

injection of 18F-PI-2620. Venous blood is obtained to characterize the kinetics of parent compound and metabolites. **Results:** Initial imaging data shows robust brain uptake and fast wash-out in non-target regions with peak SUV = 4-4.5. There was no increased uptake seen in choroid plexus, striatum, amygdala, or other regions noted in first generation tau agents. In AD, focal asymmetric uptake was evident in temporal and parietal lobes, precuneus, and cingulate. SUVr time curves demonstrate a plateau at 90-100 min post injection with resultant SUVrs of 2.5-2.8 in abnormal regions, whilst HV demonstrated shorter time to secular equilibrium (60-70 min) and lower SUVrs (1.0-1.2) in comparable brain regions. Finally, PSP subjects demonstrated focal and symmetric increased uptake in the globus (SUVr=1.99-2.11) and midbrain (SUVr=2.41-2.58). Blood data confirmed fast kinetics with 20% of parent compound present at 60 min and the presence of polar metabolites. **Conclusions:** Initial PI-2620 PET first-in-human studies demonstrate excellent brain penetrance, favorable kinetics, and high target specificity with low nonspecific binding and high signal in regions of expected tau pathology.

**SATURDAY, JULY 15, 2017**  
**ALZHEIMER'S IMAGING CONSORTIUM**  
**IC-02**  
**PRECLINICAL AD**

**IC-02-01 THE RELATIONSHIP OF ELEVATED MEDIAL TEMPORAL LOBE AND DIFFUSE BRAIN TAU-PET SIGNAL IN CLINICALLY NORMAL PARTICIPANTS**



**Val Lowe**, Mayo Clinic College of Medicine, Rochester, MN, USA.  
 Contact e-mail: [vlowe@mayo.edu](mailto:vlowe@mayo.edu)

**Background:** Medial temporal lobe (MTL) uptake on tau-PET is seen in AD dementia but also in the aging population. Some AD dementia patients have much less MTL tau-PET signal compared to other isocortical signal. The relationship of these findings to the development of AD dementia needs to be better understood. **Methods:** Tau-PET with AV-1451 was performed on 439 cognitively normal (CN) participants ages 50-94. For each cortical region we

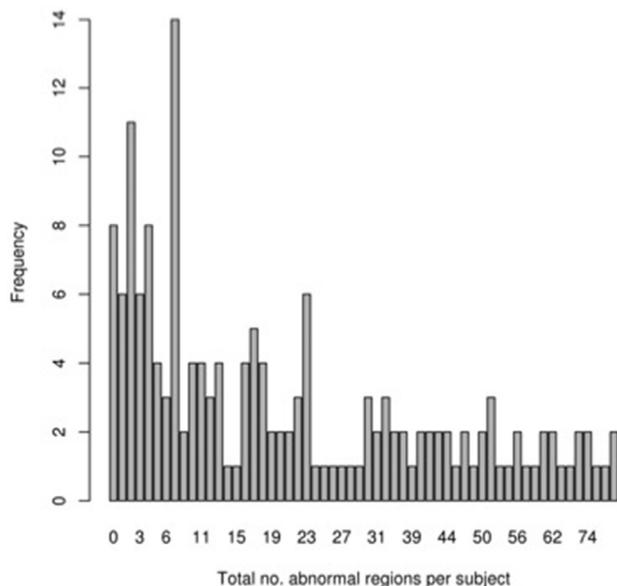


Figure 1. Numeric distribution of regional abnormalities outside medial temporal lobe (MTL) among those having any MTL abnormality.

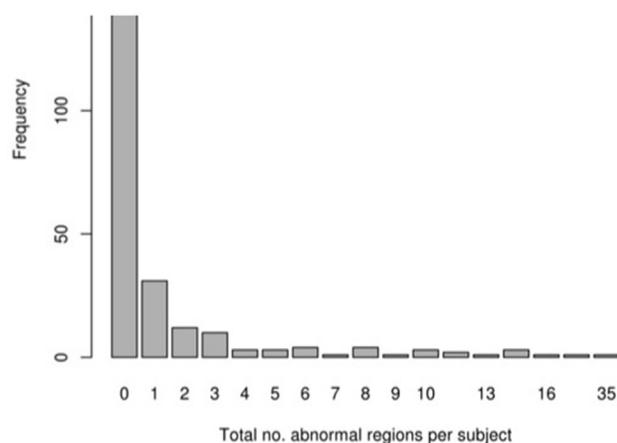


Figure 2. Numeric distribution of regional abnormalities outside medial temporal lobe (MTL) among those having any MTL abnormality.

defined abnormal tau-PET as cortical to cerebellar crus grey matter ratio (SUVr) greater than the 95th percentile among 71 CN participants ages 30-49. We included entorhinal cortex, parahippocampal gyrus, and hippocampus as MTL regions. All other cortical regions were considered extra-MTL regions. Off-target regions, such as pallidum, were excluded. The number of CNs with and without abnormal MTL regions and those with or without extra-MTL abnormalities were determined. We characterized the age, PiB and APOE status of the groups. **Results:** Of CN participants, 37% (163/439) had MTL abnormalities. Of those with MTL findings, 95% (155/163) had extra-MTL abnormality with most having more than one (Figure 1). Of the 276 without an MTL abnormality, 29% (81/276) had extra-MTL abnormalities (Figure 2). Participants having MTL abnormalities tended to be older ( $p < 0.001$ ) and have elevated amyloid ( $p < 0.001$ ). Among those having MTL abnormalities, no age or PIB differences were seen between those with or without extra-temporal abnormalities. There were no significant differences in the percentage of APOE e4 carriers. **Conclusions:** MTL tau-PET signal is often associated with abnormal extra-MTL tau-PET signal in CN participants and likely represents neurofibrillary tangle development in participants likely to develop AD dementia. Tau-PET signal exclusively outside of the MTL is seen in 29% of CN participants and could be the initial finding in a unique subset of participants in the AD dementia pathway. These findings need to be evaluated with longitudinal data.

**IC-02-02 RELATIONSHIP BETWEEN TAU POSITRON EMISSION TOMOGRAPHY WITH [18F]-AV-1451 AND LONGITUDINAL CORTICAL ATROPHY IN ALZHEIMER DISEASE**



**Shruti Mishra**<sup>1</sup>, Brian A. Gordon<sup>1,2</sup>, Tyler Blazey<sup>1</sup>, Yi Su<sup>1,2</sup>, Jon Christensen<sup>1</sup>, Kelley Jackson<sup>1</sup>, Russ C. Hornbeck<sup>1</sup>, John C. Morris<sup>1,2,3</sup>, Beau M. Ances<sup>1,2</sup>, Tammie L. S. Benzinger<sup>1,2</sup>, <sup>1</sup>Washington University School of Medicine, St. Louis, MO, USA; <sup>2</sup>Knight Alzheimer's Disease Research Center, St. Louis, MO, USA; <sup>3</sup>Hope Center for Neurological Disorders, St. Louis, MO, USA. Contact e-mail: [shruti.mishra@wustl.edu](mailto:shruti.mishra@wustl.edu)

**Background:** Neurofibrillary tau pathology is a marker of neurodegeneration and can be evaluated using the PET tracer [18F]-AV-1451 (florataucipir, T807). Many studies have added tau imaging to ongoing longitudinal cohorts. We wanted to evaluate whether longitudinal MRI scans could predict tau PET positivity in preclinical and symptomatic Alzheimer disease (AD). **Methods:** 87