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**Importance of different modalities (SPECT/CT, MRI) in the quantitative assessment of DaTscan findings**

S. Szekeres<sup>1</sup>, N. Kovacs<sup>2</sup>, G. Perlaki<sup>3</sup>, G. Orsi<sup>4</sup>, L. Papp<sup>5</sup>, B. Suha<sup>6</sup>, E. Schmidt<sup>7</sup>, K. Zarnbo<sup>8</sup>; <sup>1</sup>University of Pecs Department of Nuclear Medicine, PECS, HUNGARY; <sup>2</sup>University of Pecs Department of Neurology, PECS, HUNGARY; <sup>3</sup>MTA-PTE Clinical Neuroscience MRI Research Group, PECS, HUNGARY; <sup>4</sup>Mediso GmbH, Budapest, HUNGARY; <sup>5</sup>University of Pecs Medical Faculty, PECS, HUNGARY.

P472

**Exploring the feasibility and potential advantages of applying CT-based attenuation correction in 123I-FPCIT and 123I-IBZM SPECT studies. Our first experience**

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**The clinical usefulness of I-123-Ioflupane SPECT (DaTscan) in patients with equivocal diagnosis of Parkinson's disease**

S. Czibor<sup>1</sup>, D. Nagy<sup>2</sup>, M. Moravszki<sup>3</sup>, L. Duffek<sup>4</sup>, E. Takacs<sup>5</sup>, E. Kalameny<sup>6</sup>, Z. Szepitki<sup>7</sup>, A. Takacs<sup>8</sup>, I. Szilvasi<sup>9</sup>; <sup>1</sup>Hungarian Defence Forces Medical Centre, Dept. of Nuclear Medicine, Budapest, HUNGARY; <sup>2</sup>Semmelweis University, Dept. of Nuclear Medicine, Budapest, HUNGARY; <sup>3</sup>Hungarian Defence Forces Medical Centre, Dept. of Neurology, Budapest, HUNGARY; <sup>4</sup>Semmelweis University, Dept. of Neurology, Budapest, HUNGARY.

P474

**Diagnostic value of MIBG cardiac scintigraphy for the diagnosis of Parkinson disease.**

M. Abbasi<sup>1</sup>, A. Tafakhori<sup>2</sup>; <sup>1</sup>Department of Nuclear Medicine, Vali-e-asr Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>2</sup>Department of Neurology, Imam-khomeini Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF.

P475

**Absolute quantitative evaluation of 123I-FP-CIT: is it possible?**

F. Sciorbi<sup>1</sup>, S. Bressani<sup>2</sup>, S. Favaretto<sup>3</sup>, S. Berti<sup>4</sup>, S. Pompanin<sup>5</sup>, A. Cognin<sup>6</sup>, A. Antonini<sup>7</sup>, C. Gabelli<sup>8</sup>, P. Zucchetto<sup>9</sup>, F. Bui<sup>10</sup>, D. Cecchin<sup>11</sup>; <sup>1</sup>Department of Nuclear Medicine of Padova, Padova, ITALY; <sup>2</sup>Hospital of Padova, Padova, ITALY; <sup>3</sup>Department of Neurology of Padova, Padova, ITALY; <sup>4</sup>Centro regionale per la cura dell'invecchiamento cerebrale, Padova, ITALY.

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**Cut-off values to diagnose Parkinson's disease by means of 123I-FP-CIT brain SPECT semiquantitative data as evaluated by Classification Tree algorithm**

B. Palumbo<sup>1</sup>, S. Cascianelli<sup>2</sup>, I. Sabalich<sup>3</sup>, A. Santonicola<sup>4</sup>, T. Buresta<sup>5</sup>, M. L. Fravalini<sup>6</sup>, N. Tambasco<sup>7</sup>, S. Nuvoli<sup>8</sup>, A. Spanu<sup>9</sup>, G. Madeddu<sup>10</sup>; <sup>1</sup>Department of Surgical and Biomedical Sciences- Nuclear Medicine and Health Physics- University of Perugia, PERUGIA, ITALY; <sup>2</sup>Department of Engineering-University of Perugia, PERUGIA, ITALY; <sup>3</sup>Unit of Neurology, Department of Medicine, Perugia University Hospital, PERUGIA, ITALY; <sup>4</sup>Unit of Nuclear Medicine, Department of Clinical and Experimental Medicine, University of Sassari, Sassari, ITALY.

P477

**Evaluation of 99mTc-TRODAT-1 SPECT in the diagnosis of Parkinson's disease and its differentiation from the other types of parkinsonism syndroms - A pilot study**

D. Beiki<sup>1</sup>, A. Esmaeili<sup>2</sup>, B. Fallahi<sup>3</sup>, S. Oveisgharan<sup>4</sup>, H. Noorollahi-Moghaddam<sup>5</sup>, M. Erfani<sup>6</sup>, A. Tafakhori<sup>7</sup>, M. Rohani<sup>8</sup>, A. Fard-Esfahani<sup>9</sup>, A. Emami-Ardekani<sup>10</sup>, M. Eftekhari<sup>11</sup>; <sup>1</sup>Research Center for Nuclear Medicine, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>2</sup>Department of Neurology, Shariati Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>3</sup>Shariati Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>4</sup>Radiation Application Research School, Nuclear Science and Technology Research Institute, Atomic Energy Organization of Iran, Tehran, Iran, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>5</sup>Department of Neurology, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>6</sup>Department of Neurology, School of Medicine, Rasoul Akram Hospital, Iran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF.

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**123I-MIBG cardiac scintigraphy in discriminating Parkinson's disease (PD) from vascular parkinsonism (VP) using Classification tree (CIT) classifier together with conventional quantitative analysis.**

S. Nuvoli<sup>1</sup>, A. Spanu<sup>2</sup>, B. Palumbo<sup>3</sup>, M. L. Fravalini<sup>4</sup>, G. Dachena<sup>5</sup>, B. Piras<sup>6</sup>, G. Madeddu<sup>7</sup>; <sup>1</sup>Nuclear Medicine Unit; University of Sassari, Sassari, ITALY; <sup>2</sup>Section of Nuclear Medicine, Dept of Surgical and Biomedical Sciences, University of Perugia, Perugia, ITALY; <sup>3</sup>Dept of Engineering University of Perugia, Perugia, ITALY.

Posters

**P477 Evaluation of 99mTc-TRODAT-1 SPECT in the diagnosis of Parkinson's disease and its differentiation from the other types of parkinsonism syndroms - A pilot study**

16:00 **D. Beiki**<sup>1</sup>, A. Esmaili<sup>1</sup>, B. Fallahi<sup>1</sup>, S. Oveisgharan<sup>2</sup>, H. Noorollahi-Moghaddam<sup>3</sup>, M. Erfani<sup>4</sup>, A. Tafakhori<sup>5</sup>, M. Rohani<sup>6</sup>, A. Fard-Esfahani<sup>1</sup>, A. Emami-Ardekani<sup>1</sup>, M. Eftekhari<sup>1</sup>;

<sup>1</sup>Research Center for Nuclear Medicine, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>2</sup>Department of Neurology, Shariati Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>3</sup>Shariati Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>4</sup>Radiation Application Research School, Nuclear Science and Technology Research Institute, Atomic Energy Organization of Iran, Tehran, Iran, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>5</sup>Department of Neurology, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>6</sup>Department of Neurology, School of Medicine, Rasoul Akram Hospital, Iran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF.

**Aim:** Parkinson disease (PD) is one of the most common movement disorders. Sometimes, essential tremor (ET) and the other parkinsonian syndromes may manifest the same motor symptoms. In these cases, definite clinical diagnosis may be difficult. We conducted a study to determine the diagnostic value of 99mTc-TRODAT-1 scan to differentiate PD from ET and other cases of parkinsonism syndromes. **Methods and Materials:** This study was prospectively performed on 35 patients including 15 PD, 12 ET and 8 patients with other parkinsonian syndromes (PS). A new analogue of 99mTc-TRODAT-1 was used for basal ganglia (BG) imaging. A dual-head SPECT-CT was used to perform imaging for all patients following administration of at least 950 MBq 99mTc-TRODAT-1. The images were reconstructed and processed using neuroimaging software for the SPECT modality. Drawing ROIs on the BG, the uptake values were estimated and normalized to whole brain uptake. **Results:** Among three groups of patients, ET cases show significantly higher values of normalized BG uptake ( $p < 0.05$ ) as compared to PD and PS groups; however, no significant difference was noted between PD and PS groups. In qualitative assessment, all ET cases showed normal and symmetrical uptake in BG. From 15 PD patients, 9 cases (60%) revealed greater loss of uptake in putamen vs. caudate. On the other hand, in PS patients, 6 out of 8 patients (75%) had uniform pattern of decreased uptake in bilateral putamen and caudate and only two patients (25%) showed greater loss of uptake in putamen bilaterally, one symmetrical and the other one asymmetrical. **Conclusion:** The preliminary quantitative data reveals that 99mTc-TRODAT-1 scan is a very appropriate method to differentiate PD or PS vs. ET cases. However, the BG uptake values alone could not identify PD vs. PS cases. The pattern of uptake may add to diagnostic value of the test; however, the present results are equivocal and thus further investigations with more cases are needed to reach more suitable criteria for this reason.

P249

**One step synthesis of a radioiodinated tumor-targeted oligonucleotide and preliminary in vivo evaluation in tumor xenografts**

L. Kang; Peking University First Hospital, Beijing, CHINA.

P250

**Remotely controlled solvent extraction of high purity Tc-99m produced by conventional medical cyclotrons**

P. Martini<sup>1,2</sup>, A. Boschi<sup>1</sup>, L. Uccelli<sup>1,3</sup>, M. Pasquali<sup>1</sup>, G. Cicoria<sup>4</sup>, M. Marengo<sup>5</sup>, M. Giganti<sup>6</sup>, G. Di Domenico<sup>1</sup>, G. Pupillo<sup>7</sup>, A. Taibi<sup>8</sup>, A. Duatti<sup>9</sup>, J. Esposito<sup>2</sup>; <sup>1</sup>Department of Physics and Earth Sciences, University of Ferrara, FERRARA, ITALY; <sup>2</sup>Legnaro Laboratories of the Italian National Institute for Nuclear Physics (INFN), Legnaro (Padova), ITALY; <sup>3</sup>Department of Morphology, Surgery and Experimental Medicine, University of Ferrara, FERRARA, ITALY; <sup>4</sup>Nuclear Medicine S. Anna Hospital, Ferrara, ITALY; <sup>5</sup>Nuclear Medicine S. Orsola Hospital, Bologna, ITALY; <sup>6</sup>Department of Chemical and Pharmaceutical Sciences, University of Ferrara, FERRARA, ITALY.

P251

**<sup>99m</sup>Tc-Labeled Estradiol: Preparation and Preclinical Evaluation as an Estrogen Receptor Probe**

Y. Zhang, X. Xia, H. Feng, X. Lan; Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, CHINA.

P252

**[<sup>111</sup>In]-DOTA-anti-MUC1 for SPECT applications, the production and quality control**

B. Alirezapour<sup>1</sup>, S. Abbas Abadi<sup>2</sup>, I. Kertesz<sup>3</sup>, J. Mohammadnejad<sup>4</sup>, A. Jalilian<sup>5</sup>, E. Moadi<sup>6</sup>, M. Hashemizadeh<sup>7</sup>, N. Soltani<sup>8</sup>, S. Moradkhanli<sup>9</sup>; <sup>1</sup>Department of Radiopharmaceutical, Nuclear Science and Technology Institute, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>2</sup>Faculty of pharmacy, University of Debrecen, Debrecen, HUNGARY; <sup>3</sup>Department of Nuclear Medicine, University of Debrecen, Debrecen, HUNGARY; <sup>4</sup>Department of Life Science Engineering, Faculty of New Sciences & Technologies, University of Tehran, Tehran, IRAN, ISLAMIC REPUBLIC OF.

P253

**Myocardial perfusion in patients with severe hypercholesterolemia**

L. Martirosyan<sup>1,2</sup>, I. Sergienko<sup>3</sup>, A. Anshelev<sup>4</sup>, A. Popova<sup>1</sup>, K. Ivanov<sup>5</sup>, V. Sergienko<sup>6</sup>; <sup>1</sup>Yaroslavl state medical Academy, Moskau, RUSSIAN FEDERATION; <sup>2</sup>Russian Cardiology Research Complex, Russian Cardiology Research Complex, Moscow, RUSSIAN FEDERATION; <sup>3</sup>Russian Cardiology Research Complex, Moscow, RUSSIAN FEDERATION; <sup>4</sup>Russian Cardiology Research Complex, Moscow, RUSSIAN FEDERATION; <sup>5</sup>Russian Cardiology Research Complex, Moscow, RUSSIAN FEDERATION; <sup>6</sup>Russian Cardiology Research Complex, Moscow, RUSSIAN FEDERATION.

P254

**Preparation of radionuclide labeled anti-microRNA-155 oligonucleotide and its role as a potential tumor imaging probe in multiple tumor bearing mice**

L. Kang; Peking University First Hospital, Beijing, CHINA.

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Sunday, October 11, 2015

16:00 – 16:30

**Radiopharmaceuticals & Radiochemistry: Antibodies & Peptides**

P255

**Influence of DOTA - Rituximab conjugates on their biodistribution in mice**

U. Karczmarczyk, W. Wojdowska, E. Laszuk, M. Maurin, P. Gamuszek, R. Mikolajczak; Radioisotope Centre POLATOM, National Centre for Nuclear Research, Otwock, POLAND.

P256

**Synthesis and radiolabeling of HYNIC-conjugated LIKKPF peptide with <sup>18</sup>F-FDG for the detection of apoptosis**

D. Beiki<sup>1</sup>, S. Khoshbakht<sup>2</sup>, S. Shahhosseini<sup>3</sup>, F. Kobarfard<sup>4</sup>, O. Sabzevari<sup>5</sup>, M. Amin<sup>6</sup>; <sup>1</sup>Research Center for Nuclear Medicine, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>2</sup>Department of Radiopharmacy, School of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>3</sup>Department of Medicinal Chemistry, School of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran, Tehran, IRAN, ISLAMIC REPUBLIC OF; <sup>4</sup>Department of Medicinal Chemistry, School of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran, Tehran, IRAN, ISLAMIC REPUBLIC OF.

**P256**      **Synthesis and radiolabeling of HYNIC-conjugated LIKKPF peptide with 18F-FDG for the detection of apoptosis**

16:00      **D. Beiki**<sup>1</sup>, S. Khoshbakht<sup>2</sup>, S. Shahhosseini<sup>3</sup>, F. Kobarfard<sup>3</sup>, O. Sabzevari<sup>2</sup>, M. Amini<sup>4</sup>;

<sup>1</sup>Research Center for Nuclear Medicine, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>2</sup>Dpartment of Radiopharmacy, School of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>3</sup>Department of Medicinal Chemistry, School of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>4</sup>Dpartment of Medicinal Chemistry, School of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran, Tehran, IRAN, ISLAMIC REPUBLIC OF.

**Aim:** Apoptosis, or programmed cell death, plays important roles in the physiology and pathology of a variety of human conditions including neurodegenerative diseases, ischemic damage, autoimmune disorders and many types of cancer. LIKKPF is a hexapeptide with high phosphatidylserine (PS) binding affinity in order to visualize cell death. 18F-FDG has so far been the most utilized radiotracer in positron emission tomography (PET) imaging. We herein report the synthesis of 18F-FDG-LIKKPF as a tracer for the detection of apoptosis. **Materials and Methods:** The peptide was synthesized by standard Fmoc solid phase synthesis and the HYNIC-conjugated LIKKPF was considered for the radiolabeling procedure with 18F-FDG. In order to optimize labeling efficiency, a series of studies including changing the amount of HYNIC-peptide ligand, adjustment of the reaction pH and varying the reaction temperature were performed. **Results:** The radiochemical purity >50% was achieved for the radiolabelling procedure with 18F-FDG, in the presence of glucose (100-250 µg/mL). Also, stability studies in aqueous solution and human serum showed radiolabeled complex with no significant release of F-18 or peptide degradation up to 6 h. **Conclusion:** Our results showed the high potential of 18F-FDG as 18F-fluorinated prosthetic group, to be clinically accepted for the radiolabelling of peptides such as LIKKPF for the detection of apoptosis.

**PW056**

**Synthesis of <sup>68</sup>Ga Radiopharmaceuticals for Cell Radiolabelling Using Anion Exchange Column**

A. Socan<sup>1</sup>, P. Kolenc Peitl<sup>1</sup>, M. Kroselj<sup>1</sup>, C. Rangger<sup>2</sup>, C. Decristoforo<sup>2</sup>; <sup>1</sup>University Medical Centre Ljubljana, Ljubljana, SLOVENIA, <sup>2</sup>University Clinic for Nuclear Medicine, University for Medicine, Innsbruck, AUSTRIA.

**PW057**

**A real-time in vitro assay as a potential predictor of in vivo tumour imaging properties**

D. Spiegelberg<sup>1</sup>, J. Stenberg<sup>1</sup>, A. Haylock<sup>2</sup>, M. Nestor<sup>1,2</sup>; <sup>1</sup>Department of Immunology, Genetics & Pathology, Uppsala, SWEDEN, <sup>2</sup>Unit of Otolaryngology and Head & Neck Surgery, Department of Surgical Sciences, Uppsala, SWEDEN.

**PW058**

**<sup>44</sup>Sc- and <sup>177</sup>Lu-labeling of DKFZ-617 for dosimetry and therapy of prostate cancer**

E. Eppard<sup>1</sup>, A. de la Fuente<sup>2</sup>, S. Kuerpig<sup>1</sup>, F. Roesch<sup>1</sup>, M. Essler<sup>2</sup>; <sup>1</sup>University Hospital Bonn, Bonn, GERMANY, <sup>2</sup>Johannes Gutenberg-University, Mainz, GERMANY.

**PW059**

**Development of [<sup>18</sup>F]Fluoro-sugar based prosthetic groups for the PET imaging of radiolabel peptides**

C. Collet<sup>1,2</sup>, F. Maskali<sup>1</sup>, S. Poussier<sup>1,2</sup>, A. Mohamadi<sup>1,2</sup>, V. Regnault<sup>1,2</sup>, P. Lacolley<sup>1,2</sup>, Y. Chapleur<sup>1,2,3</sup>, P. Marie<sup>1,2,3</sup>, G. Karcher<sup>1,2</sup>, S. Lamandé-Langle<sup>1,2,3</sup>; <sup>1</sup>Nancyclotep, Vandoeuvre les Nancy, FRANCE, <sup>2</sup>Université de Lorraine, Vandoeuvre les Nancy, FRANCE, <sup>3</sup>Inserm UMR 1116, Vandoeuvre les Nancy, FRANCE, <sup>4</sup>UMR 7565, Vandoeuvre les Nancy, FRANCE.

**PW060**

**Cyclotron production of <sup>51</sup>Cr for clinical application**

M. Aboudzadeh Rovais; Nuclear Science and Technology Research Institute, Tehran, IRAN, ISLAMIC REPUBLIC OF.

**PW07**

Sunday, October 11, 2015

08:30 – 09:30

**Poster Walk 7 – M2M: Molecular & Multimodality Imaging: Preclinical Imaging and Evaluation**

**PW061**

**Brown adipose tissue: Preclinical imaging beyond FDG?**

M. Bauwens<sup>1</sup>, G. Hendriks<sup>1</sup>, V. Schrauwen-Hinderling<sup>1</sup>, J. Sijnter<sup>1</sup>, S. van Haaf<sup>1</sup>, A. Vogt<sup>1</sup>, I. Pooters<sup>1</sup>, B. Brans<sup>1</sup>, F. M. Mottaghy<sup>1,2</sup>; <sup>1</sup>MUMC, Maastricht, NETHERLANDS, <sup>2</sup>UKAachen, Aachen, GERMANY.

**PW062**

**Pilot study of a novel peptide targeting GPC3 for HCC**

D. Zhu<sup>1</sup>, Y. Qin<sup>1</sup>, L. Zhang<sup>2</sup>, S. Zou<sup>1</sup>, J. Wang<sup>1</sup>, L. Zhu<sup>1</sup>, X. Zhu<sup>1</sup>; <sup>1</sup>Department of Nuclear Medicine & PET, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, CHINA, <sup>2</sup>State Key Laboratory of Molecular Vaccinology and Molecular Diagnostics & Center for Molecular Imaging and Translational Medicine, School of Public Health, Xiamen University, Xiamen, CHINA.

**PW063**

**A new lactam bridge <sup>99m</sup>Tc-α -melanocyte-stimulating hormone analog for diagnosis of metastatic melanoma**

D. Beiki<sup>1</sup>, J. Shamshirian<sup>2</sup>, M. Erfani<sup>1</sup>, B. Fallah<sup>1</sup>; <sup>1</sup>Research Center for Nuclear Medicine, Shariati Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>2</sup>Department of Radiopharmacy, School of Pharmacy, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>3</sup>Radiation Application Research School, Nuclear Science and Technology Research Institute, Tehran, IRAN, ISLAMIC REPUBLIC OF.

**PW064**

**Multispectral fluorescence imaging during robot-assisted laparoscopic sentinel node biopsy – a first step towards a real-time intraoperative patient-specific anatomical roadmap**

N. S. van den Berg<sup>1,2</sup>, G. H. KleinJan<sup>1,2</sup>, T. Buckle<sup>1</sup>, E. M. Wit<sup>1</sup>, H. G. van der Paeij<sup>1</sup>, F. W. B. van Leeuwen<sup>1,2</sup>; <sup>1</sup>LUMC, Leiden, NETHERLANDS, <sup>2</sup>AVL-NKI, Amsterdam, NETHERLANDS.

**PW065**

**Effect of different injection routes in tumor accumulation and biodistribution of radiolabeled Pluronic P94 unimers**

C. Santini<sup>1</sup>, A. Arranja<sup>2</sup>, A. Denkova<sup>1</sup>, F. Schosseler<sup>1</sup>, K. Morawska<sup>1</sup>, P. Dubruef<sup>1</sup>, E. Mendes<sup>1</sup>, M. de Jong<sup>1</sup>, M. Bernsen<sup>1</sup>; <sup>1</sup>Erasmus MC Rotterdam, NETHERLANDS, <sup>2</sup>CNRS, Institute Charles Sadron, Strasbourg, FRANCE, <sup>3</sup>TU Delft, Radiation Science and Technology, Delft, NETHERLANDS, <sup>4</sup>UGhent, Polymer Chemistry and Biomaterials Group (PBM), Ghent, BELGIUM, <sup>5</sup>TU Delft, Department of Chemical Engineering, Delft, NETHERLANDS.

**PW066**

**A multiprobe approach to monitoring therapy response in rheumatoid arthritis**

S. Y. A. Terry<sup>1</sup>, M. I. Koenders<sup>2</sup>, T. K. Nayak<sup>1</sup>, A. Freimoser-Grundschober<sup>1</sup>, C. Klein<sup>1</sup>, W. J. Oyers<sup>1</sup>, O. C. Boerman<sup>1</sup>, P. Laverman<sup>1</sup>; <sup>1</sup>King's College London, London, UNITED KINGDOM, <sup>2</sup>Radboud UMC, Nijmegen, NETHERLANDS, <sup>3</sup>Roche Pharmaceutical Research and Early Development, Basel, SWITZERLAND, <sup>4</sup>Roche Pharmaceutical Research and Early Development, Zurich, SWITZERLAND.

**PW063      A new lactam bridge  $^{99m}\text{Tc}$ - $\alpha$ -melanocyte-stimulating hormone analog for diagnosis of metastatic melanoma**

08:40      **D. Beiki**<sup>1</sup>, D. Shamsirian<sup>2</sup>, M. Erfani<sup>3</sup>, B. Fallahi<sup>1</sup>;

<sup>1</sup>Research Center for Nuclear Medicine, Shariati Hospital, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>2</sup>Department of Radiopharmacy, School of Pharmacy, Tehran University of Medical Sciences, Tehran, IRAN, ISLAMIC REPUBLIC OF, <sup>3</sup>Radiation Application Research School, Nuclear Science and Technology Research Institute, Tehran, IRAN, ISLAMIC REPUBLIC OF.

**Introduction:** Over 80 % of human metastatic melanomas were reported to overexpress MC1 receptors. Since melanoma cause more than 75% of deaths from skin cancer, there is a need to develop new radiopharmaceuticals which allow diagnosing this type of tumor in an early phase. This study presents the synthesis of a new lactam bridge  $^{99m}\text{Tc}$ - $\alpha$ -MSH analogue. **Methods:** A new [HYNIC-GABA-Nle]-CycMSHhept derivative was conveniently synthesized by solid phase peptide synthesis on sieber amide resin via Fmoc strategy. Then peptide radiolabelling was performed by  $^{99m}\text{Tc}$  via HYNIC chelator and tricine as co-ligand. Also, stability in human serum, receptor bound internalization, protein binding, partition coefficient and tissue biodistribution in tumor bearing nude mice were thoroughly investigated. **Results:** The new peptide derivative was obtained in an overall yield of 35% with the purity of >98%. Radiolabeling with  $^{99m}\text{Tc}$  was performed at high specific activities (163MBq/nmol) with an acceptable labeling yield (>98%). Also, stability studies in aqueous solution and human serum showed radiolabeled complex with no significant release of  $^{99m}\text{TcO}_4^-$  or peptide degradation up to 6 h. Protein binding and calculated partition coefficient for the radiolabeled peptide were 37% and  $\log P = -1.31 \pm 0.12$  %, respectively. Also, the radioligand showed specific internalization into B16/F10 cells (13.35  $\pm$  0.9% at 4 hours). In biodistribution studies, a receptor-specific uptake was observed in MC1 receptor positive organ so that after 4 hours the tumor uptake was 4.51 $\pm$ 0.11 % ID/g. Predominant renal excretion pathway with a highest accumulation of activity in tumor was observed for this radiopeptide. **Conclusion:** This new designed labeled peptide conjugate showed high accumulation in tumor as a positive MC1 receptor targeted tissue followed by excretion via the kidney and can be a suitable candidate for diagnosis of metastatic melanomas.