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Joint press release of Siemens AG and Klinikums rechts der Isar

## **Spectacular new images from inside the body**

In a ceremony attended by Bavarian Minister President Horst Seehofer, Siemens presented the university hospital Klinikum rechts der Isar in Munich with the world's first device that combines magnetic resonance imaging with positron emission tomography.

**The department of nuclear medicine at the university hospital Klinikum rechts der Isar of the Munich Technical University today started clinical use testing with a world's first in medical technology, thereby opening up new perspectives for the diagnosis of diseases such as cancer or dementia. The combination of a magnetic resonance tomograph (MR) and a positron emission tomograph (PET) in one device allows doctors – for the first time – to simultaneously see the position of internal organs, how these are working, as well as their metabolism, all in a single image. This may help doctors to make a more accurate diagnoses by not only seeing where a tumor is in the body, but also its type and its activity. Moreover it may display how the body reacts to medication administered to the patient. The device, called the Biograph mMR\*, has been developed by Siemens Healthcare and is a pioneering achievement in medical imaging. The Biograph mMR combines two technologies that normally would not be able to work next to each other: Magnetic resonance imaging uses a strong magnetic field and electromagnetic waves, while positron emission tomography uses low-dose radioactively charged radiopharmaceuticals, with which the patient is injected before the examination. These radiopharmaceuticals react with the body tissue and the resulting radiation is measured and finally converted into an image. According to physics applied in these imaging techniques, those two technologies should conflict with each other and make simultaneous imaging impossible. But the Biograph mMR is designed to overcome this physical hurdle. Thanks to funding of the Deutsche Forschungsgemeinschaft (DFG) the first systems will be installed in Germany.**

In his remarks at the celebratory commissioning of the device, Bavarian Minister President Horst Seehofer said, "Bavaria's high-tech architects like Siemens, combined with the top-notch science that we have here in both university hospitals in Munich, result in the kind of strong partnership that contribute to Bavaria's strength and prosperity and that is the envy of many around the world."

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Before the upcoming holiday season, Bavaria will enact a new future-focused program called “Bavaria on the Move.” Under this program, we will continue to make significant investments in research and technology throughout all parts of the Bavarian state. This is, and will remain, Bavaria’s sovereign path toward prosperity and employment.”

MRI and PET are already well-established imaging techniques in medicine, and have been used for a long time to answer important clinical questions. Now, the combination of both technologies in one system is expected to change the diagnosis of many diseases, including many types of cancer as well as dementia. “Together with our partner Siemens we are entering a new dimension in diagnostic imaging today“, said Prof. Dr. Markus Schwaiger, Director of the department for nuclear medicine at the university hospital. „We’ve initiated clinical use testing of Biograph mMR in an effort to diagnose diseases at a very early stage; to see the progression of disease and to use that information to develop a therapy plan precisely focused on the respective patient. Furthermore, we plan to use the system for cancer follow-up in the long run, by reducing radiation exposure by the use of the system.“

In addition, the combination of the two systems will significantly cut the time needed for an examination compared to when two separate systems are used. The same works for the space – where room was needed for two large machines before, now only one combined machine is required. That gives hospitals more space for patients. “We can master the challenges of our healthcare systems only if we detect diseases as early as possible and treat them appropriately, while keeping an eye on costs,” explained Dr. Hermann Requardt, CEO of the Siemens Healthcare Sector. “Our Biograph mMR is a tool for doctors, enabling them to more quickly and accurately collect information on the type, stage, and progress of cancers, for example. The system may also be suitable for monitoring the progress and effectiveness of therapies. The Biograph mMR at the hospital Rechts der Isar clinic is a milestone in image-based diagnostics.”

Combining MRI and PET was a great technological feat, as the two processes using different physical effects could normally not work close to each other. The magnetic fields generated in MRI interfere with usual PET detectors, what until now prevented simultaneously taken high-resolution human images. Patients had to be scanned in two separate systems, with a certain time interval between the exams. With the Biograph mMR, Siemens has developed the first system that provide highly innovative PET detectors, which work very well inside an MR system.

\*The Biograph mMR system requires 510(k) review by the FDA and is not commercially available in all countries. Due to regulatory reasons, its future availability in any country cannot be guaranteed. Please contact your local Siemens organization for further details.

The outcomes achieved by the Siemens customers described herein were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g. hospital size, case mix, level of IT adoption) there can be no guarantee that others will achieve the same results.

The **Siemens Healthcare Sector** is one of the world's largest suppliers to the healthcare industry and a trendsetter in medical imaging, laboratory diagnostics, medical information technology and hearing aids. Siemens offers its customers products and solutions for the entire range of patient care from a single source – from prevention and early detection to diagnosis, and on to treatment and aftercare. By optimizing clinical workflows for the most common diseases, Siemens also makes healthcare faster, better and more cost-effective. Siemens Healthcare employs some 48,000 employees worldwide and operates around the world. In fiscal year 2010 (to September 30), the Sector posted revenue of 12.4 billion euros and profit of around 750 million euros. For further information please visit: [www.siemens.com/healthcare](http://www.siemens.com/healthcare).

**The university hospital rechts der Isar.** The university hospital Klinikum rechts der Isar (on the right side of the river Isar) serves its patients with a highly skilled team of dedicated doctors, nurses, research scientists, and technical assistants. It is the university hospital of the Munich Technical University. With a workforce of over 4,000 personnel, the university hospital is a renowned center for the care of the sick, for medical research, and for the teaching of medicine. The hospital rechts der Isar is composed of more than 30 separate clinics and departments treating some 50,000 in-house patients and 200,000 out-patients yearly. The 1,100-bed hospital covers the entire spectrum of modern medicine with state-of-the-art efficiency. Through the close cooperation between health care and research, the latest advances in medical techniques can be quickly integrated into patient treatment procedures.

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