

# QyScore's fully automated Tau-PET quantification achieves gold-standard accuracy without manual inputs

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# QYNAPSE



## BACKGROUND

Tau-PET is a key biomarker for staging and monitoring Alzheimer's disease (AD). Widely used research pipelines, such as UC Berkeley's, require specialized image analysts, limiting scalability in multi-site clinical trials and clinical routine. We aimed to validate QyScore<sup>®</sup>, a fully automated Tau PET pipeline, against the UC Berkeley method, focusing on its ability to deliver certified, regulatory-grade regional quantification and to broaden access in settings without dedicated imaging experts.

## METHODS

We analysed **711 individuals** (mean age 73.2±8.4 years: **54.3% female**), including 308 CN, 330 MCI, and 73 AD participants (Table 1) with paired T1-weighted MRI and Flortaucipir-PET scans. T1 images were automatically parcellated using QyScore<sup>®</sup>'s CE-marked and FDA-cleared imaging platform to extract the meta-temporal ROI (entorhinal, amygdala, parahippocampal, fusiform, inferior and middle temporal cortex), and inferior cerebellar cortex for the reference region, aligned with UC Berkeley's established FreeSurfer/SUIT-based regions. Standardised uptake value ratios (SUVRs) were calculated for each subject, and linear regression was used to compare pipelines.

## RESULTS

SUVRs generated by QyScore<sup>®</sup> strongly correlated with UC Berkeley results ( $R^2=0.95$ , slope=1.1: Figure 1), demonstrating near-equivalence across reference and target regions despite differing segmentation and PET processing pipelines. QyScore<sup>®</sup> provides fully automated, end-to-end PET processing, integrating certified MRI-based anatomical segmentations and harmonized quantification without manual intervention. This ensures high accuracy while enabling deployment in trial centres and clinics that lack specialized image analysts.

## CONCLUSION

QyScore<sup>®</sup> delivers robust and scalable Tau PET quantification with accuracy comparable to the gold-standard UC Berkeley pipeline. By eliminating manual intervention, QyScore<sup>®</sup>'s fully automated, regulatory-grade segmentation not only supports efficient, harmonized readouts for multi-centre clinical trials but also enhances accessibility to Tau PET quantification in diverse clinical settings. By reducing dependence on expert analysts, QyScore<sup>®</sup> contributes to more equitable access to precision biomarker-based care and research participation worldwide.

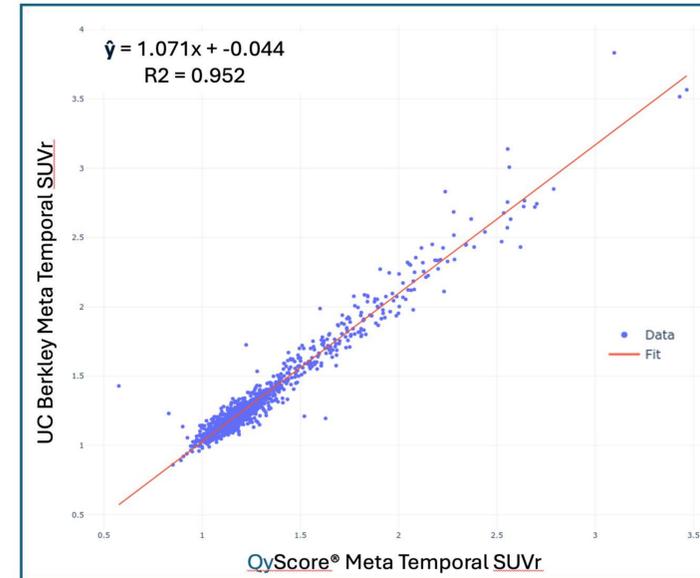


Figure 1. Linear regression of F18-Flortaucipir-PET Meta temporal SUVRs from QyScore compared with UC Berkeley gold-standard pipeline

Table 1. Demographic characteristics of the study cohort (N=711), stratified by diagnosis group, including age (mean ± SD with range) and sex distribution.

Diagnosis Group	N	Age, mean ± SD (range)	Female, n (%)	Male, n (%)
Cognitively Normal (CN)	308	72.0 ± 8.8 (51–94)	194 (63.0)	114 (37.0)
Mild Cognitive Impairment (MCI)	330	73.8 ± 7.9 (56–94)	159 (48.2)	171 (51.8)
Alzheimer's Dementia (AD)	73	75.3 ± 8.4 (56–89)	33 (45.2)	40 (54.8)
<b>Total Cohort</b>	<b>711</b>	<b>73.2 ± 8.4 (51–94)</b>	<b>386 (54.3)</b>	<b>325 (45.7)</b>

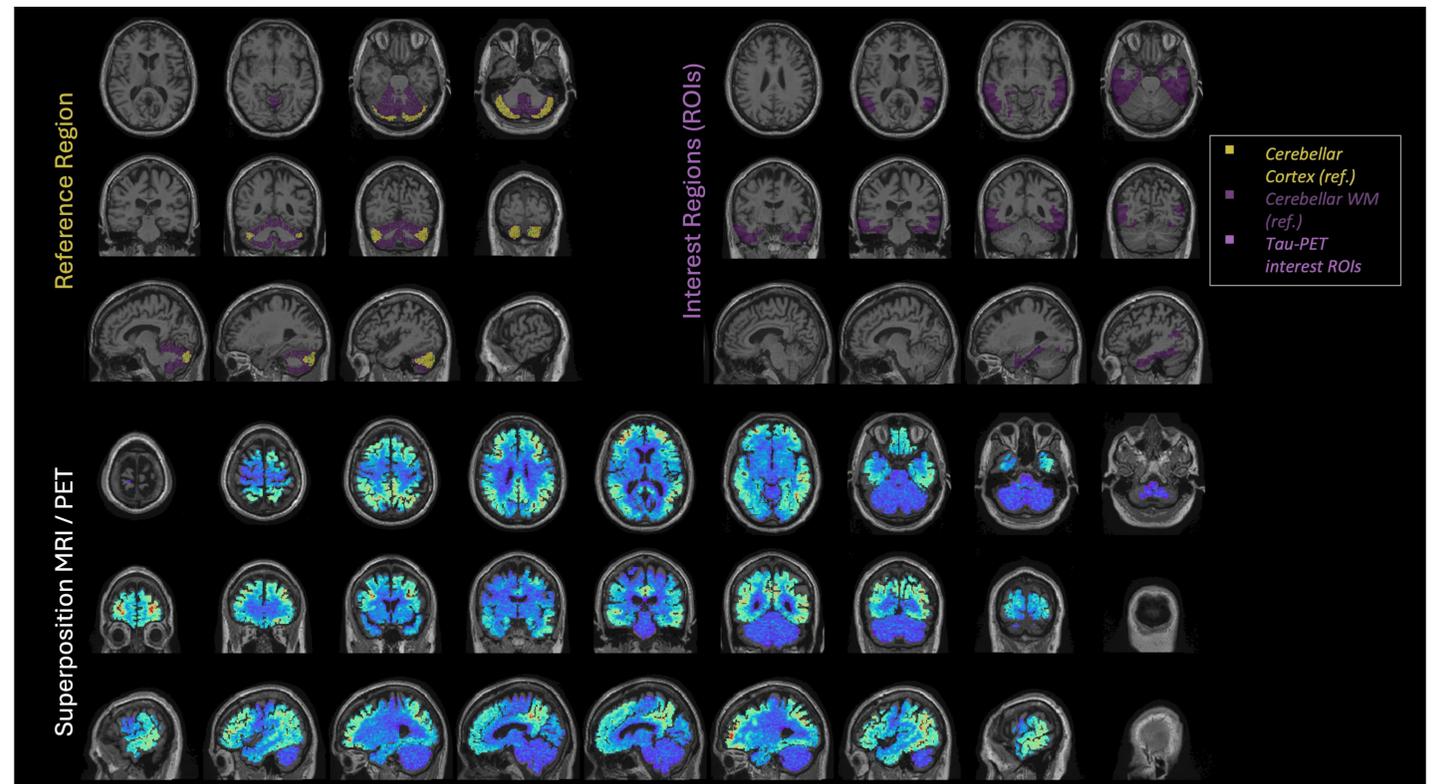


Figure 2. Automated T1-MRI/Tau-PET co-registration quality control for a representative subject, showing MRI/PET alignment (top), cerebellar reference region masks (bottom left, yellow/purple), and Braak-relevant interest region masks (bottom right, purple), generated without manual input.