

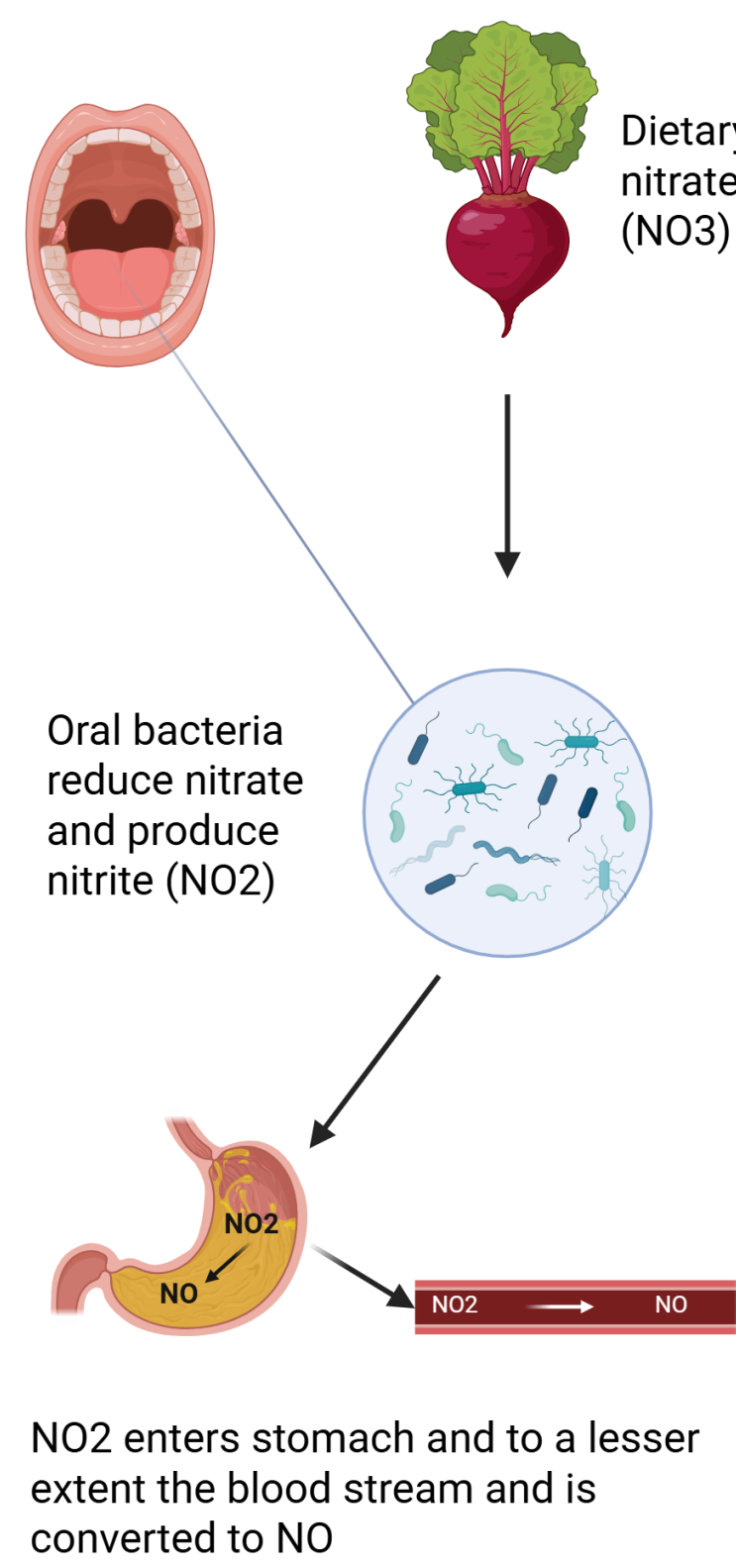
NITRIC OXIDE BIOAVAILABILITY IN PEOPLE LIVING WITH DEMENTIA

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INTRODUCTION

- Nitric oxide (NO) is an essential molecule for many processes throughout the body including synaptic plasticity and cerebral blood flow.
- Age related declines in endothelial function could lead to a reduction in NO, potentially contributing to neurodegeneration.
- Poor oral health can compromise the essential nitrate reducing bacteria (Fig.1).
- It's currently unclear whether people living with dementia exhibit altered levels of NO.
- Plasma measures of NO remain a greater burden for participants and it's unclear whether salivary measures could be an alternative.

Nitrate-Nitrite-Nitric Oxide pathway



Nitric oxide synthase (NOS) pathway

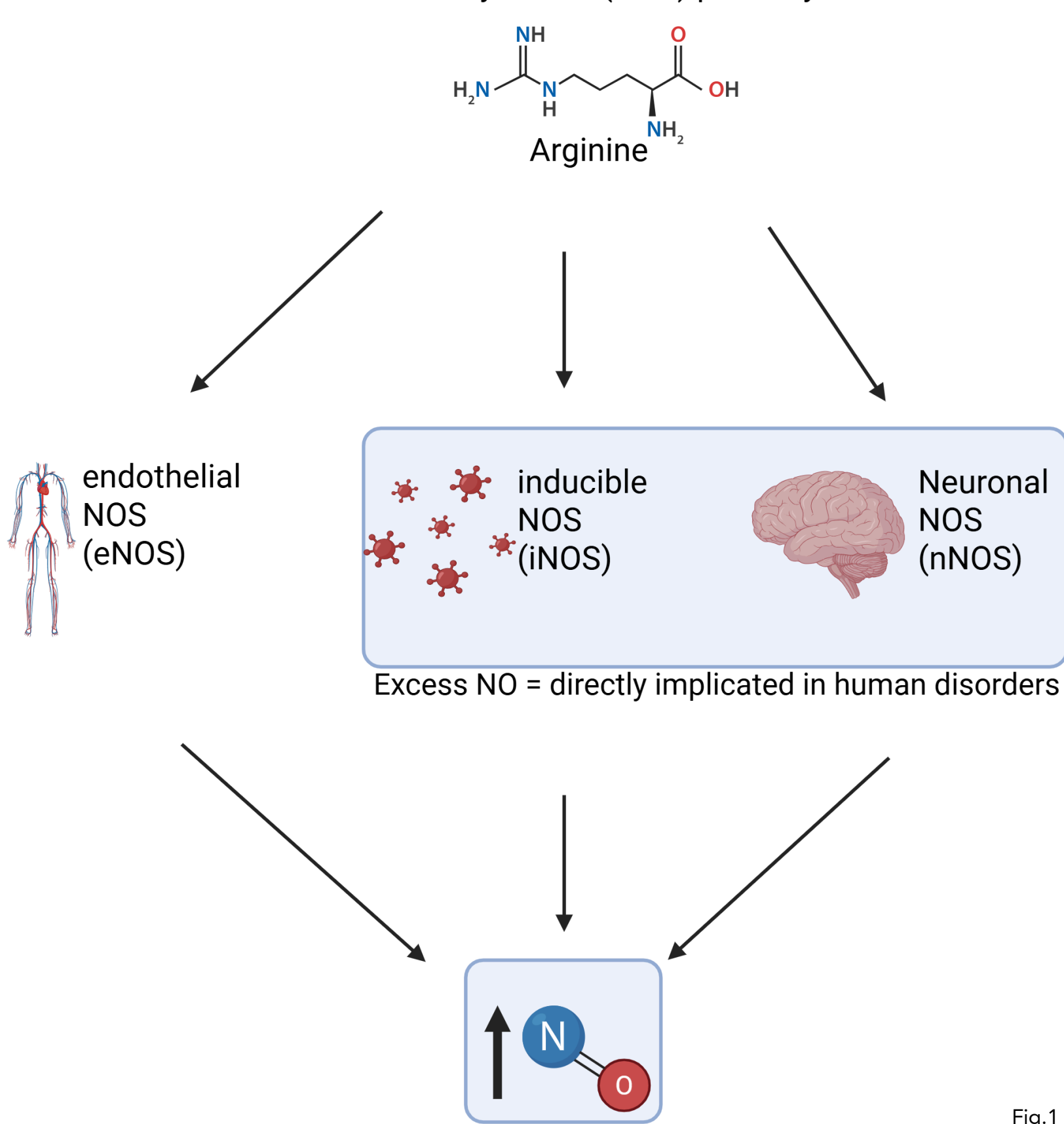


Fig.1

METHODS

Who - 20 people living with Alzheimer's disease (AD) and 20 healthy age, sex and BMI matched controls were recruited.

	AD (n=20)	Control (n=20)	P value
Age, mean (SD)	75.5 (± 5.2)	74.9 (± 6.3)	0.22
BMI, mean (SD)	26.5 (± 3.8)	26.4 (± 4.4)	0.92
Female, n (%)	11 (55%)	11 (55%)	NA
Systolic BP, mean (SD)	139.7 (± 18.1)	138.8 (± 14.3)	0.87
Diastolic BP, mean (SD)	76.2 (± 8.3)	82.5 (± 7.8)	0.01
MoCA scores	17.7 (± 4.4)	26.1 (± 3.3)	< 0.001

What - Single morning of testing to evaluate nitric oxide, oral microbiome, cognitive function, quality of life and oral health.

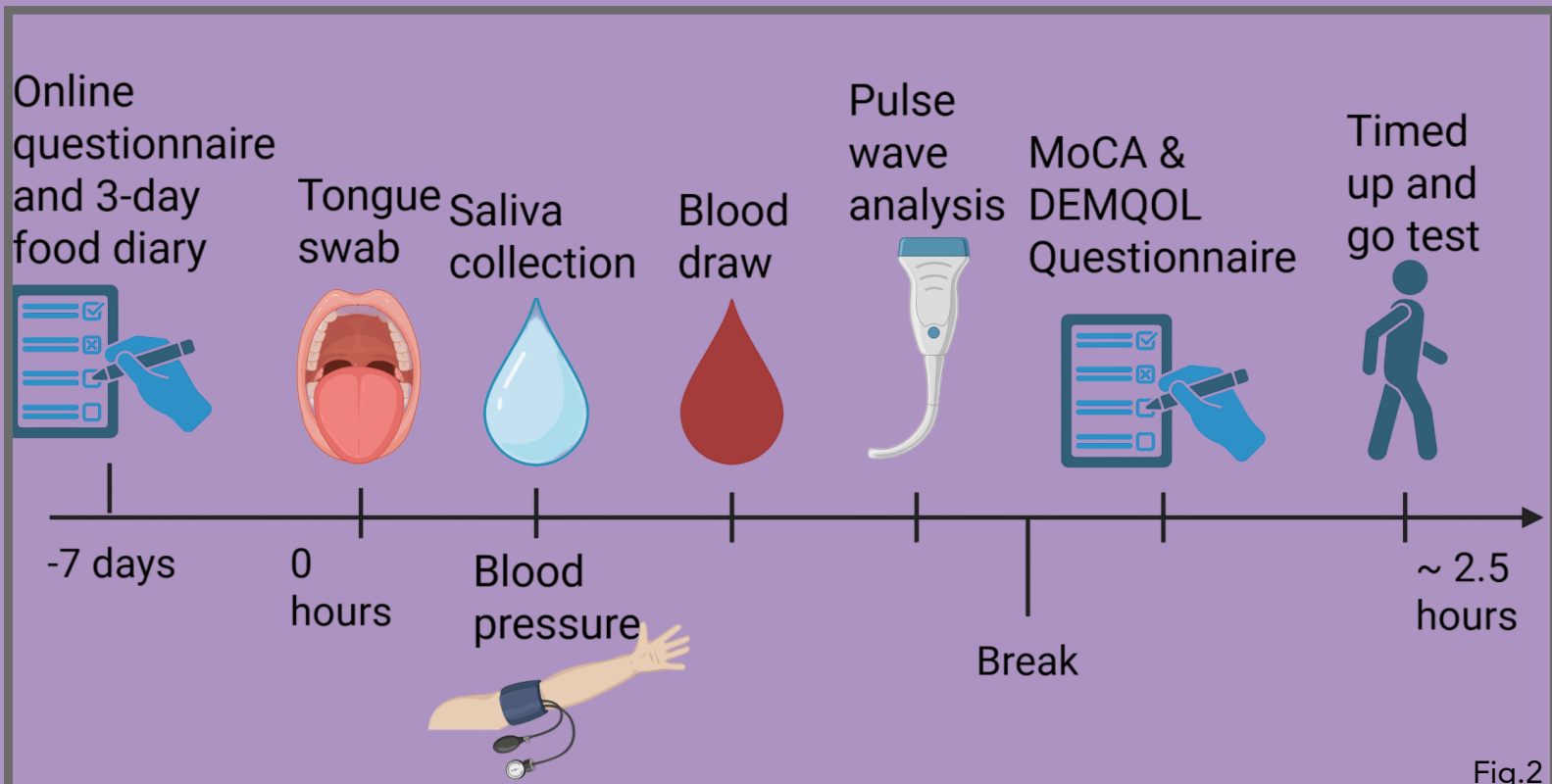


Fig.2

How - Plasma and salivary nitric oxide were analysed using ozone-based chemiluminescence. Oral microbiome samples are being analysed using next-generation PacBio sequencing.

NITRIC OXIDE LEVELS ARE LOWER IN PEOPLE LIVING WITH ALZHEIMER'S DISEASE

RESULTS & KEY TAKEAWAYS

Saliva nitrite is significantly lower in AD (Fig.3).

Other saliva (Fig.3) and plasma measures aren't significant but biologically meaningful (Fig.5).

Upcoming analysis of oral microbiome data may explain differences in NO levels through reduced NO producing bacteria.

Lower levels of NO could be exacerbating dementia symptoms.

Dietary nitrate supplementation is being feasibility tested to try and improve NO and bacteria.

Saliva NOx could be a suitable alternative to blood measures (Fig.4).

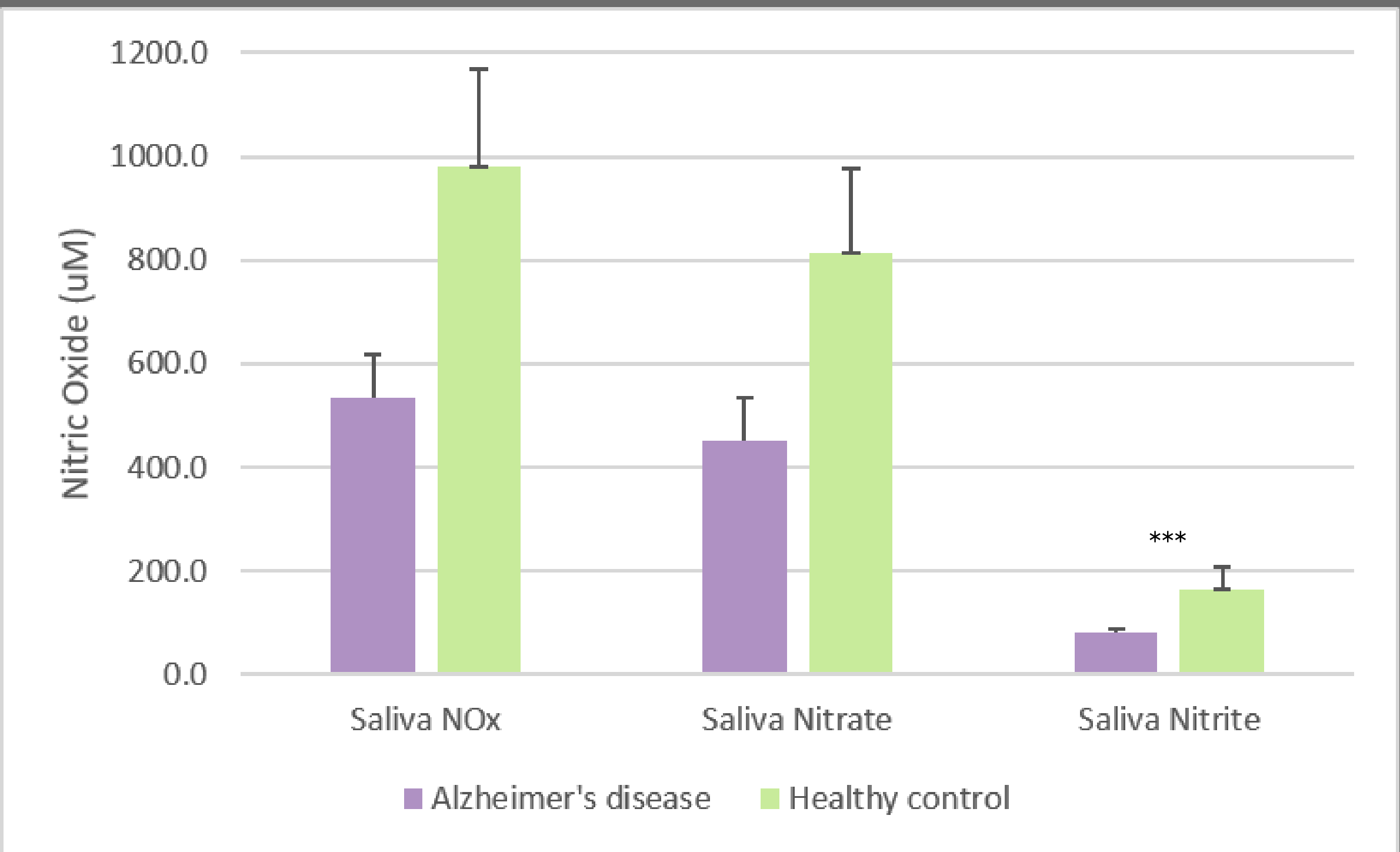


Figure 3 Mean difference in NO levels with SEM.

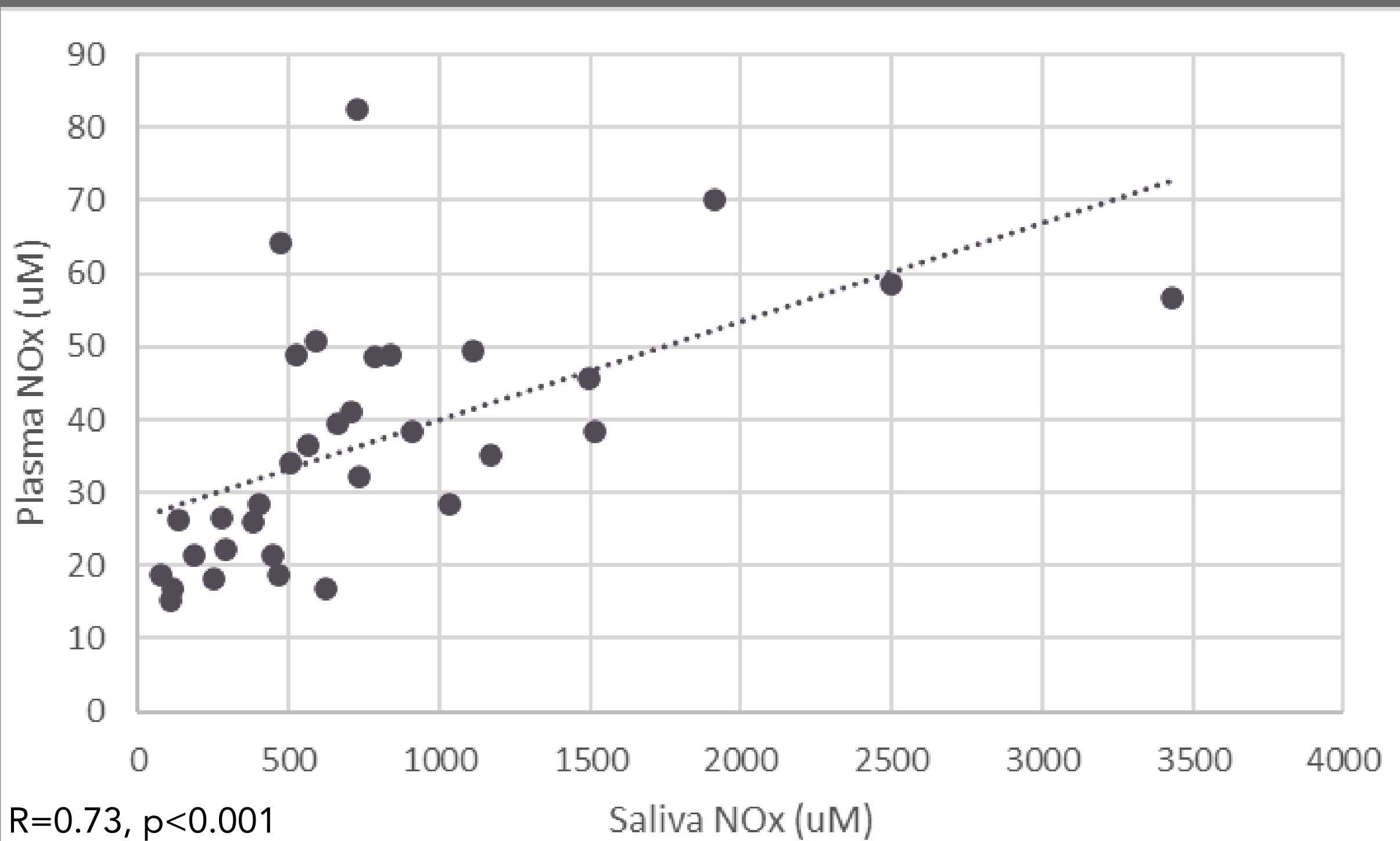


Figure 4 Correlation between Plasma and Saliva NOx levels.

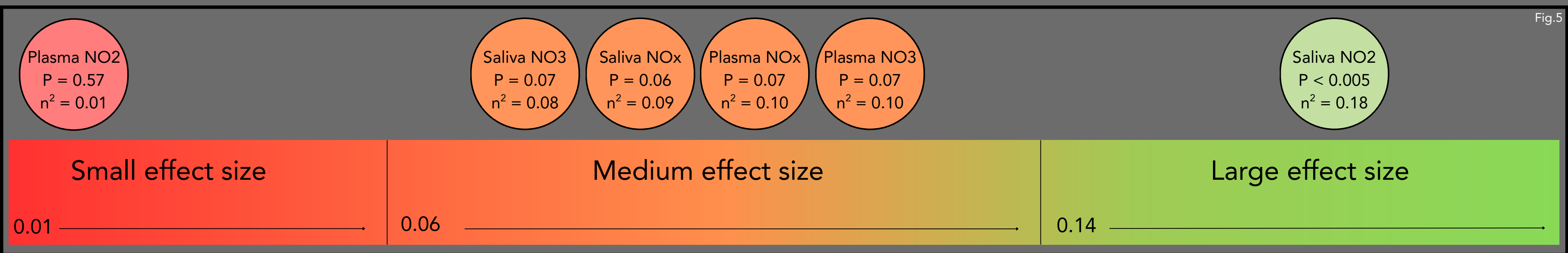


Fig.5



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