



養和醫院

Hong Kong Sanatorium & Hospital

For immediate release

## **A Milestone in Medical Diagnostic Imaging in Hong Kong HKSH Introduces its First PET/MR (Molecular MR) Imaging System**

(10<sup>th</sup> December 2015) Patients will benefit greatly from the first PET/MR (Molecular MR) Scanner in Hong Kong which represents a technological breakthrough combining both mature and diagnostically proven positron emission tomography (PET) and magnetic resonance imaging (MRI) modalities in a single machine.

The PET/MR scanner was installed at Hong Kong Sanatorium & Hospital in March 2015 and officially launched to provide clinical service since September this year by the Department of Diagnostic and Interventional Radiology and the Department of Nuclear Medicine and Positron Emission Tomography.

To date, close to 130 patients have been scanned, including 13 referred by public hospitals. Depending on the clinical need of the individual patient, regional or whole body scanning have been performed.

This new and innovative PET/MR scanner allows the acquisition of PET and MRI data simultaneously, resulting in enhanced diagnostic accuracy. PET/MR also significantly reduces radiation dose when compared to PET/CT (MRI versus CT).

As metabolic changes can sometimes precede anatomic changes in a disease, PET and MR complement each other perfectly, said the Head of Department of Diagnostic & Interventional Radiology of the Hospital, Dr. Gladys LO. "PET by means of measuring metabolism such as blood flow, oxygen consumption, sugar (glucose) metabolism and MR by visualizing blood vessels, nerves, bone marrow and all tissue organs combine together to give a full picture of early disease processes. This



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combination gives new insights into disease processes and paves the way for new treatment planning and monitoring,” Dr. LO noted.

The research and clinical applications of the new PET/MR machine are wide, ranging from neurological to inflammatory/infective to oncologic. “Simultaneous PET/MR imaging is a one-stop examination. It combines the best functional imaging with the best morphologic imaging. It is convenient and less costly for the patient,” Dr. LO added.

During March to August 2015, the PET/MR scanner imaged 70 patients recruited from the PET/CT service. A significant dose reduction of 50% to 77% was achieved in these patients, in accordance with international data. The new PET/MR scanner will be especially desirable for paediatric and cancer patients who need frequent follow up imaging examinations.

“This modality is being labelled as “the Imaging Modality of the Decade”. Hong Kong Sanatorium & Hospital looks forward to providing this vital service to our community,” Dr LO said.

Deputy Director of the Department of Nuclear Medicine & Positron Emission Tomography, Dr. Eric LEUNG Yim Lung, echoed that the new service will facilitate treatment planning and monitoring especially for oncology cases such as prostate cancer and neurology cases such as Alzheimer’s disease and Parkinson’s disease. “PET/MR imaging captures the time-dependent physiological processes to provide fusion images with functional (metabolic) and morphological data,” Dr. LEUNG remarked.

Since the first PET scanner was introduced in 1999 in Hong Kong by the Hospital, the Department of Nuclear Medicine and Positron Emission Tomography has been developing multiple PET biomarkers for different disease and cancers. Besides the usual  $^{18}\text{F}$ -FDG, other biomarkers such as  $^{18}\text{F}$ -DOPA and  $^{11}\text{C}$ -PIB (in detection of neurodegenerative diseases such as Parkinson’s disease and dementia) and  $^{68}\text{Ga}$ -PSMA (in detection of both primary and secondary prostate carcinoma) are exclusively available at the Hospital.



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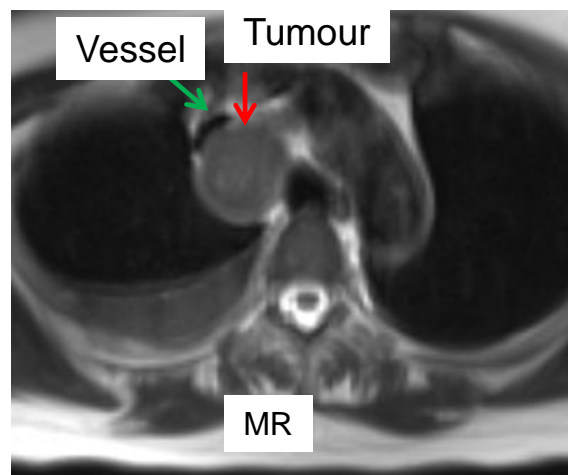
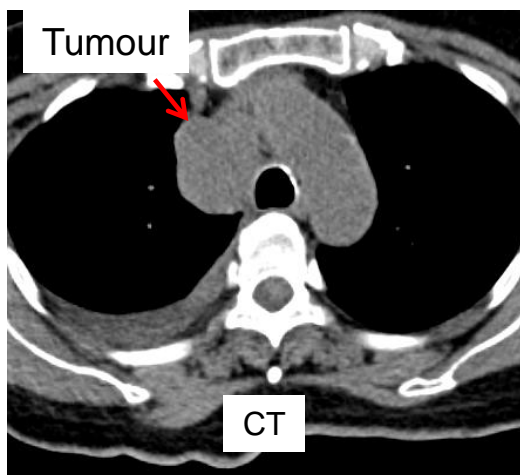
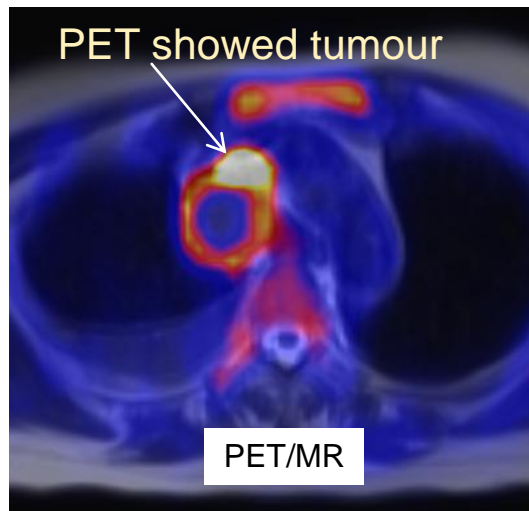
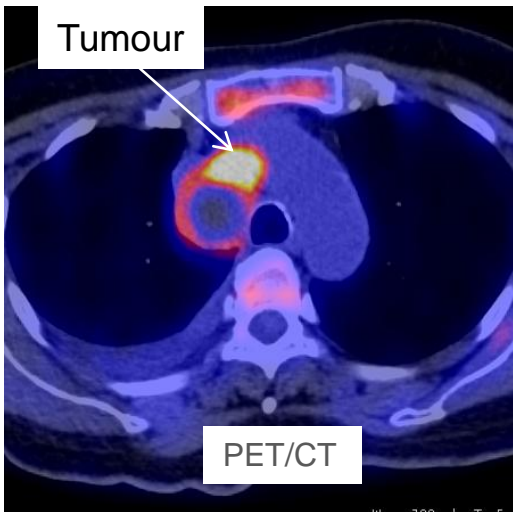
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“These require complicated technical production and are short lived and therefore can only be used on site. They are all being applied for the new PET/MR scanner,” Dr. LEUNG said.

### Case 1: PET/MR Helps Redefine Treatment Plan

In a uterine cancer case, the vessel cannot be clearly identified and cannot be seen as a separate structure from the tumour in PET/CT image. Therefore only chemotherapy was planned. With PET/MR image, 80% the vessel is seen to be compressed by the tumour. Management was changed to include radiation therapy in addition to chemotherapy.



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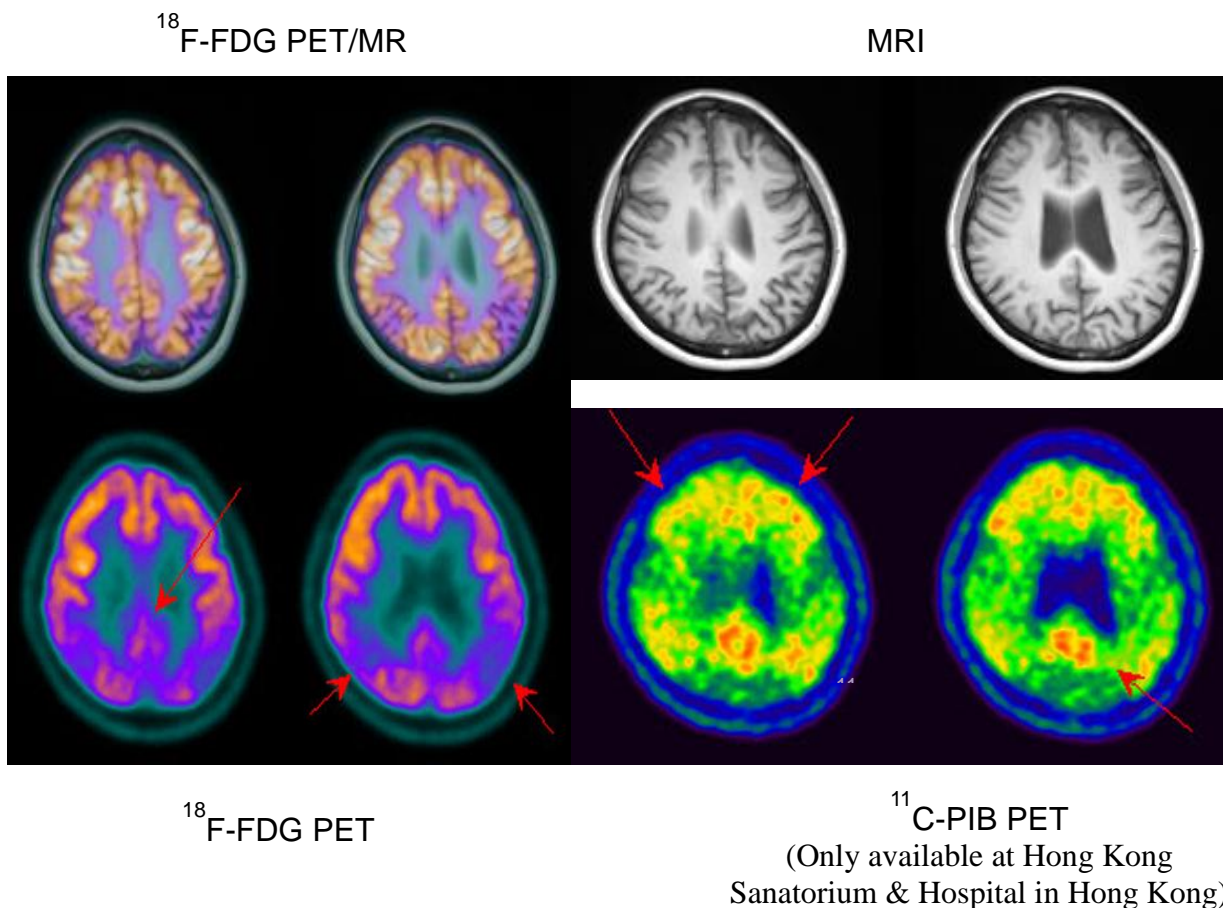


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## Case 2: PET/MR Helps Early Detection of Neurodegenerative Diseases

MRI is most useful for imaging the brain because of its superior soft tissue contrast and absence of radiation as compared to CT. In neurodegenerative diseases, PET/MR can show better structural image such as brain tissues and organs while comparing with PET/CT. Moreover, both biomarkers, namely,  $^{18}\text{F}$ -FDG and  $^{11}\text{C}$ -PIB (only available at Hong Kong Sanatorium & Hospital), are adopted to clearly monitor the metabolism and amyloid (causative substance for Alzheimer's disease) distribution in the brain respectively and help doctors diagnose the disease at early stage.



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### **Hong Kong Sanatorium & Hospital**

Hong Kong Sanatorium & Hospital is one of the leading private hospitals in Hong Kong. With the motto “Quality in Service Excellence in Care”, the Hospital is committed to serving the public as well as promoting medical education and research.

### **Department of Nuclear Medicine & Positron Emission Tomography**

The Department of Nuclear Medicine & PET aims at providing the most comprehensive and highest quality PET and nuclear medicine services to the community. Launched in 1995, the nuclear medicine unit provides the effective and accurate imaging and non-imaging diagnostic procedures to detect functional or physiological organ impairment

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### **Department of Diagnostic & Interventional Radiology**

The Department of Diagnostic & Interventional Radiology offers a full range of outstanding diagnostic services including conventional X-ray, Ultrasound, Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) examinations as well as interventional radiology.

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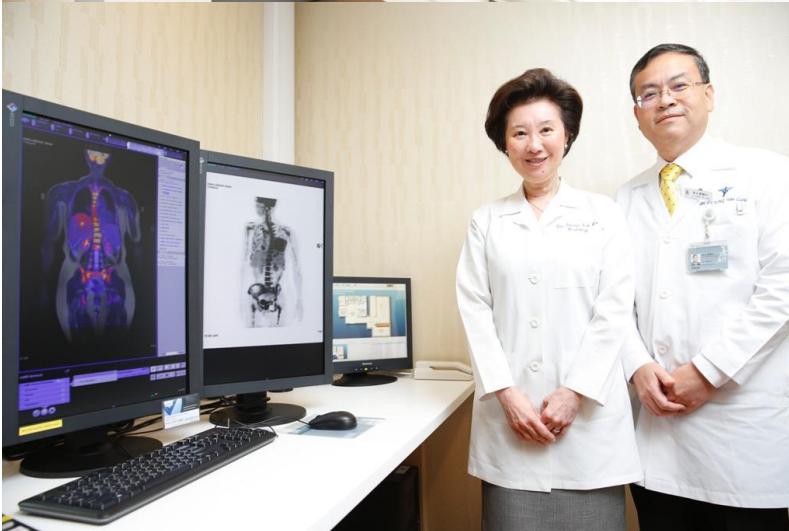


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Photo Captions:

1. (From left) Dr. Gladys LO, Head of Department of Diagnostic and Interventional Radiology and Dr. Eric LEUNG Yim Lung, Deputy Director of the Department of Nuclear Medicine & Positron Emission Tomography, introduce the latest PET/MR imaging system.



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2. PET/MR image scanning is operated by experienced specialists in Radiology and Nuclear Medicine



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### 3. Radiopharmaceutical injection.



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