

A serene landscape at dawn or dusk. The sky is a deep, dark blue, with a thin, bright crescent moon arching across the upper portion. The sun is a small, glowing orb just above the horizon, its light reflecting on the calm water below. The horizon line is marked by a range of low, dark mountains or hills. The overall mood is peaceful and contemplative.

In The Name Of God



Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring 11 (2019) 53-60

Alzheimer's  
&  
Dementia

Diagnostic Assessment & Prognosis  
Development and validation of a salivary tau  
biomarker in Alzheimer's disease

Heather Pেকেles<sup>a,b</sup>, Hamid Y. Qureshi<sup>b</sup>, Hemant K. Paudel<sup>a,b</sup>, Hyman M. Schipper<sup>a,b,c</sup>,  
Mervyn Gornistky<sup>a,b,c</sup>, Howard Chertkow<sup>a,b,c,d,\*</sup>

<sup>a</sup>Departments of Neurology and Neurosurgery and Dentistry, McGill University, Montreal, Québec, Canada

<sup>b</sup>Lady Davis Institute, Montreal, Québec, Canada

<sup>c</sup>Jewish General Hospital, Montreal, Québec, Canada

<sup>d</sup>Baycrest Health Sciences, Toronto, Ontario, Canada



## Early Growth Response 1 (Egr-1) Regulates Phosphorylation of Microtubule-associated Protein Tau in Mammalian Brain\*

Yifan Lu<sup>‡,1</sup>, Tong Li<sup>‡,1</sup>, Hamid Y. Qureshi<sup>‡</sup>, Dong Han<sup>‡</sup> and Hemant K. Paudel<sup>‡§,2</sup>

## Glycogen Synthase Kinase-3 $\beta$ Is Complexed with Tau Protein in Brain Microtubules\*

Wei Sun<sup>‡</sup>, Hamid Y. Qureshi<sup>‡</sup>, Patrick W. Cafferty<sup>‡</sup>, Kazuya Sobue<sup>‡§</sup>, Alka Agarwal-Mawal<sup>‡</sup>, Katherine D. Neufeld<sup>‡</sup> and Hemant K. Paudel<sup>‡¶||</sup>

## Parkinsonian Neurotoxin 1-Methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) and $\alpha$ -Synuclein Mutations Promote Tau Protein Phosphorylation at Ser<sup>262</sup> and Destabilize Microtubule Cytoskeleton *in Vitro*\*

Hamid Y. Qureshi<sup>1</sup> and Hemant K. Paudel<sup>2</sup>

## Interaction of 14-3-3 $\zeta$ with Microtubule-Associated Protein Tau within Alzheimer's Disease Neurofibrillary Tangles

Hamid Y. Qureshi<sup>†</sup>, Tong Li<sup>†</sup>, Ryen MacDonald<sup>†‡</sup>, Chul Min Cho<sup>†‡</sup>, Nicole Leclerc<sup>§</sup>, and Hemant K. Paudel<sup>†‡</sup>

<sup>†</sup> The Bloomfield Center for Research in Aging, Lady Davis Institute for Medical Research, Jewish General Hospital, 3755 Côte-Sainte-Catherine Road, Montreal, Quebec, Canada H3T 1E2

<sup>‡</sup> Department of Neurology and Neurosurgery, McGill University, Montreal, Quebec, Canada H3A 0G4

<sup>§</sup> Department of Pathology, University of Montreal, Montreal, Quebec, Canada H3T 1E2



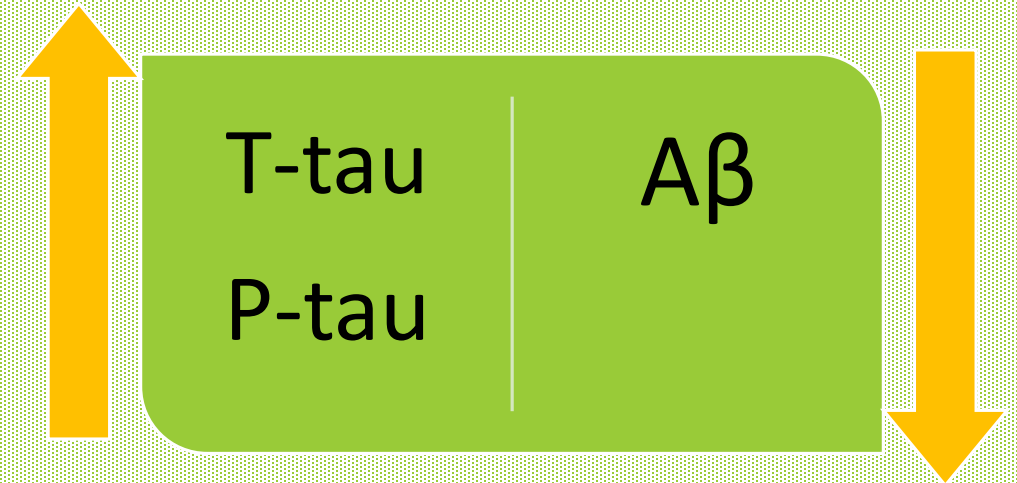
# Introduction



## Introduction

# Biomarker for Alzheimer

CSF

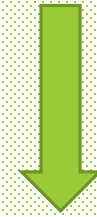


P-tau 181 most studied phosphorylation site

Saliva  an easily obtained biofluid

# Biomarker for Alzheimer

Mass spectrometry



Western blot

p tau/t-tau ratio  increase in the saliva of  
AD compare with normal elderly control subject

---

Materials  
And  
method



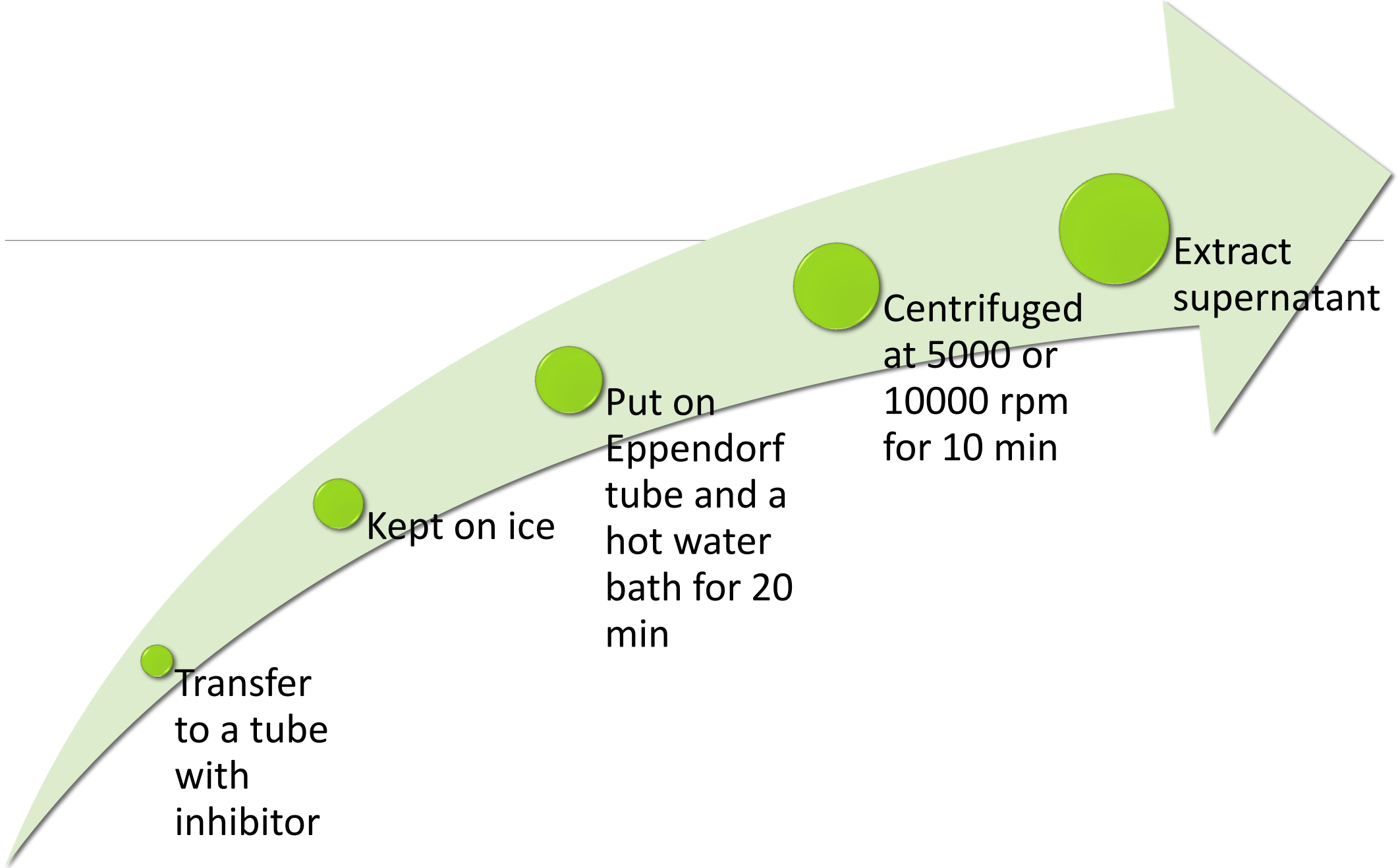


# Sample collection

Saliva was collected in the morning

Subject spit one sample of 4-5 ml into  
a sterile 50ml poly propylene tube





# Subject

Round one

150 sample

AD (Alzheimer disease) ◦

MCI(mild cognitive  
impairment)

NEC(normal elderly control)

Table 1

Demographic information for round one data

Subjects	N*	F:M	Median age (IQR)
AD	46	22:24	80 (9)
NEC	47	32:15	73 (6)
MCI	55	32:23	78 (14)

# subject

Round two

200 sample

AD

NEC

FTD(frontotemporal dementia)

YN(young normal)

Neurology patient

Table 2

Demographic information for round two data

Subjects	N	F:M	Median age (IQR)
AD	41	24:17	80 (8)
NEC	44	30:14	72 (7)
FTD	16	5:11	71.5 (10)
NEUR	12	7:5	55 (11)
YN	76	45:31	32 (22)

MCI

The subject displayed subjective memory complaints •

FTD

A set of neurodegenerative disease involve predominant degeneration of the frontal and temporal cortices •

NEC

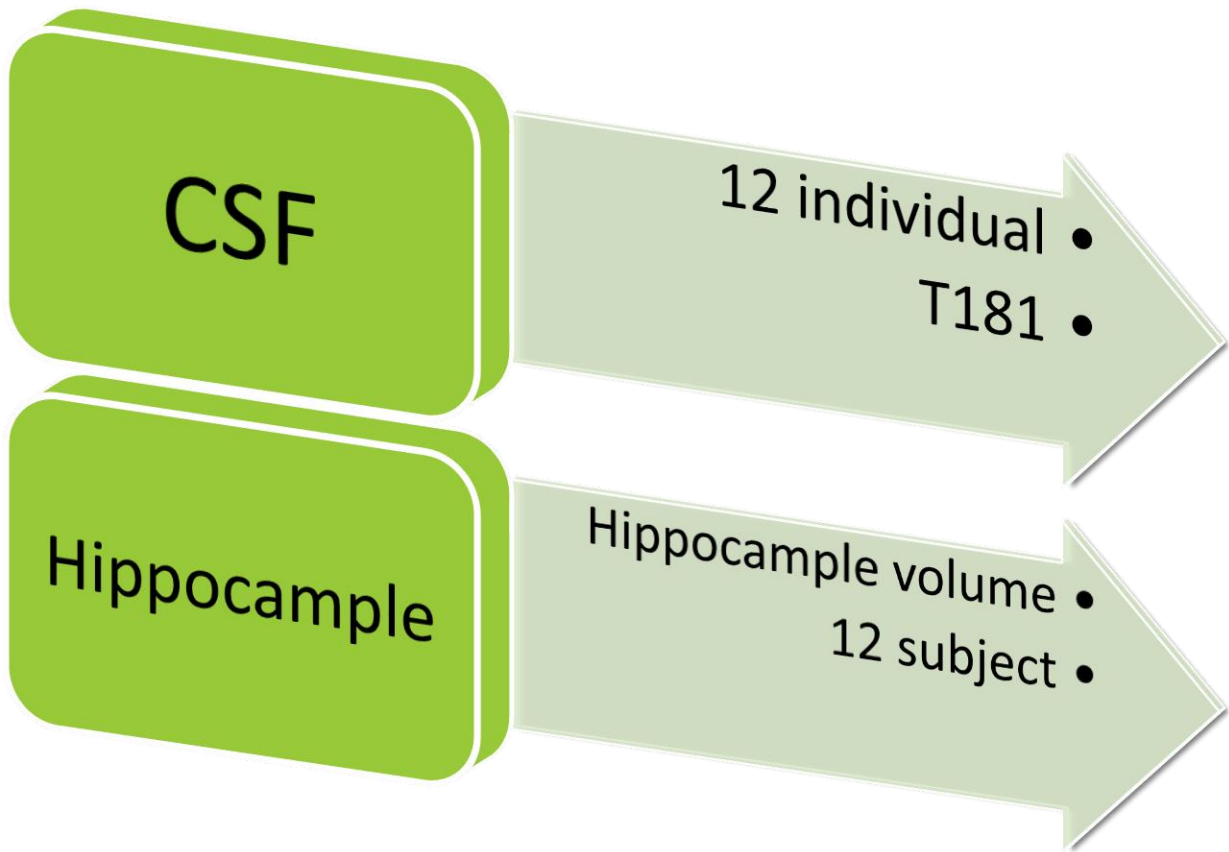
Age > 60 year •

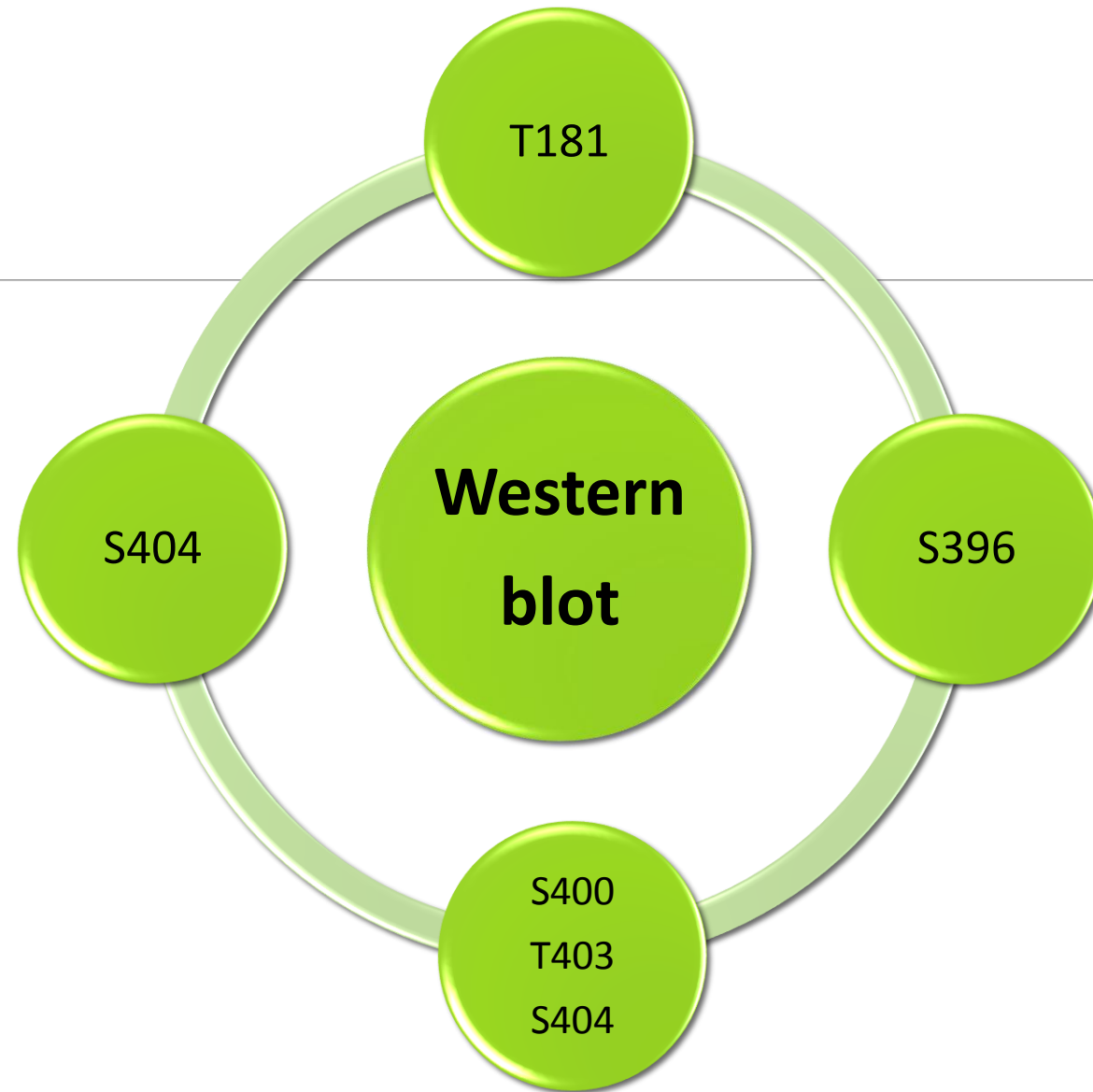
YN

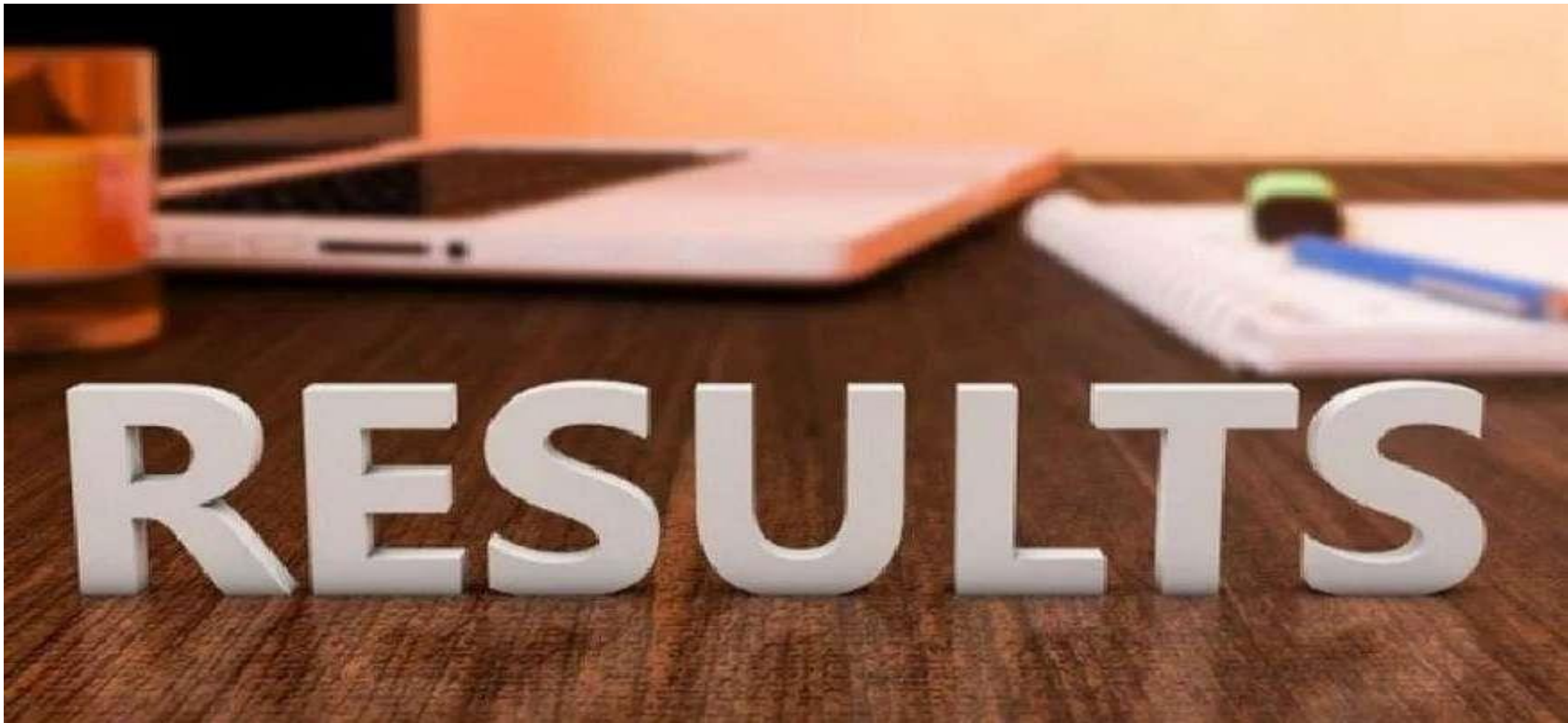
Aged 18-60 year •

NEUR

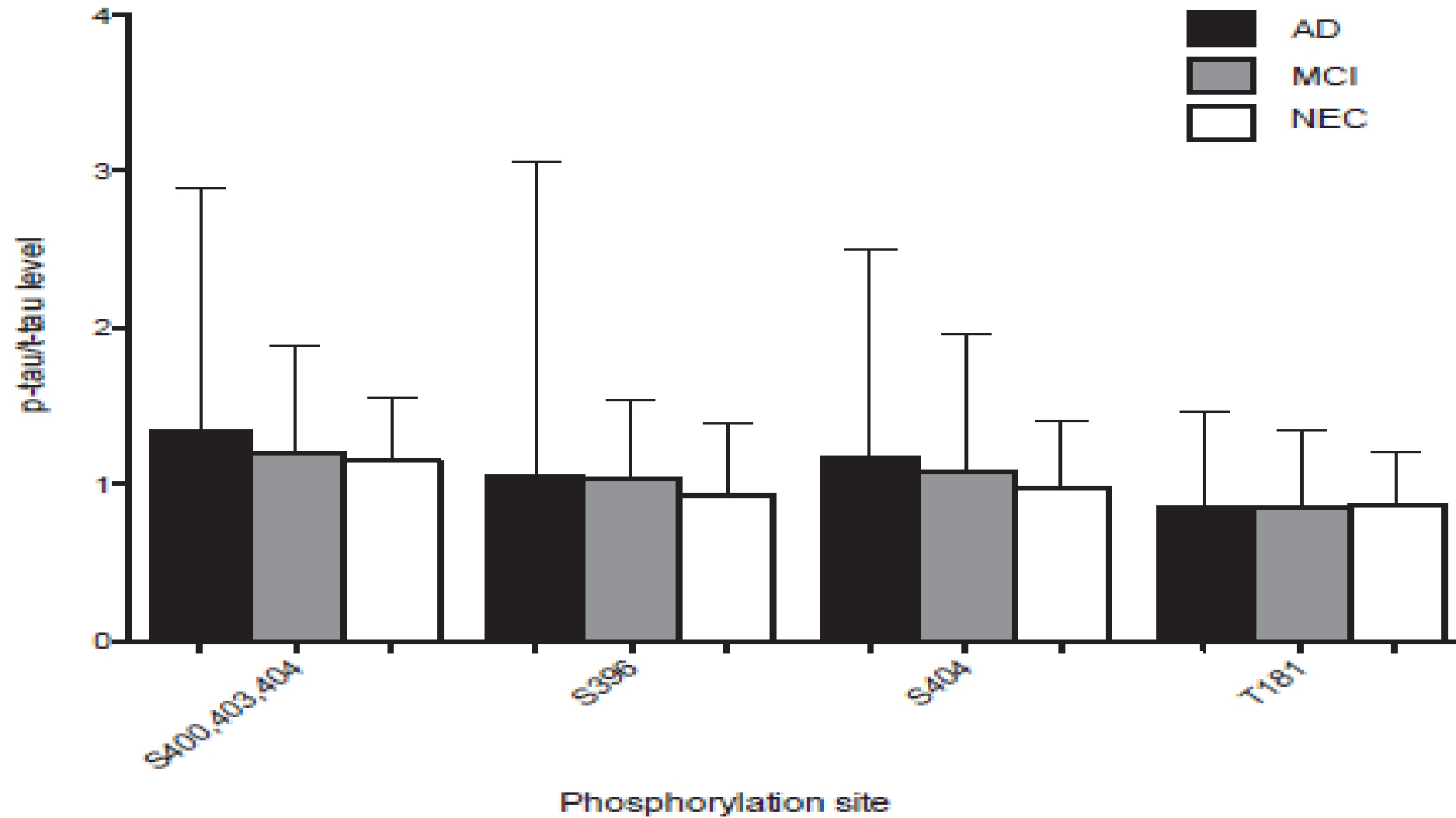
Neurology patient with brain disease •

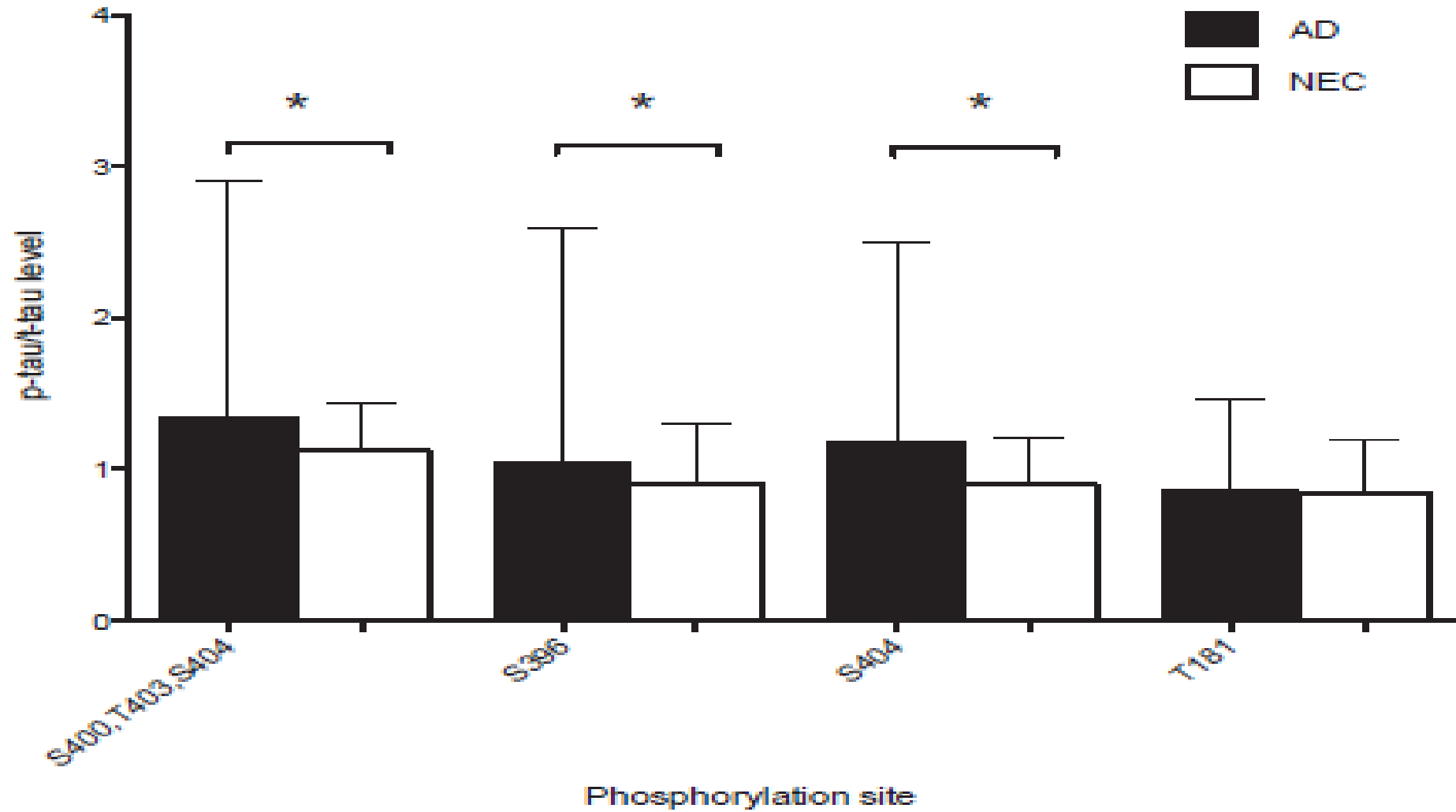


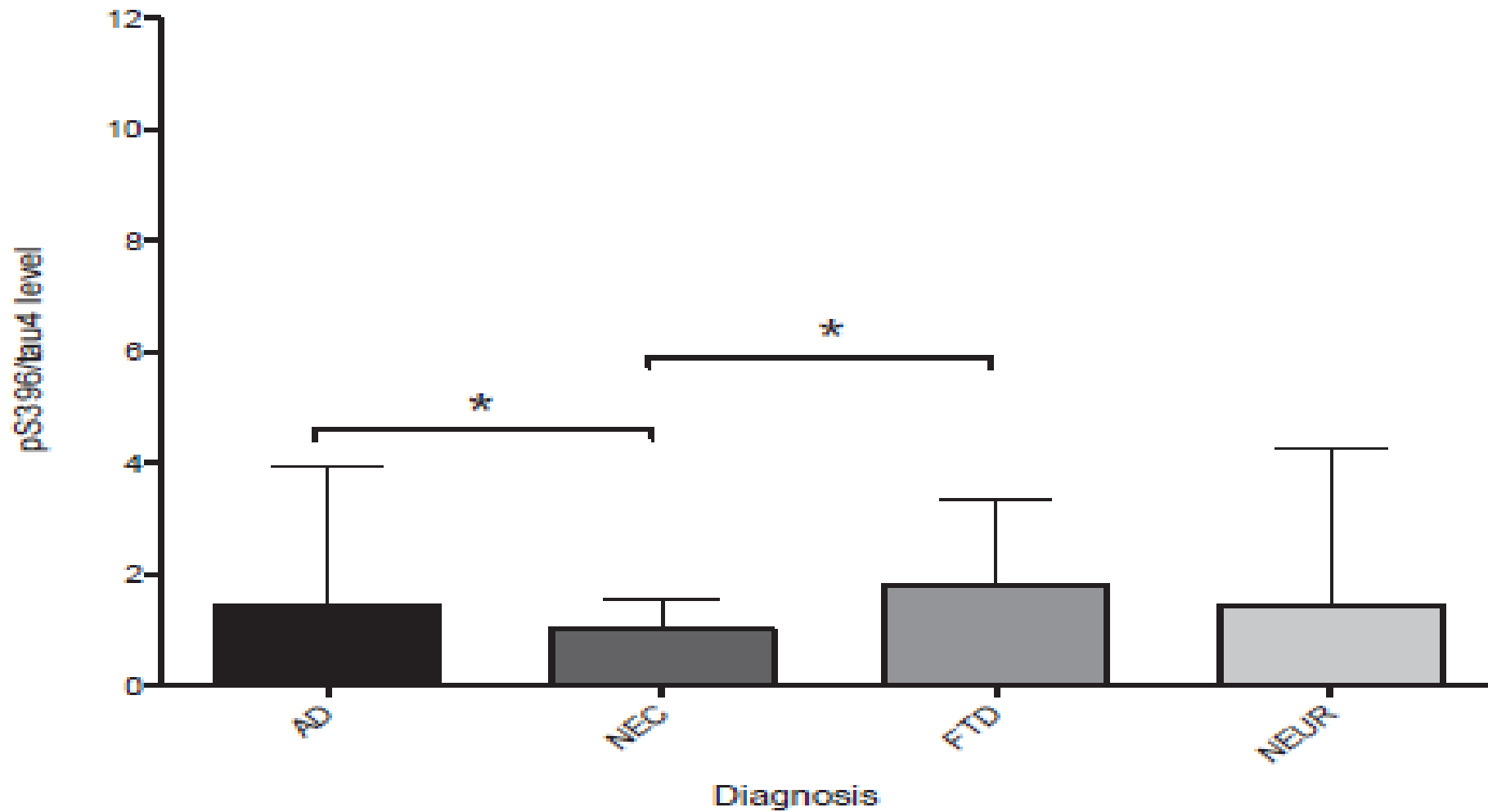


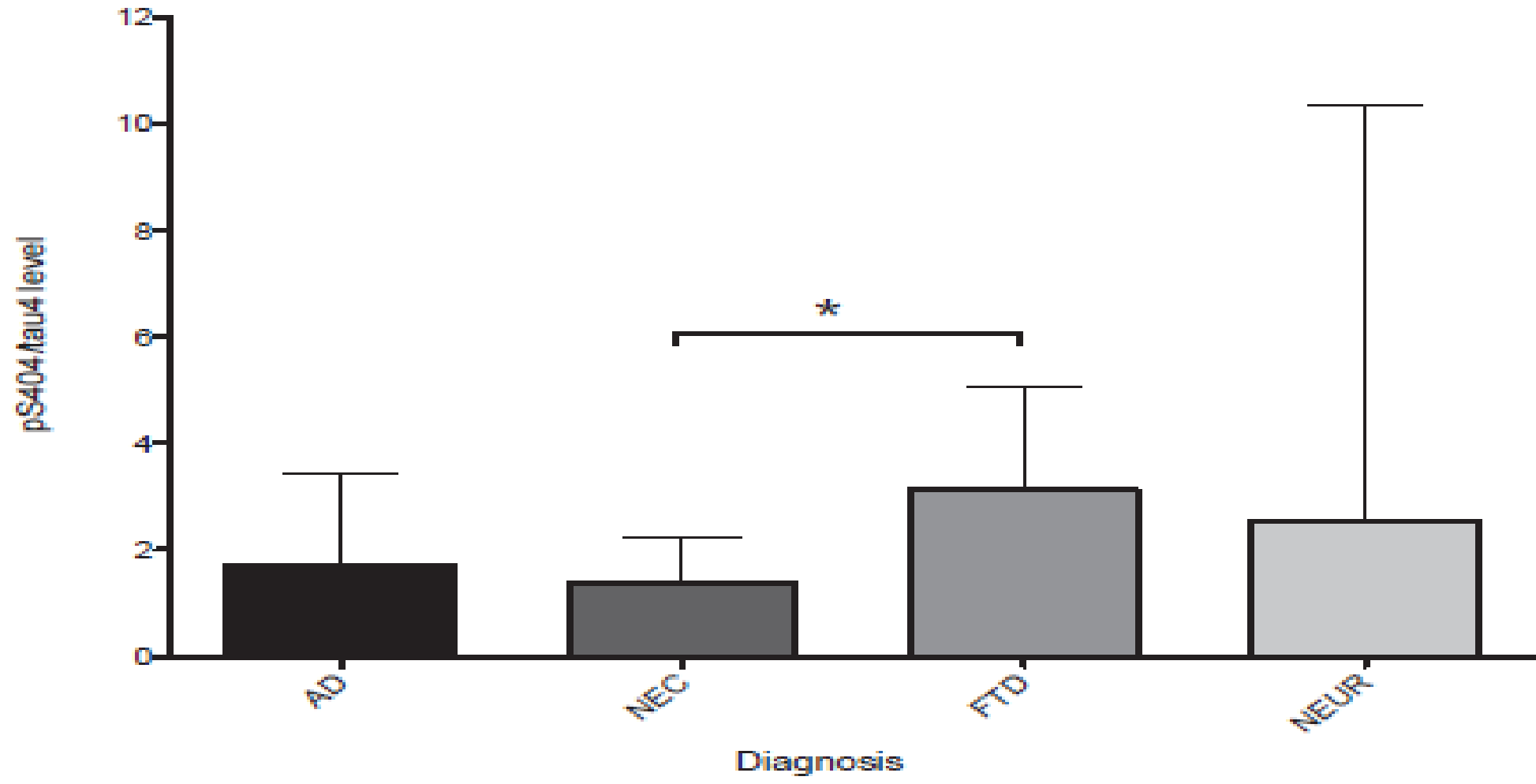












The image features three overlapping speech bubbles. The central bubble is white and contains the word "Discussion" in a bold, blue, sans-serif font. It is flanked by two blue speech bubbles, one on the left and one on the right, which overlap with the central one. All bubbles have a thick black outline. The background is white, and there is a solid green horizontal bar at the bottom of the slide.

**Discussion**

Salivary p-tau/t-tau ratio level



significant difference between AD, NEC at S396



P-tau/t-tau ratio in FTD subject at S404

Only one (or two) out of the four sites examined showed a significant difference in p-tau/t-tau levels between AD and NEC

T181 did not show a difference between the two group

No significant correlation between the CSF p-tau/t-tau ratio and salivary p-tau/t-tau was found

The most problematic finding for the use of this test as a biomarker was the variability in phosphorylation level of the AD group

Further study is needed to determine the stability of salivary tau to assess its utility as a biomarker



# رمضان

سجاده امر بازا است  
اغوش تو بازت سر  
نزدیک که می شوم امسکیری که  
چنان مراد بر تو پیری که

♥ لایه خدا بسید

ز دو باره می که مر

جانی