



American  
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### **Folate Receptor Overexpression Can Be Visualized in Real Time During Pituitary Adenoma Endoscopic Transsphenoidal Surgery**

*A presentation at the 2017 American Association of Neurological Surgeons Annual Scientific Meeting*

**Los Angeles, Calif.** (April 26, 2017) — Winner of the Synthes Skull Base Award, John Y.K. Lee, MD, FAANS, presented his research, *Folate Receptor Overexpression Can Be Visualized in Real Time During Pituitary Adenoma Endoscopic Transsphenoidal Surgery*, during the 2017 American Association of Neurological Surgeons (AANS) Annual Scientific Meeting

Transsphenoidal resection remains the primary treatment for many pituitary adenomas. Despite advances in endoscopy visualization, tumor recurrence is seen in up to 20 percent of surgeries. Because some pituitary adenomas overexpress folate receptor alpha (FRalpha), study authors hypothesized that a folate analog conjugated to a near infrared (NIR) fluorescent dye could provide increased optical contrast for margin detection. Nineteen adult patients with pituitary adenoma were enrolled in this pilot study and infused with OTL38 (On Target Laboratories, Indiana) prior to surgery. A VisionSense Iridium™ 4mm endoscope with visible light and NIR light sensor overlay was used to visualize neoplasm in real time. Signal-to-background-ratio (SBR) was calculated for all specimens at different endoscope-to-tissue distances. Immunohistochemistry allowed FRalpha quantification in the specimens.

Data from 15 patients were reviewed for this preliminary analysis, which indicates that pituitary adenomas and margins can be visualized real time inside the operating room with preoperative injection of OTL38, a folate analog conjugated to NIR dye. Near-infrared optical contrast is significantly stronger for FRalpha overexpressing tumors, almost exclusively seen in non-secretory adenomas. Intraoperative quantification of SBR can predict FRalpha overexpression if the endoscope is held at an appropriate distance. Fluorescent-guided pituitary adenoma surgery using folate targeting is promising but remains investigational. Future work will focus on non-functional adenomas and optimization of imaging parameters.

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*Disclosure: The author reported conflicts of interest. Conflicts may be reviewed in the AANS 2017 Meeting App.*

**Media Representatives:** The 2017 AANS Annual Scientific Meeting press section will include releases on highlighted scientific research, AANS officers and award winners, Neurosurgery Awareness Month and other relevant information about the 2017 program. Releases will be posted under the “Media” area on the 2017 AANS Annual Scientific Meeting [website](#). If you have interest in a topic related to neurosurgery or would like to interview a neurosurgeon — either onsite or via telephone — during the event, please contact Alice Kelsey, AANS associate executive director, via email at [aik@aans.org](mailto:aik@aans.org).

**About the 2017 AANS Annual Scientific Meeting:** Attended by neurosurgeons, neurosurgical residents, medical students, neuroscience nurses, clinical specialists, physician assistants, allied health professionals and other medical

professionals, the AANS Annual Scientific Meeting is the largest gathering of neurosurgeons in the nation, with an emphasis on the field's latest research and technological advances. The scientific presentations accepted for the 2017 event will represent cutting-edge examples of the incredible developments taking place within the field of neurosurgery. Find additional information about the 2017 AANS Annual Scientific Meeting and the meeting program [here](#).

*Founded in 1931 as the Harvey Cushing Society, the American Association of Neurological Surgeons (AANS) is a scientific and educational association with more than 10,000 members worldwide. The AANS is dedicated to advancing the specialty of neurological surgery in order to provide the highest quality of neurosurgical care to the public. Fellows of the AANS are board-certified by the American Board of Neurological Surgery, the Royal College of Physicians and Surgeons of Canada or the Mexican Council of Neurological Surgery, A.C. Neurosurgery is the medical specialty concerned with the prevention, diagnosis, treatment and rehabilitation of disorders that affect the spinal column, spinal cord, brain, nervous system and peripheral nerves.*

*For more information, visit [www.AANS.org](http://www.AANS.org).*