



SCIENTIFIC UPDATE

We've got chemistry

BIOCATALYSIS AS A TOOL FOR THE SYNTHETIC CHEMIST

11-12 OCTOBER 2018

San Francisco, USA

AMA Executive
Conference Center

"The course was for me the best starting point to dive into the field of Biocatalysis. I can recommend it to everyone who wants to start or to further develop in this field."

**MSD Animal Health
Manufacturing**



A 2 day course given by
Dr Andy Wells and
Dr Will Watson

PROFESSIONAL DEVELOPMENT TRAINING

Scientific Update provides training courses for industrial chemists and chemical engineers in chemical development and scale-up and many other specialist topics in organic and process chemistry. Our short intensive training courses enable scientists to learn about highly relevant topics, to broaden their knowledge and to keep abreast of new science, new technology and new techniques.

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BIOCATALYSIS AS A TOOL FOR THE SYNTHETIC CHEMIST

A 2 day course given by
Dr Andy Wells and Dr Will Watson

Multiple attendees discounts
UP TO 15% available

11-12 October 2018 San Francisco, USA, AMA Executive Conference Center

INTRODUCTION

The aim of the course is to give organic chemists an understanding and an overview of the subject of biotransformations.

Attendees will learn about the main classes of enzymes and the transformations these enzymes carry out.

Each transformation type will be illustrated with examples and case studies and the course will also include problem sessions where attendees will work on real examples applying biotransformations to organic synthesis.

Recent developments in the field will be covered as well as an overview of the sort of equipment and resources required for research and scaling up biocatalytic reactions. Several industrial examples of biocatalysis will be discussed. The Course will conclude with a comparison of biocatalysis and chemocatalysis.

COURSE OUTLINE

Introduction to Biocatalysis

- > Literature sources for biocatalysis (books and review articles)
- > Myths about biocatalysis
- > Enzyme / protein basics, basic microbiology
- > Sources of biocatalysts
- > Equipment requirements
- > Enzyme types

Hydrolytic Enzymes (Lipases, esterases, amidases, proteases)

- > Mechanism of hydrolysis by enzymes
- > Kinetic resolution
- > Use of organic solvents
- > Dynamic kinetic resolution (DKR)
- > Deracemisation
- > Ester, amide, nitrile and epoxide hydrolysis concentration

Oxidations

- > Alcohol oxidation
- > Amine oxidation, deracemisation of amines and amino acids
- > Bio-oxygenation, bio-hydroxylation
- > Demethylation
- > Epoxidation
- > Bayer-Villiger oxidation
- > Sulphoxidation

Reduction

- > Ketone reduction, Prelog rules
- > Co-factors
- > Deracemisation of secondary alcohols
- > Enantioselective reduction / DKR
- > Keto-ester reduction
- > C=C reduction

C-C and C-X bond formation

- > Aldol reactions
- > Transketolases
- > Cross benzoin reactions
- > Hydroxy-nitrile lyases
- > Michael reactions
- > Transamination
- > Fumarase and aspartase

Scale Up of Biotransformations

- > Reactors
- > Scale up issues
- > Case studies

New Developments including Directed Evolution

- > Polymerase Chain Reaction
- > Mutagenesis
- > Directed Evolution
- > Product isolation

Pros and Cons of Biocatalysis

- > Summary
- > Q&A, discussion

VENUE

AMA Executive Conference Center
55 4th St
San Francisco
CA 94103, USA
www.amaconferencecenters.org/san-francisco.htm

Located in the San Francisco Marriott Marquis Hotel, AMA's San Francisco Executive Conference Center is just minutes from the Cable Cars, Chinatown, shopping, museums and only 15 miles from the San Francisco International Airport.

For accommodation, a list of nearby hotels will be sent to you once you register for the course.





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Start 9.00am - Thursday 11 October
Finish 4.30pm - Friday 12 October
Course dinner 7.00pm - Thursday 11 October
Course Fee: \$1,895

Which includes comprehensive course manual, refreshments throughout the day, lunch and one course dinner.

Course Fee: \$1,895

COURSE TUTORS

Dr Andy Wells

I am a specialist and expert in the field of chemical process R&D where, over the past 30 years, I have spent most of my professional career employed at three multi-national pharmaceutical companies, rising to the rank of Senior Principal Scientist (Director Level) at AstraZeneca. I have experience across all aspects of the pharmaceutical lifecycle, especially R&D, synthesis, green chemistry and material supply at all scales from discovery chemistry through to validation, manufacture and life cycle management. A major focus over the past 20 years has been the application of homo/hetero-metal catalysis, biotransformations / biotechnology and green chemistry solutions in the tactical and strategic manufacture of pharmaceuticals, agrochemicals and fine chemicals. My career has spanned across a broad range of scientific disciplines, and I am a keen exponent of working at the interface of the physical and biological sciences to champion the adoption of novel, more sustainable technologies across a range of business areas.

I currently work as a project partner in a number of consortia - both business-business and business academia, and as a consultant to a range of businesses including small biotech companies, fast moving consumer goods (FMCG), multi-national pharma companies and agrochemicals companies. I also work with universities looking at accessing grant funding and commercialisation of novel sustainable manufacturing technology. I have extensive networks in the pharmaceutical/synthesis/industrial biotechnology /biocatalysis communities and can work with a number of specialist technology companies and SME's to deliver projects for clients.



Dr Will Watson

Technical Director,
Scientific Update

Will Watson gained his PhD in Organic Chemistry from the University of Leeds in 1980. He joined the BP Research Centre at Sunbury-on-Thames and spent five and a half years working as a research chemist on a variety of topics including catalytic dewaxing, residue upgrading, synthesis of novel oxygenates for use as gasoline supplements, surfactants for use as gasoline detergent additives and non-linear optical compounds.

In 1986 he joined Lancaster Synthesis and during the next 7 years he was responsible for laboratory scale production and process research and development to support Lancaster's catalogue, semi-bulk and custom synthesis businesses. In 1993 he was appointed to the position of Technical Director, responsible for all Production (Laboratory and Pilot Plant scale), Process Research and Development, Engineering and Quality Control. He helped set up and run the Lancaster Laboratories near Chennai, India and had technical responsibility for the former PCR laboratories at Gainesville, Florida. He joined Scientific Update as Technical Director in May 2000. He is also involved in an advisory capacity in setting up conferences and in the running of the events. He is also active in the consultancy side of the business.



will@scientificupdate.com



REGISTRATION

You can either use our fast online booking system or mail or fax the attached registration form to:
Scientific Update
Maycroft Place, Stone Cross, Mayfield,
East Sussex, TN20 6EW, UK
Fax Number +44 1435 872734

How to Pay

When you register online, you can have the option to pay via credit card (Mastercard or Visa). A receipted invoice will be automatically generated once paid and sent via email. Should your company wish to pay by cheque or bank transfer bank details will be supplied with an invoice.

Bank Transfer or Cheque

Should your company wish to pay by cheque or bank transfer, on booking you can choose between paying in either €, \$ or £. All bank details will be supplied with an invoice.

Group Discounts

Group discounts are available on two or more attendees - see registration form. This offer only applies if bookings are made simultaneously and from the same billing address.

Confirmation of your registration

These will be sent via email.

Late Applications

For late applications, please register online or fax the completed registration form, including credit card payment information.

Cancellations/Refunds

Should you be unable to attend and cancel in writing no later than 1 month before the start of the course, Scientific Update will refund your registration less £300 (or equivalent in €/ \$) processing fee. Unfortunately refunds are not possible after that date. Substitutions can be made at any time.

IN-HOUSE COURSE

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sciup@scientificupdate.com

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*payments via Amex can only be made in US dollars

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If you select to pay in GBP, or Euros the amount charged will be based on the exchange rate at the time of preparing the invoice.

Discounts

Complete the details for either two or three delegates and your discount will automatically be applied. This offer only applies where all delegates are booked simultaneously and at the same billing address.

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Data Protection

Scientific Update Ltd is registered under the Data Protection Act 1998. We will store your information securely and only share your contact details with other attendees at this event. If you are happy for your details to be passed to any third parties please tick here:

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