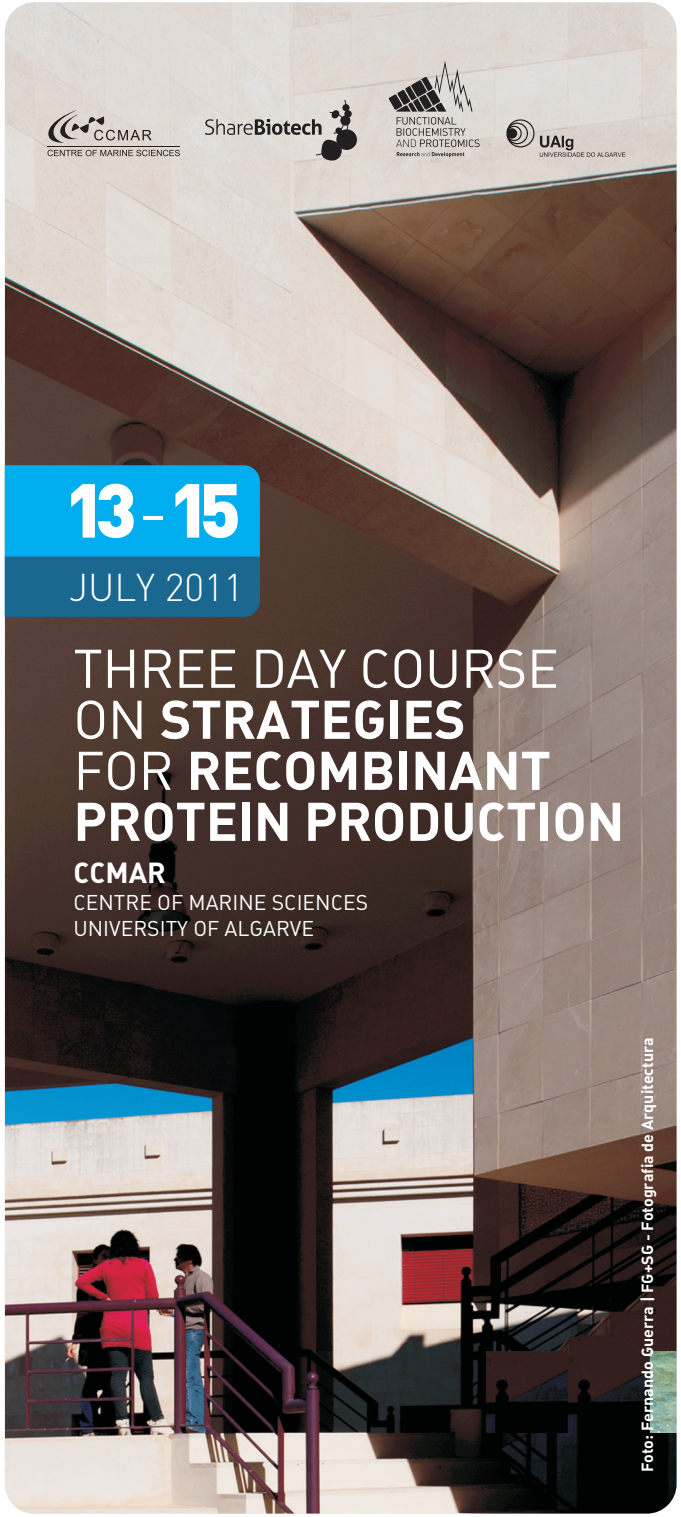

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DAY 1

WEDNESDAY, JULY 13

9 AM – 13 PM
(Seminars)

Global approach to recombinant proteins production and applications
Neus Ferrer (Autonomous Univ of Barcelona - AUB)

Expression systems: Escherichia coli, insect cells, and mammalian cells- Advantages and disadvantages
Neus Ferrer (AUB)

Overview of a study design
Neus Ferrer (AUB)

14:30 PM – 18:30 PM

Hands-on practice
Maria José Castro (FCT/UALG)
and Carla Viegas (CCMAR)

Practical study design for the production of a recombinant protein in E. coli

Preparation and inoculation of E. coli cells for recombinant protein production

DAY 2

THURSDAY, JULY 14

9 AM – 13 PM
(Seminars)

Strategies to express proteins in plants
Gustavo Nolasco (FCT-UALG)

Basic principles in protein purification
Neus Ferrer (AUB)

Strategy design to optimize protein purification
Neus Ferrer (AUB)

14:30 PM – 15:30 PM
(Seminars)

Applications of recombinant proteins
Dina Simes (FCT/CCMAR)

16 PM – 18:30 PM
(Open seminars)

Overcoming Challenges in purification of Recombinant Proteins
Enrique Garcia (Amersham)

The benefits of using Biacore & MicroCal in Protein purification
Mabel Saiz (Amersham)

DAY 3

FRIDAY, JULY 15

9 AM – 13 PM

Hands-on practice
Carla Viegas, Liliana Guerreiro,
Sofia Cavaco and Pedro Palma (CCMAR)

Purification of recombinant proteins produced in E. coli

SDS-PAGE analysis of purified protein

14:30 PM – 18:30 PM

Hands-on practice
Carla Viegas, Liliana Guerreiro,
Sofia Cavaco and Pedro Palma (CCMAR)

Western blot analysis of purified protein