10th International Symposium on Targeted Alpha Therapy

ISHIKAWA ONGAKUDO
Kanazawa, Japan
May 30 – June 1, 2017

Organizers:

Seigo Kinuya
Kohshin Washiyama
Kanazawa University
Kanazawa, Japan

Alfred Morgenstern
Frank Bruchertseifer
European Commission
Joint Research Centre
Directorate for Nuclear Safety and Security
Karlsruhe, Germany

The 10th International Symposium on Targeted Alpha Therapy marks the 20th anniversary of a successful series of international symposia on this topic initiated by the Joint Research Centre of the European Commission, including meetings in Karlsruhe (1997, 2000), Heidelberg (2002), Düsseldorf (2004), Aachen (2007), Toronto (2009), Berlin (2011), Oak Ridge (2013) and Warsaw (2015).

The symposium is kindly supported by:

Program of the

10th International Symposium on Targeted Alpha Therapy

ISHIKAWA ONGAKUDO, Kanazawa, Japan
May 30 – June 1, 2017

Tuesday May 30, 2017

18:00 – 21:00 WELCOME RECEPTION AND REGISTRATION
Shiinoki Cultural Complex（しいのき迎賓館）

Wednesday May 31, 2017

8:30 – 8:45 WELCOME / INTRODUCTION
Seigo Kinuya / Kohshin Washiyama
Kanazawa University
Alfred Morgenstern
European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security

SESSION Ia CLINICAL EXPERIENCES
Moderator: Alfred Morgenstern, Brenda Sandmaier

8:45 – 9:05 **Efficacy of ^{225}Ac-labeled anti-CD33 antibody in acute myeloid leukemia (AML) correlates with peripheral blast count**
Dragan Cicic[1], Joseph Jurcic[2] and David Scheinberg[3]
[1]Actinium Pharmaceuticals, Inc.; [2]New York Presbyterian - Columbia University Medical Center; [3]Memorial Sloan Kettering Cancer Center

9:05 – 9:25 **^{213}Bi-anti-EGFR-MAb therapy of recurrent bladder cancer – a pilot study**
K. Scheidhauer[1], C. Seidl[1], F. Bruchertseifer[2], C. Apostolidis[2], M. Autenrieth[3], F. Kurtz[3], T. Horn[3], M. Schwaiger[1], J. Gschwend[3], C. D'Alessandria[1], C. Pfob[1], R. Senekowitsch-Schmidtke[1], A. Morgenstern[2]
[1]Dept. Nuclear Medicine, Technische Universität Muenchen, Munich, Germany; [2]European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Karlsruhe, Germany; [3]Dept. Urology, Technische Universität Muenchen, Munich, Germany

9:25 – 9:45 **Targeted alpha therapy of glioblastoma multiforme: clinical experience with ^{213}Bi- and ^{225}Ac-Substance P**

L. Krolicki[1], F. Bruchertseifer[2], J. Kunikowska[1], H. Koziara[3], B. Królicki[3], M. Jakuciński[4], D. Pawlak[5], C. Apostolidis[2], R. Rola[6], A. Merlo[7], A. Morgenstern[2]

[1] Department of Nuclear Medicine, Medical University of Warsaw, Warsaw, Poland; [2] European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Karlsruhe, Germany; [3] Department of Neurosurgery, Institute of Psychiatry and Neurology, Warsaw, Poland; [4] Department of Nuclear Medicine, Brodnowski Hospital, Warsaw, Poland; [5] Radioisotope Centre POLATOM, National Centre for Nuclear Research, Otwock, Poland; [6] Department of Neurology, Military Institute of Aviation Medicine. Warsaw, Poland; [7] University of Basel, Switzerland

9:45 – 10:05 **Dosimetry and Biodistribution of ^{203}Pb-AR-RMX in Patients with Somatostatin Expressing Neuroendocrine Tumors. A Clinical Exploratory Study.**

E. S. Delpassand[1], T. A. Stallons[2], M. Hamidi[3], L. Bolek[3], M. Ali[3], G. Vahdati[3], A. Saidi[2], F. Rojas-Quijano[4], P. Jurek[4], G. Kiefer[4], B. He[5], M. Ghaly[5,6], E. Frey[5,6], G. Sgouros[5,6], J. Torgue[2], I. Tworowska[1]

[1] RadioMedix Inc., USA; [2] AREVA Med LLC., USA; [3] Excel Diagnostics and Nuclear Oncology Center, USA; [4] Macrocyclics Inc., USA; [5] Rapid LLC., USA; [6] Johns Hopkins University, USA

10:05 – 10:30 *Coffee break*

SESSION Ib CLINICAL EXPERIENCES - PROSTATE
Moderator: Seigo Kinuya, Christof Seidl

10:30 – 10:50 **^{225}Ac-PSMA-617: PSMA targeting alpha-radiation therapy of patients with metastatic castration resistant prostate cancer (mCRPC)**

C. Kratochwil[1], F. Bruchertseifer[2], F. L. Giesel[1], C. Apostolidis[2], U. Haberkorn[1], A. Morgenstern[2]

[1] Department of Nuclear Medicine, University Hospital Heidelberg, Germany; [2] European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Karlsruhe, Germany

10:50 – 11:10 **Radium-223 (Ra-223) in asymptomatic metastatic castration resistant prostate cancer (mCRPC) patients treated in an international early access program (iEAP)**

Wim Oyen,[1] Fred Saad,[2] Silke Gillessen,[3] Daniel Heinrich,[4] Daniel Keizman,[5] Joe M. O'Sullivan,[6] Joan Carles,[7] Manfred Wirth,[8] Kurt Miller,[9] Liping Huang,[10] Monica Seger,[10] Sten Nilsson,[11] Axel Heidenreich[12]

[1]The Royal Marsden NHS Foundation Trust and The Institute of Cancer Research, Sutton, UK;
[2]University of Montreal Hospital Center, Montreal, Canada;
[3]Kantonsspital St Gallen, St Gallen, Switzerland; [4]Akershus University Hospital, Lørenskog, Norway; [5]Meir Medical Center, Kfar-Saba, Israel; [6]The Centre for Cancer Research and Cell Biology, Queen's University Belfast, and the Northern Ireland Cancer Centre, Belfast, Northern Ireland; [7]Vall d' Hebron University Hospital, Vall d'Hebron Institute of Oncology, Barcelona, Spain; [8]University Hospital Carl-Gustav Carus, Dresden, Germany;
[9]Charité University Medicine Berlin, Berlin, Germany; [10]Bayer HealthCare Pharmaceuticals, Whippany, New Jersey, USA;
[11]Karolinska University Hospital, Stockholm, Sweden;
[12]University Hospital Cologne, Köln, Germany

11:10 – 11:30 **Changes in alkaline phosphatase (ALP) dynamics and overall survival (OS) in metastatic castration-resistant prostate cancer (mCRPC) patients treated with radium-223 in an international early access program (EAP)**

Wim Oyen,[1] Fred Saad,[2] Silke Gillessen,[3] Axel Heidenreich,[4] Daniel Keizman,[5] Joe M. O'Sullivan,[6] Joan Carles,[7] Manfred Wirth,[8] Kurt Miller,[9] Giuseppe Procopio,[10] Monica Seger,[11] Sten Nilsson,[12] Daniel Heinrich[13]

[1]The Royal Marsden NHS Foundation Trust and The Institute of Cancer Research, Sutton, UK; [2]University of Montreal Hospital Center, Montreal, Canada; [3]Kantonsspital St Gallen, St Gallen, Switzerland; [4]University Hospital Cologne, Köln, Germany; [5]Meir Medical Center, Kfar-Saba, Israel; [6]The Centre for Cancer Research and Cell Biology, Queen's University Belfast, and the Northern Ireland Cancer Centre, Belfast, Northern Ireland; [7]Vall d' Hebron University Hospital, Vall d'Hebron Institute of Oncology, Barcelona, Spain; [8]University Hospital Carl-Gustav Carus, Dresden, Germany; [9]Charité University Medicine Berlin, Berlin, Germany; [10]Fondazione IRCCS - Istituto Nazionale dei Tumori - S.C. Medicina Oncologica 1, Milan, Italy; [11]Bayer HealthCare Pharmaceuticals, Whippany, New Jersey, USA; [12]Karolinska University Hospital, Stockholm, Sweden;
[13]Akershus University Hospital, Lørenskog, Norway

LUNCH SYMPOSIUM supported by FUJIFILM RI Pharma Co., Ltd.

Moderator: Dr. Kunihiko Yokoyama MD, Ph.D. (Public Central Hospital of Matto Ishikawa PET Center, Matto, Japan)

11:40 – 12:10 **Diagnosis and therapy for bone metastatic prostate cancer**
Prof. Atsushi Mizokami MD, Ph.D.
Department of Integrative Cancer Therapy and Urology Kanazawa University, Graduate School of Medical Science, Kanazawa, Japan

12:20 – 13:20 *Working Lunch* / POSTER SESSION I

SESSION IIa PRECLINICAL STUDIES
Moderator: Ekaterina Dadachova, Jean-Pierre Pouget

13:20 – 13:40 **Reduction of radiation exposure to the large intestine during ^{223}Ra alpha therapy with oral administration of barium sulfate**
S. Hanadate[1,2], K. Washiyama[2], M. Yoshimoto[3], H. Matsumoto[4], A.B. Tsuji[2], T. Higashi[2], Y. Yoshii[2]
[1]Toho University, Chiba, Japan; [2]National Institute of Radiological Sciences, National Institutes for Quantum and Radiological Science and Technology, Chiba, Japan; [3]Kanazawa University, Kanazawa, Japan; [4]Exploratory Oncology Research & Clinical Trial Center, National Cancer Center, Chiba, Japan; [5]Nihon Medi-Physics Co., Ltd., Chiba, Japan

13:40 – 14:00 **Pharmacokinetic profiling and therapeutic efficacy of alpha-emitter labeled anti-PD-L1 antibodies in an immune competent transgenic breast cancer model**
Jessie R. Nedrow[1], Anders Josefsson[1], Sunju Park[1], Tom Bäck[2], Robert F. Hobbs[1], Cory Brayton[1], Frank Bruchertseifer[3], Alfred Morgenstern[3], and George Sgouros[1]
[1]Johns Hopkins University, School of Medicine, Baltimore, MD, USA; [2]The Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden; [3]European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Karlsruhe, Germany

14:00 – 14:20 **Novel IgG to melanin shows promise for radioimmunotherapy of metastatic melanoma**
Ekaterina Dadachova[1], Ekaterina Revskaya[2], Arthie Jeyakumar[2], Zewei Jiang[2], Frank Bruchertseifer[3], Alfred Morgenstern[3], David Rickles[4]
[1]University of Saskatchewan, SK, Canada; [2]Albert Einstein College of Medicine, New York, USA; [3]European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Karlsruhe, Germany; [4]RadImmune Inc., Los Angeles, USA

14:20 – 14:40 **Involvement of direct and indirect (bystander) cytotoxic effects in alpha-RIT of small volume peritoneal carcinomatosis using ^{213}Bi- and ^{212}Pb-labeled mAbs**

Riad Ladjohounlou[1,2,3,4], Alexandre Pichard[1,2,3,4], Vincent Boudousq[1,2,3,4], Salomé Paillas[1,2,3,4], Catherine Lozza[1,2,3,4], Sara Marcatili[5], Manuel Bardiès[5], Nicolas Chouin[6], Frank Bruchertseifer[7], Alfred Morgenstern[7], Julien Torgue[8], Isabelle Navarro-Teulon[1,2,3,4] and Jean-Pierre Pouget[1,2,3,4]

[1]IRCM, Institut de Recherche en Cancérologie de Montpellier, Montpellier, F-34298, France. [2]INSERM, U1194, Montpellier, F-34298, France. [3]Université de Montpellier, Montpellier, F-34090, France. [4] Institut régional du Cancer de Montpellier, Montpellier, F-34298, France. [5]UMR 1037 INSERM/UPS, Centre de Recherche en Cancérologie de Toulouse, Toulouse F-31062, France; [6]AMAROC, ONIRIS, Nantes 44300, France; [7]European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Karlsruhe, Germany ; [8] AREVA Med, 4800 Hampden lane, Bethesda, MD 20814, USA

14:40 – 15:00 **Preclinical evaluation of anti-HER2 2Rs15d nanobody labeled with ^{225}Ac**

M. Pruszyński[1], M. D'Huyvetter[2], E. Cędrowska[1], T. Lahoutte[2], F. Bruchertseifer[3], A. Morgenstern[3]

[1]Institute of Nuclear Chemistry and Technology, Warsaw, Poland; [2]In Vivo Cellular and Molecular Imaging (ICMI) Lab, Vrije Universiteit Brussel, Brussels, Belgium; [3]European Commission, Joint Research Centre, Department for Nuclear Safety and Security, Karlsruhe, Germany

15.00 – 15:30 *Coffee break*

PRECLINICAL STUDIES

SESSION IIb Moderator: Michael R. Zalutsky, Yasushi Arano

15:30 – 15:50 **Preclinical evaluation of astatinated nanobodies for targeted alpha therapy**

Yana Dekempeneer[1,2], Matthias D'Huyvetter*[1], Emma Aneheim[3], Catarina Xavier[1], Tony Lahoutte[1,4], Tom Bäck[3], Holger Jensen[5], Vicky Caveliers[1,4], Sture Lindegren[3]*

[1]Laboratory of In Vivo Cellular and Molecular Imaging, Vrije Universiteit Brussel, Brussels, Belgium; [2]Belgian Nuclear Research Center (SCK•CEN), Mol, Belgium; [3]Targeted Alpha Therapy group, University of Gothenburg, Gothenburg, Sweden; [4]Nuclear Medicine Department, UZ Brussel, Brussels, Belgium; [5]Cyclotron and PET Unit, Copenhagen, Denmark

15:50 – 16:10 **Development of α-emitting [^{211}At]-*meta*-astatobenzylguanidine (^{211}At-MABG) as a novel therapeutic agent for malignant pheochromocytoma**

Yasuhiro Ohshima[1], Sudo Hitomi[2], Shigeki Watanabe[1], Kotaro Nagatsu[2], Atsushi Tsuji[1], Tetsuya Sakashita[1], Atsuo Waki[2], Keiichiro Yoshinaga[2], Tatsuya Higashi[2] and Noriko S. Ishioka[1]
[1]Quantum Beam Science Research Directorate, National Institute for Quantum and Radiological Science and Technology, Takasaki, Japan.
[2]National Institute of Radiological Sciences, National Institutes for Quantum and Radiological Science and Technology, Chiba, Japan

16:10 – 16:30 **Directing alpha-emitting conjugates to cancer chromatin via PARP-1**

[1]Mehran Makvandi, [1]Catherine Hou, [1]Kuiying Xu, [1]Redmond-Craig Anderson, [1]Laura Puentes, [1]Samuel Sander Effron, [1]Robert H Mach, [1,2]John M Maris, and [1]Daniel A Pryma
[1]University of Pennsylvania, Perelman School of Medicine, Department of Radiology and Division of Nuclear Medicine;
[2]Children's Hospital of Philadelphia

16:30 – 16:50 **Locoregional α-radioimmunotherapy against peritoneal metastasis of gastric cancer**

Huizi Keiko Li[1,2)], Yukie Morokoshi[2)], Sumitaka Hasegawa[2)]
[1]Graduate School of Medical and Pharmaceutical Sciences, Chiba University, Japan; [2]Radiation and Cancer Biology Team, NIRS, QST, Japan

16:50 – 17:10 **A comparative evaluation of ^{225}Ac vs ^{213}Bi as therapeutic radioisotopes for targeted alpha therapy**

Barry J Allen
Faculty of Medicine, University Western Sydney, NSW Australia

17:10 ADJOURN

19:00 – 22:00 SYMPOSIUM BANQUET DINNER
ANA CROWNE PLAZA KANAZAWA, 16-3 Showa-machi, Kanazawa

Thursday June 1, 2017

SESSION III — DOSIMETRY AND INSTRUMENTATION
Moderator: George Sgouros, tbd

8:30 – 8:50 **Optimization of the patient dosimetry in alphatherapy**
Benabdallah Nadia[1], Bernardini Michela[2], Franck Didier[1], de Labroille-Vaylet Claire[3,4], Bolch Wesley E.[5] and Desbrée Aurélie[1]
[1]IRSN, Institute for Radiological Protection and Nuclear Safety, Paris, France; [2]HEGP, Hôpital Européen Georges Pompidou, Paris, France; [3]UPMC, University of Paris 06 Biophysics; [4]Hôpital Trousseau, Paris, France; [5]Department of Biomedical Engineering, University of Florida, Gainesville, USA

8:50 – 9:10 **Correspondence between alpha-particle emitter dosimetry and normal organ toxicity**
Anders Josefsson[1], Jessie R. Nedrow[1], Robert F. Hobbs[2], Tom Bäck[3], Sunju Park[1], Frank Bruchertseifer[4], Alfred Morgenstern[4] and George Sgouros[1]
[1]Russell H. Morgan Department of Radiology and Radiological Science, Johns Hopkins University, School of Medicine, Baltimore, MD, USA; [2]Department of Radiation Oncology and Molecular Radiation Sciences, Johns Hopkins University, School of Medicine, Baltimore, MD, USA; [3]The Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden; [4]European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Karlsruhe, Germany

9:10 – 9:30 **High-resolution Alpha Camera imaging as a tool for developing Targeted Alpha Therapy**
T. Bäck[1], N Chouin[2], S Lindegren[1], E Aneheim[1], H Jensen[3], A Hallqvist[4], P Albertsson[4], and S Palm[1]
Departments of [1]Radiation Physics and [4]Oncology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden; [2]LUNAM Université, Oniris, AMaROC , Nantes, France; [3] PET and Cyclotron Unit, Department of Clinical Physiology and Nuclear Medicine, Copenhagen University Hospital, Copenhagen, Denmark

9:30 – 09:50 **Experimental Alpha Microdosimetry using Fluorescent Nuclear Track Detectors**
Jasper J.M. Kouwenberg[1], Adrie J.J. Bos[2], Antonia Denkova[1]
[1]RadioIsotopes for Health, Delft University of Technology, Delft, the Netherlands; [2]Fundamental Aspects of Materials and Energy, Delft University of Technology, Delft, the Netherlands

09:50 – 10:20 *Coffee break*

SESSION IV NANOCARRIERS
Moderator: Saed Mirzadeh, tbd

10:20 – 10:40 **Lanthanum phosphate nanoparticles as carriers for ^{225}Ac, ^{223}Ra and ^{225}Ra for targeted alpha therapy**

S. Mirzadeh[1], J. V. Rojas[1†], M. F. McLaughlin[2††], J. D. Woodward[1], D. Robertson[2], and S. J. Kennel[3]
[1]Nuclear Security and Isotope Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831; [2]Department of Chemistry and University of Missouri Research Reactor, University of Missouri, Columbia, MO 65211; [3]Graduate School of Medicine, University of TN, Knoxville, TN 37920; †Current address: Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA 23228; ††Current address: Baylor College of Medicine, Houston, TX 77030

10:40 – 11:00 **Nanocarriers of ^{223}Ra for TAT**

Ján Kozempel, Martin Vlk, Petra Mičolová, Ekaterina Kukleva, Pavel Nykl and Michal Sakmár
Department of Nuclear chemistry, Faculty of Nuclear Sciences and Physical Engineering, Czech technical university in Prague, Břehová 7, 115 19 Prague 1, Czech Republic

11:00 – 11:20 **Gold nanoparticle– conjugates as a carrier for ^{211}At in alpha particle therapy**

P.Koźmiński[1], Ł.Janiszewska[1], M.Pruszyński[1], B.Wąs[3], J.Jastrzębski[2], J.Choiński[2], A.Stolarz[2], M.Sitarz[2], K.Szkliniarz[3], J.Grobelny[4], G.Celichowski[4], A.Bilewicz[1]
[1]Institute of Nuclear Chemistry and Technology; [2]Heavy Ion Laboratory, Warsaw University; [3]Institute of Nuclear Physics, Cracow; [4]Department of Materials Technology and Chemistry, University of Lodz

11:20 – 11.40 **Assessing ^{225}Ac-Polymersomes for Targeted Radionuclide Therapy**

R.M. de Kruijff[1], S. Heskamp[2], A. van der Meer[1], J. Kouwenberg[1], G. Torrelo Villa[1], A. Morgenstern[3], F. Bruchertseifer[3], P. Sminia[4], A.G. Denkova[1]
[1]Radiation Science and Technology, Delft University of Technology, Delft, the Netherlands; [2]Radiology and Nuclear Medicine, Radboud University Medical Centre; Nijmegen, the Netherlands; [3]European Commission, Directorate for Nuclear Safety and Security, Karlsruhe, Germany; [4]VUmc Cancer Centre Amsterdam, De Boelelaan 1118, 1081 Amsterdam;

LUNCH SYMPOSIUM supported by Bayer Yakuhin Ltd.
Moderator: Prof. Makoto Hosono, MD, Ph.D. (Professor of Radiology, Faculty of Medicine and Atomic Energy Research Institute at Kindai University, Osaka, Japan)

11:50 – 12:20 **Radium-223 From Bench to Bedside, and Future Directions for Targeted Alpha Therapy**
Prof. Joe O'Sullivan MD, FRCPI, FFRRCSI, FRCR
Professor of Radiation Oncology, Queen's University Belfast and Clinical Director at The Northern Ireland Cancer Centre, Belfast, UK

12:30 – 13:30 Working Lunch / POSTER SESSION II

SESSION Va RADIOCHEMISTRY AND NUCLIDE PRODUCTION
Moderator: Gilles Montavon, Valery Radchenko

13:30 – 13:50 **Exploration of the chemistry of astatine; from basic research towards applied questions**
G. Montavon [1], C. Alliot[2], J. Champion [1], N. Galland [3], N. Guo [1], R. Maurice 1, D.-C. Sergentu[1,3], D. Teze [1,3]
[1]SUBATECH, UMR CNRS 6457, 44307 Nantes Cedex 3, France; [2]GIP ARRONAX, F-44817 Saint-Herblain, France; [3]CEISAM, UMR CNRS 6230, 44322 Nantes Cedex 3, France.

13:50 – 14:10 **Progress in the [^{211}At]-astatination of antibodies by nucleophilic approaches using aryliodonium salts precursors**
François Guérard[1], Laurent Navarro[1], Cyrille Alliot[1,2], Martin W. Brechbiel[3], Michel Chérel[1] and Jean-François Gestin[1]
[1] Centre de Recherche en Cancérologie Nantes-Angers (CRCNA), Unité INSERM 892 - CNRS 6299, Nantes 44007 (France). [2] Arronax GIP, Nantes 44817 (France). [3] Radioimmune & Inorganic Chemistry Section, Radiation Oncology Branch, National Cancer Institute, National Institutes of Health, Bethesda, Maryland 20892 (USA)

14:10 – 14:30 **Quality Assurance and Labeling Chemistry Qualification for cGMP Production of Astatine-211-Labeled anti-CD45 Antibodies**
D. S. Wilbur[1], Y. Li[1], D.K. Hamlin[1], M.-K. Chyan[1], A.L. Wooten[1], E. F. Dorman[1], R. Storb[1,2], O.W. Press[1,2] and B.M. Sandmaier[1,2]
[1]University of Washington; [2]Fred Hutchinson Cancer Research Center, Seattle, WA, USA

14:30 – 14:50 **Development of effective chelators for Th-227 to be used in Targeted Thorium Conjugates**
Olav B Ryan[1], Alan Cuthbertson[1], Gunnar Herstad[2], Derek Grant[1]and Roger M Bjerke[1]
[1]Bayer AS, Oslo, Norway; [2]Synthetica AS, Oslo, Norway

14:50 – 15:10 **Spectroscopic and computational studies of actinium coordination chemistry**

Benjamin W. Stein[1], Maryline G. Ferrier[1], Stosh A. Kozimor[1], Eva R. Birnbaum[1], Jonathan W. Engle[1,2], Kevin D. John[1], John M. Berg[1], Juan S. Lezama Pacheco[3]

[1] Los Alamos National Laborary, Chemistry Division, Los Alamos, New Mexico 87545, USA; [2] University of Wisconsin, Madison, Wisconsin 53711, USA; [3] Stanford University, Stanford, California 94305, USA

15:10 – 15:40 *Coffee break*

SESSION Vb RADIOCHEMISTRY AND NUCLIDE PRODUCTION
Moderator: Frank Bruchertseifer, Jonathan Engle

15:40 – 16:00 **A Novel Micro-Actinium-225/Bismuth-213 Biomedical Generator System**

Davern S.M. [1], O'Neil D.W.[3]., Hallikainen H.[4], Allman S[2]., Millet L.J.[5], Retterer S.T.[2], Doktycz M.J.[2], Standaert R.F.[2], Boll R.A.[1], Van Cleve S.[1], DePaoli D.W.[1],and Mirzadeh S[1].

Divisions of [1]Nuclear Security & Isotope Technology and [2]Biosciences, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6229. [3]Oak Ridge Associated Universities, Oak Ridge TN 37830, [4]Arizona State University, Tempe, AZ 85281. [5]Joint Institute of Biological Sciences, University of Tennessee and Oak Ridge National Laboratory, TN 37831 USA.

16:00 – 16:20 **US DOE Tri-Lab Research Effort to Provide Accelerator-Produced ^{225}Ac for Radiotherapy: 2017 Update**

Kevin D. John (LANL), Ethan R. Balkin (US DOE), Eva R. Birnbaum (LANL), Rose A. Boll (ORNL), Mark Brugh (LANL), Jason Cooley (LANL), Roy Copping (ORNL), Cathy S. Cutler (BNL), David L. Denton (ORNL), Michael E. Fassbender (LANL), Kevin Felker (ORNL, NIDC), Mitch D. Ferren (ORNL, NIDC), Jonathan M. Fitzsimmons (BNL), Justin R. Griswold (ORNL), John W. Krueger (ORNL), Tara Mastren (LANL), Leonard F. Mausner (BNL), Dmitri G. Medvedev (BNL), Saed Mirzadeh (ORNL), Karen E. Murphy (ORNL), F. Meiring Nortier (LANL), Allison C. Owens (ORNL), Dennis R. Phillips (US DOE), Wolfgang H. Runde (LANL, NIDC), Daniel W. Stracener (ORNL), Lance E. Wyant (ORNL)

16:20 – 16:40 **Production of a Thorium/Actinium Generator at the Canadian Nuclear Laboratories**

P. Causey[1], D. Bureau[1], K. Leeder[1], R. Perron[1], S.V. Hartimath[2], H. Fonge[2]

[1] Canadian Nuclear Laboratories, Chalk River, Canada; [2] University of Saskatchewan, Saskatoon, Canada

16:40 – 17:00 **Progress Toward an Alternate Method for Production of Ac-225**
James Harvey[1], *Thomas Kroc*[2]
[1]NorthStar Medical Radioisotopes, LLC, Madison, WI, USA
[2]Fermi National Accelerator Laboratory, Batavia, IL, USA

17:00 – 17:15 SYMPOSIUM CLOSURE

Friday June 2, 2017

12:45 – 18:00 TRIP TO SHIRAKAWA-GO WORLD HERITAGE SITE

Poster SESSION I

Initial Experience of Ra-223 at the Japan Community Healthcare Organization (JCHO) Tokyo Shinjuku Medical Center

Nobuko Utsumi, Hiromasa Kurosaki
Department of Radiology, JCHO Tokyo Shinjuku Medical Center, Tokyo, Japan

Methods of survey and decontamination of radium-223 dichloride for radionuclide therapy in clinical facilities

Makoto Hosono[1, 2], Shinya Hohara[2], Masaya Inagaki[2], Kenta Sakaguchi[1], Shuhei Yoshida[1], Hirokuni Yamanishi[2], Genichiro Wakabayashi[2], Toshiro Matsuda[2], Tetsuo Ito[2]
[1]Kindai University, Faculty of Medicine, Osaka-Sayama, Japan, [2]Kindai University, Atomic Energy Research Institute, Higashi-Osaka, Japan

Biodistribution, dosimetry and imaging of ^{225}Ac-DOTA-anti-PD-L1-BC in a murine immunocompetent transgenic breast cancer model

Anders Josefsson[1], Jessie R. Nedrow[1], Sunju Park[1], Tom Bäck[2], Robert F. Hobbs[3], Cory Brayton[4], Frank Bruchertseifer[5], Alfred Morgenstern[5] and George Sgouros[1]
[1]Russell H. Morgan Department of Radiology and Radiological Science, Johns Hopkins University, School of Medicine, Baltimore, MD, USA; [2]The Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden; [3]Department of Radiation Oncology and Molecular Radiation Sciences, Johns Hopkins University, School of Medicine, Baltimore, MD, USA; [4]Department of Molecular and Comparative Pathobiology, Johns Hopkins University, School of Medicine, Baltimore, MD, USA, [5]European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Karlsruhe, Germany

Reducing renal uptake of free ^{213}Bi associated with the decay of ^{225}Ac-labeled radiopharmaceuticals

Jessie R Nedrow[1], Anders Josefsson[1], Sunju Park[1], Robert F. Hobbs[2], Frank Bruchertseifer[3], Alfred Morgenstern[3], and George Sgouros[1]
[1]Russell H. Morgan Department of Radiology and Radiological Science, Johns Hopkins University, School of Medicine, Baltimore, MD, USA; [2]Department of Radiation Oncology and Molecular Radiation Sciences, Johns Hopkins University, School of Medicine, Baltimore, MD, USA; [3]Institute for Transuranium Elements, Karlsruhe, Germany

How biodistribution, toxicity, and chelation of accelerator-produced actinium-225 will determine its fate in targeted alpha therapy

Rebecca J. Abergel
Lawrence Berkeley National Laboratory, Berkeley, CA 94720 USA

Preclinical studies of ^{211}At in Multiple Myeloma

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Experimental alpha-radioimmunotherapy against liver metastasis of gastric cancer

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Synthesis and radiotherapeutic effect of two I-131 or At-211 labelled radioprobes for melanoma with overexpressed metabotropic glutamate receptor 1

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Comparison of pharmacokinetics between meta-benzylguanidine labeled with radioactive iodine, bromine and astatine

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^{203}Pb-AR-RMX conjugates for image guided TAT of neuroendocrine tumors (NETs)

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^{225}Ac-DOTA-Substance P as a potential radiopharmaceutical for targeted alpha therapy of glioblastoma multiforme

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Assessment of ^{213}Bi-anti-EGFR-MAb treatment response in malignant cancer cells

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Cytotoxicity evaluation using α-particle emitting radionuclides ^{211}At conjugated antibody

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Biodegradable polymersomes as carrier for alpha radionuclide therapy

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Barium ferrite nanoparticles labeled with ^{223}Ra:
a new potential radiobioconjugate for internal alpha therapy

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The impact of tumor burden on the absorbed dose to the kidneys from Actinium-225 labeled antibody therapy in a murine model and predicted dosimetric impact for human clinical use

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Biokinetic modelling for optimization of intraperitoneal targeted alpha therapy of disseminated ovarian cancer

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Absorbed dose evaluation for the normal neighboring organs on thyroid gland of hyperthyroidism for iodine-131 radionuclide therapy using the Monte-Carlo based PHITS code combined with voxel phantom data for the application of targeted alpha therapy

M. Sakama[1], T. Hida[2], S. Imoto[2], T. Ihara[2], E. Matsumoto-Kawaguchi[2], and K. Fujimoto[3]
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How should we normalise dose in TAT for cancer?

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Poster SESSION II

Development of a scintillator based Compton camera for targeted α-particle radiotherapy

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Individual Alpha Particle Measurement using FNTD and SIM Super-Resolution Microscopy

Jasper J.M. Kouwenberg[1], G.J. Kremers[2], J.A. Slotman[2], A.B. Houtsmuller[2], Adrie J.J. Bos[3], Antonia Denkova[1]
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Radioisotope Production and Dynamic Multi-Isotope Imaging of the ^{225}Ac Decay Chain

A. K. H. Robertson[1,2], C. F. Ramogida[2], C. Rodriguez-Rodriguez[1], P. Kunz[4], V. Radchenko[2], V. Sossi[1], P. Schaffer[2,3]
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Chemical Purification of Actinium-225 from Proton-Irradiated Thorium Targets

Roy Copping,[1] Eva R. Birnbaum,[2] Rose A. Boll,[1] Mark Brugh,[2] Cathy S. Cutler,[3] Sandra Davern,[1] David L. Denton,[1] Michael E. Fassbender,[2] Jonathan M. Fitzsimmons,[3] Kevin Gaddis,[1] Justin R. Griswold,[1] Kevin D. John,[2] John W. Krueger,[1] Tara Mastren,[2] Leonard F. Mausner,[3] Dmitri G. Medvedev,[3] Karen E. Murphy,[1] F. Meiring Nortier,[2] Allison C. Owens,[1] Valery Radchenko,[2] Daniel W. Stracener,[1] Lance E. Wyant,[1] Joseph S. Wright,[1] Saed Mirzadeh[1]

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Behavior of Ac, Th and Ra on cation exchange resin in hydrochloric and trichloroacetic acids: Towards an alternative separation strategy for ^{225}Ac from irradiated thorium targets

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Radiochemical separation of ^{224}Ra from ^{232}U or ^{228}Th sources for ^{224}Ra/^{212}Pb/^{212}Bi generator

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Solution thermodynamics and kinetics of Th(IV) complexation by bare and conjugated Me-3,2-HOPO-based ligands

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Development of a resin-supported bifunctional reagent to simplify labeling of ^{211}At

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Isolation of ^{211}At using an anion-exchange column method

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Development of a ^{211}Rn/^{211}At Generator based on Dry-Chemistry

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Wet chemistry of radon and astatine for the development of a ^{211}Rn/^{211}At generator

Y. Shin[1], S. Ooe[1], K. Murakami[1], T. Taniguchi[1], E. Maeda[1], N. Yamada[1], K. Washiyama[1], A. Yokoyama[1], I. Nishinaka[2]
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Laboratory automation employed in the purification of astatine-211 from dissolved bismuth targets: Development, optimization, and performance validation of the fluidic system

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Realizing Clinical Trials with Astatine-211: Radiopharmaceutical Chemistry

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Isolation of alpha-emitting radionuclides for nuclear medicine in JSC "SSC RF – IPPE"

Samsonov M.D., Nerozin N.A., Podsoblyaev D.A., Prokof'ev I.V., Tkachev S.V., Khamianov S.V., Shapovalov V.V.
Joint Stock Company "State Scientific Centre of the Russian Federation – Institute for Physics and Power Engineering named after A. I. Leypunsky" (JSC "SSC RF – IPPE"), 249033, Obninsk, Kaluga region, Russia

Production of Actinium-225 at Oak Ridge National Laboratory

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Reactor Production of ^{229}Th via Neutron Capture of ^{228}Ra Target

Saed Mirzadeh, Susan Hogle, Karen Murphy, David Denton, Allison Owens, Justin Griswold, Roy Copping, and Rose Boll
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Astatine-211 production using the C70XP

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The Production of ^{211}At at Fukushima Medical University

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The ultimate ^{225}Ac---->^{213}Bi generator

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