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## **Swiss Researchers Report on Promising New Compounds for Cancer Detection and Treatment**

### **Researchers Use Europe's First Gamma Medica-Ideas FLEX Pre-Clinical Imaging System to Slash Development Time for Tumor Cell Agents**

**Northridge, California and Oslo, Norway** – A team of Swiss researchers is working to develop new methods for early cancer detection and treatment using a medical imaging system specifically designed for use in cancer research, disease progression studies, and drug development.

The researchers published their most recent findings in the online edition of the *European Journal of Nuclear Medicine and Molecular Imaging* (DOI: 10.1007/s00259-006-0111-9). The team is working to develop specific agents that will find very early-stage cancerous tumors. Their goal is to produce agents that can both identify tumors and deliver drugs that will destroy the tumors.

The research was carried out at the Center for Radiopharmaceutical Science, a joint endeavor of the Paul Scherrer Institute (PSI), the Swiss Federal Institute of Technology (ETH Zurich), and the University Hospital in Zurich. Nearly two years ago the Center became the first facility in Europe to acquire a SPECT/CT (X-SPECT<sup>®</sup>) small animal imaging system from Gamma Medica-Ideas (Northridge, California and Oslo, Norway). There are now several such Gamma Medica-Ideas systems in Europe.

Professor Roger Schibli of ETH Zurich led the Swiss research team. He said, “*In vivo* imaging has become an integral part of our research work at the Center for Radiopharmaceutical Science. There is no adequate substituted for Pre-clinical assessment of novel SPECT and PET tracers than whole body imaging of animals. Our research has concentrated on the use of vitamins, notably folic acid and vitamin B<sub>12</sub> and derivatives thereof for use as molecular ‘Trojan horses’ for specific delivery of diagnostic or cytotoxic probes into tumor cells. Both vitamins are essential for cell growth. It is therefore unlikely that drug resistance is developed against radiolabeled derivatives of folic acid and B<sub>12</sub>. We have identified two promising, novel technetium-99m based candidates and clinical studies are currently in preparation. Small animal SPECT/CT studies using GammaMedica-Ideas’ X-SPECT system has significantly helped to speed up the selection process for these new drug candidates. The *in vivo* experiments with the X-SPECT system not only proved the specificity of the two radiotracers but allowed the fast and accurate determination of their superior pharmacokinetic profiles compared to previously published compounds by us and other groups. For example, in the case of folic acid we were able to demonstrate that co-application of a radioactive folate tracer together with chemotherapeutic antifolates led to a dramatic improvement of tumor-to-non-tumor ratios of the radiofolate.”

“The high quality X-SPECT images of these studies were so convincing that clinicians immediately could be convinced to plan human studies,” Professor Schibli added. “This is a major success for our center. Without the X-SPECT system installed at the Paul Scherrer Institute this would have been

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much more difficult to achieve in this short period.”

More information about the Center for Radiopharmaceutical Science can be found at <http://zrw.web.psi.ch/>. Information about Professor Schibli’s research in particular can be found at [http://www.pharma.ethz.ch/institute\\_groups/institute\\_groups/therapeutics\\_technologies\\_II/](http://www.pharma.ethz.ch/institute_groups/institute_groups/therapeutics_technologies_II/).

#### **About Gamma Medica-Ideas**

Gamma Medica-Ideas (GM-I) designs, develops and manufactures next-generation imaging systems used in diagnostic medicine, medical research, and for security and safety applications. GM-I’s expertise in unique next-generation, integrated front-end electronics allows it to produce some of the world’s only truly digital imaging equipment. The company develops and produces all of its key electrical components and systems, such as:

- Application Specific Integrated Circuits (ASICs)
- Detector modules
- Camera heads built with unique solid-state technology
- Systems and software featuring advanced multi-modality image fusion, registration and processing capabilities.

GM-I is a world leader in developing imaging systems that contain two or more imaging modalities. Combining different imaging modalities in single instruments creates imaging tools with powerful diagnostic and research capabilities. GM-I’s products include the LumaGEM<sup>®</sup> functional breast imaging system for early diagnosis of breast cancer and the FLEX Pre-clinical Imaging Platform for medical research and drug development. FLEX systems are used by medical researchers and drug companies that use *in vivo* imaging techniques and molecular markers to dramatically speed up studies of disease progression and therapy. GM-I’s FLEX systems include:

- X-SPECT<sup>®</sup> - the market leader in the pre-clinical SPECT category
- X-PET<sup>™</sup> - a pre-clinical PET system with a large axial field of view and the highest sensitivity among small animal PET systems.
- X-O<sup>™</sup> - a high-speed volume micro-CT instrument

Any two of the above systems can be combined in the FLEX imaging gantry, as can all three.

GM-I’s imaging systems are used by some of the world’s leading medical institutions, including Harvard University, Yale University, the Mayo Clinic, the M.D. Anderson Cancer Center at the University of Texas, Switzerland’s Center for Radiopharmaceutical Science, and many others.

More information is available at [www.gm-ideas.com](http://www.gm-ideas.com).

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