



## PRODUCT FACTS

### SOMA Product Code

SOMA LFD - $\alpha$ -a

### Test Kit Contents

100 OFC (Swab & Buffer)  
100 Dilution Buffers  
100  $\alpha$ -amylase LFDs

### Applications

For the analysis of saliva samples for the quantitative determination of alpha-amylase when read in the SOMA LFD Reader. For use in Sport, Exercise, Corporate, Healthcare and Research.

### Dilution /incubation Time

Two drops from the original OFC are put into the dilution buffer bottle, mixed for 1 minute and two drops from here are added to the LFD. The incubation time is 10 minutes

### Sample Volume

Two drops of saliva / buffer mix from dilution buffer.

### Shelf-Life

Typically 12 months

### Storage

4°C to 37°C

### Specificity

Specific to salivary alpha-amylase not pancreatic amylase.

### L.O.D.

1.4  $\mu$ g/ml

### L.O.Q.

11.8  $\mu$ g/ml

### Calibration Range

20 to 2000  $\mu$ g/ml

### Simple $\alpha$ -amylase measurement solutions

## SOMA $\alpha$ -amylase Lateral Flow Device

The SOMA  $\alpha$ -amylase LFD offers a quick and easy non-invasive method of assessment that requires no laboratory equipment and is remarkably cost-effective, especially when measuring small numbers of samples. Unlike enzymatic methods on the market for lab testing, this uses antibody capture to give quantitative values in a matter of minutes. As the test is extremely sensitive it requires a second dilution after collection.

The component parts required for a test are: an SOMA LFD Reader; an SOMA Oral Fluid Collector (OFC) swab; and Buffer, a Dilution Buffer and an SOMA LFD cassette, in this case  $\alpha$ -amylase.

Alpha-amylase is perhaps best known as an important enzyme for the digestion of starches in the oral cavities. However, it is being increasingly used as a key biomarker to reflect changes in both physiological and psychological / emotional stress.

The test is very quick to perform it uses two drops of saliva buffer mix from the standard SOMA OFC in a dilution buffer, which is mixed for 1 minute. Two drops from here are placed on the LFD, with a 10 minute incubation time. If measured in conjunction with sIgA, it can also be used to form a ratio between the two biomarkers, thus controlling for hydration in sIgA tests.

### Monitoring Stress

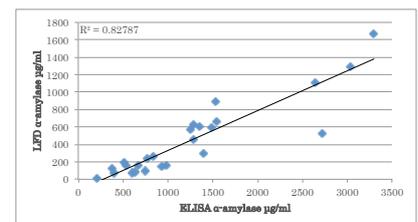
Research shows that there are two distinct systems involved in the stress response of humans and other animals. The response and activity of both systems can be measured via various biomarkers in saliva. The classic method of characterising a stress response is to measure cortisol levels, which rise due to a series of changes in the hypothalamic-pituitary-adrenal (HPA) axis. However, this system can be relatively slow in responding to stress; whilst changes in the  $\alpha$ -amylase response, a marker of the sympathetic nervous system (SNS) activity is somewhat quicker. This makes such a marker a little more appealing if measuring acute stress responses. Alpha-amylase levels are seen to rapidly increase in response to both physiological and

psychological stress conditions, as well as drop rapidly post stress events. Current bio-behavioural research is increasingly using  $\alpha$ -amylase as a surrogate marker of SNS activity<sup>1</sup>.

### Application to Sport

Given that physical activity and exercise are known to be a strong activator of SNS activity, it is no surprise that  $\alpha$ -amylase is a useful biomarker that strongly reflects exercise intensity and that thresholds of this marker correlate strongly with blood lactate thresholds<sup>2</sup>. Thus this marker can be useful for characterising both physiological and psychological responses in athletes.

*Comparison of SOMA  $\alpha$ -amylase LFD with ELISA  $r = 0.91$*



### Agreement with Laboratory ELISA

The SOMA  $\alpha$ -amylase LFD correlates well with values measured on the laboratory ELISA and when run in duplicates usually has within assay cvs of below 10%. Thus the test is accurate and reliable and easily performed in a wide range of environments, away from the lab. Each batch of strips manufactured use their own specific calibration curve, uploaded to the SOMA LFD Reader.

### References

- <sup>1</sup>Nater U.M. & Rohlender N. (2009) Salivary alpha-amylase as a non-invasive biomarker for the sympathetic nervous system: current state of research. *Psychoneuroendocrinology*. 34 (4): 486-496.
- <sup>2</sup>Oliveira V.N. et al. (2010) Changes in the Salivary Biomarkers induced by an effort test. *International Journal of Sports Medicine*. 31: 377-381.

### Validation paper

Dunbar J *et al.* (2015) Investigating the use of Point of Care salivary amylase test in the English Premier League soccer environment. *Proceedings of 8th World Congress of Science & Football*. Copenhagen, Denmark