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To Who It May Concern
at University of Adam Mickiewicz in Poznań

Review of Longfei Zhu PhD desideration.

Longfei Zhu has conducted his PhD in Piotr Ziółkowski laboratory at the University of Adam Mickiewicz in Poznań. His desideration is presented as a classical PhD thesis with all required by applicable regulations parts.
The introduction covers the current state of research on the topic of SMC complex and meiotic recombination. The introduction is focused on plant literature but does include some information on other systems. It is written in a concise, easy to read way focused on data rather than conclusions. In summary, the introduction contains all the necessary information needed to understand the other parts of the desideration and provides a brief but informative introduction to the subject of the thesis.
The results part of the desideration is definitely the strongest part of the presented thesis with a very well planned and carefully executed research plan that starts with fine-mapping a QTL for recombination frequency in a LerxCol population and ends with the characterisation of the SNI1 gene. I had a careful look at the figures. While I have to admit I am not a specialist in recombination, I have to say methodologically that I do not see major problems with the presented results. Both the genetic, molecular and imaging methods used include the necessary controls and are carefully described. In several places, I noticed problems with the use of English but those were rather minor and rare enough not to disrupt the reader from the logical flow. The described results while falling short of providing a mechanist framework of how SNI1 controls recombination, are highly novel and interesting as they identify and characterise the second known recombination modifier among natural Arabidopsis accessions.
Discussion properly examines the findings in light of the literature. It also includes some results of other members of the group that help to clarify the follow-up paths. While I guess a more canonical way would be to include those in the result section I consider their description in the discussion a good idea given that they are mostly weakly connected with the main objectives of the thesis and done by collaborators.

To sum up, in my view this is a very good desideration that clearly is a result of a very carefully planned and well-executed research plan. The thesis is written in a clear and easy to follow way and I cannot find major problems with the result section. During the defence, I would however like the PhD candidate to address several questions about the interpretation of the data.
Given that Hei10, a previously identified recombination frequency QTL, acts in a dosage-dependent manner but SNI1 doesn't the author of the thesis proposes that the mutations in SNI1 are at least partially loos of function mutations. I like to ask how do the author reconcile this suggestion with the broad spectrum functions of the SNI complex? Also, I like to ask about the presence of the mutation suggested as causative for the recombination frequency change in other accessions. Or more broadly about the SNI1 protein mutation profile among Arabidopsis accessions.

Given the novelty of the findings and the clarity of the thesis, I conclude that the presented desideration fulfils the requirements for PhD thesis.Tthe reviewed thesis fulfils the requirements necessary to obtain the PhD degree set out in the Act on Academic Degrees and Title (Rozprawa doktorska spełnia warunki określone w art. 187 Ustawy z dnia 20 lipca 2018 r. Prawo o szkolnictwie wyższym i nauce, tekst jednolity: Dz.U. z 2021 r. poz. 478) and I recommend that the University of Adam Mickiewicz in Poznań allows it to be defended in public. In addition, given the novelty of the findings, I would like to recommend the thesis for distinctions.

Regards Szymon Świeżewski