

## "Stem cell systems in cereals": IPK is partner in new DFG Research Unit

Gatersleben, 05.10.2021 The IPK Leibniz Institute is one of the project partners in the new research unit "Stem Cell Systems in Cereals" (CSCS), which the German Research Foundation (DFG) has decided to establish. The scientists involved want to investigate the signalling and gene regulation networks in the meristems of different cereal species such as barley and maize. In addition to the IPK, the universities in Regensburg, Bonn, Düsseldorf, Hamburg, Heidelberg and Tübingen are also involved in the network.

Plants use stem cell reservoirs in specific parts of the plant body, the meristems, to drive their above- and below-ground growth. These meristems not only contain the plant's blueprint, but also significantly determine productivity and yield in crops. However, the meristems of maize, rice and barley are very complex and hardly explored. Therefore, the DFG-funded research unit "Stem Cell Systems in Cereals" wants to investigate the signalling and gene regulation networks in the meristems of different cereals. "In doing so, the consortium also hopes to discover new stem cell genes that can then be used to improve crops," explains Prof. Dr. Thorsten Schnurbusch, head of the independent research group Plant Architecture at the IPK, HEISENBERG professor at the IPK and Martin Luther University Halle-Wittenberg and responsible for a sub-project of the network "Stem cell systems in cereals".

"Mutations or gene defects in meristem functions have also played a crucial role in the domestication of today's crop plants from wild plants," says Prof. Dr. Thomas Dresselhaus from the Department of Cell Biology and Plant Biochemistry at the University of Regensburg. "While the gene regulation networks in meristems of the model plant *Arabidopsis* are already quite well understood and are now taught as part of biology courses, our understanding of the development and organisation of meristems and corresponding stem cell systems in cereals is very limited," says the spokesperson of the newly established research unit.

The research network therefore wants to investigate, particularly in maize as a representative of the tropical and barley as a representative of the temperate cereals, as well as the model grass *Brachypodium*, whether the complex meristems of the cereals are organised by conserved yet strongly modified and/or by new signalling pathways and associated gene regulation networks.

The IPK is working on a family of transcription factors that have already been identified as stem cell markers in the model plant *Arabidopsis*. "Now the aim is to describe the functions of these proteins in barley and to test which of these proteins in barley control the maintenance of stem cells," explained Prof. Dr. Thorsten Schnurbusch.



### Scientific Contact

Prof. Dr. Thorsten Schnurbusch  
Tel.: +49 39482 5341  
[schnurbusch@ipk-gatersleben.de](mailto:schnurbusch@ipk-gatersleben.de)

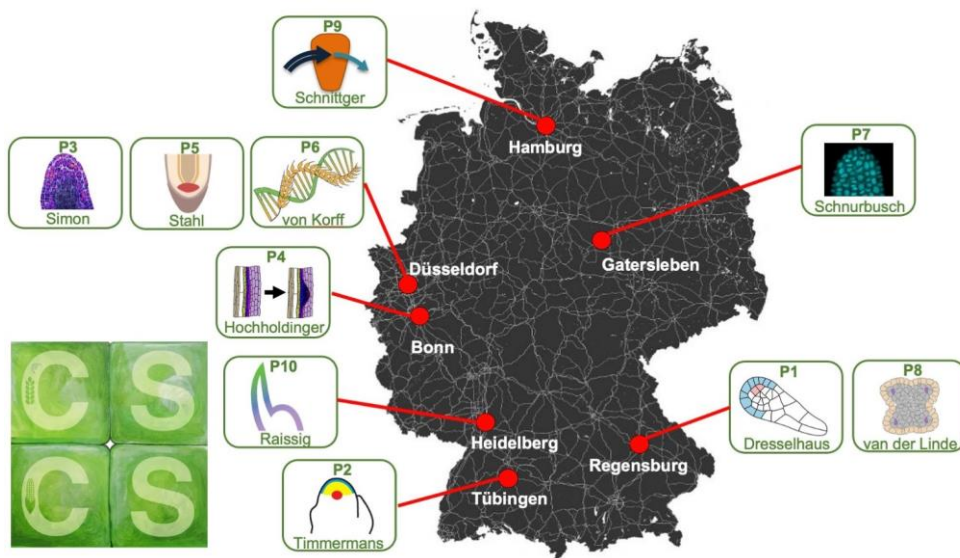
### Media Contact

Christian Schafmeister  
Tel. +49 39482 5461  
[schafmeister@ipk-gatersleben.de](mailto:schafmeister@ipk-gatersleben.de)

The project is scheduled for two times four years and will initially be funded with almost four million euros over the next four years. In total, the DFG has newly established eight research units, which will be funded with a total of 31.4 million euros. Research units enable scientists to address current and pressing questions from their fields and to establish innovative lines of work. Currently, the DFG funds 176 research units, 15 clinical research units and 13 collegiate research units.

Figure (for free use):

<https://ipk-cloud.ipk-gatersleben.de/s/7b2WDT9jqj9yQDy>



The IPK Leibniz Institute is one of the project partners in the new research unit "Stem Cell Systems in Cereals", which the German Research Foundation (DFG) has decided to establish. In addition to the IPK, the universities in Regensburg, Bonn, Düsseldorf, Hamburg, Heidelberg and Tübingen are also involved in the network. Figure: University Regensburg