



Advanced Technology Pavilion (ATP) Opens!

Housing the latest imaging and stereotactic radiosurgery technology not available elsewhere in the region, the Advanced Technology Pavilion (ATP) is now available to all outpatients. On the site of the old childcare center and named in memory of Marilyn Herbert Hausman by her mother Josephine Herbert Gleis, the gift to Hoag Hospital Foundation supported this important project.

The facility offers great access for outpatients directly from Pacific Coast Highway with parking immediately at the entrance. The most advanced 3Tesla (high-field) MRI scanner available, one of the first two in Southern California, as well as the latest PET CT technology will be housed in the Margaret Beall Advanced Brain Function and Imaging Suite of the ATP. Also, the Gamma Knife *Perflexion* stereotactic radiosurgery unit, one of only five in the country so far, is housed there. Strategically situated between the future Neurosciences Center (planned for the Conference Center), and the Hoag Cancer Center both just yards away, the ATP will provide services to the Neuroscience Center of Excellence patients as well as those in the Cancer Center.

Optimal outpatient access, cutting-edge advanced MR, PET/CT services, Gamma Knife *Perflexion* too.

The Verio 3T MRI scanner is the newest technology in the high-field 3Tesla (the strongest magnet available on the market) category. In addition, it offers the new design of a wide opening with a shorter magnet dimension, minimizing any sense of claustrophobia.

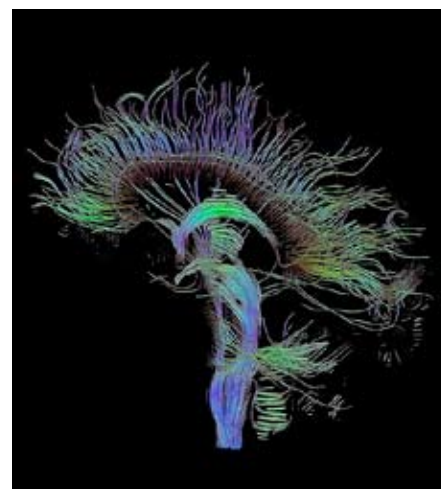


The new Verio 3T MRI, with a wide opening to reduce claustrophobia.

The Verio magnet also offers the newest applications including Arterial Spin-Labeled perfusion imaging, which is becoming an integral component of all MR brain sequences, offering brain perfusion analysis without the need for intravenous contrast injection.

Brain perfusion provides information not only regarding areas of insufficient blood flow to the brain, but also helps in determining the aggressiveness of brain tumors and their response to therapy.

In addition, this new scanner allows a new technique called “Tractography,” named for the white matter tracts in the brain, which it can analyze in great detail previously unavailable. The white matter tracts connect various grey matter zones of the brain, and their involvement by disease is important to evaluate for purposes of appropriate management. Tractography is performed with ultra high-field gradients of the magnetic field, available in the new machine, with a technique called diffusion tensor imaging (DTI). 3-Dimensional reconstructions of the white matter tracts also help surgeons plan focused surgery on the tumor, sparing the normal nearby brain and white matter tracts.

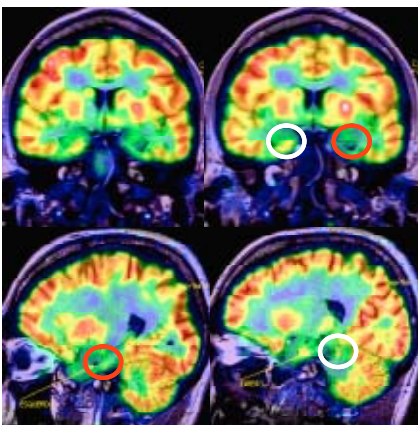


Tractography sagittal fibers

Functional brain imaging is also enhanced by the new Verio MRI scanner. This technique analyzes those regions of the brain which are activated by simple tasks the patient

is given. For example, finger tapping during the exam by the patient “lights up” that portion of the brain’s structure where any initiation of motor activity resides. Similarly, spoken words light up the language area in the brain on the scan. Mapping of such motor, sensory and language functions is an additional technique useful for planning appropriate surgery. And in the future may be used for much more complex analysis of brain functions including obsessive compulsive disorder, attention deficit disorder and others.

Finally, magnetic resonance spectroscopy, or the ability to analyze the chemical constituents of the brain in a visualized region, is likewise enhanced by the new capabilities of the Verio MR scanner. This analysis helps differentiate active tumor from treated, dead tumor tissue, as well as differentiating certain diseases which may look the same on routine images from each other. All these new capabilities are available on the Verio, which also enables the standard brain MRI imaging already familiar to all. Anatomic image clarity is state-of-the-art. The ability to quantify brain volume is likewise enhanced. This can help diagnose such disorders as Alzheimer’s disease, and other conditions.



PET MR fusion showing abnormal seizure focus

Speaking of Alzheimer’s disease, the new Sensation PET / CT scanner also housed in the ATP will greatly enhance metabolic imaging of the brain through the use of targeted molecular agents labeled with a pharmaceutical gamma ray emitter, such molecular labels can be targeted to various proteins and other molecules in the brain to demonstrate abnormalities of brain metabolism by detecting the emitted signal from the molecular tracer with a highly specialized gamma camera.



The new PET/CT system at the ATP

Recent research has demonstrated the superiority of such molecular imaging in the detecting the earliest stages of Alzheimer’s disease. Other brain disorders likewise are being targeted with new pharmaceutical radioactive tracers in order to detect specific aberrations of the brain, allowing targeted drug therapy specifically for that abnormality. Conventional PET / CT scanning is also enabled by the new PET / CT technology in the system housed at the ATP, benefitting all patients being staged for tumors, and other disease.

The Gamma Knife *Perfexion*, the most advanced stereotactic radiosurgery system available anywhere, was moved to the ATP in order to maximize ease of patient access, the

MR and PET / CT scanners being in the same facility allows for one-stop patient management with the *Perfexion* system.

The stereotactic frame can be applied in the ATP, the patient imaged in either the PET / CT or MR system, and placed in the *Perfexion* treatment unit next door. The combination of co-location, and the high-speed *Perfexion* system, dramatically reduces patient time of the treatment planning and treatment process.

Patients can easily access the Advanced Technology Pavilion as it is the closest building and parking lot available from the Pacific Coast Highway entrance onto the Hoag campus. Interfaced to all the systems of the main hospital infrastructure, it is essentially an extension of the hospital itself meant for hassle-free outpatient ease of use. If you have any questions regarding the facility, please call ext. 45942.

For scheduling of imaging studies with MRI and PET / CT, please call the radiology scheduling office at ext. 45573.

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