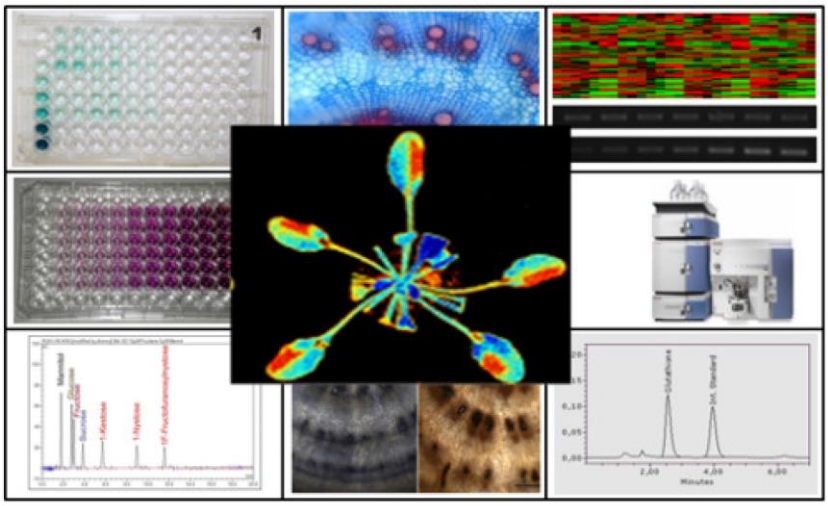
Phenomics – physiological phenotyping

The available phenotyping technologies, based on visible light, multi-fluorescence and -reflectance imaging, need to be linked to the physiological state. Thus, the non-invasive data will be verified by robust physiological markers, including complex enzyme activity, hormonal and metabolite signatures and fingerprints. Further development will include 3D-reconstructions, advancement of measuring protocols and extension of data evaluation beyond established parameters by an unbiased statistical approach based combinatorial imaging. Field suitable tools will be developed for pre-symptomatic detection, breeding and biotechnology



PHENOMICS : Integration of non-invasive signatures with physiological phenotyping - Plant physiology meets biophysics

Key reference:

Berger et al. (2007) Visualization of early and late plant-pathogen interaction by novel combination of chlorophyll fluorescence imaging and statistical analysis: Differential effects of virulent and avirulent strains of P. syringae and of oxylipins on A. thaliana. J. Expt. 58: 797-806

Opinion article:

Großkinsky et al. (2015) Plant phenomics and the need for physiological phenotyping across scales to narrow the genotype-to-phenotype knowledge gap. J. Expt. Bot. 66: 5429-5440