*Session choice: 5 - Rice plant development and performance*

*Presenting author: E-mail perin@cirad.fr - registration ID 26191*

*Abstract ID: 48*

***Towards SHR and SCR functions in rice root ground tissue formation***

*SOPHIA HENRY1, FANCHON DIVOL2, GERMAIN PAULUZZI3, CHARLOTTE BUREAU1, NADEGE LANAU1, EMMANUEL GUIDERDONI1, ANNE DIEVART1, CHRISTOPHE PERIN1*

*1- CIRAD, UMR Agap, F-34398 Montpellier, France*

*2- BPMP UMR 5004 CNRS/INRA/SupAgro-M/UM2, 34060 Montpellier, France*

*3- Center for Plant Cell Biology, Botany and Plant Sciences Department, University of California, Riverside, Riverside, CA 92521, USA*

*In rice roots, ground tissue (GT) is composed of one layer of exodermis, one layer of sclerenchyma, several layers of cortex and one layer of endodermis. These tissues play critical function for adaptation to variable stress conditions. The multilayered cortical tissue contains aerenchyma which are air-containing cavities allowing growth under subergmence conditions. In Arabidopsis thaliana, proper formation and identity specification of GT involved two transcription factors of the GRAS family: the SHORTROOT (SHR) and SCARECROW (SCR) genes. In a simplified model, SHR is transcribed in the stele. The SHR proteins then move in the initials where they induce SCR gene transcription. SHR and SCR proteins induce together the asymetrical division separating two GT cell layers and SHR specify endodermis identity of the inner GT cell layer. SCR, by protein-protein interaction sequestrates SHR in the nucleus, limiting the number of endodermis cell layers to a single one. In rice, there is two orthologs to A. thaliana SHR and SCR genes. We analyzed their functions in cortex and GT formation in rice with loss and gain of function mutants. Our first results suggest that the two SHR and SCR genes are redundantly involved in cortex formation and their function seems to differ compared to A. thaliana one.*