

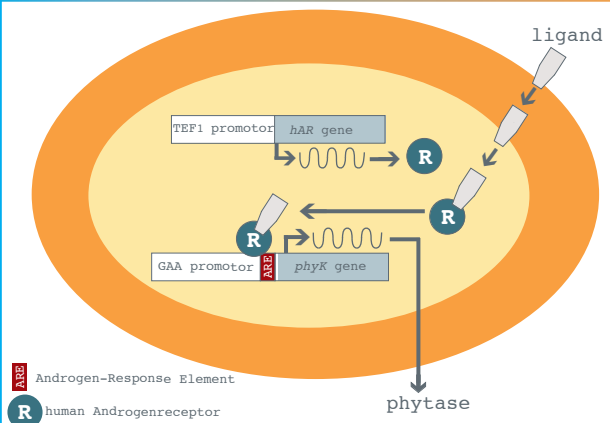
A-YAS

Innovative biological measurement system for the detection of androgenic activity in water

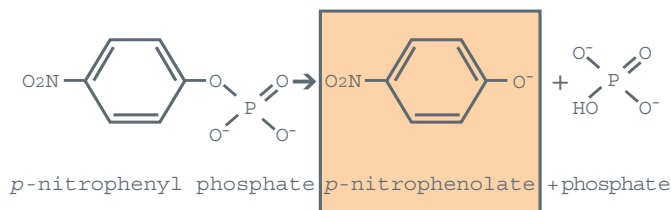
The biological test system **A-YAS** is an effect-directed, yeast cell-based assay for a highly sensitive detection of androgenic activity in all types of aqueous samples including saline water, eluates and extracts. The **A-YAS** measures the cumulative androgenic activity of a sample in a fast, easy, economic and reliable manner. It is therefore ideal for food and environmental analysis.

MEASUREMENT PRINCIPLE

The **A-YAS** uses the salt- and temperature-tolerant yeast *Arxula adenivorans* as test organism, in which the human gene for the androgen receptor alpha (hAR) and a reporter gene have been integrated. The binding of androgenic substances to the receptor will subsequently activate the production of the reporter enzyme phytase. The amount of the reporter enzyme produced correlates with the total concentration of androgenic active substances in the sample. After addition of a chromogenic substrate, the reporter enzyme concentration can be measured photometrically. 5 α -dihydrotestosterone (DHT) is used as reference standard for the calibration.



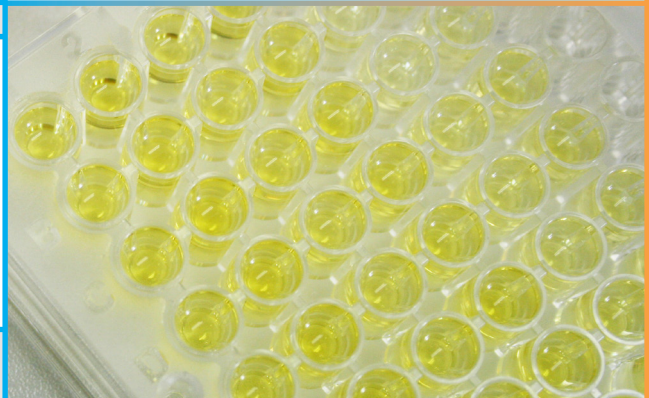
▲ A-YAS test kit



▲ Schematic reaction of phytase: Cleavage of p-nitrophenyl-phosphate into p-nitrophenolate (yellow)

APPLICATIONS

- Ultrapure, drinking and mineral water (quality control)
- Environmental monitoring of androgenic activity in wastewater, ground- and surface water
- Process water and drug screening (monitoring in pharmaceutical and cosmetic industry)



ADVANTAGES OF THE A-YAS

- Short processing time
- Easy handling
- Minimal effort for sample preparation
- No cell disruption necessary
- No sterile workplace required

LABORATORY REQUIREMENTS

- BSL1 laboratory (GMOs)
- Multichannel pipette (nominal vol. 100 μ l)
- Temperature-controlled shaker (T = 86 $^{\circ}$ F, Orbit at least 3 mm)
- Microlitre/ Microplate centrifuge
- Photometer for microtiter plates (λ = 405 and 630 nm)

A - YAS

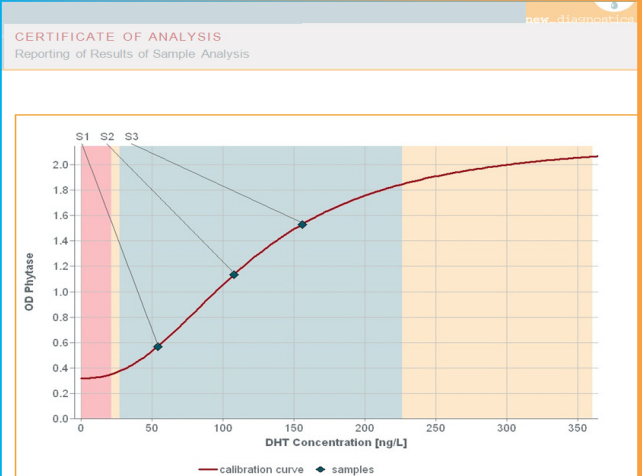
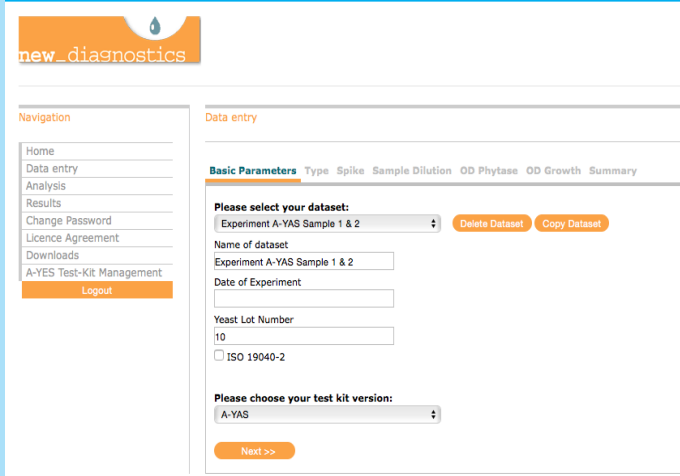
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Duration of Assay	approx. 26 h
Number of samples (DHTEQ)	max. 40
Validation	in-house
Calibration Range	0 - 360 ng/L 5 α -dihydrotestosterone (DHT)
Limit of Detection	31.3 ng/L 5 α -dihydrotestosterone (DHT)

BioVAL[®] - SOFTWARE FOR EXPERIMENTAL DESIGN AND STATISTICAL ANALYSIS



We will give you access to BioVAL for an easy, reliable, and uniform statistical analysis. The web-based software enables you to analyse your data in a standardized manner without special statistical knowledge. The results are presented in a comprehensive report.

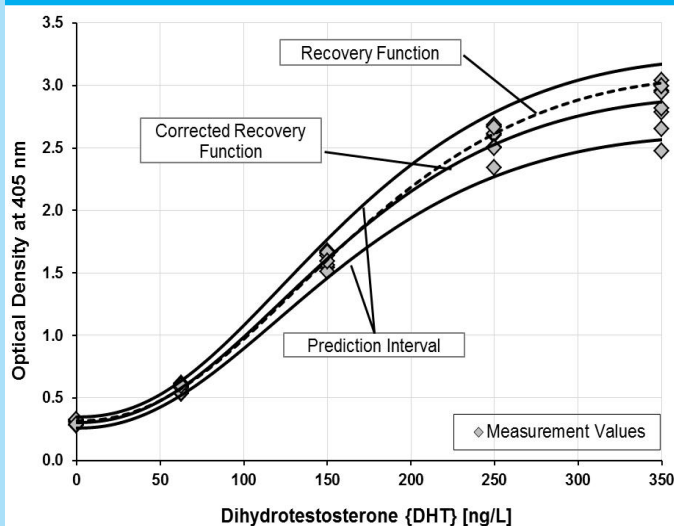


▲ Data analysis via BioVAL webinterface

▲ Excerpt of the certificate of analysis

QuoData CERTIFICATE

The A-YAS test kit has been awarded the QuoData certificate of matrix comprehensive validation. This guarantees continuous high quality and reliability of our test kits.



▲ Validation: optical densities with 90 % prediction interval

The assessment of the A-YAS was performed as an in-house validation study. For this purpose, eight randomly selected water samples were spiked with DHT and analyzed with the A-YAS.

Thanks to the usage of an orthogonal factorial study design only eight settings had to be analyzed allowing a time and cost-efficient validation.

The figure shows the recovery function for DHT in ultrapure water (dashed) and the spiked samples (solid) as well as the 90 % prediction interval and demonstrates the excellent precision and accuracy of the A-YAS.