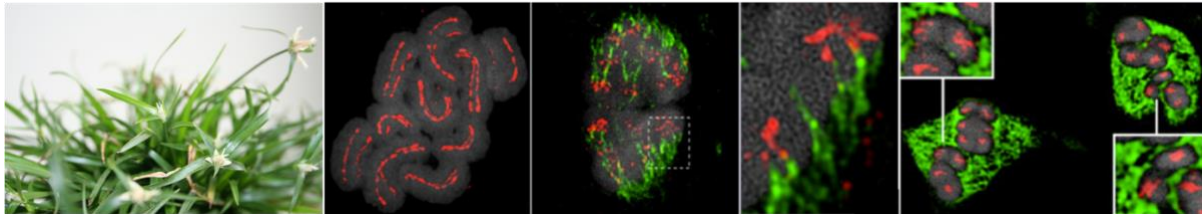




## 3-year Postdoc position on molecular adaptations of meiosis in holocentric plants (m/f/div)



The Marques lab at the **Max Planck Institute for Plant Breeding Research** in Cologne Germany, is interested in the study of **meiotic** and **centromere adaptations** taking place in **holocentric plants**. We address these questions using beaksedges (*Rhynchospora*) as model plant species, where we found species with both **chiasmatic** and **achiasmatic inverted meiosis**.

In the framework of this research project, which aims to characterize the function of key meiotic genes in *Rhynchospora*, we are looking for a highly motivated and talented postdoc.

**Project summary:** Coordination of meiotic cohesion release and meiotic recombination control are strongly influenced by the presence of centromeres. In holocentric *Rhynchospora* an apparent conserved early meiotic prophase I with pairing and formation of bivalents seem to occur. However, a very specialized type of meiotic chromosome segregation occurs, the so-called **inverted meiosis**, where sister chromatids segregate at meiosis I and homologs segregation is postponed to meiosis II. Thus, it is very interesting to understand how holocentric plants adapted their meiosis to deal with holocentricity. However, lack of a model holocentric plant has hampered functional studies and the elucidation of the impact of such chromosome structure in a comprehensive evolutionary and functional perspective. In our group we have recently established a high-quality and fully annotated chromosome-scale reference genome for *R. pubera*. We have also successfully developed a stable transformation protocol in *R. pubera* based on embryo culture and *Agrobacterium* infection, which is allowing us to perform the first CRISPR-Cas9-mediated mutation studies of key meiotic genes. Understanding how





## Max Planck Institute for Plant Breeding Research

holocentricity impacts meiosis function will potentially unveil new molecular mechanisms of great interest for the scientific community.

Please find below the description of the available position:

### Your tasks

- You will identify candidate genes, develop new antibodies and perform several cytological experiments in meiotic cells
- You will perform CRISPR-Cas9-mediated transformation experiments of key meiotic genes (e.g. *ZYP1*, *MLH1*, cohesins, new players!) in *R. pubera*
- You are going to study the association of meiotic and kinetochore proteins with DNA using ChIPseq and more modern methods such as CUT&RUN and CUT&Tag

### Requirements

We are looking for a highly motivated postdoc researcher who shares our group's fascination for meiosis and centromere biology and is eager to learn novel techniques to enhance our knowledge in this field.

The candidate should hold a PhD on plant biology, genetics, biochemistry, cytology, or related field. Good English language skills (written and spoken) are essential, German is not necessary.

It is important to have strong background in molecular biology, plant transformation and cytogenetics. The interdisciplinary nature of the project requires a high level of team work as well as the ability to work independently and very good organization skills.

### **What we are offering**

A Postdoc position in a vibrant scientific environment with the opportunity to gain expertise in a variety of cutting-edge technologies at the interface between basic and applied plant research. The position is available for a duration of 36 months (with possibility of extension), starting as soon as possible. The salary will be based on the German Public Service (TVöD-Bund) scheme, which includes the usual





## Max Planck Institute for Plant Breeding Research

benefits (health care, unemployment insurance etc.). Working hours are in accordance with funding guidelines of the Max Planck Society for postdoc scientists.

### How to apply?

Interested candidates should send a **VERY MOTIVATED** letter of motivation, CV including contact details for two scientific references and a short description of your latest project through the [online system](#).

If you need further information on the position offered, please feel free to contact André Marques ([amarques@mpipz.mpg.de](mailto:amarques@mpipz.mpg.de)). Applications will be gladly accepted before **December 1<sup>st</sup> 2021**.

The position should ideally start from **February 1<sup>st</sup> 2022**.

