



# *Training course Quality Management in Pharma and Biotech 2017*

## MODULES

- M1** Quality management, the role of the Qualified Person
- M2** Drug development from Quality by Design to clinical studies: an integrated course for the pharmaceutical industry and hospital pharmacy
- M3** Sterile manufacturing: a thorough discussion on sterility assurance challenges
- M4** Quality and safety for the manufacturing of biopharmaceuticals: from cell line development to downstream processing and formulation



# Quality Management, the role of the qualified person

## PROGRAM MODULE 1

6 - 8 March 2017

Hotel Bergse Bossen, Driebergen, the Netherlands

### MONDAY, 6 MARCH 2017

*Theme: The role and legal obligations of the Qualified Person  
Introduction to current concepts in Quality Management*

- 09.00 Welcome and Introduction  
*Marijke Pubben*
- 09.30 Responsibilities of the Qualified Person (QP):  
International regulations  
Current views from the Inspectorate  
*Mieke van der Meulen*
- 10.30 Break
- 10.45 Responsibilities of the Qualified Person (QP) for batch  
release of commercial and investigational products (IMPs)  
*Mieke van der Meulen*
- 11.30 The role and duties of the Qualified Person in Pharma-  
ceutical Quality Management and the supply of  
medicines to the European Community  
*Marijke Pubben*
- 12.30 Lunch
- 13.30 The role and duties of the Qualified Person in Pharma-  
ceutical Quality Management and the supply of  
medicines to the European Community (continued)  
*Marijke Pubben*
- 14.30 Case study addressing the issues facing the QP in an  
integrated approach to Quality Assurance in a  
pharmaceutical environment  
*Marijke Pubben*
- 15.15 Presentations and discussions
- 16.00 Break
- 16.30 Good Distribution Practice: the new EU requirements and  
the role of the Responsible Person  
*Riekert Bruinink*
- 17.45 Dinner

### TUESDAY, 7 MARCH 2017

*Theme: Quality management and maintaining compliance in the  
current Quality environment*

- 08.30 Quality Systems: Deviation management and  
Change control  
*Mirjam te Koppelaar*

- 10.30 Break
- 10.45 Compliance verification and Auditing  
*Désirée Vendrig*
- 11.30 Case study: in compliance or not in compliance?  
*Désirée Vendrig*
- 12.30 Lunch
- 13.30 Active pharmaceutical ingredients (APIs) and  
the QP Declaration  
*Désirée Vendrig*
- 15.00 GMP inspections and case study on inspection readiness  
*Dominique Mudde*
- 16.45 Break
- 17.00 The fight against counterfeit medicines: The new  
falsified medicines directive and securing the supply  
chain for patients  
*Jean-Michel Guirado*
- 18.00 Dinner
- 19.30 Introduction to the Workshop: the real world  
*Eric van Wensveen and Pedro Tetteroo*

### WEDNESDAY, 8 MARCH 2017

*Theme: Operating effectively as a QP in the complex world of  
pharmaceutical manufacturing*

- 09.00 "The international QP"  
*Tesh Patel*
- 09.45 Break
- 10.00 Continuation of the lecture and discussions
- 10.45 Break
- 11.00 Experiences from a QP in industry  
*Eric van Wensveen*  
And in a hospital pharmacy  
*Katja van Rij*
- 12.30 Lunch
- 13.30 Workshop: the real world  
*Eric van Wensveen, Pedro Tetteroo and Marijke Pubben*
- 15.30 Lessons from the workshop  
*Marijke Pubben*
- 16.00 Evaluation of the course and concluding remarks  
*Marijke Pubben*
- 16.30 Close



# PAOFarmacie

Netherlands Centre for Post Academic Education in Pharmacy

> *Quality management, the role of the qualified person*

## Faculty

### COURSE LEADER

M.M.G. (Marijke) Pubben, PharmD  
*MMG Pubben Consultancy BV, Haarlem, the Netherlands*

### LECTURERS

Drs. R. (Riekert) Bruinink  
*Health Care Inspectorate (IGZ), Utrecht, the Netherlands*

Ir. J-M. (Jean-Michel) Guirado  
*Amgen BV, Breda, the Netherlands*

Drs. M.A. (Mirjam) te Koppele  
*Novartis Pharma BV, Arnhem, the Netherlands*

Drs. M. (Mieke) van der Meulen  
*Health Care Inspectorate (IGZ), Utrecht, the Netherlands*

D.M. (Dominique) Mudde  
*MSD, Haarlem, the Netherlands*

Dr. T.K. (Tesh) Patel  
*Astellas Pharma Europe Ltd., Staines, United Kingdom*

Drs. C.M. (Katja) van Rij  
*Clinical Pharmacy, UMC St Radboud, Nijmegen, the Netherlands*

Dr. P.A.T. (Pedro) Tetteroo  
*Tetteroo Coaching & Consulting, Oegstgeest, the Netherlands*

Drs. D. (Désirée) Vendrig  
*TEVA Pharmaceuticals, Haarlem, the Netherlands*

Drs. E. (Erik) van Wensveen  
*Mallinckrodt, Petten, the Netherlands*

### GENERAL INFORMATION

All the information on registration, cost and starting dates can be found on the page "General Information" and is also available on the website of [www.paofarmacie.nl](http://www.paofarmacie.nl) select course **Quality Management**

Netherlands Centre for Post-Academic Education in Pharmacy

Broederplein 39  
3703 CD Zeist  
[www.paofarmacie.nl](http://www.paofarmacie.nl)

T + 31(0)30-30 40 100  
F + 31(0)30 30 40 109  
E [info@paofarmacie.nl](mailto:info@paofarmacie.nl)





## Drug development from quality by design to clinical studies:

an integrated course for the pharmaceutical industry and hospital pharmacy



### PROGRAM MODULE 2

12 - 15 June 2017

Hotel Bergse Bossen, Driebergen, the Netherlands

#### MONDAY, 12 JUNE 2017

Theme: Drug substance, Regulatory requirements, GMP during development

- 10.00 Welcome and introduction  
*Ineke Jonker-Hoogerkamp and Jan-Jaap Scherpbier*
- 10.15 Introduction of the case study: antidepressant BODL 2000  
-The profile of BODL 2000; R& steps and R&D data  
-Registration of BODL 2000; role of RA department  
-The quality of the registration dossier for BODL 2000  
*Ineke Jonker-Hoogerkamp*
- 11.30 Medicinal chemistry: quality in lead finding and lead optimization  
*Jac Wijkmans*
- 12.30 Lunch
- 14.00 Quality requirements from process chemistry to large scale production  
*Jac Wijkmans*
- 15.15 The importance of Quality  
-Quality from a regulatory and GMP perspective  
-Legislation  
-ICH and regional guidelines  
*Jan-Jaap Scherpbier*
- 16.00 The Quality part of the registration dossier  
-The Common Technical Document(CTD)  
-Development and manufacture of Drug substance and Drug product  
-Clinical Trial Applications; quality requirements during development  
*Jan-Jaap Scherpbier*
- 17.00 GMP during development including process validation

*Ineke Jonker-Hoogerkamp and Jan-Jaap Scherpbier*

18.00 Dinner

#### TUESDAY, 13 JUNE 2017

Theme: Quality by Design in industry and hospital pharmacy, Drug product, GMP applied

- 09.00 Pharmaceutical formulations  
- The development of drug products  
- Quality management and cGMP in pharmaceutical development  
- Small scale production  
- From small scale to large scale  
*Erik Frijlink*
- 9.30 From R&D to production  
- Quality by Design  
- PAT and PCT in industry and hospital pharmacy  
*Erik Frijlink*
- 11.30 Total Quality Management obtained by Quality by Design  
- Real life examples in industry  
*Wim Oostra*
- 12.30 Lunch
- 13.30 Case study BODL 2000: GMP/Quality:  
- Changes and deviations during manufacturing of clinical supplies  
- Impurity profile drug substance Specifications and batch analysis data  
- Implementation of QBD aspects during development  
*Jan-Jaap Scherpbier, Ineke Jonker-Hoogerkamp and Erik Frijlink*

- 15.15 Group presentations  
Wrap up of the case study
- 17.00 Drug development in Dutch hospital pharmacies  
*to be announced*
- 18.00 Dinner

#### WEDNESDAY, 14 JUNE 2017

Theme: Non-clinical development, GLP applied, Personal skills

- 08.30 Objectives of the day, focus on GLP  
*Ineke Jonker-Hoogerkamp*
- 08.45 Introduction to GLP  
*Chris Mitchell*
- 09.00 Pharmacokinetics and pharmacodynamics (PK/PD) in industrial practice  
*Peter Vis*
- 10.30 Toxicology  
*Eric de Waal*
- 12.00 Lunch
- 13.00 Case study BODL 2000: GLP and nonclinical development program:  
- Action steps preparation and execution of a GLP compliant study  
- GLP in a multi-site study  
- Deficiencies for registration in the BODL 2000 nonclinical program  
*Ineke Jonker-Hoogerkamp and Chris Mitchell*
- 14.30 Group presentations  
Wrap up of the case study
- 15.30 Perspectives from the Dutch Inspectorate  
*Mieke van der Meulen*
- 16.15 Workshop personal skills required in drug development  
- Real life example: mix-up in a wallet  
- Role play by acting as company experts and authorities





## > An integrated course for the pharmaceutical industry and hospital pharmacy

- Experts: representative from R&D (and site) management, QP, Head of pharmaceutical development, clinical production and packaging, Head of clinical development and Head of quality control  
*Erik Frijlink and Mieke van der Meulen*

19.00 Dinner

### THURSDAY, 15 JUNE 2017

Theme: Clinical development, GCP applied

08.30 Objectives of the day, focus on GCP  
*Eveline Krijger and Lisette Vromans*

09.00 Clinical development Phase I  
- Principles, clinical study documents, requirements for a Phase I  
- Clinic, clinical pharmacology, types of Phase I studies  
*Leo de Leede*

10.00 Clinical development Phase II and III  
- Clinical development plan

- Regulatory requirements clinical trials  
 - Issues (design, submissions, conduct)  
 - Investigator initiated studies (including case study)  
*Petra Matthijsse*

12.15 Lunch

13.30 Reflection to the lectures and the case study

14.00 Case study BODL 2000: GCP and clinical development program  
- Possible deficiencies in the BODL 2000 clinical program  
- Outline for a clinical trial  
- Possible deficiencies in the informed consent  
- Audit report  
*Eveline Krijger and Lisette Vromans*

15.30 Group presentations  
Wrap up of the case study

16.00 Evaluation of the course and learned lessons  
*Jan-Jaap Scherpbier and Ineke Jonker-Hoogerkamp*

17.00 Close

## Faculty

### COURSE LEADERS

Dr. A. (Ineke) Jonker-Hoogerkamp  
*Eagle Pharma Consult, the Netherlands*

Drs. J.J. (Jan-Jaap) Scherpbier  
*Sonsbeek Pharma Consultancy BV and Garden State Pharmatech, the Netherlands*

### LECTURERS

Prof.dr. H.W. (Erik) Frijlink  
*Groningen University Institute for Drug Exploration (GUIDE), Dept. of Pharmaceutical Technology and Biopharmacy, the Netherlands*

Ir. E.M. (Evelien) Krijger  
*Merck, Sharp & Dohme, Oss, the Netherlands*

Dr. L.G.J. (Leo) de Leede  
*Exelion Bio-Pharmaceutical Consultancy BV, Waddinxveen, the Netherlands*

Drs. P.C. (Petra) Matthijsse  
*TFS Trial Form Support, Berghem, the Netherlands*

Dr. M. (Mieke) van der Meulen  
*Inspectie voor de Gezondheidszorg, Den Haag, the Netherlands*

C. (Chris) Mitchell, BSc  
*Charles River Laboratories, Den Bosch, the Netherlands*

W. (Wim) Oostra  
*Abbot Healthcare Products BV Weesp*

Drs. P. (Peter) Vis,  
*LAP&P Consultants, Leiden, the Netherlands*

Ing. E.W.M. (Lisette) Vromans  
*Zwiers Regulatory Consultancy BV, Oss, the Netherlands*

Dr. E.J. (Eric) de Waal  
*JanssenPharmaceutica N.V., Beerse, Belgium*

Dr. J. (Jac) Wijkmans  
*Griffin Discoveries, Amsterdam, the Netherlands*

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## Sterile manufacturing:

a thorough discussion on sterility assurance challenges



### PROGRAM MODULE 3

2 - 4 October 2017

Hotel Bergse Bossen, Driebergen, the Netherlands

#### MONDAY, 2 OCTOBER 2017

Theme: Microbiology and sterility: execution and control

- 09.30 Welcome and outline of the course  
*Jos Mathôt*
- 09.45 Biology of microorganisms  
Implications for pharmaceutical production and quality control  
*Speaker to be confirmed*
- 10.45 Sterile manufacturing: a philosophy on design and control  
*Jos Mathôt*
- 12.30 Lunch
- 13.30 Environmental monitoring:  
- which sterility risks to be recognized and how to mitigate  
- which methods are available?  
- what are the results, how to evaluate and to trend them  
- which actions to take in case of adverse results  
*Marco Rijnbeek*
- 15.00 Case study Environmental monitoring:  
*Marco Rijnbeek*
- 16.00 Sterilization methods: steam, dry heat Exercises for steam  
*Douwe Hoekstra*
- 17.30 Film: Parenteral production at MedImmune, Nijmegen  
*Marco Rutten*
- 18.00 Dinner
- 19.30 The gowning procedure  
*Marco Rutten*

#### TUESDAY, 3 OCTOBER 2017

Theme: Water systems and parenteral production

Sterility assurance in practice

- 08.30 Pharmaceutical water systems  
*Frank van Ede*
- 10.00 Environmental monitoring: water monitoring  
*Marco Rijnbeek*
- 11.00 Cleaning and disinfection  
*Marco Rijnbeek*
- 12.30 Lunch
- 13.30 Sterilization methods: Filtration and alternative methods  
*Douwe Hoekstra*

- 14.30 Case studies: Sterility Assurance in practice
  - selection of formulation and process
  - combination of production and QC activities
  - isolator application in unclassified environment
  - validation of visual inspection
  - environmental monitoring trend
  - start-up after power failure
  - HEPA filter failure
  - requirements for vial capping
  - Fungal contamination in clean room*Jos Mathôt*
- 16.00 Presentations of the case study results Evaluation
- 18.00 Dinner

#### WEDNESDAY, 4 OCTOBER 2017

Theme: Validation and qualification of processes and personnel

The role of the QP

- 09.00 Validation of aseptic processes
  - introduction
  - technologies
  - qualification
  - validation
  - case studies aseptic processing*Jos van der Lubbe*
- 11.30 Validation of analytical methods
  - introduction
  - validation
  - specifications*Jos van der Lubbe*
- 12.15 Operator Qualification
  - introduction
  - training
  - case studies analytical methods and operator qualification*Jos van der Lubbe*
- 13.00 Lunch
- 14.00 Workshop: the role of the QP in assuring the quality of sterile pharmaceuticals  
*René Maassen*
- 16.00 Evaluation of the course  
*Jos Mathôt*
- 16.30 Close



# PAOFarmacie

Netherlands Centre for Post Academic Education in Pharmacy

> *Sterile manufacturing:  
a thorough discussion on  
sterility assurance challenges*

## Faculty

### COURSE LEADER

Drs. J.H.A. (Jos) Mathôt  
*Mathôt Pharma Support, the Netherlands*

### LECTURERS

Ing. F.H. (Frank) van Ede  
*Pharma Engineering & Consulting (PEC), Drunen, the Netherlands*

Ir. D. (Douwe) Hoekstra  
*GE Healthcare BV, Eindhoven, the Netherlands*

M. (Marco) Rutten  
*MedImmune Pharma BV (Astra Zeneca), Nijmegen, the Netherlands*

Dr.ir. J.L.M. (Jos) van der Lubbe  
*Pharming Technologies BV, Leiden, the Netherlands*

Drs. R.H.L.M. (René) Maassen  
*Pharmaceutical Consultancy Services, PCS, Haastrecht, the Netherlands*

Ing. M. (Marco) Rijnbeek  
*PROXY Laboratories BV, Dept. MicroSafe Laboratories, Leiden, the Netherlands*

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F + 31(0)30 30 40 109  
E [info@paofarmacie.nl](mailto:info@paofarmacie.nl)



# Quality and safety for the manufacturing of biopharmaceuticals:

from cell line development to downstream processing and formulation



## PROGRAM MODULE 4

20 - 22 November 2017

Hotel Bergse Bossen, Driebergen, the Netherlands

### MONDAY, 20 NOVEMBER 2017

Theme: Cell line development, upstream and downstream

- 09.30 Welcome  
*Aad van de Leur*
- 09.45 Introduction to biotechnology: applications and elements of the biotechnological production process, quality and regulatory aspects  
*Aad van de Leur*
- 11.00 Upstream process development for biopharmaceutical products: different expression systems and unit operations  
*Jurgen van de Langemaat*
- 12.30 Lunch
- 13.30 Cell line development and cell bank preparation  
Theory and case study  
- Genetics: gene of interest; description of the starting strain(s) or cell line(s); preparation and description of the product strain or cell line; genetic stability during storage of cell bank and during production.  
- Cell Bank system: preparation and description of the Master Cell Bank (MCB); testing / in-process controls; protocol for preparation of subsequent Working Cell Bank (WCB).  
*Nienke Vriezen*
- 17.00 Purification survey of unit operations and process integration  
*Marcel Ottens*
- 18.30 Dinner

### TUESDAY, 21 NOVEMBER 2017

Theme: The practice

- 09.00 Design of an industrial process for purification of biologicals  
*Michel Eppink*
- 10.15 Development, tech transfer and commercial production of monoclonal antibodies: theory and case studies  
- the use of platform technology

- 12.30 Lunch
- 13.30 Continuation of the theory  
- critical quality attributes and critical process parameters  
- spec setting and the consequences for routine manufacturing
- 14.15 Case study 1
- 15.00 - technology transfer and process validation  
- pre-approval inspections  
- Process Fit to Plant
- 16.00 Case study 2
- 16.45 - changes, deviations and CAPAs in manufacturing  
- Process Excellence for continuous cost reduction  
*Marit Heblij and Martijn Wapenaar*
- 18.00 Pathogen safety  
*Olaf Stamm*
- 19.30 Dinner

### WEDNESDAY, 22 NOVEMBER 2017

Theme: Quality issues

- 09.00 Protein analytics of biopharmaceuticals: relevant assays and their principles  
*Peter Verhaert*
- 10.00 Critical attributes and comparability studies  
*Corne Stroop*
- 11.15 Specific quality issues around ATMPs  
*Anna de Goede*
- 12.15 Lunch
- 14.00 Biosimilars  
*Claartje Jonker-Exler*
- 15.15 Immunogenicity and formulation of biopharmaceuticals  
*Vera Brinks*
- 16.15 Evaluation of the course  
*Aad van de Leur*
- 16.30 Close





> From cell line development  
to downstream processing  
and formulation

## Faculty

### COURSE LEADER

Drs. A.C.A.J. (Aad) van de Leur  
*Synthon Biopharmaceuticals BV, Nijmegen, the Netherlands*

### LECTURERS

Dr. V. (Vera) Brinks  
*Dept. Biopharmacy and Pharmaceutical Technology,  
Utrecht University, the Netherlands*

Dr. M.H.M. (Michel) Eppink  
*Synthon Biopharmaceuticals BV, Nijmegen, the Netherlands*

Dr. A. (Anna) de Goede  
*Radboud UMC, Nijmegen, the Netherlands*

D.M. van der Graaf-Harris, M.Biotech, PhD  
*Janssen Biologics BV, Leiden, the Netherlands*

M. (Marit) Heblj  
*Janssen Biologics BV, Leiden, the Netherlands*

Drs. C. (Claartje) Jonker-Exler  
*Erasmus MC, Rotterdam, the Netherlands*

J. (Jurgen) van de Langemaat  
*Merck, Sharp & Dohme BV, Oss, the Netherlands*

Dr.ir. M. (Marcel) Ottens  
*Delft University of Technology, Dept. of Biotechnology, the Netherlands*

Dr. O. (Olaf) Stamm  
*Charles River Biopharmaceutical Services GmbH, Erkrath, Germany*

Dr. C.J.M. (Corné) Stroop  
*Merck, Sharp & Dohme BV, Oss, the Netherlands*

Prof.dr. P.D.E.M. (Peter) Verhaert  
*Delft University of Technology, Dept. of Biotechnology,  
the Netherlands*

Dr. N. (Nienke) Vriezen  
*Synthon Biopharmaceuticals BV, Nijmegen, the Netherlands*

M. (Martijn) Wapenaar  
*Janssen Biologics BV, Leiden, the Netherlands*

### GENERAL INFORMATION

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# Committee and board

## PROGRAM-/EXAMINATION COMMITTEE

Prof.dr. W. (Wim) Jiskoot (chairman)  
*Leiden/Amsterdam Centre for Drug Research (LACDR), Leiden, the Netherlands*

Dr. ir. J.L.M. (Jos) van der Lubbe (vice chairman)  
*Pharming Technologies BV, Leiden, the Netherlands*

Drs. J.H.W. (Jan Henk) Brinkman  
*Xendo, Leiden, the Netherlands*

Prof.dr. H.W. (Erik) Frijlink  
*Groningen University Institute for Drug Exploration (GUIDE), Dept. of Pharmaceutical Technology and Biopharmacy, Groningen, the Netherlands*

Dr. I. (Ineke) Jonker - Hoogerkamp  
*Eagle Pharma Consult, Voorst, the Netherlands*

Dr. L.G.J. (Leo) de Leede  
*Exelion Bio-Pharmaceutical Consultancy BV, Waddinxveen, the Netherlands*

Drs. A.C.A.J. (Aad) van de Leur  
*Synthon Biopharmaceuticals BV, Nijmegen, the Netherlands*

Drs. J. (Jos) Mathôt  
*Mathôt Pharma Support, the Netherlands*

Dr. R. (Ruud) Santing  
*Sinensis Life Sciences BV, Leiden, the Netherlands*

Drs. J.J. (Jan-Jaap) Scherpbier  
*Sonsbeek Pharma Consultancy BV, Arnhem, the Netherlands*

Prof. dr. P.D.E.M. (Peter) Verhaert  
*Delft University of Technology, Dept. of Biotechnology, Delft, the Netherlands*

## SCIENTIFIC ADVISORY BOARD Honorary Members

Prof. dr. D.D. (Douwe) Breimer  
*Formerly Rector Magnificus, Leiden University, the Netherlands*

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## SCIENTIFIC ADVISORY BOARD Members

Prof. dr. H.J. (Henk) de Jong (chairman)  
*Formerly: Leiden University, the Netherlands, Servier R&D, Courbevoie, France, and European Pharmacopoeia, Strasbourg, France*

J. (Jan) Broersen  
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Dr. P.H.H. (Paul) Le Brun  
*Apotheek Haagse Ziekenhuizen, Den Haag, the Netherlands*

Dr. N. (Nettie) Buitelaar, MBA  
*BioSana Pharma BV, Haarlem, the Netherlands*

Prof.dr. M. (Meindert) Danhof  
*Leiden/Amsterdam Center for Drug Research (LACDR), Leiden University, the Netherlands*

Drs. P.M.J.M. (Peter) Jongen,  
*CBG-MEB, Utrecht, the Netherlands*

Drs. E. (Erik) Ligtenberg  
*Abbott Healthcare Products BV, Weesp, the Netherlands*

Drs. M.M. (Mieke) van der Meulen  
*Health Care Inspectorate (IGZ), Den Haag, the Netherlands*

Drs. M.G.A.M. (Marcel) Moester  
*Leidschendam, the Netherlands*

Drs. M.M.G. (Marijke) Pubben  
*MMG Pubben Consulting BV, Haarlem, the Netherlands*

Dr. A. (Annie) Rietveld  
*Health Care Inspectorate (IGZ), Utrecht, the Netherlands*

Dr. T. (Tom) Sam  
*the Netherlands*

Drs. T. (Tjitske) Veenbaas  
*Apotheek Albert Schweitzerziekenhuis, Dordrecht, the Netherlands*

Prof. dr. H. (Herman) Vromans  
*Utrecht University, Pharmaceutical Sciences, Utrecht, the Netherlands*

Dr. J. (Joost) van Zutven  
*MSD, Oss, the Netherlands*

# PAOFarmacie offers Post-Academic Education in Pharmacy



CHIEF EXECUTIVE OFFICER Sharon Schouten-Tjin A Tsoi, Pharm D  
Netherlands Centre for Post-Academic Education in Pharmacy

## PARTNERSHIP

The Netherlands Centre for Post-Academic Education in Pharmacy (PAOFarmacie) is a professional partnership between Pharmaceutical Sciences at Utrecht University (UU), the faculty of Medical Sciences of the University of Groningen (RuG), the Royal Dutch Pharmacists Association (KNMP), the Association of Dutch industrial Pharmacists (NIA) and the Dutch Association of Hospital Pharmacists (NVZA). The Board and Scientific Board of PAOFarmacie are formed by representatives of this professional partnership.

## BOARD

Representatives of state universities and pharmaceutical associations form the board of PAOFarmacie. The board is responsible for policy, finance and personnel.

Prof. dr. A. (Ton) de Boer chairman  
Prof. dr. B. (Bob) Wilffert secretary  
Drs. Ch.F. (Charles) GUSDORF chairman of finance  
Dr. C. (Christien) Oussoren board member  
Drs. R. (Mariette) Dessing board member  
Dr. F.G.A. (Frank) Jansman board member  
Prof. dr. H.J. (Henk Jan) Guchelaar boardmember

## THE ISO STANDARD

PAOFarmacie is certified to the ISO standard since 2009





## General information

**Module 1** Quality Management, the role of the Qualified Person  
6 - 8 March 2017

**Module 2** Drug development from Quality by Design to clinical studies: an integrated course for the pharmaceutical industry and hospital pharmacy  
12 - 15 June 2017

**Module 3** Sterile manufacturing: a thorough discussion on sterility assurance challenges  
2 - 4 October 2017

**Module 4** Quality and safety for the manufacturing of biopharmaceuticals: from cell line development to downstream processing and formulation  
20 - 22 November 2017

### AIM

The course offers an integrated approach on quality management in the pharmaceutical, biotechnological, medical device industries and hospitals to safeguard the quality of their products. Expert knowledge and real life case studies are combined and presented and coached by professionals from Industry, Universities and Health Care Inspectorates. The training is interactive.

### TARGET GROUPS

- Professionals in pharmaceutical, biotechnological and medical device industries
- Professionals in institutions and Contract Research Organisations (CRO's)
- Hospital pharmacists
- Postgraduate students

For (young) professionals in Research and Development, Production, Packaging, Quality Control and Quality Assurance or Regulatory Affairs, who are dealing with the complexity of quality systems, it is important to have an overview of these systems in order to improve quality management in their own environment.

### CERTIFICATES & DIPLOMA

You can select individual course modules best suited to complement your education or experience. After attending a module, you will receive a certificate for attendance. In addition, the participants are offered the possibility to complete the modules through an examination. The examination sessions will be scheduled twice per year. In combination with a university degree in e.g. pharmacy, biology, chemistry or engineering, and with industrial experience, successful completion of the modules of the training course forms a good starting point to apply for Qualified Person (QP) status.

### ACCREDITATION

For hospital pharmacists in the Netherlands: accreditation-hours are requested for each course module attended.

### ORGANISATION

The training course is organized by Netherlands Centre for Post-Academic Education in Pharmacy: [www.paofarmacie.nl](http://www.paofarmacie.nl)  
In close collaboration with:

- Leiden/Amsterdam Center for Drug Research (LACDR): [www.lacdr.nl](http://www.lacdr.nl)
- Groningen University Institute for Drug Exploration (GUIDE): [www.rug.nl/guide](http://www.rug.nl/guide)
- Biotechnology Studies Delft Leiden (BSDL): [www.bsdl-edu.bt.tudelft.nl](http://www.bsdl-edu.bt.tudelft.nl)
- Top Institute Pharma: [www.tipharma.com](http://www.tipharma.com)
- European Federation of Pharmaceutical Sciences (EUFEPS): [www.eufeps.org](http://www.eufeps.org)
- International Pharmaceutical Federation (FIP): [www.industrialpharmacy.org](http://www.industrialpharmacy.org)

### WHERE?

All modules are organized in :  
Hotel Bergse Bossen, Driebergen, the Netherlands  
Traaij 299  
3971 GM DRIEBERGEN  
T +31 (0)343 528150  
E [info@bergsebossen.nl](mailto:info@bergsebossen.nl)  
[www.bergsebossen.nl](http://www.bergsebossen.nl)

### STANDARD COURSE FEE

The standard fee of Module 1, 3 and 4 is € 1700,00 excl. 21% VAT.  
The standard fee of Module 2 is € 2100,00 excl. 21% VAT.  
The fee includes hotel accomodation, course notes, drinks, lunches and dinners. In the event of cancellation we refer to the general terms of condition of PAOFarmacie ([www.paofarmacie.nl](http://www.paofarmacie.nl)).

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Upon subscription by the same person for the modules 1, 2, 3 and 4, the total fee is € 5760,00 excl. 21% VAT.  
For PhD-students and and PDeng-trainees a limited number of fellowships (25% of the standard fee) is available.  
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### REGISTRATION

For registration, please submit your application on-line via [www.paofarmacie.nl](http://www.paofarmacie.nl) select course Quality Management

### INFORMATION

PAOFarmacie, Zeist, the Netherlands  
T: +31 (0)30 3040100  
E: [info@paofarmacie.nl](mailto:info@paofarmacie.nl)  
[www.paofarmacie.nl](http://www.paofarmacie.nl)

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