



Keble College, Oxford, UK, 7-10 July 2009

12th Biological and Environmental Reference Materials (BERM) Symposium

PROGRAMME

Tuesday 7 July

17:00 – 18:00 Registration (Sloane Robinson Building Foyer)
18:30 – 19:30 Reception (Arco Building)
20:00 Dinner (Dining Hall)

Wednesday 8 July

07:30 – 09:00 Breakfast (Dining Hall)
08:00 – 09:00 Registration (Sloane Robinson Building Foyer)
09:00 – 10:30 **PLENARY SESSION** (Sloane Robinson Building)
(Chair: Mike Sargent, LGC)
[Opening Ceremony](#)
Introductory addresses from:
Lord Drayson, UK Science Minister
David Richardson, LGC Chief Executive
[Opening Presentation](#)
Expectations and impact of reference materials in measurement and testing (Hendrik Emons, IRMM)
10:30 - 11:00 Coffee (Arco Building)



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11:00 - 12:30

PLENARY SESSION (*Sloane Robinson Building*)
(*Chair: Steve Wise, NIST*)

The essential relationship between global metrology and the production of reference materials (*Robert Kaarls, CCQM*)

Reference materials and accreditation: an international perspective (*Maire Walsh, ILAC*)

Developments in international standardisation related to reference materials (*Ales Fajgelj, IAEA*)

12:30 – 13:30

Lunch (*Dining Hall*)

13:30 – 15:00

Parallel Sessions (*Sloane Robinson Building*)

SESSION 1: INTERNATIONAL METROLOGY AND COOPERATION

(Co-chairs: Robert Kaarls, CCQM and Ales Fajgelj, IAEA)

13:30 – 14:00 **Keynote Lecture: Traceability of certified values of reference materials – the ERM approach**

Robert Koeber and Hendrik Emons (*IRMM, Belgium*)

14:00 – 14:20 **External review of reference material documentation: Experience of one of the IRMM certification advisory panels (CAP)**

Ulf Örnemark (*LGC Standards, Sweden*), René Dybkær (*Frederiksberg Hospital, Denmark*), Eugène Jansen (*RIVM, The Netherlands*) and Andreas Heissenberger (*Umweltbundesamt GmbH, Austria*)

14:20 – 14:40 **International co-operation in the preparation of environmental reference materials for the iron, steel & minerals industries**

Richard Meeres (*BAS, UK*)

14:40 – 15:00 **Reference Material Distribution**

Jane Firth (*LGC Standards, UK*)

SESSION 2: QA/QC, PROFICIENCY TESTING AND USE OF REFERENCE MATERIALS

(Co-chairs: Maire Walsh, ILAC and Roger Wood, UK Food Standards Agency)

13:30 – 14:00 **Keynote Lecture How much confidence do you have in your Quality Assurance?**

Lorraine Turner (*UKAS, UK*)

14:00 – 14:20 **The comparability improvement program as a new class of interlaboratory study**

David L. Diewer, Katrice Lippa, Margaret C. Kline, Catherine A. Rimmer, Katherine E. Sharpless, Jeanice Brown Thomas, Laura J. Wood (*NIST, USA*)

14:20 – 14:40 **New spectroscopic reference materials for QA/QC control**

John Hammond (*Starna Scientific, UK*)

14:40 – 15:00 **The establishment of a quality evaluation system of reference materials**

Xiaohua Lu, Hongmei Li, Fanmin Meng and Jie Ji (*NIM, China*)



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15:00 -16:30 Tea (Arco Building) and Poster Session 1 (Seminar Rooms 1, 2, 5 and 6)
 16:30 -18:00 Parallel Sessions, continued (Sloane Robinson Building)

<p>SESSION 3: INTERNATIONAL METROLOGY AND COOPERATION - CONTINUED</p> <p><u>16:30 – 17:00</u> Keynote Lecture: Reference material accreditation – a producer’s point of view <i>Gill Holcombe and Steve Wood (LGC, UK)</i></p> <p><u>17:00 – 17:20</u> Accreditation of Reference Material Producers in Brazil <i>Renata Martins Horta Borges, Suzana Saboia de Moura, João Carlos Antunes de Souza and Sandra Magalhães Saraiva (INMETRO, Brazil)</i></p> <p><u>17:20 – 17:40</u> Challenges and benefits of accrediting reference material producers <i>Jeff Ruddle (UKAS, UK)</i></p> <p><u>17:40 – 18:00</u> The cooperation between Inmetro (Brazil) and NIST (US) for the production of CRM for bioethanol <i>Valnei Smarcaro Da Cunha, R J Daroda, H S Brandi, J M Rodrigues, T O Araujo, J C Fraga, F Gonzaga, D M E S Filho (INMETRO, Brazil), W May, S Wise, M Schantz (NIST, USA)</i></p>	<p>SESSION 4: QA/QC, PROFICIENCY TESTING AND USE OF REFERENCE MATERIALS – CONTINUED</p> <p><u>16:30 – 17:00</u> Keynote Lecture: Fuzzy protocols, expert judgement <i>Michael Thompson (Birkbeck College, UK)</i></p> <p><u>17:00 – 17:20</u> QMEQAS: The Québec multielement external assessment scheme <i>Alain Leblanc and Isabelle P. Côté (Centre du Toxicologie du Québec, Canada)</i></p> <p><u>17:20 – 17:40</u> Frequency of PT participation – does it make a difference? <i>Brian Brookman and Matthew Whetton (LGC Standards, UK)</i></p> <p><u>17:40 – 18:00</u> European wide external quality assurance exercises for detection of high threat bacteria <i>Roland Grunow, Ursula Sauer and Daniela Jacob (Robert Koch Institute, Germany)</i></p>
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18:30 – 19:30 Optional (charges apply) Social Event – walking tour or open-top bus tour (meet at Porter’s Lodge)
 20:00 Dinner (Dining Hall)



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Thursday 9 July

07:30 – 09:00 Breakfast (Dining Hall)

09:00 – 10:30 **PLENARY SESSION – ENVIRONMENT AND HEALTH** (Sloane Robinson Building)
(Chair: Hendrik Emons, IRMM)

Biological standards and reference materials in therapeutic and diagnostic medicine (Adrian Bristow, NIBSC, UK)

The role of reference materials to aid validation in forensic and clinical DNA analyses (John M. Butler, NIST, USA)

Analysis and fate of pharmaceuticals and their degradation products in water and sludge by LC hybrid MS systems (Q-LIT AND Q-TOF) (Daria Barcelo, Mira Petrovic, Sandra Perez, Jelena Radjenovic, Aleksandra Jelic, Meritxell Gros, IDAEA-CSIC, Spain)

10:30 – 11:00 Coffee (Arco Building)

11:00 – 12:30 Parallel Sessions (Sloane Robinson Building)

SESSION 5: ENVIRONMENT AND ENERGY
(Co-chairs: Scott Willie, NRC-CNRC and Koichi Chiba, NMIJ)

11:00 – 11:30 **Keynote Lecture: Quality assurance for the Water Framework Directive**

Andrea Held (IRMM, Belgium)

11:30 – 11:50 **NIST standard reference materials in support of environmental monitoring and remediation**

Elizabeth A. Mackey, Stephen E. Long, Gregory C. Turk, Michael Winchester and Rolf Zeisler (NIST, USA)

11:50 – 12:10 **Development of speciated metal SRMs for environmental remediation activities**

Stuart J. Nagourney (New Jersey Department of Environmental Protection, USA), Stephen E. Long (NIST, USA) and Brian Buckley (Rutgers University, USA)

12:10 – 12:30 **Quality assurance of measurements of contaminants in the northern arctic**

Rania Farag-Clement, Sathi Selliah, Eric Reiner and Barry Ali (Ontario Ministry of Environment, Canada)

SESSION 6: HEALTH, MEDICINE AND FORENSICS
(Co-chairs: Adrian Bristow, NIBSC, John Butler, NIST and Mauro Panteghini, IFCC)

11:00 – 11:30 **Keynote Lecture: Reference materials and proficiency testing in the occupational hygiene measurement arena**

Owen Butler (HSL, UK)

11:30 – 11:50 **Antibody glycans: the challenges of producing certified reference materials**

Paula Domann, Fahmina Fardus, Thierry LeGoff, Mike Ludlow, Glyn Connolly (LGC, UK), Daryl Fernandes, Daniel Spencer and Dominic Ehrismann (Ludger Ltd, UK)

11:50 – 12:10 **SRMs for monitoring human exposure to organic contaminants**

Michele M. Schantz (NIST, USA)

12:10 – 12:30 **Development of a new reference material for the validation of molecular detection methods applied to microbiological analysis**

Raquel Múrtula, Adela Yáñez, Elena Soria and Vicente Catalán (LABAQA, Spain)



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12:30 – 13:30 Lunch (*Dining Hall*)

13:30 – 15:00 Parallel Sessions (*Sloane Robinson Building*)

SESSION 7: ENVIRONMENT AND ENERGY - CONTINUED

13:30 – 14:00 **Keynote Lecture: Cost-effective environmental investigations: use of reference materials to improve estimates of contaminant concentration and remediation costs**
Michael H. Ramsey and Katy A. Boon (*University of Sussex, UK*)

14:00 – 14:20 **NIST reference materials to support the electric utility industry**

Stephen E. Long, Elizabeth A. Mackey, Jacqueline L. Mann, W. Robert Kelly, Robert D. Vocke and Bruce S. MacDonald (*NIST, USA*)

14:20 – 14:40 **Toxic chemicals in the environment: performance evaluation and the critical importance of reference materials**

Sathi Selliah, Barry Ali, Rania Farag-Clement and Dan Toner (*Ontario Ministry of the Environment, Canada*)

14:40 – 15:00 **Development of indoor air pollution reference materials and its use for QA/QC in indoor air pollution measurements**

Gwi Suk Heo, Sang-hyup Oh, Mi-Eon Kim and Yong-Doo Kim (*KRISS, S Korea*)

SESSION 8: HEALTH, MEDICINE AND FORENSICS – CONTINUED

13:30 – 14:00 **Keynote Lecture: A reference material to support metabolomics measurements**

Karen W. Phinney, Nathan G. Dodder, Stephen E. Long, Lane C. Sander, Michele M. Schantz, Katherine E. Sharpless, Stephen E. Stein, Gregory C. Turk and Stephen A. Wise (*NIST, USA*)

14:00 – 14:20 **Tools to reduce the impact of incorrect microbiology laboratory results on public health**

Julie E. Russell (*HPA, UK*)

14:20 – 14:40 **Evaluation of a panel of generic protein biomarker standards**

Susan Pang, Hernan Valdivia, Enamul Ahsan and Carole Foy (*LGC, UK*)

14:40 – 15:00 **Investigating proteomic methods for the traceable value assignment of protein biomarkers**

Gavin O'Connor, Caroline Pritchard, William Burkitt, Milena Quaglia, Helen Parkes (*LGC, UK*), Andre Hennion, Cristian Arsene (*PTB, Germany*), Heinz Schimmel, Ingrid Zegers (*IRMM, Belgium*) and Anna Hills (*NPL, UK*)

15:00 – 16:30 Tea (*Arco Building*) and Poster Session 2 (*Seminar Rooms 1, 2, 5 and 6*)

16:30 – 18:00 Parallel Sessions, continued (Sloane Robinson Building)

<p>SESSION 9: ENVIRONMENT AND ENERGY - CONTINUED</p> <p>16:30 – 17:00 Keynote Lecture: Characterization of two biodiesel SRMs <u>Michele M. Schantz</u> (NIST, USA)</p> <p>17:00 – 17:20 Comparison of GC-HRMS, GC-MS and GC-TOF-MS for the quantitation of PCBs using exact matching IDMS for reference material certification <u>Chris Hopley, Louise Clifford and David Carter</u> (LGC, UK)</p> <p>17:20 – 17:40 SIT Centre N. 211: The ISPRA laboratory for production of environmental reference materials <u>Maria Belli, Sabrina Barbizzi, Monica Buchetti, Damiano Centioli, Paolo de Zorzi, Silvia Ermili, Stefania Gaudino and Silvia Rosamilia</u> (ISPRA, Italy)</p> <p>17:40 – 18:00 The IAEA experience (2006-2009) with organisation of world wide proficiency tests for determination of radionuclides in environmental samples <u>Abdulghani Shakhshiro, Umberto Sansone, Paul Martin, Ales Fajgelj and Gabriele Voigt</u> (IAEA, Austria)</p>	<p>SESSION 10: HEALTH, MEDICINE AND FORENSICS – CONTINUED</p> <p>16:30 – 17:00 Keynote Lecture: The application of biological reference materials to the measurement of nutritional biomarkers in epidemiological studies <u>Christine M. Pfeiffer and Rosemary L. Schleicher</u> (CDC, USA)</p> <p>17:00 – 17:20 Metal mapping in biological tissues for clinical diagnoses: the need for biological reference materials for laser ablation ICP-MS <u>Rebeca Santamaria-Fernandez, Patrick Galler and Peter Stokes</u> (LGC, UK)</p> <p>17:20 – 17:40 HPA microbiological reference materials and their value in the laboratory <u>Nicola L. Lang</u> (HPA, UK)</p> <p>17:40 – 18:00 Isotope dilution mass spectrometry (IDMS) in protein quantification: A reference method for determination of human growth hormone from serum <u>Christian Arsene and André Henrion</u> (PTB, Germany)</p>
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19:30 Pre-dinner drinks (Liddon Quad – Arco Building if wet)

20:00 Symposium Dinner (Dining Hall)



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Friday 10 July

07:30 – 09:00 Breakfast (Dining Hall)

09:00 – 10:30 **PLENARY SESSION – FOOD AND REFERENCE MATERIAL PRODUCTION** (Sloane Robinson Building)
(Chair: Robert Kaarls, CCQM)

The role of reference materials in food regulation and safety (Roger Wood, Food Standards Agency, UK)

Development of Food and Dietary Supplement CRMs (Stephen A. Wise, NIST, USA)

The broader picture – looking backwards and forward to reference materials (Andrée Lambert, IRMM, Belgium)

10:30 – 11:00 Coffee (Arco Building)

11:00 – 12:30 Parallel Sessions (Sloane Robinson Building)

SESSION 11: FOOD

(Co-chairs: Steve Wise, NIST and Fangdi Wu, NIM China)

11:00 – 11:30 **Keynote Lecture: Emerging needs for dietary supplement standard reference materials**

Paul M. Coates (National Institutes of Health, USA)

11:30 – 11:50 **Development of reference materials and methods for selenium and selenium species in dietary supplements, foods and biological materials**

Heidi Goenaga-Infante and Mike Sargent (LGC, UK)

11:50 – 12:10 **Development of CRMs for fatty acid analyses: food, dietary supplements, and biofuels**

Lane Sander, Michele Schantz, Katherine Sharpless and Stephen Wise (NIST, USA)

12:10 – 12:30 **New strategy for producing SI traceable reference materials of pesticides by quantitative NMR**

Takeshi Saito, Toshihide Ihara, Tsuneaki Maeda (NMIJ, Japan),
Naoki Sugimoto, Atsuko Tada, Tetsuji Nishimura (National Institute of Health Sciences, Japan), Kazunori Arifuku, Takako Suematsu (Jeol Ltd, Japan), Yuuko Yamada and Yuuichi Yoshida (Waco Ltd, Japan)

SESSION 12: REFERENCE MATERIALS: CHALLENGES AND TRENDS

(Co-Chairs: Ulrich Panne, BAM and Steve Wood, LGC)

11:00 – 11:30 **Keynote Lecture: Improvement of the traceability of reference materials certified for purity - evaluation of a semi-preparative high performance liquid chromatography approach**

Thierry LeGoff and Steve Wood (LGC, UK)

11:30 – 11:50 **The frequency of use of various analytical techniques in the ILC during the certification of new CRMs prepared by INCT**

Ewelina Chajduk, Halina Polkowska-Motrenko, Rajmund Dybczyński (Institute of Nuclear Chemistry and Technology, Poland)

11:50 – 12:10 **Reaching out for standardised antibodies and immunofornats**

Rudolf J. Schneider (BAM, Germany)

12:10 – 12:30 **Small size that matter: Standards for Nanomaterial Characterisation**

Franziska Emmerling and Andreas F. Thünermann (BAM, Germany)



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12:30 – 13:30 Lunch (Dining Hall)

13:30 – 15:30 Parallel Sessions, continued (Sloane Robinson Building)

SESSION 13: FOOD - CONTINUED

13:30 – 14:00 **Keynote Lecture: Highlights of the evolution of reference materials for food and nutrition metrology expressed in the history of BERM**

Wayne R. Wolf (US Dept of Agriculture)

14:00 – 14:20 **Development of white rice flour certified reference materials for trace elements analysis and arsenic speciation**

Kazumi Inagaki, Takayoshi Kuroiwa, Tomohiro Narukawa, Zhu Yanbei and Kaichi Chiba (NMIJ, Japan)

14:20 – 14:40 **Mycotoxins and acrylamide in foods - A BAM perspective**

David Siegel, Matthias Koch, Wolfram Bremser, Robert Köppen, Rita Krüger, Irene Nehls (BAM, Germany)

14:40 – 15:00 **Development of methods for the characterization of a candidate mussel tissue CRM for multiple groups of shellfish toxins**

Pearse McCarron, Sabrina Giddings and Michael A. Quilliam (National Research Council of Canada)

15:00 – 15:20 **Standardization in allergen determination**

Markus Lacom, Ulrike Immer, Tina Katzenmeier, Christian Gößwein (R-Biopharm AG, Germany), Stephanie Bader and Ute Schweiggert (Fraunhofer Institute for Process Engineering, Germany)

15:20 – 16:00 Tea (Arco Building)

SESSION 14: REFERENCE MATERIALS: CHALLENGES AND TRENDS – CONTINUED

13:30 – 14:00 **Keynote Lecture: Challenges in the development and application of GMO CRMs**

Stefanie Trapmann, Sylvia Broeders, Wim Broothaerts, Diana Charels, Philippe Corbisier, Eugenia de Andrade Silva, Heinz Schimmel and Hendrik Emons (IRMM, Belgium)

14:00 – 14:20 **Chemical characterization of nanomaterials**

Gregory Turk, Michael Winchester, Danielle Cleveland, Lane Sander, Rolf Zeisler, Rabia Spatz, Rick Paul, Karen Murphy and Stephen Long (NIST, USA)

14:20 – 14:40 **As certification burdens increase: work smarter, not (much) harder**

David L. Diewer (NIST, USA)

14:40 – 15:00 **Statistics for RM certification: homogeneity and stability Studies**

Steve Ellison (LGC, UK)

15:00 – 15:20 **Drift control and merging schemes in stability testing**

Wolfram Bremser, Roland Becker, Matthias Koch, and Ulrich Panne (BAM, Germany)



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16:00 – 17:30

PLENARY, CONCLUSIONS AND BERM 13 (*Sloane Robinson Building*)
(*Chair: Mike Sargent, LGC*)

Reference materials: looking into the crystal ball (*Ulrich Panne, BAM*)

BERM 13 (*Ales Fajgelj, IAEA*)

Poster awards (*Mike Sargent, LGC*)

Chairman's concluding remarks (*Mike Sargent, LGC*)

17:30 CLOSE