Zealquest Asia

Zealquest Group Company

LemnaTec
MEMBER OF THE NYNOMIC GROUP

# HYPERAIXPERT

Multi-Sensor Laboratory Phenotyping System

## LemnaTec AIxpert Product Family

Documentation, Phenotyping, Seed Testing and more

# HYPERAIXPERT

## The most flexible multi-sensor laboratory phenotyping system for Arabidopsis, seedlings, petri dishes, MTPs, and many more sample types.

- Rapid digital analysis of phenotypic traits
- Large set of sensor options
- Advanced analytical software and machine learning
- Standardized and repeatable data acquisition
- High throughput
- Pots, trays, dishes, MTPs, beakers
- Adaptors for many sample types
- Up to 20 cm

## Features

- Experiment-driven design
- High-resolution phenotyping
- Comprehensive machine-learning based analytical software
- All major phenotyping cameras and sensors available
- Configurable multi-sensor imaging
- Automatic sample loading available
- Integrable into climate chambers

## Multisensor imaging

- Visible light images provide information on sample dimensions, morphology, and color.
- An Imaging-PAM camera delivers dynamic chlorophyll fluorescence parameters.
- Hyperspectral imaging delivers a range of wavelength data for calculation of standard and user-defined vegetative indices.
- Near-infrared (NIR) images capture the intensity of reflected NIR radiation at 1450 nm to measure water content.
- Fluorescence images capture the intensity of a wide range of fluorescent pigments.
- 3D laser scanning generates point clouds for detailed architectural and morphological information.

## Configuration and options

- The base module supports manual input of microtiter plates, petri dishes, plants in pots or plant flats.
- Tray Adaptors for use with trays, MTPs and other sample carriers are available.
- Cameras and Sensors move across the sample stage inside the base module and are positioned acording to user specification.
- The Sensor Exchange System stores cameras and sensors and the moving arm attaches them automatically for running image acquisitions across the sample stage.
- Light table for MTPs, petri dishes etc. is available.
- The TrayProvider™, an automatic tray loading module, enables high throughput sample handling for efficient pipeline screening.
- The HyperAIxpert can be integrated into Climate Chambers to not interrupt climate conditions.

Individual plant pots
and plant trays

Sample trays
(here: seeds)

Microtiter plates
(MTPs)

## HyperAIxpert provides various possibilities in research and development.

### GENETICS
screening of populations, assessment of gene functions, QTL discovery, biomarker studies

### PLANT CULTIVATION PRODUCTS
compound screening, treatment efficiency

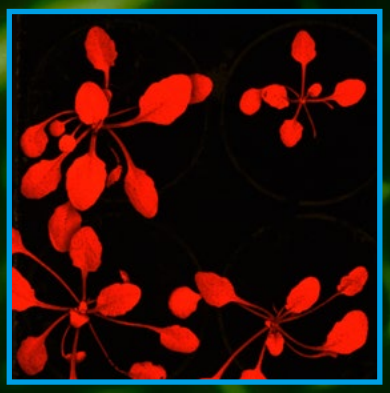
### PLANT RESEARCH AND BREEDING
genotype-phenotype links, environmental effects, physiological effects

### PLANT STRESS AND DISEASES
resistance responses, disease studies

# Application examples

**Arabidopsis and Seedling Phenotyping**

- Population screen with seedlings – genotype or treatment effects
- Growth studies
- Phenotypic assessments
- Stress response monitoring



**Chlorophyll Fluorescence Imaging**

- Chlorophyll fluorescence studies
- Status and activity of photosystem II
- Dynamic chlorophyll fluorescence imaging

**Disease and Stress Assessments**

- Plant disease rating and plant health assessments
- Physiological phenotyping

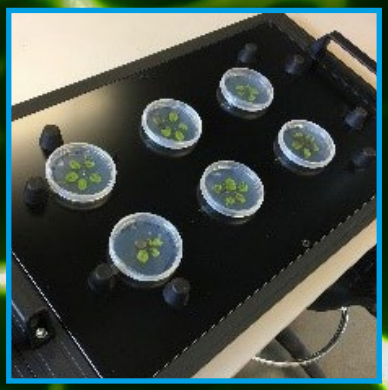
**Genetic Reporters and Biomarkers**

- Fluorescent biomarkers in gene expression studies

# Application examples

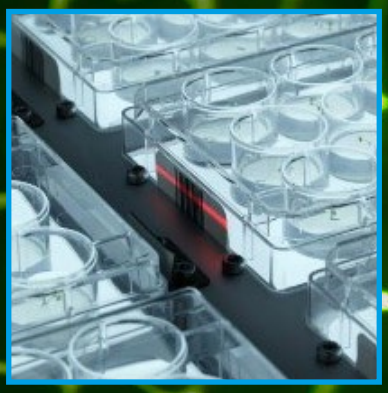
**Samples in Petri Dishes**

- Assessment of samples in petri dishes
- Plant material
- Fungal/microbial cultures



**MTP Screening**

- Compound or genotype screen in MTPs
- Treatment effects
- Dose-response studies
- Genetic screening

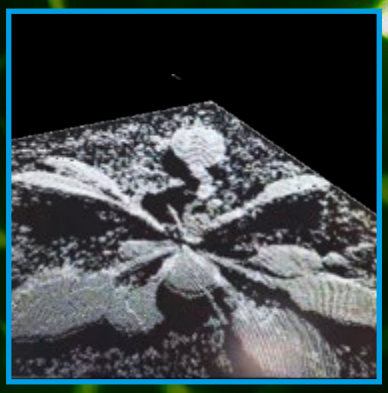


**Individual Plant Phenotyping**

- Plant performance, development, and stress studies

**3D Scanning**

- 3D imaging of plant architecture
- Leaves and other organs



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