

Conflicting mapping results for stem rust resistance gene *Sr13*

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Two manuscripts with conflicting results on the mapping location of stem rust resistance gene *Sr13* in wheat are published in this issue of TAG (Admassu et al. and Simons et al.). Both resistance genes were mapped on the long arm of chromosome 6AL, but the gene mapped by Admassu et al. between markers *barc37* and *wmc256* is more than 50 cM proximal to the one mapped by Simons et al. between markers *CD926040* and *BE471213*.

After the publication of the two manuscripts in TAG online, the authors of both manuscripts became aware of the conflicting results and they exchanged the critical hexaploid wheat cytogenetic stocks Khapstein/9*LMPG (developed by Dr. D. Knott) and the recurrent parent LMPG to determine the source of the differences. In addition, they requested seeds for these two stocks from the U.S. Cereal Disease Laboratory in Saint Paul Minnesota (Dr. Yue Jin) and from Canada Agri-Food, Winnipeg (Dr. Tom Fetch).

The online version of the original articles can be found under doi:[10.1007/s00122-010-1433-3](https://doi.org/10.1007/s00122-010-1433-3) and [10.1007/s00122-010-1444-0](https://doi.org/10.1007/s00122-010-1444-0).

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Analysis of these stocks with molecular markers for the long arm of chromosome 6AL revealed that the Khapstein/9*LMPG seed stock used in the Admassu et al. paper was different from the other three Khapstein/9*LMPG stocks. Molecular markers *barc37*, *barc107*, *barc118*, *barc1165*, *gwm570*, *wmc179*, *wmc256*, *wmc580*, and *cfid2* all showed different bands in the seed stock used in the Admassu paper relative to the seed stocks from the University of California, the Cereal Disease Laboratory and Agri-Food Canada.

These results indicate that the Khapstein/9*LMPG seed stock used in the Admassu paper is different from the other three. Since the Khapstein/9*LMPG hexaploid genetic stock defines the gene name *Sr13*, the gene mapped by Admassu et al. is most likely not *Sr13* and should be renamed.

The Khapstein/9*LMPG developed by Dr. D. Knott is polymorphic with the LMPG recurrent parent only for markers closely linked to the stem rust resistance gene mapped in the four tetraploid populations in the distal region of chromosome arm 6AL (*barc104b* and *dupw167*) by Simons et al. This observation, together with the fact that *Sr13* was originated in tetraploid wheat (Khapli), provides indirect evidence that the gene mapped by Simons et al. is *Sr13*. Mapping the stem rust resistance gene present in the correct Khapstein/9*LMPG stock in an hexaploid segregating population will provide the final answer.

Interestingly, both genes confer resistance to the new stem rust race Ug99 (TTKSK) suggesting that it would be possible to combine the two sources of resistance to Ug99 in the same 6AL arm. We have initiated crosses between the correct Khapstein/9*LMPG genetic stock and the source of the Admassu et al. Ug99 resistance to recombine both genes.

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