

Rio de Janeiro, 8 de agosto de 2014.

Ilmo. Sr.

Dr. Marcelo Moreira

Agência Nacional de Vigilância Sanitária – ANVISA

Assunto: Workshop on Positron Emission Radiopharmaceuticals and Molecular Imaging

Prezado Senhor,

Temos a satisfação de informar a V.Sa. que a SBBN, em colaboração com o Centro de Medicina Nuclear da Faculdade de Medicina da USP e a Faculdade de Farmácia da UFMG, estará realizando simultaneamente o “*Workshop on Positron Emission Radiopharmaceuticals and Molecular Imaging*” (programa anexo) em São Paulo (1 a 5 de setembro) e Belo Horizonte (1 e 2 de setembro), coordenados, respectivamente, pelos professores Fabio Luiz Navarro Marques e Valbert Nascimento Cardoso.

O projeto foi aprovado pelo Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), com o qual a SBBN mantém convênio de cooperação técnica, possibilitando trazer para o evento os professores Albert (Bert) Dirk Windhorst e David Bryan Stout, respectivamente da VU University Medical Center, Holanda e da University of California Los Angeles (UCLA), USA.

Conforme entendimentos prévios mantidos entre o senhor e o Dr. Fabio Marques, estamos oferecendo duas inscrições sem ônus para técnicos dessa Agência. Solicitamos informar o mais breve possível os nomes escolhidos por V.Sa. através de email para presidência@sbbn.org.br. A inscrição individual deverá ser realizada entre 15 e 25 de agosto através do sistema disponível em www.sbbn.org.br.

Acreditamos que a interação dos técnicos da ANVISA com os convidados estrangeiros, técnicos da CNEN e participantes de outras instituições poderá contribuir para a continuidade de pesquisas e aplicações de radiofármacos no país.

Cordiais saudações.

Atenciosamente,

Silvia Maria Velasques de Oliveira

Presidente da SBBN

PROGRAMA

01 A 05 /09/2014-CENTRO DE MEDICINA NUCLEAR, FACULDADE DE MEDICINA, UNIVERSIDADE DE SÃO PAULO (USP), SÃO PAULO, SP

Coordenador: Dr. Fabio Luiz Navarro Marques

DIA 01/09/2014

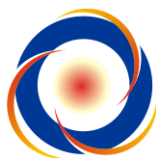
- 8:30-9:00 **Welcome (Fabio Marques and Carlos Buchpiguel)**
- 9:00-10:45 **Basics of cyclotron radioisotopes production:** Cyclotron models and operation; targetry for gas, liquid and solid target; radioisotopes production characteristics (**Bert Windhorst**)
- 10:45-11:00 Break
- 11:00-12:00 **Basics of cyclotron radioisotopes production (continuation) (Bert Windhorst)**
- 12:00-13:00 Lunch
- 14:00-15:00 **Radiochemistry of the (¹⁸F)fluorine and (^{123/124}I)iodine radioisotopes:** physico chemical characteristics; reactivity; catalysis and non conventional reactions; stability of bond (**Bert Windhorst**)
- 15:00-15:15 Break
- 15:15-16:15 **Radiochemistry of the (¹¹C)carbon and (¹³N)nitrogen:** Reactive species of carbon; nitrogen reactions; reactivity x selectivity (**Bert Windhorst**)
- 16:15-17:15 **Radiochemistry of the radiometals:** Ligands, reagents purity, complex stability (**Fabio Marques**)

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- 8:30-9:30 **(¹⁸F)Fluorine and (^{123/124}I)iodine radiopharmaceuticals in use:** Main radiopharmaceuticals in use in oncology, neurology, cardiology and other disease (**Marycel Rosa F.F. de Barbosa**)
- 9:30-10:30 **(¹¹C)Carbon radiopharmaceuticals in use:** Main radiopharmaceuticals in use in neurology and comparison with some equivalent (¹⁸F)fluorine radiopharmaceuticals (**Daniele Faria**)
- 10:30-10:45 Break
- 10:45-12:00 **Design and development of radiopharmaceuticals:** Main considerations about development of PET radiopharmaceuticals including cold standard preparation and characterization, metabolite analysis, isomers (**Bert Windhorst**)
- 12:00-13:00 Lunch
- 13:00-14:30 **Group 1 - Practical activity:** Determination of specific activity in a HPLC (**Daniele Faria/ Bert Windhorst**)
Group 2 - Practical activity: (¹⁸F)fluorination labeling of molecule using a non automatic system (**Fabio Marques**)
- 14:30-16:00 **Group 1 - Practical activity:** (¹⁸F)fluorination labeling of molecule using a non automatic system (**Fabio Marques/ Bert Windhorst**)
Group 2 - Practical activity: **Practical activity:** Determination of specific activity in a HPLC (**Daniele Faria**)
- 16:00-17:00 **General discussion of the labeling procedure (Bert Windhorst, Daniele Faria, Fabio Marques)**
- Group 3 and 4: will not have activity after lunch

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- 8:30-9:30 **Radiopharmaceutical and radioisotopes regulatory issues in Brazil:** Agencies involved; operation licenses; production and registration of radiopharmaceuticals; multiple use of installations for production and research; staff qualification and attribution. (**ANVISA**)
- 9:30-10:30 **Radiopharmaceutical and radioisotopes regulatory issues in Europe:** Agencies involved; operation licenses; production and registration of radiopharmaceuticals; multiple use of installations for production and research; staff qualification and attribution. (**Bert Windhorst**)



- 10:30-10:45 Break
10:45-11:45 **Design of a dossier for human applications of new radiopharmaceuticals (Bert Windhorst)**
12:00-13:00 Lunch
13:00-14:00 **Group 1 - Practical activity:** Animal imaging acquisition (**Daniele Faria**)
Group 3 - Practical activity: Cyclotron visitation (**Samira Waquil**)
Group 4 - Practical activity: Research laboratory visitation (**Fabio Marques**)
14:00-15:00 **Group 2 - Practical activity:** Animal imaging acquisition (**Daniele Faria**)
Group 3 - Practical activity: Research laboratory visitation (**Fabio Marques**)
Group 4 - Practical activity: Cyclotron visitation (**Samira Waquil**)
15:00-15:15 Break
15:15-16:45 **Presentation of facilities and development projects by the participants:** Each participant will be asked to bring a presentation of the characteristics of the facilities where they work and production projects or ongoing research.
16:45-17:15 **Final remarks and comments (Bert Windhorst, ANVISA, Daniele Faria and Fabio Marques)**

DIA 04/09/2014

- 8:30 – 10:00 **Small Animal Imaging Basics - Part 1:** Imaging basics, x-ray radiography, microCT, ultrasound and MRI. How they work, what they measure, instrumentation, and contrast agents. (**David Stout**)
10:00-10:15 Break
10:15-11:15 **Small Animal Imaging Basics – Part 2:** Optical imaging (bioluminescence and fluorescence), nuclear imaging (microPET and microSPECT). How they work, what they measure, instrumentation, contrast agents, probes and tracers. (**David Stout**)
11:15-12:30 **Targeted Molecular Imaging:** Introduction to molecular and cellular targets, processes and events relevant to in vivo imaging followed by molecular probe descriptions including radioactive and non-radioactive agents that are small molecules, peptides or antibodies. (**David Stout**)
12:30-13:30 Lunch
13:30-14:30 **Animal Handling and Preparation:** The basics of how to anesthetize, prepare, inject, position and image mice and rats. Includes gating and physiologic monitoring options, normal physiologic parameters, imaging chambers and blood sampling. (**David Stout or Daniele Faria**)
14:30-15:30 **Statistical Considerations in Study Design and Analysis for Longitudinal Imaging Studies:** Basic statistical approaches for longitudinal imaging studies, including recommended animal numbers and statistical significance of results. (**David Stout**)
15:30-15:45 Break
15:45-17:45 **Demonstration Session:** Attend 2 sessions with your group: animal handling, microPET imaging, microCT/SPECT imaging (group 3: 15:45 – 16:45; group 4: 16:45 – 15:45) (**David Stout and Daniele Faria**)

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- 8:30-9:30 **Physiologic Effects of Animal Handling on Image Data:** How various issues can alter the uptake and image data, including diet, anesthesia, temperature, positioning, and other factors. (**David Stout**)
9:30-10:30 **Integrating In Vivo Imaging and Pathology:** Introduction to basic pathology techniques for validation of in vivo imaging data. (**David Stout**)
10:30-10:45 Break
10:45-11:30 **Image Reconstruction Techniques:** Tomography, frequency space, filtered back projection and iterative reconstruction. (**David Stout**)
11:30-12:30 **Data Acquisition, Processing Analysis:** Terminology, image reconstruction, calibration, quantitation, software for image analysis, simple analysis approaches. (**David Stout**)
12:30-13:30 Lunch
13:30-15:30 **Attend practical sessions with your group:** animal handling, microPET imaging, microCT/SPECT imaging (group 3: 13:30 – 14:30; group 4: 14:30 – 15:30) (**David Stout and Daniele Faria**)
15:30-17:00 **Attend practical sessions:** Imaging processing and analysis (all participant Groups 1,2,3 and 4) (**David Stout**)
17:00-17:30 **Final remarks and comments (David Stout, Carlos Buchpiguel, Daniele Faria, Fabio Marques)**

Group 1 and 2: Preferentially will be formed by people involved in labeling procedure

Group 3 and 4: Preferentially will be formed by people involved in animal handling and imaging

01 e 02/09/2014-FACULDADE DE FARMÁCIA, UNIVERSIDADE FEDERAL DE MINAS GERAIS (UFMG), BELO HORIZONTE, MG

Coordenador: Prof. Dr. Valbert Nascimento Cardoso

DIA 01/09/2014

Recepção dos participantes e abertura (Valbert Cardoso)

Bases para imagem de pequenos animais - Parte 1: Bases da imagem, radiografia de raio-x, microCT, ultrassom e MRI. Como eles funcionam, o que medem, instrumentação e agentes de contraste (David Stout)

Bases para imagem de pequenos animais - Parte 2: Imagem ótica (bioluminescência e fluorescência), imagem nuclear (microPET e microSPECT). Como funcionam, o que medem, instrumentação e agentes de contraste e traçadores (David Stout)

Imagem molecular alvo específico: Introdução aos alvos celulares e moleculares, processos e eventos relevantes para seguimento in vivo por traçadores, descrição de agentes radioativos e não radioativos que sejam pequenas moléculas, peptídeos e anticorpos (David Stout)

DIA 02/09/2014

Efeitos fisiológicos que podem interferir na imagem: Como vários parâmetros podem alterar a captação, incluindo dieta, anestesia, temperatura, posicionamento e outros fatores (David Stout)

Integrando patologia e imagem in vivo: Introdução às técnicas patológicas básicas para validação dos dados de imagem *in vivo* (David Stout)

Técnicas de reconstrução de imagem: Tomografia, frequência de espaço, retroprojeção filtrada e construção interativa. (David Stout)

Terminologia, reconstrução de imagem, calibração, quantificação, software para análise de imagem, abordagem de análise simples. (David Stout)