

qPCR 2009 Event Agenda

online agenda => <http://online-agenda.qPCR2009.net/>

	Lecture hall 14 (HS 14)	Lecture hall 15 (HS 15)	Student Cafeteria	Foyer & Seminar rooms S1 & S2
Sunday 8 th March 2009				13:00 – 18:00 Industrial Exhibition Built up
				15:00 – 18:00 Arrival & Registration
Monday 9 th March 2009	10:00 – 10:30 Welcome & Opening of the qPCR 2009 Symposium <i>Welcome by Michael W. Pfaffl & Wolfgang A. Herrmann President TUM</i>		9:00 – 12:00 Poster Setup	8:00 – 10:00 Arrival & Registration
	10:30 – 12:30 Diagnostic & Molecular Markers Session (1)		10:00 – 15:00 Poster Session	10:00 – 22:00 Industrial Exhibition
	12:30 – 13:30 Lunch			
	13:30 – 16:00 Diagnostic & Molecular Markers Session (2)	13:00 – 16:00 High Resolution Melting & Genotyping Session	10:00 – 15:00 Poster Session	
	16:30 – 18:00 Nobel Prize Laureate Lecture by K. Mullis: 25th Anniversary of PCR			
	18:00 – 22:00 Get Together Party in the Foyer / Industrial Exhibition			
Tuesday 10 th March 2009	8:30 – 12:30 Diagnostic & Molecular Markers Session (3)	8:30 – 12:30 RNAi: microRNA – siRNA Applications	10:00 – 15:00 Poster Session	8:30 – 19:00 Industrial Exhibition
	12:30 – 13:30 Lunch			
	13:30 – 18:30 Diagnostics & Molecular Markers in agricultural and veterinary Science	13:30 – 16:00 Single Cells Session 16:30 – 18:30 TUTORIALS in Biostatistics & Bioinformatics	10:00 – 15:00 Poster Session	8:30 – 19:00 Industrial Exhibition
19:00 – 24:00 Symposium Gala Dinner Location: Lindenkeller, Pasta & More, Freising International Buffet, Asian Buffet, Music & Dancing				
Wednesday 11 th March 2009	8:30 – 12:30 High Throughput Session	8:30 – 12:30 qPCR NOS Session (1)	10:00 – 13:00 Poster Session	8:30 – 17:30 Industrial Exhibition
	12:30 – 13:30 Lunch			
	13:30 – 17:30 Biostatistics & Bioinformatics	13:30 – 17:00 qPCR NOS Session (2)	13:00 – 15:00 Poster Take Down	
	17:30 Closing of the Symposium Heinrich HD. Meyer & Michael W. Pfaffl			

Agenda qPCR 2009 Event

Sunday 8th March 2009

- 13:00 – 18:00 Built-up for Industrial Exhibition
15:00 – 18:00 Arrival & Registration

Monday 9th March 2009

Welcome & Opening of the Symposium Lecture hall HS 14

- 08:00 – 10:00 Built-up for Industrial Exhibition
08:00 – 10:00 Arrival & Registration
09:00 – 10:00 **Welcome Coffee & Tea**
10:00 **Welcome & Opening of the Symposium.**
Michael W. Pfaffl
Scientific coordination of the qPCR 2009 Symposium
10:15 **Welcome at the Center of Food & Life Science in Freising Weihenstephan.**
Prof. Wolfgang A. Herrmann
President TUM, Germany

HOT TOPIC - KEYNOTE LECTURE

- 10:30 **MIQE- guidelines for publication of qPCR data**
Stephen A Bustin¹, Vladimir Benes², Jeremy A Garson³, Jan Helleman⁴, Jim Huggett³, Mikael Kubista⁵, Reinhold Mueller⁶, Tania Nolan⁷, Michael W Pfaffl⁸, Gregory L Shipley⁹, Jo Vandesompele⁴ and Carl T Wittwer¹⁰
¹Barts and the London School of Medicine, UK; ²Genomics Core Facility, EMBL Heidelberg, Germany; ³University College London, UK and UCL Hospitals NHS Foundation Trust, UK; ⁴Ghent University Hospital, Belgium; ⁵Institute of Biotechnology AS CR, Czech Republic and TATAA Biocenter, Sweden; ⁶Sequenom, USA; ⁷Sigma-Aldrich, UK; ⁸Technical University Munich, Germany; ⁹University of Texas Health Science Centre, USA; ¹⁰University of Utah USA and ARUP Institute for Clinical and Experimental Pathology, USA; s.a.bustin@qmul.ac.uk

Session Diagnostic & Molecular Markers (1)
Chair J. Huggett & MW. Pfaffl
Lecture hall HS 14

Session sponsored by:



- 11:00 **A Multi-Assay Approach to the Study of Cellular Toxicity**
Gregory L Shipley
UTHSC-Houston, United States of America;
gregory.l.shipley@uth.tmc.edu

- 11:30 **Circulating nucleic acids in melanoma diagnosis**
Pamela Pinzani¹, Francesca Salvianti¹, Roberta Cascella¹, Vincenzo De Giorgi², Daniela Massi³, Mario Pazzagli¹ and Claudio Orlando¹
¹Department of Clinical Physiopathology, University of Florence, Florence, Italy; ²Department of Dermatological Sciences, University of Florence, Florence, Italy; ³Department of Human Pathology and Oncology, University of Florence, Florence, Italy;
p.pinzani@dfc.unifi.it

- 12:00 **Prognostic multigene expression classification of cancer patients: a route for success**
Joëlle Vermeulen¹, Katleen De Preter¹, Filip Pattyn¹, Liesbeth Vercruyssen¹, Nurten Yigit¹, Jan Helleman², Frank Speleman¹ and Jo Vandesompele²
¹Center for Medical Genetics, Ghent University Hospital, Belgium; ²Ghent University, Belgium - Biogazelle, Belgium; joke.vandesompele@ugent.be

12:30 – 13:30 **Lunch in the student cafeteria**

Session Diagnostic & Molecular Markers
Session part 2
Chair S. Bustin & G. Shipley
Lecture hall HS 14

- 13:30 **A Novel Multiplex, Quantitative Gene Expression Approach for Cancer Biomarker Research**
Jim Thorn
Beckman Coulter UK, UK; JTHORN@beckman.com

- 14:00 **The use of nucleic acid amplification tests for research and diagnosis in the developing world.**
Jim Francis Huggett¹, Clare Green¹, Michael Hoelscher² and Alimuddin Zumia¹
¹Centre for Infectious Diseases and International Health, University College London, UK; ²Department of Infectious Diseases and Tropical Medicine, Klinikum of the University of Munich, Germany; j.huggett@ucl.ac.uk

- 14:30 **Effective placement of LNA into Q-PCR Probes**
Raymond Peterson
Celadon Laboratories, United States of America;
acollins@celadonlabs.com

- 15:00 **Expression signatures in IBD classification: A new approach**
Petra von Stein
InDex Pharmaceuticals AB, Sweden;
petra.stein@indexdiag.com

- 15:30 **Intragraft expression profiles by quantitative PCR in kidney transplant patients reflect variability in the response to anti-rejection treatment with corticosteroids**
Niels Rekers¹, Ingeborg Bajema², Kim Zuidwijk³, Marko Mallat³, Natascha Goemaere⁴, Marian van Groningen², Cees van Kooten³, Hans de Fijter³, Frans Claas¹ and Michael Eikmans¹
¹Department of Immunohematology and Bloodtransfusion, ²Department of Pathology, ³Department of Nephrology, Leiden University Medical Center, The Netherlands; ⁴St. Pathan, Rotterdam, The Netherlands; n.v.rekers@lumc.nl

16:00 – 16:30 **Coffee break**

Session Nobel Prize Laureate Lecture
Chair R. Cook & MW. Pfaffl
Lecture hall HS 14 16:30 – 18:00

**Nobel Prize Laureate Kary Mullis:
25th Anniversary of PCR**

Session sponsored by:



18:00 – 22:00 **Get Together Party**

Session High Resolution Melting & Genotyping
Chair J. Hellemans & A. Stahlberg
Lecture hall HS 15

- 13:00 **Applications of HRM curve analysis: strengths and pitfalls.**
 Kim De Leeneer, Ilse Coene, Bruce Poppe, Anne De Paepe and Kathleen Claes
 CMGG, Belgium; kim.deleeneer@Ugent.be
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- 13:30 **Using Melt Curve Analyses for Experimental Inquiry**
 Madeline O'Donoghue, Junko Stephens, Nathalie Koch, Jonathan Wang, Gordon Janaway, Laurel Nelson
 Applied Biosystems – part of Life Technologies, Foster City, CA madeline.odonoghue@appliedbiosystems.com
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- 14:00 **Probe Based Detection of Genetic Variations - Screening and in-vitro Diagnostics**
 Olfert Landt
 TIB Molbiol GmbH, Germany; olandt@tib-molbiol.de
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- 14:30 **Releasing the potential of High Resolution Melting analysis**
 Rob Powell
 PrimerDesign Ltd, United Kingdom;
rob@primerdesign.co.uk
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- 15:00 **Simultaneous Determination of SNP Genotype and Allelic Copy Number of DME Gene CYP2D6**
 Adam Broomer, Toni Ceccardi, Kelly Li, Yu Wang, Chunlin Xiao and Caifu Chen
 Life Technologies, United States of America;
chencx@appliedbiosystems.com
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- 15:30 **Haematopoietic Chimerism Analysis after Allogeneic Stem Cell Transplantation.**
 Rosalind Ganderton¹, Kate Parratt², Deborah Richardson², Kim Orchard² and Elizabeth Hodges¹
¹Department of Molecular Pathology, Southampton University Hospitals NHS Trust, Southampton, United Kingdom; ²Department of Haematology, Southampton University Hospitals NHS Trust, Southampton, United Kingdom; rhg@soton.ac.uk
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- 16:00 – 16:30 **Coffee break**

Session Nobel Prize Laureate Lecture
Chair R. Cook & MW. Pfaffl
Lecture hall HS 14 16:30 – 18:00

**Nobel Prize Laureate Kary Mullis:
 25th Anniversary of PCR**

Session sponsored by:



18:00 – 22:00 **Get Together Party**
 in the Foyer / Industrial Exhibition



Tuesday 10th March 2009

Session Diagnostic & Molecular Markers (3)
Chair U. Reischl & H. Nitschko
Lecture hall HS 14

Session sponsored by:

PrimerDesign
 Real-time PCR solutions

- 8:30 **Current applications of real-time PCR technology in diagnostic bacteriology**
 Udo Reischl
 University Hospital of Regensburg, Germany;
udo.reischl@klinik.uni-regensburg.de
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- 9:00 **Real-time PCR Applications in the diagnostic of highly pathogenic viruses**
 Andreas Nitsche
 Robert Koch Institute, Germany; nitschea@rki.de
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- 9:25 **Multiplex-PCR in clinical virology - benefits and limitations**
 Hans Nitschko, Helga Mairhofer and Anna-Lena Winkler
 Max von Pettenkofer-Institute, Germany;
nitschko@mvp.uni-muenchen.de
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- 9:50 **Realtime PCR of bioterrorism agents**
 Dimitrios Frangoulidis and Hermann Meyer
 Bundeswehr, Germany;
DimitriosFrangoulidis@Bundeswehr.org
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- 10:15 – 10:45 **Coffee break**
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- 10:45 **Trans-renal DNA for infectious disease diagnosis**
 Clare Green, Jim Huggett and Alimuddin Zumla
 Centre for Infectious Diseases & International Health,
 University College London, United Kingdom;
clare.green@ucl.ac.uk
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- 11:10 **New probes, same procedure - Improved results.**
 Remove the false negatives and positives.
 Ulf Bech Christensen
 PentaBase, Denmark; ubc@pentabase.com
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- 11:35 **The use of DNA/RNA chimeric primers in qPCR for microbial detection and quantification**
 Ofer Peleg¹, Gad Baneth², Osnat Eyal², Jakob Inbar¹ and Shimon Harrus²
¹Genaphora Ltd, Israel; ²Koret School of Veterinary Medicine, The Hebrew University of Jerusalem;
ofer.peleg@gmail.com
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- 12:00 **Prevalence and viral load of oncogenic Human Papillomavirus types associated with cervical carcinoma in a population of North Italy**
 Francesco Broccolo
 University of Milan-Bicocca, Italy;
francesco.broccolo@unimib.it
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- 12:30 – 13:30 **Lunch in the student cafeteria**

Tuesday 10th March 2009

Session **Diagnostics & Molecular Markers
in agricultural & veterinary Science**
Chair **HHD. Meyer & U. Busch**
Lecture hall **HS 14**

13:00 **Rapid detection and differentiation of *Campylobacter jejuni*, *C. coli* and *C. lari* in food samples using a quadruplex real-time PCR assay**
Anja Mayr¹, Johann Bauer², Diana Thüringen¹, Ulrich Busch¹ and Ingrid Huber¹
¹Bavarian Health and Food Safety Authority, Germany;
²Institute of Animal Hygiene, TUM;
Ingrid.Huber@lgl.bayern.de

13:25 **The use of transcriptomics for biomarker development to trace anabolic hormone functions.**
Irmgard Riedmaier, Christiane Becker, Michael W Pfaffl and Heinrich HD Meyer
Technical University Munich, Germany;
irmgard.riedmaier@wzw.tum.de

13:50 **Development of a highly sensitive and specific assay to detect *Staphylococcus aureus* in bovine mastitic milk**
Hans Ulrich Graber
University of Bern, Switzerland;
hans.graber@knp.unibe.ch

14:15 **Development of a real-time PCR Method for Detection and Quantification of the Fungal Biocontrol Agent *Trichoderma atroviride* SC1 in Soil**
Federica Savazzini¹, Claudia Longa² and Ilaria Pertot²
¹CNR, Istituto di Biologia e Biotecnologia Agraria, Via E. Bassini 15, 20133 Milano, Italy; ²FEM-IASMA, Department of Plant Protection, Via Mach 1, 38010, San Michele all'Adige, TN, Italy; savazzinif@yahoo.com

14:40 **Temperature influence on expression of selected genes in *Mycobacterium avium* subsp. paratuberculosis in milk environment**
Radka Pribylova, Kralik Petr, Michal Slany and Ivo Pavlik
Veterinary Research Institute, Czech Republic;
slany@vri.cz

15:05 **Applying Real-time PCR to Determine Co-dominant Genotypes of Dominant SCAR Markers in Common Bean**
George J Vandemark¹, Phillip N Miklas¹, Deidre Fourie² and Richard Larsen¹
¹USDA ARS, United States of America; ²ARC Grain Crops Institute, Potchefstroom, South Africa;
george.vandemark@ars.usda.gov

15:30 – 16:00 **Coffee break**

16:00 **Comparison of AOE activities and expression levels in the kidney during the development of hypertension in SHR**
S Arunkumar¹, SK Lee¹, KNS Sirajudeen² and HJ Singh³
¹Department of Physiology, School of Medical Sciences, University Science Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.; ²Department of Chemical Pathology, School of Medical Sciences, University Science Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.; ³Faculty of Medicine, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia.; vsbarun@yahoo.com

16:25 **A quantitative real-time PCR assay for *Ehrlichia ruminantium* using pCS20**
Helena Steyn
ARC-Onderstepoort Veterinary Institute, South Africa;
steynh@arc.agric.za

16:50 **Relative gene expression of acid-inducible genes in acid-adapted *Escherichia coli* O157:H7 during lactoperoxidase and lactic acid challenge**
ANGELA PARRY-HANSON¹, PIET JOOSTE² and ELNA BUYS¹
¹UNIVERSITY OF PRETORIA, South Africa;
²TSHWANE UNIVERSITY OF TECHNOLOGY, South Africa; angiep@tuks.co.za

17:15 **A QUANTITATIVE PCR TECHNIQUE FOR EVALUATION OF ARSENIC MOBILITY IN HEAVY METAL CONTAMINATED SAMPLES**
Elena A. Polishchuk, Jie Chen, Vivian Lai and William R. Cullen
University of British Columbia, Canada;
elena@chem.ubc.ca

17:40 **Use of real-time PCR for detection of bovine herpesvirus-1 in cattle and buffalo frozen semen**
Samir Kumar Rana¹, Srinivasan Alwar Villuppanoor², Sri Naga Leela Surendra Kota², Sriraman Rajan² and Penchala Narasimha Rao Samyam²
¹National Dairy Development Board, C/O Indian Immunologicals Ltd., Gachibowli, Hyderabad 500 032, India; ²Indian Immunologicals Ltd., Gachibowli, Hyderabad 500 032, India; skrana@indimmune.com

18:05 **Viability of *Mycobacterium avium* subsp. Paratuberculosis as measured by PMA-F57 real time qPCR**
Petr Kralik and Ivo Pavlik
Veterinary Research Institute, Czech Republic;
kralik@vri.cz

19:00 – 24:00 **Symposium Gala Dinner**

Location: Lindenkeller Pasta & More, Freising
International Buffet, Asian Buffet, Music and Dancing



Pasta & more

Tuesday 10th March 2009

Session **RNAi: microRNA – siRNA Applications**
Chair **M. Castoldi & MW. Pfaffl**
Lecture hall **HS 15**

Session sponsored by.

IMG M[®]
LABORATORIES

8:30 **miQPCR: A novel approach for expression profiling of mature microRNAs.**
Mirco Castoldi
EMBL, Germany; castoldi@embl.de

9:00 **An inflammatory microRNA signature in muscle cells - a comparative study of cellular models and technological platforms.**
Swanhild Meyer², Carola Wagner³, Michael W Pfaffl² and Christian Thirion^{1,4}
¹SIRION BIOTECH, Martinsried, Germany; ²Lehrstuhl für Physiologie, TUM München, Freising-Weihenstephan, Germany; ³IMG M Laboratories, Martinsried, Germany; ⁴Laboratory for molecular Myology, Friedrich-Baur-Institute, Department of neurology LMU Munich, Munich, Germany; Thirion@sirion-biotech.de

9:25 **Discovery and Validation of Novel Human MicroRNA Genes by SOLiD(TM) and TaqMan®**
 Jason H. Halsey
 Life Technologies / Applied Biosystems, United States of America; halseyjh@appliedbiosystems.com

9:50 **mRNA & microRNA integrity - the key to success**
 Michael W Pfaffl, Christiane Becker, Andrea Hammerle-Fickinger and Irmgard Riedmaier
 TUM, Physiology, Weihenstephan, Germany;
michael.pfaffl@wzw.tum.de

10:15 **microRNAs - developing new tools for diagnostics - Join forces with IMG M Laboratories to make your miRNA project a success**
 Carola Wagner
 IMG M Laboratories GmbH, Martinsried, Germany;
carola.wagner@imgm.com

10:40 – 11:00 **Coffee break**

11:00 **A novel and universal method for microRNA RT-qPCR data normalization**
 Pieter Mestdagh¹, Pieter Van Vlierberghe¹, An De Weer¹, Frank Speleman¹ and Jo Vandesompele²
¹Center for Medical Genetics, Ghent University Hospital, Belgium; ²Ghent University, Belgium - Biogazelle, Belgium; joke.vandesompele@ugent.be

11:25 **Highly sensitive and specific LNA™-enhanced real-time PCR for microRNA expression analysis**
 Ditte Andreasen, Nana Jacobsen, Liselotte Kahns, Kim Bundvig Barken, Rolf Søkilde and Peter Mouritzen
 Exiqon, Denmark; dia@exiqon.com

11:50 **Quantification and Functional Analysis of miRNA in Mammalian Cells**
 Martin Kreutz
 QIAGEN GmbH, Germany; martin.kreutz@qiagen.com

12:15 **A Novel Simple and Inexpensive Assay for MicroRNAs Detection**
 Irit Reichenstein, Zvi Bentwich and Yonat Shemer Avni
 Ben-Gurion University of the Negev, Israel;
iritreic@bgu.ac.il

12:40 – 13:30 **Lunch in the student cafeteria**

Session Single-cell qPCR
Chair B. Liss & A. Stahlberg
Lecture hall HS 15

Session sponsored by:



13:30 **RT-qPCR of individual dopamine neurons from mouse brains and human post mortem brain sections.**
 Birgit Liss
 Molecular Neurophysiology, Institute for General Physiology, University of Ulm, Albert Einstein Allee 11, 89081 Ulm, Germany.; birgit.liss@uni-ulm.de

14:00 **Technical aspects of mRNA quantification in single cells using RT-qPCR**
 Anders Ståhlberg
 Gothenburg University, Sweden;
anders.stahlberg@neuro.gu.se

14:25 **AmpliGrid and AmpliHyb, a new miniaturized, multiplex qPCR system for single cell analysis**
 Gordana Cerovic², Marianna Alunni¹, Angélique le Bras², Régis Melizzi², Jean-Luc Grabias², Maxime Rattier², Martin Kanteleher¹, Petra Hartmann¹, Wolfgang Mann¹ and Claude Weisbuch²
¹Olympus Life Science Research Europa, Germany;
²Genewave, Palaiseau (France)
gordana.cerovic@genewave.com

14:50 **Post-characterization of cultured pituitary cells using single-cell real-time RT-PCR**
 Kjetil Hodne, Trude M Haug, Olav Sand and Finn-Arne Weltzien
 Dept of Molecular Biosciences, University of Oslo, Norway; kjetil.hodne@imbv.uio.no

15:15 **Molecular characterization of circulating tumor cells in large quantities of contaminating leukocytes by a multiplex real-time PCR**
 ANIETA M SIEUWERTS¹, JACO KRAAN², JOAN BOLT-DE VRIES¹, PETRA VAN DER SPOEL², BIANCA MOSTERT², JOHN W MARTENS¹, JAN W GRATAMA², STEFAN SLEIJFER² and JOHN A FOEKENS¹
¹Department of Medical Oncology, Josephine Nefkens Institute and Cancer Genomics Centre, ERASMUS MC, Netherlands, The; ²Department of Medical Oncology, Daniel den Hoed Cancer Center, ERASMUS MC, Netherlands, The; a.sieuwerts@erasmusmc.nl

15:40 **Visualization of Single mRNA Molecules**
 Fay Wang¹, John Flanagan¹, Yunqing Ma², Steve Lai², Takuro Yaoi², Son Bui², Li-chong Wang¹, Jennifer Wong¹, Nan Su¹, Jessie Wu², Nina Nguyen², Aiguo Zhang², Steve Chen¹, Frank Witney², Quan Nguyen² and Yuling Luo¹
¹Advanced Cell Diagnostics, Inc., United States of America; ²Affymetrix/Panomics, Inc., United States of America; yluo@acdbio.com

16:05 – 16:30 **Coffee break**

Session Tutorials in qPCR BioStatistics & Bioinformatics
Chair J. Vandesompele & A. Forootan
Lecture hall HS 15

16:30 **Easy analysis of qPCR data with state of the art quantification models and comprehensive quality controls using qBasePlus.**
 Jan Hellemans^{1,2}, Stefaan Derveaux¹ and Jo Vandesompele^{1,2}
¹Center for Medical Genetics, Ghent University, Belgium;
²Biogazelle, Belgium; Jan.Hellemans@UGent.be

17:00 **RefGenes - a new tool to find suitable reference genes for selected experimental conditions**
 Philip Zimmermann
 ETH Zurich, Switzerland; phz@ethz.ch

17:30 **Data analysis for gene quantification and expression profiling using GenEx.**
 Anders Bergkvist
 MultiD Analyses AB, Sweden;
anders.bergkvist@multid.se

18:00 **CAMPER - An open analysis framework for real-time PCR data using single sample amplification efficiency calculation.**
 Jochen Blom¹, Lukas Jelonek¹, Jörn Kalinowski², Christian Rückert² and Alexander Goesmann¹
¹Bioinformatics Resource Facility, CeBitTec, Bielefeld University, Germany; ²Institute for Genome Research, CeBitTec, Bielefeld University, Germany;
jblom@cebitec.uni-bielefeld.de

Wednesday 11th March 2009

Session High-Throughput session
Chair J. Hellemans & K. Livak
Lecture hall HS 14

Session sponsored by:



- 8:30 **Moving from qPCR Assays to qPCR Arrays**
Kenneth James Livak
 Fluidigm Corporation, United States of America;
ken.livak@fluidigm.com
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- 9:00 **Accurate and Objective Gene Copy Number Profiling using Real-Time PCR**
Jan Hellemans^{1,2}, Barbara D'haene¹, Frauke Coppieters¹, Steve Lefever¹, Filip Pattyn¹, Bart Leroy¹, Geert Mortier¹, Elfride De Baere¹ and Jo Vandesompele²
¹Center for Medical Genetics, Ghent University Hospital, Belgium; ²Ghent University, Belgium - Biogazelle, Belgium; Jan.Hellemans@UGent.be
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- 9:25 **High-Throughput Analysis of Nucleic Acids Using the LightCycler® 1536 qPCR Platform**
Thomas Froehlich, Gregor Sagner, Gudrun Tellmann, Christian Weilke and Armin Tgetgel
 Roche Diagnostics, Germany;
thomas.froehlich@roche.com
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- 9:50 **Measurement of Gene Expression by Massively Parallel Nanoliter real-time PCR**
Jim White
 BioTrove, United States of America;
jwhite1@biotrove.com
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- 10:15 – 10:45 **Coffee break**
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- 10:45 **QuantPrime – a flexible tool for reliable high-throughput primer design for quantitative PCR**
Samuel Arvidsson^{1,2}, Mirosław Kwasniewski^{1,2,3}, Diego Mauricio Riano-Pachon² and Bernd Mueller-Roeber^{1,2}
¹Potsdam University, Germany; ²Max-Planck Institute for Molecular Plant Physiology, Potsdam, Germany; ³University of Silesia, Katowice, Poland;
samuel.arvidsson@uni-potsdam.de
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- 11:10 **Oligo Design Across the Mouse Genome**
Ben Sowers
 Biosearch Technologies, Inc., United States of America;
ben@biosearchtech.com
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- 11:35 **A novel digital technology for non-enzymatic direct multiplexed measurement of gene expression**
Chaybani, Ramin, Gary K. Geiss¹, Roger Bumgarner², Brian Birditt¹, Timothy Dahl¹, Naeem Dowidar¹, Dwayne L. Dunaway¹, Perry Fell¹, Sean Ferree¹, Renee D. George¹, Tammy Grogan¹, Jeffrey J. James¹, Malini Maysuria¹, Jeffrey D. Mitton¹, Paola Oliveri⁴, Jennifer L. Osborn³, Tao Peng², Amber L. Ratcliffe¹, Philippa J. Webster¹, Eric H. Davidson⁴ and Leroy Hood⁵
¹NanoString Technologies Inc., Seattle, WA ²Department of Microbiology, University of Washington, Seattle WA; ³Department of Bioengineering, University Washington, Seattle WA; ⁴Division of Biology, California Institute of Technology, Pasadena CA; ⁵The Institute of Systems Biology, Seattle WA; ramin@novoptim.com
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- 12:00 **Sensitive and high throughput multiplexed immunoassays for biomarker discovery in biobanked samples using proximity ligation assays and qPCR.**
Simon Fredriksson
 Olink Bioscience, Sweden; simon.fredriksson@olink.com

12:25 – 13:30 **Lunch in the student cafeteria**

Session qPCR BioStatistics & Bioinformatics
Chair M. Kubista & A. Tichopad
Lecture hall HS 14

- 13:30 **Real-time PCR Expression Profiling - Concept of multiway profiling**
Mikael Kubista^{1,2}, Anders Ståhlberg^{2,3}, Jose Manuel Andrade⁴, Björn Sjögreen^{5,6}, Amin Forootan⁶ and Anders Bergkvist⁵ ¹TATAA Biocenter, Sweden; ²Institute of Biotechnology, Czech Academy of Sciences; Prague ³Göteborg University, Sweden; ⁴University La Coruna, Spain; ⁵MultiD Analyses AB, Sweden; ⁶Lawrence Livermore Laboratory, USA; mikael.kubista@tataa.com
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- 14:00 **Design and analysis of Q-RT-PCR assays for haematological malignancies using mixed effects models**
Martin Bøggsted^{1,2}, Charlotte Mandrup¹, Anders Petersen¹, Steffen Falgreen^{1,2}, Hans Erik Johnsen¹, Anne Bukh¹ and Karen Dybkær¹
¹Department of Haematology, Aarhus University Hospital, ²Center for Cardiovascular Research, Aarhus University Hospital; Denmark; martin.boegsted@rm.dk
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- 14:25 **Adequate experiment design as the first important step in obtaining valid biological inference with qPCR technique**
Ales Tichopad
 TUM, Germany; ales@tichopad.de
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- 14:50 **Modeling Real-Time PCR Efficiency and Fluorescent Signal intensity for accurate gene quantification using a single standard**
Kaminski Karine¹, Jahan Virginie², Lamoure Claire², Martineau Pierre³ and Molina Franck¹
¹CNRS / Bio-Rad, France; ²Bio-Rad, France; ³IRCM INSERM, France; karine.kaminski@sysdiag.cnrs.fr
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- 15:15 – 15:45 **Coffee break**
-
- 15:45 **The Delta-TF Method for Real-Time PCR Data Standardization**
Denis Rebrikov, Elena Goncharova, German Samatov, Pavel Semenov, Alexander Baluev and Dmitry Trofimov
 DNA-Technology, Russian Federation; denis@dna-technology.ru
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- 16:10 **Amplification efficiency: linking baseline and bias in the analysis of quantitative PCR data.**
Jan M Ruijter
 Academic Medical Centre, Amsterdam, the Netherlands;
j.m.ruijter@amc.uva.nl
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- 16:35 **The calculation of real-time PCR ratios by means of Monte Carlo Simulation or high-order Taylor expansion.**
Andrej-Nikolai Spiess
 University Hospital Hamburg-Eppendorf, Germany;
a.spiess@uke.de
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- 17:00 **rtprimerdb.org: public qPCR assay database with custom assay quality control and primer design pipeline**
Filip Pattyn, Steve Lefever, Frank Speleman and Jo Vandesompele
 Ghent Univ. Hospital, Belgium; Filip.Pattyn@UGent.be
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- Closing of the Symposium**
Lecture hall HS 14
- 17:30 **Closing of the Symposium**
 Heinrich HD. Meyer & Michael W. Pfaffl

Wednesday 11th March 2009

Session: qPCR NOS Session (1)
Normalization & Optimization & Standardization
Chair: J. Vandesompele & S. Bustin
Lecture hall HS 15

Session sponsored by:

Lonza

8:30 **A new qPCR assay for the detection of Clostridium difficile**

Stephen A Bustin
Barts and the London School of Medicine, United Kingdom; s.a.bustin@qmul.ac.uk

9:00 **RealTime ready – Functionally Tested qPCR Assays for Gene Expression Analysis on the LightCycler® Platform**

Ralf P. Mauritz
Roche Diagnostics GmbH, Germany; ralf.mauritz@roche.com

9:25 **RDML: structured language and reporting guidelines for real-time PCR data**

Steve Lefever¹, Jan Hellemans², Filip Pattyn¹, Daniel Przybylski³, Chris Taylor⁴, René Geurts⁵, Andreas Untergasser⁵ and Jo Vandesompele²
¹Center for Medical Genetics, Ghent University Hospital, Belgium; ²Ghent University, Belgium - Biogazelle, Belgium; ³Bio-Rad Laboratories, Inc. Hercules, California, USA; ⁴European Bioinformatics Institute, Wellcome Trust Genome Campus, Hinxton, Cambridgeshire, CB10 1SD, UK; ⁵Laboratory of Molecular Biology, Department of Plant Science, Wageningen University, The Netherlands; steve.lefever@ugent.be

9:50 **ZNA: new high-affinity synthetic oligonucleotides as powerful tools for PCR**

Nathalie Lenne¹, Valérie Moreau¹, Emilie Voirin¹, Régis Noir², Clément Paris¹, Mitsuharu Kotera², Jean-Paul Behr² and Patrick Erbacher¹
¹Polyplus-transfection, France; ²Laboratoire de Chimie Génétique, Illkirch, France; nlenne@polyplus-transfection.com

10:15 – 10:45 **Coffee break**

10:45 **Importance of experimental design and sample QC for robust and meaningful QPCR results**

Steffen Mueller
Agilent, Germany; steffen.mueller@agilent.com

11:10 **Normalization of real-time RT-PCR data using an external RNA control**

Stian Ellefsen¹, Kåre-Olav Stensløyken^{2,3}, Guro Katrine Sandvik³, Tom Arne Kristensen³ and Göran Erik Nilsson³
¹Lillehammer University College, Norway; ²Ullevål University Hospital, Norway; ³Department of Molecular Biosciences, University of Oslo, Norway; stian.ellefsen@hil.no

11:35 **Highly Accurate Quantitative Gene Expression Analysis without Use of pre-defined Normalizer Genes using Pattern Recognition Analysis**

Dan Shaffer, Volker Vogel and Don-Paul Kovarcik
Daniel J. Shaffer, VP and Founder, Bar Harbor Biotechnology, US, daniel.shaffer@barharborbio.com

12:00 **Optimisation and standardisation of sample preparation with the Bead-beating technology in q-PCR analysis.**

Romain VEROLLET and Esmeralda CARVALHO
Bertin Technologies, France; verollet@bertin.fr

12:25 – 13:30 **Lunch in the student cafeteria**

Session: qPCR NOS Session (2)
Chair: A. Nitsche & A. Stahlberg
Lecture hall HS 15

Session sponsored by:

Lonza

13:30 **Increasing QPCR throughput: simple steps to speed up results whilst minimising variance.**

Gerwyn Jones, Saima Nayab, Srujana Kapavarapu and Ian Kavanagh
Thermo Fisher Scientific, ABgene House, Blenheim Road, Epsom KT19 9AP United Kingdom; ian.kavanagh@thermofisher.com

13:55 **Significant difference or artefact of the method? - The impact of temperature performance of real-time thermocyclers on generated qPCR results**

Mary Span
CYCLERtest, Netherlands, The; marys@cyclertest.com

14:20 **The Next Generation in Hot Start PCR - CleanAmp Primers and dNTPs**

Natasha Paul
TriLink BioTechnologies, Inc., United States of America; npaul@trilinkbiotech.com

14:45 **Assessment of the reliability of nucleic acid extraction systems commonly used to get valid qPCR results**

Tom Øystein Jonassen¹, Mona Holberg-Petersen¹ and Einar S Berg²
¹Ullevål University Hospital, Oslo, Norway; ²Norwegian Institute of Public Health, Oslo, Norway; esbe@fhi.no

15:10 – 15:40 **Coffee break**

15:40 **Housekeeping genes validation in acute and chronic adjuvant arthritic rat for mRNA quantification by real time RT-PCR**

Muhammad Ayaz Alam Qureshi, Per Eriksson, Andrea Stark and Mahmood Ahmed
Karolinska Institute, Sweden; alam_ayaz@hotmail.com

16:05 **Gene Expression Analysis by Genome Controlled Reverse Transcription-PCR.**

Chas Andre¹, Jakob Stenman², Tuomas Tenkanen¹, Arto Orpana² and Susanna Lintula²
¹Finnzymes OY, Finland; ²Hospital for Children and Adolescents, Helsinki Finland; jakob.stenman@helsinki.fi

16:30 **QPCR Use in Biopharmaceuticals and Current Issues**

Chaminda Salgado
NDA Analytics, United Kingdom; chaminda.salgado@nda-analytics.com

Closing of the Symposium
Lecture hall HS 14

17:30 **Closing of the Symposium**
Heinrich HD. Meyer & Michael W. Pfaffl

Thursday 12th March 2009 & Friday 13th March 2009

qPCR Application Workshops



The workshops are aimed at giving participants a deep and objective understanding of real-time quantitative PCR, biostatistics, expression profiling, and its applications. The courses are intended for academic or industrial persons considering working with qPCR or scientists currently working with qPCR seeking a deeper understanding.

The qPCR courses cover all aspects in qPCR and are held during 2-days. Each course is approximately 50% hands-on and is limited to 20 participants (biostatistics 50 participants), resulting in very interactive teaching and everybody given the opportunity to try the instrumentation. After the course participants will be able to plan and perform qPCR experiments themselves, as well as interpret and analyze data. Detailed course material and full catering (lunch, coffee, soft drinks and snacks) are included in the course fee.

Workshop starts on **Thursday and Friday at 9 am until 5 pm**. All four workshops are hosted by the TATAA Biocenter Sweden, TATAA Biocenter Germany, and bioEPS GmbH (www.tataa.com, TATAA.gene-quantification.info, www.bioeps.com). The TATAA qPCR workshop laboratories and seminar rooms are close to the central lecture hall.

Workshop topics:

- | | |
|---|-----------------------------------|
| • Basic Module qPCR Application Workshop (2-days) | Practical room – P2 |
| • Sample Preparation Workshop (2-days) | Practical room – P3 |
| • High Resolution Melt Workshop (1-day) & Immuno-qPCR (1-day) | Practical room – P4 |
| • qPCR Biostatistics & Expression Profiling Workshop (2-days) | Computer seminar room – PU |

Basic Module qPCR Application Workshop (2-days)

Practical room – P2

The introductory course consists of a theoretical part and a practical part where participants get to do QPCR experiments by themselves under experienced supervision. The course contains:



Day 1:

- Basic PCR theory
- The theory of real-time PCR
- Applications and possibilities of QPCR. Comparison of QPCR with regular PCR.
- Review of currently available detection technologies (SYBR Green I, TaqMan, Molecular Beacons...etc)
- Different instrument platforms and their typical uses
- Primer Design
- The problem of primer-dimer formation and how to minimize them
- Probe Design
- Experimental design and optimization
- Basic data handling and analysis

Day 2:

This course covers aspects in sample preparation and reverse transcriptions.

- Principles of RT
- Priming methods for RT
- What enzymes are preferential for different applications
- Sample Preparation (Extraction of RNA and DNA)
- Introduction to statistics and statistical analysis of data

qPCR Biostatistics & Expression Profiling Workshop (2-days)

Computer seminar room – PU

This course explains statistics applicable to qPCR and teaches how to use statistics to interpret real-time PCR gene expression data, and classify samples based on real-time PCR expression profiling. Course is based on seminars and computer-based demonstrations. Please bring your own Laptop to the course!



Day 1 - Statistical analysis of real-time PCR data

Lectures cover the principles of statistics, including Gaussian statistics, the central limit theorem, p values and statistical hypothesis testing, z-scores, rank-based methods (non-Gaussian), comparison of two groups (paired and unpaired t-test), Mann Whitney test, Wilcoxon rank sum test, Fisher's exact test. Outlier detection (Dixon's test, Grubb's test, Cochran's test), ANOVA and classical calibration (least square fit, correlation coefficient, Hotelling's area). During computer based workshop participants will learn how to analyze typical real-time PCR data sets. Examples include identification of outliers, and how to compare means and variances of paired and unpaired studies.

Day 2 - Gene expression profiling with real-time PCR

Lectures cover methods to classify samples and genes. The methods presented include Principal Component Analysis, Potential Curves, Hierarchical Clustering, Self-Organizing Maps, and Trilinear Decomposition. During computer based workshops participants will classify metabolic genes in yeast, developmental stages in *Xenopus laevis*, Breast cancer data, and developing stem cells.

Sample Preparation Workshop (2-days)**Practical room – P3**

One of the most important requirements to get good results from qPCR experiment is to have a template of good quality. In most cases this means having an efficient sample preparation. This course module is focused on extraction of RNA and DNA to be used as template in qPCR and reverse transcription reactions. The course covers:



- Overview of nucleic acid extraction methods
- How to properly determine the concentration of purified nucleic acids
- Extraction from limited amount of material and single cells
- Storage biological samples and purified nucleic acids
- Quality control of purified material
- Integrity of purified RNA
- How to test for the presence of inhibitors

High Resolution Melt Workshop (1-day) & Immuno-qPCR (1-day)**Practical room – P4****High-Resolution-Melting Workshop (on day 1)**

This is an introductory course in HRM, where a high resolved melting curve is used to analyze very small differences in melting temperature of PCR products, differences that can be due to a single base substitution. The course includes seminars as well as hands on training where the participants get to perform experiments. The course covers:

- Introduction to HRM
- Assay design
- SNP – analysis
- Genescanning
- Methylation analysis
- Review of available HRM instruments
- Examples of other applications

Immuno-qPCR Workshop (on day 2)

This course shows how real-time PCR can be used to quantify proteins. The course consists of a theoretical part which explains what immuno-qPCR is and how it can be set up and used. The course also includes a practical part where the course participants will run an immuno-qPCR experiment to quantify a protein. The course covers:



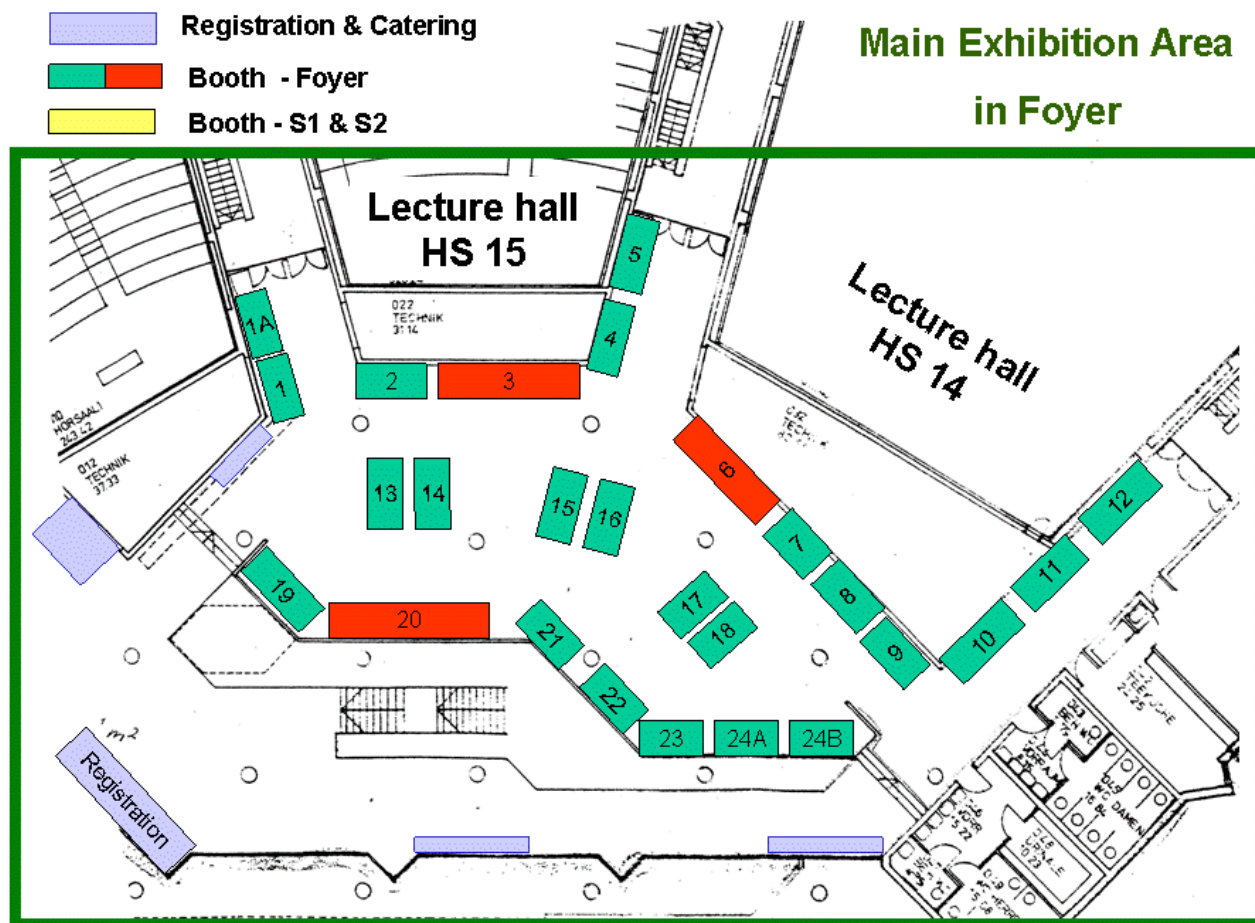
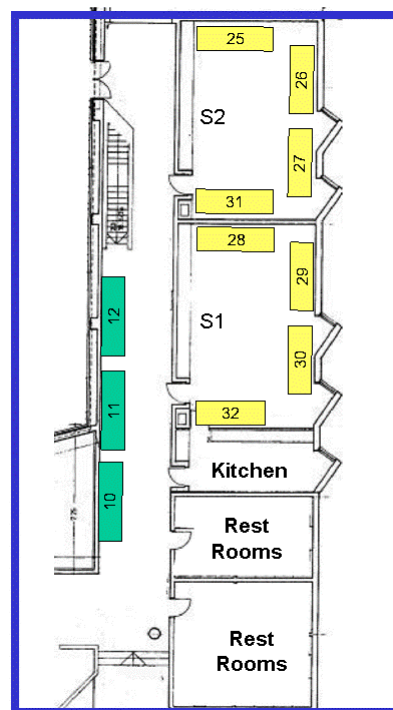
- Introduction to immunoassays.
- How to set up an immuno-qPCR assay.
- How to optimize an immuno-qPCR.
- How to analyse immuno-qPCR data.
- Troubleshooting.
- Examples of immuno-qPCR applications.
- Practical experiment quantifying a protein.

qPCR Workshop Sponsors:

Industrial Exhibition

More than **35 companies** participate at the industrial exhibition held during the qPCR Symposium March 9th – 11th in the foyer of the central lecture hall complex (green frame) and in two side rooms S1 and S2 (blue frame).

Booth	Company	Booth	Company
1	Eppendorf	17	Metabion
1A	Finnzymes / Biozym	18	Biomol
2	Biosearch Technologies	19	TIB Molbiol
3	Bio-Rad	20	Fluidigm
4	Biotec Pharmacon	21	4titude
5	Lonza	22	Applied Biosystems
6	Roche Applied Science	23	Invitrogen
7	Agilent Technologies	24A	Beckman Coulter
8	Advantix / Olymus	24B	Primer Design
9	AJ Roboscreen / AJ eBiochip	25	Nanostring
10	Integrated DNA Technologies	26	Biogazelle
11	Exiqon	27	Biolegio
12	Trilink Biotechnologies	28	Alphamatrix / Biotrove
13	Eurofins MWG Operon	29	Helixis
14	Eurogentec	30	MP Biomedicals
15	Thermo Fisher Scientific	31	LabOnNet
16	Qiagen	32	MultiD



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