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### **Clinical and Molecular Features of Genomic Subgroups in Meningioma**

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

**Los Angeles, Calif.** (April 26, 2017) — Winner of the Integra Foundation Award, Mark W. Youngblood, presented his research, *Clinical and Molecular Features of Genomic Subgroups in Meningioma*, during the 2017 American Association of Neurological Surgeons (AANS) Annual Scientific Meeting.

The authors of this study previously described the genomic landscape of meningiomas, identifying five genomic groups, including NF2, TRAF7/KLF, TRAF7/AKT1, Hedgehog and POLR2A mutants, which explain the molecular background of over 80 percent of benign samples. The study identifies novel relationships of driver mutation with clinical and molecular characteristics and describes new targets for precision treatment of meningiomas.

Authors used next-generation genomic approaches to classify over 1,500 meningiomas, identifying known driver mutations and correlating these with clinical characteristics. In a smaller cohort, the team performed RNA- and H3K27ac ChIP-sequencing to investigate the transcriptional and epigenomic associations underlying meningioma pathogenesis.

Meningioma subgroups showed significant correlation with intracranial origin, pathologic grade and histology. The authors found NF2-mutant tumors to be enriched among the higher grade meningiomas, localizing to the convexity regions posterior to the coronal suture. By contrast, non-NF2 mutant meningiomas originated primarily from the anterior convexity and skull base regions, including midline localization of Hedgehog mutant meningiomas, which included the majority of olfactory groove and planum sphenoidale tumors. Using H3K27ac ChIP-seq data, authors found differential super-enhancer binding in each subgroup that drove expression of genes related to embryonic development of the meninges, including WNT activation in NF2 mutants, GRHL3 in KLF4-mutant samples and EGFR in Hedgehog mutant meningiomas.

Author Block: Victoria Clark; Akdes Serin Harmanci; Daniel Duran Mora; Julio Montejó; Chang Li; Hanwen Bai; Hongda Zhu; E. Zeynep Erson-Omay; Kaya Bilgüvar; and Murat Günel

*Disclosure: The author reported no conflicts of interest.*

**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.*

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