



## 2nd International Symposium on TECHNETIUM and OTHER RADIOMETALS in CHEMISTRY and MEDICINE

President  
Chair

Ulderico Mazzi  
M. Cecilia Giron

### PROGRAM



*Under the auspices of*  
**University of Padua**  
**Interdisciplinary Group of Radiopharmaceutical Chemistry (GICR)**  
**Italian Society of Hospital Pharmacy (SIFO)**  
**Italian Society of Clinical Pharmacy and Therapy (SIFACT)**  
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*In collaboration with*  
**International Atomic Energy Agency (IAEA)**

## Welcome Message

Dear Colleagues,

we are pleased to welcome you to the 2nd International Symposium on Technetium and Other Radiometals in Chemistry and Medicine (TERACHEM 2014) which continues the long tradition of the previous symposia on Technetium and Rhenium for nuclear medicine applications.

For this edition of the Symposium the International Scientific Committee has combined up-to-date review lectures by 15 leading experts, arranged in 6 sessions. The covered topics range from radiometal coordination chemistry to new applications of radiometal-containing molecules in pre-clinical and clinical imaging and radiotherapy, pointing the attention not only on the traditional Technetium-99m and Rhenium-186/188 but also on Gallium-68, Copper-64, Zirconium-89, Scandium-44, and many other radiometals.

Much time will be devoted to oral and poster presentations so that the delegates can play an active role by sharing their knowledge and communicating their own experience and research. This will benefit mainly our youngest colleagues, who represent the future of the radiopharmaceutical sciences.

On behalf of the Society of Radiopharmaceutical Sciences, the University of Padova and the TERACHEM 2014 International Advisory Committee, Scientific Committee and Organizing Committee, we warmly welcome you all.

***Ulderico Mazzi***  
*President*

***Maria Cecilia Giron***  
*Chair*

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## Appreciation and Thanks

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# Acknowledgments

## ACKNOWLEDGMENTS

We wish to express our gratitude to the following companies which, through their generosity, have helped to make this Symposium possible:

### PLATINUM

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## Scientific Program

### Wednesday 10

- 15.00 Registration
- 18.00 - 20.00 Opening Ceremony and Symposium Lecture
- Symposium Lecture: Versatility of alpha-emitters - From chemistry to cancer and infection treatment  
*E. Dadachova (Albert Einstein College of Medicine, USA)*
- 20.00 Welcome Party

### Thursday 11

#### Session A1 Technetium and Rhenium in Coordination Chemistry

Moderators: S.C. Srivastava (Brookhaven National Laboratory, USA)  
J. Valliant (McMaster University, Canada)

- 8.30 - 9.20 Organometallic Technetium Chemistry: Past, Present and Future  
*R. Alberto (University of Zurich, Switzerland)*
- 9.20 - 10.20 **Oral Presentations**
- [2] Synthesis of fac- $\{^{99(m)}\text{TcO}_3\}^+$  complexes: Activation of  $[\text{TcO}_4]^-$  by phosphonium cations  
*H. Braband, M. Benz, R. Alberto*
- [4] Higher carbonyl cores of Tc and Re bioconjugates: Prospects and limitations  
*A.E. Miroslavov, G.V. Sidorenko, A.A. Lumpov, M.Yu. Tyupina, D.N. Suglobov*
- [5] Synthesis and biological evaluation of  $^{99m}\text{TcO-MNXT}$  as a novel tumor hypoxia imaging agent  
*Z. Li, X. Wang, J. Zhang*
- [12] Characterization of  $^{99m}\text{Tc-caspofungin}$  as fungal infection agent and assessment of potential influence of pretreatment  
*L. Reyes, L. Fernández, M. Vilche, P. Oliver, A. Rey, M. Terán*
- 10.20 - 10.50 **Coffee break**
- 10.50 - 11.35 **Oral Presentations**
- Moderators: S.S. Jurisson (University of Missouri-Columbia, USA)  
T. Maina (NCSR Demokritos, Greece)
- [6]  $[\text{CpM}(\text{CO})_3]$  (M=Re,  $^{99m}\text{Tc}$ ) labeled phenylbenzothiazoles as imaging agents for A $\beta$  plaques  
*J. Jia, M. Cui, B. Liu*
- [7] Synthesis and evaluation of a single amino acid chelate (SAAC) tetrazine derivative for bioorthogonal conjugation with Re/ $^{99m}\text{Tc}$   
*J.F. Valliant, R. Patel, A. Vito*

## Scientific Program

- [8] Enhancing chemical properties and stability of  $M(\text{CO})_3$  ( $M=\text{Re}, {}^{99\text{m}}\text{Tc}$ ) complexes through ligand donor modifications  
*P.D. Benny, T.R. Hayes, P.A. Lyon*

11.35 - 12.05 **Poster Communications**  
Moderator: M. Riondato (University of Genova, Italy)

- [9] Synthesis of water stable  $[M^{(V)}\text{O}_2]^+$ -N-heterocyclic carbene complexes ( $M=\text{Re}, {}^{99}\text{Tc}$ )  
*M. Benz, H. Braband, R. Alberto*
- [10]  ${}^{99\text{m}}\text{Tc}$ -labelling of surface localized SNAP-tag sites on Gram positive bacterium  
*R. Awais, B. Mills, J. Luckett, P. Williams, P. Hill, A. Perkins, P. Duncanson, V. Griffiths*
- [11]  ${}^{99\text{m}}\text{Tc}$ -labeled biotin conjugate in a tumor "pretargeting" approach with monoclonal antibody bevacizumab  
*N. Kiza, G. Makris, D. Papagiannopoulou, T. Tsoதாக, D. Mastellos, C. Tsoukalas, P. Bouziotis*
- [13] Imidazole stabilized  $[2+1] \text{Re}(\text{I})/{}^{99\text{m}}\text{Tc}(\text{I})$  complexes as isostructural nuclear and optical probes  
*A. Yazdani, T. Selvi Pitchunmony, L. Banevicius, S. Czorny, J.F. Valliant*
- [14] Labeling PAMAM dendrimers with Tc-99m via HYNIC  
*L. Kovaks, M. Tassano, M. Cabrera, M. Fernández, R. Anjos, P. Cabral, W. Porcal*

12.05 - 13.00 **Poster Session**

13.00 - 14.30 **Lunch time**

**Session A2 Other Radiometals in Diagnosis and Therapy and New Labelling Strategies**

Moderators: C.J. Anderson (University of Pittsburgh, USA)  
H.H. Coenen (University of Cologne, Germany)

- 14.30 - 15.10 Innovations in Imaging and Therapy with "New" Radiometals  
*R. Schibli (ETH Zurich, Switzerland)*

15.10 - 16.10 **Oral Presentations**

- [59] 3,4,3-(LI-1,2-HOPO): An alternative chelator for  ${}^{89}\text{Zr}$  radiopharmaceuticals  
*M.A. Deri, S. Ponnala, B.M. Zeglis, G. Pohl, J.J. Dannenberg, J.S. Lewis, L.C. Francesconi*
- [60] A novel multivalent bifunctional siderophore chelator scaffold for radiolabeling with gallium-68 based on fusarinine C  
*C. Zhai, P. Knetsch, C. Rangger, D. Summer, M. Blatzer, H. Haas, E. von Guggenberg, R. Haubner, C. Decristoforo*
- [61] Synthesis of tridentate ligand: Potential theranostic application of a radioarsenic trithiol complex  
*A.J. DeGaffenreid, C.S. Cutler, C. Barnes, S.S. Jurisson*

## Scientific Program

- [62] Robust and efficient bifunctional chelators for  $^{64}\text{Cu}$  to target  $\alpha_v\beta_3$  integrin  
*N. Soni, N. Bhatt, G.I. An, J. Yoo*
- 16.10 - 16.40 **Coffee break**
- 16.40 - 17.20 Bioorthogonal Click Chemistry in the Synthesis of Radiopharmaceuticals  
*B.M. Zeglis (Memorial Sloan-Kettering Cancer Center, USA)*
- 17.20 - 18.20 **Oral Presentations**  
Moderators: F.R. Colombo (IRCCS Ca' Granda, Ospedale Maggiore Policlinico, Italy)  
T.P. Quinn (University of Missouri-Columbia, USA)
- [63] Development of a PSMA targeting nanoparticle as PET/MR multimodal imaging probe  
*S-H. Moon, B.Y. Yang, Y-S. Lee, D.S. Lee, J-K. Chung, J.M. Jeong*
- [64] Tumor pretargeting with Diels-Alder: A TCO derivative with improved properties  
*R. Rossin, S.M.J. van Duijnhoven, S. van den Bosch, M.S. Robillard*
- [65] Metal-chelating polymers developed for mass cytometry as a potential route to high activity radioimmunotherapeutic agents  
*D. Majonis, X. Lou, O. Ornatsky, I. Herrera, M. Nitz, M.A. Winnik, D. Bandura, V. Baranov, S.D. Tanner*
- [66] Promising prospects of  $^{44\text{m}}\text{Sc}/^{44}\text{Sc}$  as an in vivo generator: Biological evaluation and PET images  
*S. Huclier-Markai, C. Alliot, J. Rousseau, N. Chouin, M. Fani, P. Bouziotis, T. Maina, C.S. Cutler, J. Barbet*
- 18.20 - 19.00 **Poster Communications**  
Moderator: B.E. Rogers (Washington University in St. Louis, USA)
- [67] Gallium(III) complexes with new acyclic chelators for radiopharmaceutical design  
*F. Silva, M. Paula, C. Campello, L. Gano, C. Fernandes, I.C. Santos, I. Santos, J.R. Ascenso, M.J. Ferreira, A. Paulo*
- [68] Nanoparticle bioconjugates labeled with alpha emitters  
*E. Leszczuk, L. Janiszewska, P. Koźmiński, A. Morgenstern, F. Bruchertseifer, A. Bilewicz*
- [69] Evaluation of metallofullerenes for potential use in therapy  
*T. Sakr, H.C. Dorn, Z. Zhang, C.S. Cutler*
- [70] Acyclic chelating ligands for PET imaging of tumor hypoxia with Ga-68  
*C.F. Ramogida, C.L. Ferreira, J.F. Cawthray, C. Orvig, M.J. Adam*
- [71] Preparation of  $^{45}\text{Tl}$ Ti-salan-dipic  
*G.W. Severin, A.I. Jensen, J. Fonslet, F. Zhuravlev*
- [72] Development of Ga-PpIX peptides as fluorescence/PET imaging probes  
*N. Sharma, B. Behnam Azad, L.G. Luyt*
- 20.00 **Meeting of the IAC, ISC and LOSC**

## Scientific Program

### Friday 12

#### SESSION B Radiopharmaceuticals Labelled with $^{99m}\text{Tc}$ and Other Radiometals

##### Session B1 Radiopharmacy and Radiopharmacology

Moderators: M.J. Adam (TRIUMF, Canada)  
C. Decristoforo (Innsbruck Medical University, Austria)

8.30 - 9.10 Regulatory Requirements for the Production of PET Radiopharmaceuticals for Clinical Research  
*S.W. Schwarz (Washington University in St. Louis School of Medicine, USA)*

#### 9.10 - 10.10 Oral Presentations

[88] Quality control of research and GMP grade radiometals: Example Lu-177  
*C.S. Cutler*

[89]  $^{68}\text{Ga}$ -Dotatate radiochemical purity impacts patient image quality: 90% is not enough  
*M. Bauwens, I. Pooters, H. Eram, F.M. Mottaghy, M. van Kroonenburgh*

[90] Phosphoramidon enhances tumor uptake of truncated [ $^{111}\text{In}$ -DOTA]gastrins  
*A. Kaloudi, E. Lympers, E.P. Krenning, B.A. Nock, M. de Jong, T. Maina*

[91] Pharmacological characterization of  $\alpha$ -MSH-derivatives  
*W. Sihver, F. Gao, C. Jurischka, C. Haase-Kohn, J. Steinbach, D. Carta, C. Bolzati, A. Calderan, J. Pietzsch, H.J. Pietzsch*

#### 10.10 - 10.40 Coffee break

10.40 - 11.20 Translational Research on Imaging CXCR4  
*H-J Wester (Munich Technical University, Germany)*

#### 11.20 - 12.20 Oral Presentations

Moderators: S.L. Deutscher (University of Missouri-Columbia, USA)  
K. Linder (GE Healthcare, USA)

[92] Evaluation of [ $^{68}\text{Ga}$ ]-DOTA ghrelin (1-19) in LNCaP prostate carcinoma  
*C.L. Charlton, S. Dhanvantari, L.G. Luyt*

[93]  $^{64}\text{CuCl}_2$ : New theranostic agent  
*G. Valentini, P. Panichelli, C. Villano, G. Pigotti, D. Martini*

[94] Preclinical application of  $^{47}\text{Sc}$ -folate – A pilot study in tumor-bearing mice  
*C. Müller, M. Bunka, S. Haller, U. Köster, N. van der Meulen, A. Türler, R. Schibli*

[95]  $^{89}\text{Zr}$  immuno-PET of epithelial ovarian cancer  
*S. Kiran Sharma, B. Zeglis, K. Sevak, J. Lewis, F. Wuest*

## Scientific Program

### 12.20 - 13.00 **Poster Communications**

Moderator: M. Asti (Arcispedale Santa Maria Nuova - IRCCS, Italy)

- [96] Development of HDD kit for preparation of liver cancer therapeutic agent Re-188-HDD/  
lipiodol  
*V. Kumar Banka, S-H. Moon, S. Reddy Seelam, Y-S. Lee, J.M. Jeong*
- [97]  $^{177}\text{Lu}$ -DOTA-DIISAVVGL: Labelling, quality controls and in-vitro assays  
*N. Nevares, A. López Bularte, M. Trotta, J. Perez, A. Zapata, S. Michelin, J. Crudo*
- [98] Novel, multivalent tracers targeting prostate cancer biomarkers  
*R. Bandari, T. Stott Reynolds, Z. Jiang, C. Smith*
- [99]  $^{89}\text{Zr}$  labeling and preliminary evaluation of a trimeric RGD peptide based on a novel  
siderophore derived chelating scaffold  
*C. Zhai, P. Knetsch, D. Summer, C. Ronger, H. Haas, R. Haubner, C. Decristoforo*
- [101] Targeting gastrin-releasing peptide receptor-positive tumors using Yttrium-86 labeled  
DOTA-Bombesin(7-14) analogs  
*N. Bandara, K. Cherukuri, S. Krieger, J. Parry, S.E. Lapi, B.E. Rogers*

### 13.00 - 14.30 **Lunch time**

### **Session B2 Radionuclide Production**

Moderators: R. Atcher (Los Alamos National Laboratory, USA)  
S. Smith (Brookhaven National Laboratory, USA)

14.30 - 15.10 Radiometals Development in the U.S. Department of Energy Isotope Program  
*D.R. Phillips (Department of Energy, USA)*

### 15.10 - 16.10 **Oral Presentations**

- [120] Cyclotron based production of high specific activity  $^{197\text{(m)}}\text{Hg}$   $\text{HgCl}_2$   
*M. Walther, S. Preusche, H-J. Pietzsch, R. Bergmann, J. Steinbach*
- [121] Production of  $^{529}\text{Mn}$  and  $^{147}\text{Gd}$  for the development of multi-modal imaging probes  
*H.H. Coenen, M. Buchholz, I. Spahn*
- [122]  $^{44}\text{Sc}$  production development from  $^{44}\text{Ca}$  for radiopharmaceutical application  
*M. Bunka, C. Müller, K.A. Domnanich, R. Schibli, A. Türler, N.P. van der Meulen*
- [123] Evaluation of new target materials for cyclotron production of  $^{186}\text{Re}$  and  $^{99\text{m}}\text{Tc}$   
*V. Richards, S. Lapi*

### 16.10 - 16.40 **Coffee break**

### 16.40 - 18.00 **Invited Lectures and Poster Communications**

Moderators : S. Lapi (Washington University in St. Louis, USA)  
S. Huclier (University of Nantes France)

## Scientific Program

- 16.40 - 17.00 Non-HEU Production of Mo-99  
*J.T. Harvey (NorthStar Medical Technologies, LLC, USA)*
- 17.00 - 17.20 New Route for High Volume Production of Ac-225  
*J.T. Harvey (NorthStar Medical Technologies, LLC, USA)*
- [124] Large-scale cyclotron production of  $^{99m}\text{Tc}$   
*K. Buckley, F. Benard, M.S. Kovacs, V. Hanemaayer, B. Hook, S. McDiarmid, S.K. Zeisler, M. Dodd, J. Corsaut, M. Vuckovic, N. Cockburn, C. Economou, R. Harper, J. Valliant, T.J. Ruth, P. Schaffer*
- [125] High purity  $^{67}\text{Cu}$  using 40-50 MeV protons at the Brookhaven Linac Isotope Producer  
*K. Solvik, R. Sharma, S.V. Smith*
- [126] Development of the non-standard PET radionuclides  $^{43,44g}\text{Sc}$  and  $^{45}\text{Ti}$   
*H.H. Coenen, S. Kuhn, I. Spahn*
- [127] Production of Lu-177 in the BR2 high-flux reactor  
*B. Ponsard*
- [128]  $^{99m}\text{Tc}$  production by proton beams irradiation: new excitation functions measurement  
*S. Manenti, L. Gini, F. Groppi*
- [129] PET imaging using titanium-45: Could it be useful?  
*P. Costa, L.F. Metello, F. Alves, M Duarte Naia*
- 18.00 - 19.00 **Poster Session**
- 20.30 **Concert**

### Saturday 13

#### SESSION C Clinical Successes Using Metal-Based Radiopharmaceuticals

- 8.00 - 8.30 Choosing the target  
*W.C. Eckelman (Bethesda MD, USA) and R. Rossin (Philips Research, The Netherlands)*
- 8.30 - 9.00 PSMA ligands for diagnosis and therapy  
*U. Haberkorn (University Hospital Heidelberg, Germany)*
- 9.00 - 9.30 Tc-99m Tilmanocept injection for use in sentinel node biopsy and beyond  
*F. Cope (Navidea Biopharmaceuticals, USA)*
- 9.30 - 10.00 **Coffee break**
- 10.00 - 10.30 Targeting PSMA with small molecule inhibitors of PSMA: Development of a Tc-99m labeled molecular imaging agent for prostate cancer  
*J. Babich (Weill Cornell Medical College, USA)*

## Scientific Program

- 10.30 - 11.00  $^{68}\text{Ga}$  and  $^{177}\text{Lu}$ -DOTA-Octreotate: theranostic approach in the diagnosis and treatment of somatostatin receptor positive tumors  
*M.F. Mariani (Advanced Accelerator Application, France)*
- 11.00 - 11.30 Clinical studies with Ac-225 and Ra-223 labeled radiopharmaceutical therapeutics  
*S.M. Larson (Memorial Sloan-Kettering Cancer Center, USA)*
- 11.30 - 12.00 **Round Table Discussion**
- 12.00 - 12.30 **Symposium Closure**
- 14.30 **Trip and Social Dinner**

### Other Posters

#### Session A1

- [15]  $^{188}\text{Re}$  radiotherapy facilitated by virus expressing the human sodium iodide symporter  
*J. Ady, J. Belin, S. Groveman, Y. Fong, L. Francesconi*
- [16] Determination of optimized conditions for  $^{99\text{m}}\text{Tc}$ -labeled ripamicin preparation for tuberculosis imaging applications  
*A. Badbarin, A.R. Jalilian, F. Johari Daha, M. Athari-Alaf*
- [17] Novel  $^{99\text{m}}\text{Tc}$ -labelled estrogen derivative as potential agent for estrogen receptors imaging  
*L. Bauzán, S. Fernández, S. Dematteis, H. Cerecetto, J. Giglio, A. Rey*
- [18] [ $^{99\text{m}}\text{Tc}(\text{N})\text{PNO}$ ]-scaffold for SPECT of multidrug resistance: Early in-vitro study  
*C. Bolzati, V. Gandin, N. Morellato, N. Salvarese, C. Marzano, D. Carpanese, L. Meléndez-Alafort, A. Rosato*
- [19] Aptamer-HYNIC- $^{99\text{m}}\text{Tc}$ : A molecular imaging agent of PTK7  
*V. Calzada, M. Fernández, J. González, M. Moreno, A. Chabalgoity, H. Cerecetto, P. Cabral, T. Quinn*
- [20] Thiocarbonylbenzamidines for bioconjugation of Re and Tc  
*J.D. Castillo Gómez, N.H. Huy, U. Abram, N. Beindorff, W. Brenner*
- [21] Biological evaluation of two glucose derivatives radiolabeled with  $^{99\text{m}}\text{Tc}$  as potential cancer imaging agents  
*R. Dapuetto, M. Fernández, R. Aguiar, M. Moreno, C. Machado, F. Marques, J.P. Gambini, R. Chammass, P. Cabral, W. Porcal*
- [22] Radiolabeling and biological evaluation of amphotericin using fac- $[\text{}^{99\text{m}}\text{Tc}(\text{I})(\text{H}_2\text{O})_3(\text{CO})_3]^+$   
*L. Fernández, L. Reyes, M. Terán*
- [23] Development of a  $^{99\text{m}}\text{Tc}(\text{I})$ -tricarbonyl complex as potential agent for hypoxia imaging  
*S. Fernández, J. Giglio, H. Cerecetto, A. Rey*
- [24] A novel Tc-99m-labeled lactam bridge-cyclized alpha-MSH peptide with enhanced melanoma uptake  
*H. Guo, Y. Miao*

## Scientific Program

- [25] Synthesis and preliminary evaluation of  $^{99m}\text{Tc}$ -labelled monomeric, dimeric and tetrameric folate derivatives  
*Z. Guo, M. Song, P. Zhang, C. Liu, X. Zhang*
- [26] Theoretical study of Re and Tc DMSA complexes  
*D. Hernández-Valdés, A. Blanco-González, Z. Rodríguez-Riera, U. Jaúregui-Haza, L. Ducat-Pages, L. Pizarro-Lou*
- [27] Computational study of Re and Tc tricarbonyl complexes  
*D. Hernández-Valdés, Z. Rodríguez-Riera, U. Jaúregui-Haza, C. Picard, E. Benoist*
- [28] Preparation and biological evaluation of a  $^{99m}\text{Tc}$  labelled fibroblast activation protein inhibitor  
*P. Iveson, R. Ahmad, M. Bapat, M. Morrison, A. Olsson, A. Meijer*
- [29]  $^{99m}\text{Tc}(\text{CO})_3$ -labeled 2-phenylbenzothiazoles as A $\beta$  imaging agents for the detection of CAA  
*J. Jia, M. Cui, B. Liu*
- [30] Synthesis and biodistribution of  $^{99m}\text{TcO-TRYDTC}$  as a novel potential tumor imaging agent  
*J. Zhu, Q. Hu, J. Du, X. Wang, J. Zhang*
- [31] Synthesis and biodistribution of  $^{99m}\text{Tc}(\text{CO})_3\text{-G12N3}$  as a potential agent for tumor imaging  
*T. Liu, X. Wang, J. Zhang*
- [32] Synthesis and biodistribution of  $^{99m}\text{Tc}(\text{CO})_3\text{-CPADG}$  as a promising tumor imaging agent  
*Y. Wang, J. Zhu, X. Song, X. Wang, J. Zhang*
- [33]  $^{99m}\text{Tc}$ -gastrins: Impact of (Glu) $_5$ -chain and NEP-inhibition on pharmacokinetics  
*A. Kaloudi, B.A. Nock, E. Lymperis, E.P. Krenning, M. de Jong, T. Maina*
- [34] Imaging of VEGF expression with  $^{99m}\text{Tc}(\text{I})$  and  $^{99m}\text{Tc}(\text{V})$  bevacizumab conjugates  
*N. Kiza, C. Tsoukalas, T. Tsotakos, S. Xanthopoulos, M. Paravatou-Petsotas, G. Kastis, P. Bouziotis*
- [35] Metastatic melanoma targeting property of a novel Tc-99m-labeled HYNIC-conjugated lactam bridge-cyclized alpha-MSH peptide  
*L. Liu, Y. Miao*
- [36] Synthesis and biodistribution of  $^{99m}\text{Tc-HYNIC-DG}$  as a novel potential tumor imaging agent  
*L. Liu, M. Zhao, Z. Wang, Y. Qin, X. Wang*
- [37] Copolymer based radiotracers for liver ASGP-R targeted SPECT imaging  
*C. Liu, Z. Guo, P. Zhang, X. Zhang*
- [38] New GRPR-antagonists mimicking [ $^{99m}\text{Tc}$ ]Demobesin 1  
*T. Maina, A. Nikolopoulou, R. Cescato, D. Charalambidis, B. Waser, E. Ketani, J.C. Reubi, B.A. Nock*

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- [39] New  $^{99m}\text{Tc}(\text{CO})_3(\text{NSN})^+$  chelate conjugated to a somatostatin receptor-seeking peptide  
G. Makris, L. Radford, F. Gallazzi, S. Jurisson, H. Hennkens, D. Papagiannopoulou
- [40] Synthesis and biological evaluation of novel bone-seeking  $[\text{Re}/^{99m}\text{Tc}(\text{CO})_3]$  complexes  
G. Makris, I. Pirmettis, M.S. Papadopoulos, D. Papagiannopoulou
- [41] New  $^{99m}\text{Tc}$ -radioimmunoconjugates for pancreatic carcinoma detection  
L. Meléndez-Alafort, C. Bolzati, G. Zuccolotto, G. Fracasso, N. Salvatore, M. Colombatti, A. Rosato
- [42] Development and preliminary biological study of radio-pharmaceutical for radiosynovectomy labelled by  $^{188}\text{Re}$   
O.E. Klementyeva, A.O. Malysheva, G.E. Kodina, N.A. Taratonenkova, M.V. Zhukova
- [43] Synthesis of novel rhenium and technetium  $\text{N}_2\text{O}_2$  schiff base complexes  
K.M. Reinig, D.A. Rotsch, L.L. Radford, E.M. Weis, A.B. Taylor, C.L. Barnes, S.S. Jurisson
- [44] Synthesis of  $^{99m}\text{Tc}$  analogue of  $^{123/131}\text{I}$ -mIBG for possible use in neuroendocrine tumor imaging  
N. Sakhare, S. Das, A. Mathur, V.V. Murhekar, R. Krishna Mohan, G. Prabhakar, S.S. Sachdev
- [45]  $\text{Tc}^{\text{III}}$ -based mixed complexes for the design and the development of new SPECT tracers  
N. Salvatore, N. Morellato, A. Dolmella, L. Meléndez-Alafort, D. Carpanese, A. Rosato, F. Refosco, C. Bolzati
- [46] Biodistribution of 80 nm iron oxide nanoparticles labeled with  $^{99m}\text{Tc}$  in Balb/c mice  
S. Shanehsazzadeh, A. Lahooti
- [47] (2-Hydroxyphenyl)diphenylphosphine as *fac*- $[\text{Re}/^{99m}\text{Tc}(\text{CO})_3]^+$ -ligand  
A. Shegani, C. Triantis, F. Tisato, V. Peruzzo, B. Nock, T. Maina, C. Raptopoulou, V. Psycharis, I. Pirmettis, M. Papadopoulos
- [48] Neutral *fac*- $[\text{Re}(\text{I})^{99m}\text{Tc}(\text{I})(\text{CO})_3]^+$ -complexes with the new PO/L-donor system  
Shegani, C. Triantis, F. Tisato, V. Peruzzo, B. Nock, T. Maina, C. Raptopoulou, V. Psycharis, I. Pirmettis, M. Papadopoulos
- [49] Mixed pharmacophore *fac*- $[\text{M}(\text{OO})(\text{isc})(\text{CO})_3]$  (M = Re,  $^{99m}\text{Tc}$ ) complexes  
C. Triantis, M. Sagnou, B. Mavroidi, M. Paravatou-Petsotas, I. Pirmettis, M. Papadopoulos, M. Pelecanou
- [50] New *cis*- $[\text{Re}/^{99m}\text{Tc}(\text{NO})(\text{P})(\text{isc})(\text{CO})_2]$  mixed ligands complexes  
C. Triantis, A. Shegani, C. Raptopoulou, V. Psycharis, M. Pelecanou, I. Pirmettis, M. Papadopoulos
- [51] New *trans-cis*- $[\text{Re}(\text{NO})(\text{Isc})_2(\text{CO})_2]$  and  $[\text{Re}(\text{NO})(\text{isc})_3(\text{CO})]$  mixed ligand complexes  
C. Triantis, A. Shegani, C. Raptopoulou, V. Psycharis, M. Pelecanou, I. Pirmettis, M. Papadopoulos
- [52] Phosphite, phosphine, and arsine as ligands for *fac*- $[\text{Re}/^{99m}\text{Tc}(\text{quin})(\text{H}_2\text{O})(\text{CO})_3]$   
C. Triantis, A. Lazopoulos, A. Panagiotopoulou, C. Raptopoulou, V. Psycharis, M. Pelecanou, I. Pirmettis, M. Papadopoulos

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- [53] A new kind of imaging agent for myocardial fatty acids metabolism  
*T. Xue, X. Li, J. Liu, H. Zhang*
- [54] Introduction of a hydrocarbon beta-ala linker reduced the renal uptake of Tc-99m-labeled Arg-Ala-Asp-conjugated alpha-MSH peptide  
*J. Yang, Y. Miao*
- [55] Synthesis and preclinical evaluation of novel Pteroy-lys derivatives labeled with  $^{99m}\text{Tc}$  for FR-positive tumor imaging  
*Q. Yu, Y. Chen, C. Zhang, Y. He, J. Lu*
- [56] Single-domain antibodies: Next-generation targeting vectors for molecular imaging  
*K. Zarschler, K. Zscheppang, F. Kapplusch, N. Cordes, H. Stephan*
- [57] A possible mechanism for trapping  $^{99m}\text{Tc}$ -HL91 in hypoxic tumor  
*L. Zhu, W. Fan, Y. Zhang, J. Qiao*
- [58] The preparation and preclinical evaluation of  $^{99m}\text{Tc}$ -labeled microbubbles for bimodal ultrasound and SPECT imaging  
*A. Zlitni, A.R. Genady, N. Janzen, J.F. Valliant*

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- [73] Bispidines as a platform for targeted multimodal imaging  
*P. Comba, S. Hunoldt, M. Morgen, J. Pietzsch, J. Steinbach, H. Stephan, M. Walther*
- [74]  $^{64}\text{Cu}$ ]Cu-CryptTM – A novel cryptate for copper-64?  
*C. Foester, J.C. Knight, M. Wuest, B. Rowan, S.E. Lapi, A.J. Amoroso, P.G. Edwards, F. Wuest*
- [75] DOTA<sub>2</sub> and NOTHA<sub>2</sub> – New chelates for highly efficient  $^{64}\text{Cu}$  radiolabeling  
*S. Ait-Mohand, C. Denis, G. Tremblay, M. Paquette, B. Guérin*
- [76] Kinetic inertness evaluation of copper complexes using gel electrophoresis techniques  
*M. Kubeil, K. Zarschler, J. Steinbach, H. Stephan*
- [77]  $^{141}\text{Ce}$ -DOTMP: A theranostic agent for metastatic bone tumor  
*K.V. Vimalnath, A. Rajeswari, H.D. Sarma, S. Chakraborty*
- [78] DFO\* - A novel octadentate BFCA for zirconium-89  
*M. Patra, A. Bauman, C. Fischer, C. Mari, G. Gasser, T. Mindt*
- [79]  $^{64}\text{Cu}$ -dithiocarbamate compounds for theragnostic applications: Preliminary in-vitro studies  
*N. Morellato, G. Cicoria, V. Gandin, N. Salvarese, C. Marzano, C. Malizia, C. Bolzati*
- [80] In vitro evaluation of  $^{64}\text{Cu}$ -labeled GE11-conjugates  
*F. Oertel, F. Starke, W. Sihver, J. Steinbach, H.J. Pietzsch*
- [81] Structural investigation of  $^{nat/67/68}\text{Ga}$  HBED-CC complexes  
*K. Ploessl, Z. Zha, S.R. Choi, L. Zhu, H. Kung*
- [82] H<sub>4</sub>octapa vs H<sub>4</sub>C3octapa: The difference of a single carbon atom  
*E.W. Price, B.M. Zeglis, J.F. Cawthray, J.S. Lewis, M.J. Adam, C. Orvig*

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- [83] Binding properties of radiolabeled cetuximab conjugates  
*W. Sihver, M. Schubert, H. Stephan, B. Graham, L. Spiccia, M. Baumann, J. Pietzsch, J. Steinbach, H.J. Pietzsch*
- [84] PCB-TE2A-NCS: A cross bridged BFC for  $^{64}\text{Cu}$ -based radiopharmaceuticals  
*N. Soni, Y.S. Ha, N. Bhatt, G.I. An, J. Yoo*
- [85] Peptide conjugates for EGFR targeting  
*K. Viehweger, J. Hesse, H. Stephan, L. Spiccia, B. Graham*
- [86] Polyacrylamide nanogel systems with  $^{64}\text{Cu}$  chelating cross-linkers for PET imaging  
*A.G. White, J. Lux, M. Chan, C.J. Anderson, A. Almutairi*
- [87] The site-specific radiometallation of antibodies on the heavy chain glycans  
*B.M. Zeglis, C.B. Davis, R. Aggeler, B.J. Agnew, J.S. Lewis*
- [139] Labeling of a NOTA mannosylated dextran with  $^{68}\text{Ga}$   
*C. Tsoukalas, A. Lazopoulos, F. Boschetti, C. Triantis, P. Bouziotis, M. Pelecanou, M. Papadopoulos, I. Pirmettis*

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- [102] Synthesis and evaluation of [ $^{67}\text{Ga}$ ]-AMD3100: A novel imaging agent for targeting chemokine receptor CXCR4  
*A. Aghnejad, A.R. Jalilian, Y. Fazaeli, B. Alirezapoor, M. Pouladi, D. Beiki, S. Maus, A. Khalaj*
- [103]  $^{68}\text{Ga}$ -labelled curcuminoids complexes: Characterization of potential radiotracers for imaging Alzheimer's disease  
*M. Asti, E. Ferrari, S. Croci, G. Atti, S. Rubagotti, M. Iori, P.C. Capponi, A. Zerbini, M. Saladini, A. Versari*
- [104] Influence of different chelators on the radiochemical properties and imaging capabilities of  $^{68}$ -gallium labelled bombesin analogue  
*M. Asti, R. Martin, R. Bergmann, M. Iori, P.C. Capponi, G. Atti, S. Rubagotti, A. Brennauer, M. Müller, P.A. Erba, A. Versari*
- [106] Single vial kit for preparation of  $^{68}\text{Ga}$ -NODAGA-E[c(RGDfK)]<sub>2</sub> as a PET radiotracer  
*S. Chakraborty, R. Chakravarty, H.D. Sarma, A. Dash*
- [107] Tumor pretargeting with antibody fragments and the Diels-Alder reaction  
*S.M.J. van Duijnhoven, R. Rossin, S.M. van den Bosch, M. Wheatcroft, P. Hudson, M.S. Robillard*
- [108] A novel radiometric phosphatidylserine (PS) binding assay based on [ $^{64}\text{Cu}$ ]Cu-NOTA-annexin-V  
*C. Foerster, A. Perrault, M. Wuest, C. Bergman, F. Wuest*
- [109] How technetium could help some PET nuclear chemistry technology: application of Tc-99 NMR for analysis of O-18 content in water  
*V. Tarasov, G. Kirakosyan, K. German*

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- [110] Receptor-mediated binding of [<sup>68</sup>Ga]tilmanocept by mesangial cells  
*C.K. Hoh, Z. Qin, D.J. Hall, D.R. Vera*
- [111] Development of analytical methods for investigation of new <sup>64</sup>Cu(II) complex with HL-1 – Potential anticancer agent  
*D. Kludkiewicz, M. Maurin, P. Garnuszek, A-K. Bachon, P. Gomez, R. Mikolajczak*
- [112] Comparison of the internalization results of two minigastrin analogs labelled with <sup>177</sup>Lu  
*A. López Bularte, N. Nevares, M. Trotta, J. Perez, A. Zapata, S. Michelin, J. Crudo*
- [113] Effects of Gly<sup>11</sup>/DAla<sup>11</sup>-replacement in GRPR-antagonist based radioligands  
*E. Lympersis, T. Maina, A. Kaloudi, E.P. Krenning, M. de Jong, B.A. Nock*
- [114] Radiolabelling and preliminary biological evaluation of NOTA-cRGD dimer labelled with Ga-68  
*D. Niculae, I. Esanu, F. Puicea, C. Mustaciosu*
- [115] A tri-modal tilmanocept for sentinel lymph node mapping  
*Z. Qin, C.K. Hoh, D.R. Vera*
- [116] In vivo imaging of <sup>89</sup>Zr-labeled poly(2-ethyl-2-oxazoline)s and poly(ethylene glycol)s  
*T. Verbruggen, L. Wyffels, B. Monnery, R. Hoogenboom, S. Staelens*
- [117] In-111 labeled peptides targeting the estrogen receptor for theranostic of cancer  
*F. Vultos, C. Fernandes, J.D.G. Correia, I. Santos, L. Gano*
- [118] Active targeting with Y-90 radiolabelled octreotate functionalized AGuIX ultra-small nano-particles  
*M. Maurin, U. Karczmarczyk, P. Garnuszek, R. Mikolajczak, A. Sawicka, C. Truillet, F. Lux, A. Clabaut, O. Tillement*
- [136] Evaluation and quality control of [<sup>166</sup>Ho]-DOTA-Avastin for radioimmunotherapy  
*A. Khorrami*
- [137] A novel pretargeting-system based on L-oligonucleotides  
*M. Schubert, R. Bergmann, W. Sihver, S. Klussmann, L. Bethge, H.J. Pietzsch, J. Steinbach*

### Session B2

- [130] Accelerator based <sup>99</sup>Mo/<sup>99m</sup>Tc production activity in Armenia  
*R. Avagyan, A. Avetisyan, I. Kerobyan, R. Dallakyan*
- [131] Production of high purity <sup>57</sup>Co at the Brookhaven Linac Isotope Producer  
*Z.P. Gotlib, S.V. Smith*
- [132] A new simple way separation of <sup>99m</sup>Tc from <sup>99</sup>Mo target  
*M. Gumiel, E. Gniazdowska, P. Koźmiński, A. Bilewicz*
- [133] Radiation dose from cyclotron-produced <sup>99m</sup>Tc-tadiopharmaceuticals based on their experimentally determined isotopic composition  
*S.V. Selivanova, J.E. van Lier, É. Turcotte, R. Lecomte, B. Guérin, O. Lebeda, E.J. van Lier, A. Zyuzin*

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- [134]      Microspectrophotometry for detection of metal ion concentration of radioisotopic solution  
*H. Reed, S.V. Smith*
- [138]      Harvesting radioisotopes at a Projectile Fragmentation Facility  
*A. Pen, T. Mastren, G.F. Peaslee, N. Wozniak, S. Loveless, S. Essenmacher,  
L.G. Sobotka, D.J. Morrissey, S.E. Lapi*

## General Informations

### Symposium Venue

Forum Brixen/Bressanone  
Via Roma, 9  
39042 Bressanone (BZ), Italy  
[www.forum-brixen.com](http://www.forum-brixen.com)

### Organizing Secretariat and Registration Desk



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Website for on-line registration: [www.lccongressi.it/TERACHEM2014](http://www.lccongressi.it/TERACHEM2014)

**The Registration & Information Desk** will be open on congress site throughout the whole Symposium, during the following hours:

Wednesday Sept. 10, 2014 from 15.00 to 22.00  
Thursday Sept. 11, 2014 from 08.00 to 19.00  
Friday Sept. 12, 2014 from 08.00 to 19.00  
Saturday Sept. 13, 2014 from 07.30 to 12.30

All registered participants must collect congress bag/badge/tickets on congress site by the Secretariat.

**Registration fee as Delegate** includes:

- Attendance to all Scientific Sessions
- Congress bag, including name badge and scientific brochures
- Program Booklet
- Certificate of Attendance
- Coffees and Lunches throughout the Symposium
- Welcome Party
- Symposium trip and dinner

**Registration fee as Accompanying person** includes:

- Lunches throughout the Symposium
- Welcome Party
- Symposium Trip and Dinner

### PPT/Slide Center for Speakers/Audiovisual Equipment

The PPT/Slide Center is located near the congress hall.

Powerpoint application is available on site. Speakers are kindly requested to bring their presentation on USB pendrive to the PPT/Slide Center, at least 30 minutes before the beginning of the session or the day before for the first morning session.

For any other kind of presentation, please contact L.C. Congressi.

The authors of abstracts selected for oral presentation have 12 min to present their data, plus 3 min for discussion.

### Poster Presentation

The authors of abstracts selected for poster presentation will exhibit their data in poster format. The posters (100 cm width and 120 cm height max) must be exhibited in the poster hall during the entire

## General Informations

Symposium. Posters must be affixed on Sept. 10 from 15.00 to 18.00. They have to be removed on Sept. 13 from 12.30 to 13.00. The Organizing Secretariat will not be responsible for posters not removed on time. Material to affix your poster (scotch tape/thumbtacks) will be available on site. The poster authors are kindly requested to give their availability during one of the coffee or lunch breaks to discuss with the audience. A sign will be posted at the bottom of the poster boards with the available time slot.

### Poster Communication

Some posters are selected for Poster Communication. The authors of these abstracts have 5 min to advertise their poster during one of the allocated session (see final program). This time slots are not meant to present the whole body of the work and no time for discussion is included in these sessions. The authors of the selected posters are kindly requested to show one slide including the whole poster and 1-2 slides with key data in order to stimulate a later discussion with the audience at the poster.

### Badge

Access to all the congress events is possible only with your personal badge that you will receive with the congress bag at the Registration Desk. All participants are kindly requested to wear their name badge throughout the congress.

At the end of the congress you can leave the plastic cover of your badge for recycling.

### Certificate of Attendance

All registered attendees will receive the Certificate of Attendance.

**Welcome Party and Coffee breaks** will be served by the exhibition areas on congress site, as scheduled in the program.

**Lunches** will be served by the Hotel Albergo Verde/Gruener Baum (7 minutes walking distance from the Symposium Venue).

Please remember to wear your badge and to give lunch ticket at the entrance to the hostess to attend lunch.

### Concert – Friday Sept. 12th, 2014

A lyric Concert, will be held on Sept. 12 at 20.30 by the Sala Don Bosco, located in Viale Mozart 32 – Bressanone, at 10 minutes walking distance from the congress site (see map).

Free entrance, free offering.

### Trip and Social Dinner – Saturday Sept. 13th, 2014

At 14.30 departure by bus from Congress site to S. Cristina Valgardena.

Then we'll take the cable car up to Col Raiser (mt 2.106 above sea level).

Tyrolean "Merenda" and walks to Fermeda Hut or Trojer Hut. Than walk back to AlmHotel Col Raiser and Social Dinner.

Back by cable car around 23.30 and then by bus to Bressanone. Arrival around 01.00.

The trip participants will need to wear comfortable walking shoes, warm sweaters and a water-proof jacket is recommended.

PLEASE CONFIRM YOUR ATTENDANCE TO THE TRIP AND DINNER WHEN REGISTERING AT THE SECRETERIAT DESK ON SEPT. 10, SINCE WE NEED TO KNOW THE RIGHT NUMBERS OF ATTENDEES. THANK YOU FOR YOUR KIND COOPERATION.

### Special requirements

In case of food allergy or any special requirements, please address to the Organizing Secretariat.

## General Informations

### Injuries/Insurance/Liability

The Symposium organizers does not accept any liability for personal injuries and/or loss and/or damages of any kind which may be incurred by the congress participants or by any person accompanying them, during either the official activities or excursions. Delegates participate in all tours/events at their own risk. Participants are advised to take out insurance against loss, accidents or damage that could be incurred during the Symposium.

### Currency

The currency in Italy is the Euro.

Banks offer most favorable exchange rates, unlike exchange booths at airports, rail and bus stations, hotels, stores, and privately run exchange firms, you may find less favorable rates, but more convenient hours.

### International Dialing Code

Italy country code: +39, city code: 0472 (always dial the 0 – even from abroad).

- To call the U.S.: dial 00 + 1 + phone number

- To call Europe: Your country code (0044 – 0034 – 0033 etc...) + phone number

### Emergency Numbers

(Calls can be made, for free, from any telephone)

Tel. 113: State Police – Emergency assistance. Call this number for immediate assistance if you are the victim of a crime.

Tel. 115: Fire Department

Tel. 118: Ambulance – Medical Emergencies

### Tipping

In Italy service, which usually ranges from 1€ to 3€ per person, depending on the restaurant, is automatically added to the check and must be visible on the menu. If you liked the place or the service, just round up the bill, a few Euro. Tipping cab drivers is unusual, but appreciated, especially if they help you with your luggage and provide you with useful info about getting around in that particular place. Tipping hotel porters and hotel concierge if he/she is helpful in making your stay easier or more pleasant is appreciated also.

### Opening and Closing Times in Bressanone

Banks: usually they are open from Monday to Friday from 08.05 to 12.55 and from 14.30 to 16.00  
Shops: there are individual variations, depending and climate and season, but most are open from Monday to Friday 08.30 to 12.30 and from 15.00 to 19.00. On Saturday from 08.30 to 12.30 and from 15.00 to 18.00.

### Credit cards

The major credit cards (VISA, Mastercard, Eurocard) are widely accepted in Italy, while AMEX is rarely accepted. Hotels, shops and restaurants have signs or stickers at the entrance showing which credit cards are accepted.

### Climate

In September the climate in the Bressanone area is usually mild and sunny with temperatures ranging between 18°C (65°F) and 25°C (77°F). Visitors are most comfortable with a light jacket or coat. An all-weather coat will take the chill off cool evenings and rainy days. Be aware that Bressanone is around 560 meters (1837 feet) above sea level in the Dolomite mountains, therefore comfortable shoes, warm sweaters and a water-proff jacket are recommended. For information about the city, contact the Bressanone Visitor Information Center at <http://www.brixen.org/en/home.html>

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