Title: **Mayo Clinic Researchers Report Success in New Molecular Breast Imaging Technique**

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Mayo Clinic Proceedings study finds small tumors detectable with gamma camera
ROCHESTER, MN -- January 11, 2005 -- Using a new specially designed gamma camera for breast imaging, Mayo Clinic researchers report in the January issue of Mayo Clinic Proceedings their success with a system they call molecular breast imaging. "By optimizing the camera to detect smaller breast lesions, this technique should aid in the detection of early-stage breast cancer, something that was not possible with conventional gamma cameras," says Michael O'Connor, PhD, Mayo Clinic radiologist. In the study, 40 women with suspicious findings on mammogram underwent molecular breast imaging: Twenty-six women had 36 malignant lesions confirmed at surgery. Molecular breast imaging detected 33 of the 36 lesions. In addition, four cancers were detected that were not seen on mammogram. Stephen Phillips, MD, a Mayo Clinic radiologist involved in the study, said the technique yielded the highest sensitivity yet reported for a gamma camera in the detection of small breast tumors (less than 1 centimeter), reporting an 86% rate of detection (19 of 22 cancers). One key feature that distinguishes this technique from mammography is that it relies on differences in the metabolic behavior of tumors vs. normal breast tissue. In contrast, mammography relies on differences in the anatomic appearance of tumors vs. normal tissue, differences that can often be subtle and obscured by densities in the surrounding breast tissue. "Approximately 25 to 40% of women have dense breast tissue, which decreases the chance that a cancer will be visible on their mammograms," says Douglas Collins, MD, a Mayo Clinic radiologist, who also worked on the study. "With molecular breast imaging, the visibility of the tumor is not influenced by the density of the surrounding tissue, so this technique is well-suited to find cancers in women whose mammograms may not be very accurate." Deborah Rhodes, MD, a Mayo Clinic physician and lead researcher in the study, says, "We have long recognized that screening for breast cancer with mammograms may not be sufficient in some groups of women, particularly women at increased risk for breast cancer, many of whom also have dense breast tissue. We need a technique that can reliably find small breast tumors but is not impaired by dense breast tissue. Our early results suggest an important role for molecular breast imaging in filling this critical gap." In addition to Drs. O'Connor, Phillips, Collins and Rhodes, Robin Smith, MD, in the Mayo Clinic Breast Diagnostic Clinic was a researcher in the study. In an editorial in the same issue of Mayo Clinic Proceedings, Rachel Brem, MD, director of breast imaging and intervention at George Washington University Medical Center in Washington, D.C., says the Mayo Clinic study furthers knowledge and gives additional credibility to molecular breast imaging. Dr. Brem notes that additional studies are needed at multiple medical centers to help refine and advance the findings. In the editorial, Dr.

Brem commends the Mayo researchers and says, "I hope that with time, molecular breast imaging using a high-resolution breast-specific gamma camera will be embraced and used by breast imagers and nuclear medicine physicians for the benefit of women, for the improved diagnosis of breast cancer, and ultimately for better survival from breast cancer." A peer-review journal, Mayo Clinic Proceedings publishes original articles and reviews dealing with clinical and laboratory medicine, clinical research, basic science research and clinical epidemiology. Mayo Clinic Proceedings is published monthly by the Mayo Foundation for Medical Education and Research as part of its commitment to the medical education of physicians. The journal has been published for more than 75 years and has a circulation of 130,000 nationally and internationally. Copies of the articles are available online at www.mayoclinicproceedings.com. SOURCE: Mayo Clinic

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