

Rooseveltovej trg 6  
HR-10 000 Zagreb  
Tel. 01 460 62 67  
Fax. 01 460 62 86  
[www.hdbb.hr](http://www.hdbb.hr)

# HRVATSKO DRUŠTVO ZA BILJNU BIOLOGIJU



## POZIV NA PREDAVANJE

Prof. dr. sc. Jutte Ludwig-Muller

Technische Universität Dresden, Dresden, Germany

### **Auxin homeostasis in tomato fruit development under normal conditions and heat stress**

u utorak 26. rujna 2017. u 14:00 sati

u seminaru Zavoda za molekularnu biologiju,  
Prirodoslovno-matematički fakultet Sveučilišta u Zagrebu  
(Horvatovac 102a, I. kat)

The plant hormone auxin controls a plethora of developmental processes, but has also important roles in responses to biotic and abiotic stressors. Tomatoes are a major horticultural crop worldwide. Their yields are maximized in climates with moderate temperatures, whereas high temperature exposure limits tomato flower development, fruit set, and thus productivity. Heat stress is an agricultural problem in many areas in the world. Experimental evidence indicates that reduced fruit set at high temperatures results from inhibited pollen development, anther release, and pollen viability reduction correlating with altered metabolism of the plant hormone auxin. Therefore, the levels of auxin and its metabolites were measured in different flower tissues at different developmental stages. The transcriptome of hormone related genes was determined in the same tissues. Among the strongly differentially regulated genes, four *GH3* genes encoding auxin conjugate synthetases were specifically upregulated in male flower organs and gametophyte during flower development. These *GH3* genes were cloned for heterologous expression in *E. coli* to determine their *in vitro* activities. Several auxin amino acid conjugate hydrolyses were also identified from the transcriptome dataset whose enzymatic activities will be determined *in vitro*. The *GH3* genes will be used as target for changing auxin homeostasis in tomatoes.