

## Speakers



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Arjan Langen  
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# Microbiology for Non-Microbiologists

Understand the „true“ meaning of microbiological findings

11/12 March 2025 | Berlin, Germany



## Highlights

- Acquire a Basic Knowledge in Microbiology
- Develop an Understanding for the Meaning of Microbiology for the Quality of Medicinal Products
- Get familiar with Typical Microbiological Tests in the Pharmaceutical Industry
- Learn to interpret Microbiological Data correctly
- Case Studies on Deviations and Trouble Shooting

Examples and Case Studies of Microbiological  
Deviations and Trouble Shooting

## Objective

It is the aim of this course to familiarise responsible personnel from production, quality assurance and engineering with microbiological questions. The participants learn how to interpret microbiological data and which consequences these have for the production.

## Background

The quality of drugs and the quality assurance during production are above all determined by their microbiological characteristics. The microbiological requirements on drugs are laid down in various regulations. When an authority inspects a company, it will focus its attention on these and on the requirements made on hygiene.

In their daily work, the responsible personnel in the production units has to understand microbiological results and evaluate their significance for further decisions. However, in practice many microbiological results are misinterpreted and thus often the wrong conclusions are drawn from them. When asked for the most frequent misinterpretations of microbiological results, pharmaceutical microbiologists gave the following answers.

- The difference between bioburden and sterility testing (are they the same?)
- The use of disinfectants guarantees the sterility of the object, surface, culture treated.
- The distribution of microorganisms in a sample or on a surface is uniform.
- Motile microorganisms can swim hundreds of meters in an hour causing contamination problems in remote parts of the facility.
- How can different media formulations give different results?
- Microbial tests described in the Pharmacopoeias can always be validated, no matter what the matrix is, how aggressive it is, e.g. NaOH, how high the concentrations of antibiotics are etc.
- Identification results are absolute and unequivocal, especially when computer-generated.
- Underestimating the importance of cleaning prior to disinfection.
- Environmental monitoring results provide an accurate risk assessment during production.
- How can clean room surfaces not be heavily contaminated when the air counts are out of specification?
- How can endotoxins be present when the bioburden is nil?
- How can the titre of a virus reference standard change according to the detection cell line used?
- WFI is sterile.
- Filters are absolute.
- UV light disinfects and is capable of sterilising surfaces and water.

This listing appears to cover all aspects of microbiology from the interpretation of straightforward issues concerning environmental monitoring, bioburden results and identifications – through to the more complex issues surrounding virology results for the biologics/biotech people.

The misinterpretation of microbiological results often gives rise to the following misunderstandings:

- Huge environmental monitoring programmes (more is better).
- Rejection of batches due to minor out-of-specification results.
- Delayed registration objectives and to attend appeal hearings.
- Numerous contamination incidents due to the application of inappropriate solutions to problems.
- Senseless promises made to regulatory authorities without scientific rationale based on the concept of quality.

## Target Audience

This course is designed for responsible personnel from production, quality assurance, regulatory affairs and engineering that has to make judgements, release products and take actions on the basis of the microbiological data supplied.

## Programme

### The Characteristics of Microorganisms

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- Fungi | Bacteria | Mycoplasma | Viruses
- Cellular organisation, function
- Products, toxins, endotoxins, antibiotics, enzymes

### Microbial Growth

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- How it occurs
- What is required for growth?
- Growth kinetics – laboratory culture versus nature
- Effect of stress factors on growth

### Microbial Identification Techniques

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- What is the significance of a name?
- Distribution of microorganisms in nature, raw materials and water
- Distribution of microorganisms in pharmaceutical facilities

### Detection Methods and their Limitations

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- What can be detected by:
  - The sterility test
  - The bioburden test in its various forms: Membrane filtration, pour plate, spread plate, MPN
  - The test for specified organisms
  - The endotoxin test
- Limits of detection and factors effecting limits of detection

### Microbiological Methods: Suitability Test vs. Method Validation

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- The difference between a Method Suitability Test (MST) and a Method Validation will be explained using selected examples:

- The practical realization of a MST of a Microbial Enumeration Test (Ph.Eu. 2.6.12 / USP <61>) and a Sterility Test (Ph.Eu. 2.6.1/ USP <71>) is presented
- The Method Validation of a Rapid Sterility Test according to Ph.Eu. 5.1.6 / TR33 / USP <1223> is shown

### Cleaning, Sanitation, Disinfection

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- Why cleaning before disinfection?
- The difference between cleaning and disinfection
- Disinfectants and their efficacy
- Methods of disinfection
- Disinfection validation

### Environmental Monitoring

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- Sampling techniques
  - Air sampling | Surfaces | Settle plates
- Technical limitations and interpretation of results
- Is there a relationship between high results and contaminated product?

### Case Studies on Monitoring and Hygienic Deviations

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#### Pharmaceutical Water - Microbiological Control and Deviation Management

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- Regulatory requirements
- Warning and action limits
- Measures to be taken when warning and action limits are exceeded
- Repeated non-conforming results
- Examples of warning and action limit exceedance
- Source of microbial contamination, biofilms

### Sterilisation Methods

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- Principles and kinetics of sterilisation
- Selection of sterilisation method
- Types of sterilisation methods
- Validation of the sterilisation process

### How to Handle Microbiological OOS Results

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- Typical Out-Of-Specification results
  - Sterility testing | Bioburden | Endotoxin testing
  - Cleanroom monitoring
- Investigation of causal connection
  - Laboratory failure investigations
  - Sampling/process/production failure investigation
  - Type of microorganisms
  - Deviations/incidents/assessment
  - Deviation/investigation report
- Retesting/Reanalysis/Resampling
  - Definitions | Calculation of mean values | Rejection/Release

#### Trouble Shooting - Examples and Case Studies Sessions

The aim of these special sessions is to provide participants with practical experience of the basics of microbiological deviations and trouble shootings and the difficulties associated with evaluation. On the basis of real cases, sources of contamination, possibilities of root cause analysis and the determination of corrective and preventive measures are shown.

## Speakers



**Dr Hans-Joachim Anders**  
Novartis Pharma Stein, Switzerland

Dr Anders is a microbiologist and team leader in Analytical Science & Technology in the field of microbiological quality control, i.e. method validation, microbiological identification, etc., at Novartis in Stein. He has several years of experiences in water testing, validation of Rapid Micro Methods up to contamination control issues.



**Dr Stefanie Bayer**, Labor LS, Germany

Dr Bayer studied Biology with focus on Micro- and Molecular Biology. Her industrial career started in the molecular biology department of a veterinary laboratory. In 2012 she joined Labor LS and headed there the departments molecular biology and R&D for several years. Currently, she is responsible for the department molecular development, which focuses on the GMP based implementation and validation of new molecular biological methods. Based on her activities, she has a broad experience in microbiological identification, molecular biological methods and validation of Rapid Micro Methods in the pharmaceutical environment.



**Arjan Langen**, Director Sterility Assurance, GE Healthcare, The Netherlands

Arjan Langen has over 25 years of experience within the field of pharmaceutical microbiology. He worked for several pharmaceutical and biotech companies (Nobilon, DSM, MSD) and had various local and global roles within QC, QA, manufacturing and auditing. Currently he is a Director Sterility Assurance at GE Healthcare, responsible for the global Sterility Assurance program. Besides, he is a member of the ECA Annex 1 task force that works on the detailed review of the draft revision text of Annex 1. He is microbiologist by training, qualified IRCA/QCI auditor and Green Belt certified.



**Axel H. Schroeder**, Concept Heidelberg, Germany

Axel Schroeder studied Biology at Ruprecht-Karls University Heidelberg. From 1994 to 2005 he worked as specialist for industrial hygiene and contamination control at Henkel/Ecolab. Between 2005 and 2008 he was engaged at Basan GmbH as Key Account Manager for Pharmaceuticals and Biotechnology. Since 2008, he has been operation director for microbiology and biotechnology at Concept Heidelberg.

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Reservation Form (Please complete in full)

## Microbiology for Non-Microbiologists, 11/12 March 2025, Berlin, Germany

Title, first name, surname

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Company

Important: Please indicate your company's VAT ID Number

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P.O. Box 101764  
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D-69007 Heidelberg  
GERMANY

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Country

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### General terms and conditions

- If you cannot attend the conference you have two options:
- 1. We are happy to welcome a substitute colleague at any time.
- 2. If you have to cancel entirely we must charge the following processing fees:
  - Cancellation until 4 weeks prior to the conference 10 %
  - Cancellation until 3 weeks prior to the conference 25 %
  - Cancellation until 2 weeks prior to the conference 50 %
  - Cancellation within 2 weeks prior to the conference 100 %

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In case you do not appear at the event without having informed us, you will have to pay the full registration fee, even if you have not made the payment yet. Only after we have received your payment, you are entitled to participate in the conference (receipt of payment will not be confirmed). (As of January 2012). German law shall apply. Court of jurisdiction is Heidelberg.

Privacy Policy: By registering for this event, I accept the processing of my Personal Data. Concept Heidelberg will use my data for the processing of this order for which I hereby declare to agree that my personal data is stored and processed. Concept Heidelberg will only send me information in relation with this order or similar ones. My personal data will not be disclosed to third parties (see also the privacy policy at [http://www.gmp-compliance.org/eca\\_privacy.html](http://www.gmp-compliance.org/eca_privacy.html)). I note that I can ask for the modification, correction or deletion of my data at any time via the contact form on this website.

## Organisation and Contact

ECA has entrusted Concept Heidelberg with the organisation of this event.

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For questions regarding content please contact:  
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## Conference language

The official conference language will be English.



## Social Event

On the evening of the first day you are cordially invited to a social event. This is an excellent opportunity to share your experiences with colleagues from other companies in a relaxed atmosphere.

## Presentations/Certificate

The presentations for this event will be available for you to download and print before and after the event. Please note that no printed materials will be handed out on site and that there will not be any opportunity to print the presentations on site. After the event, you will automatically receive your certificate of participation.

## Registration

Via the attached reservation form, by e-mail or by fax message. Or you register online at [www.gmp-compliance.org](http://www.gmp-compliance.org).

## Accommodation

CONCEPT has reserved a limited number of rooms in the conference hotel. You will receive a room reservation form/POG when you have registered for the course. Reservation should be made directly with the hotel. Early reservation is recommended.

## Fees (per delegate, plus VAT)

ECA Members € 1,690  
APIC Members € 1,790  
Non-ECA Members € 1,890  
EU GMP Inspectorates € 945

The conference fee is payable in advance after receipt of invoice and includes dinner on the first day, lunch on both days and all refreshments. VAT is reclaimable.

## Venue

DoubleTree by Hilton Berlin Ku'Damm  
Los-Angeles-Platz 1  
10789 Berlin, Germany  
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Email: [info@doubletreeberlinkudamm.com](mailto:info@doubletreeberlinkudamm.com)

## Date

Tuesday, 11 March 2025, 09.00 - 18.00 h  
(Registration and coffee 08.30 - 09.00 h)  
Wednesday, 12 March 2025, 09.00 - 16.00 h