



Mini-Chromosomes and Interlineage Genetic Exchange in the Blast Fungus *Magnaporthe oryzae*

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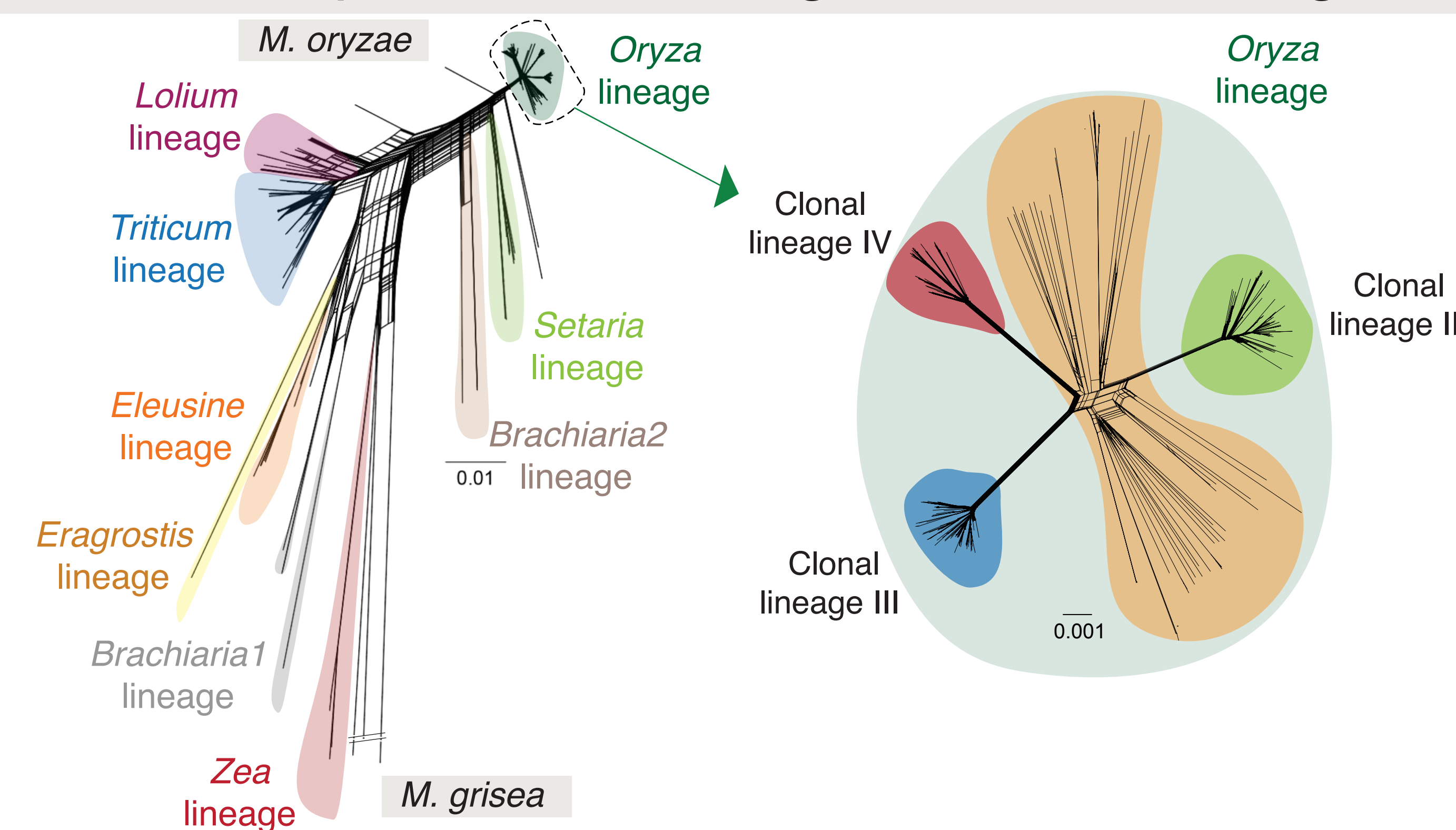
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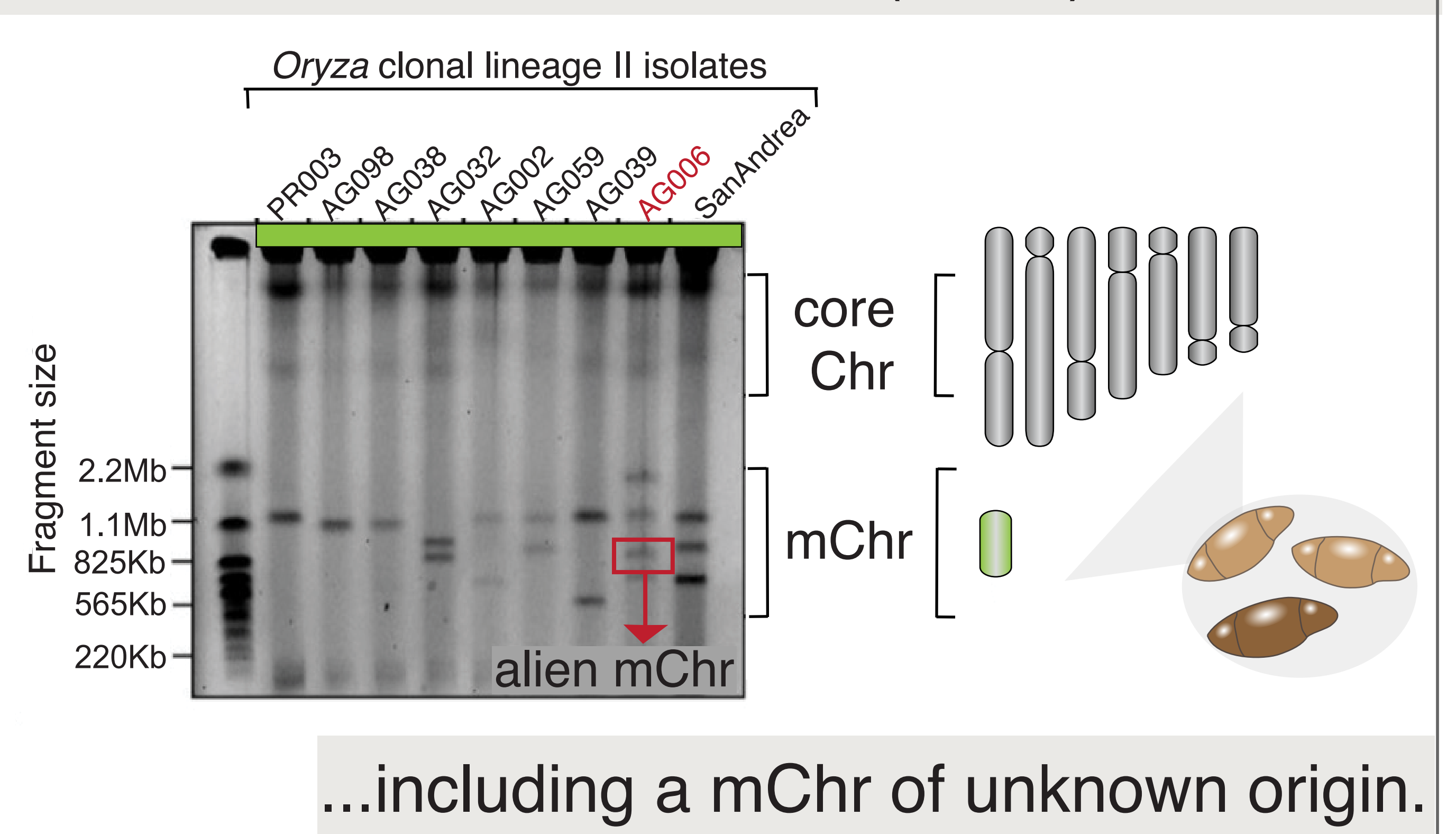
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The blast fungus is genetically differentiated into host-specialized lineages and sublineages



Clonal rice blast fungus isolates show variable mini-chromosome (mChr) content

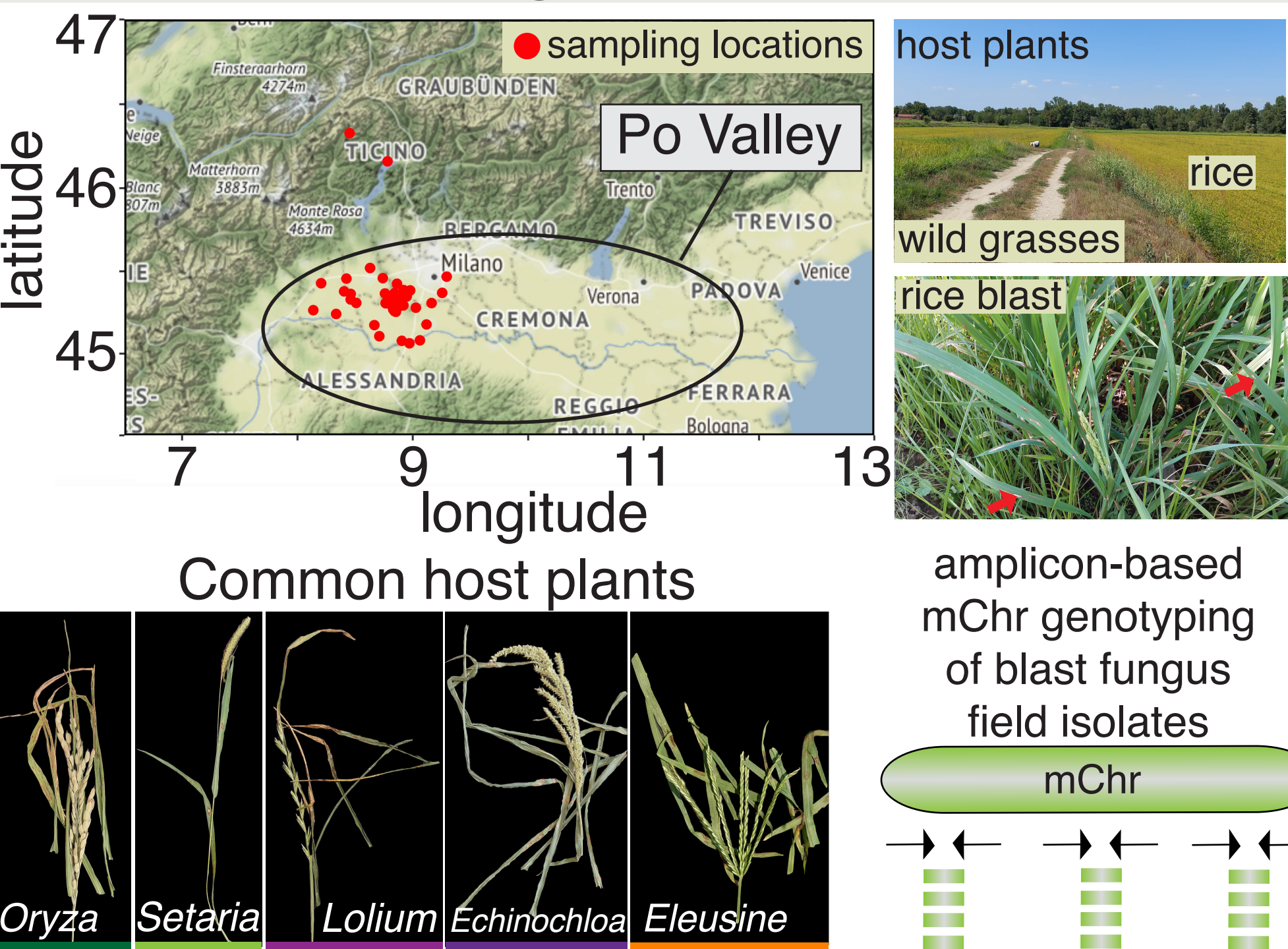


What is the **origin** of this mChr?

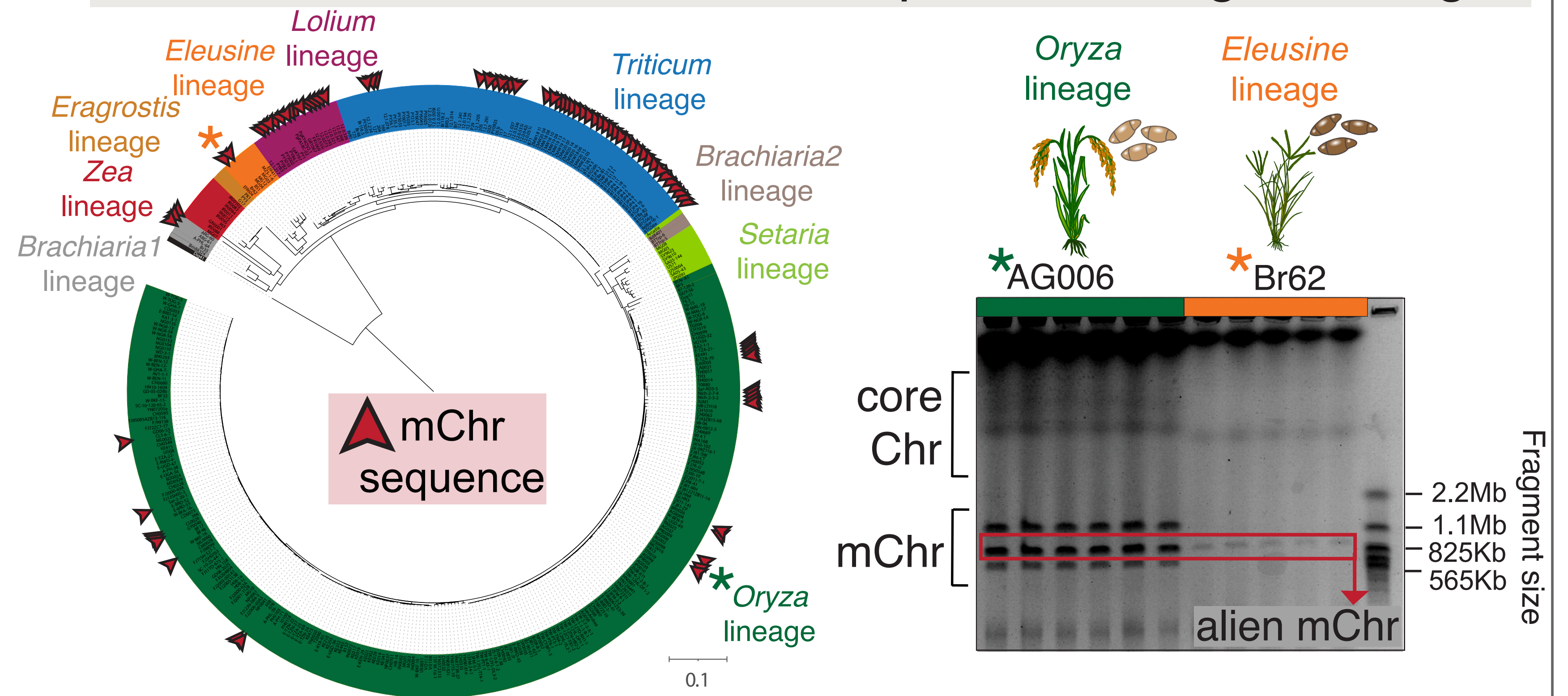
Local population level

Global population level

Find the mChr across Italian blast fungus populations



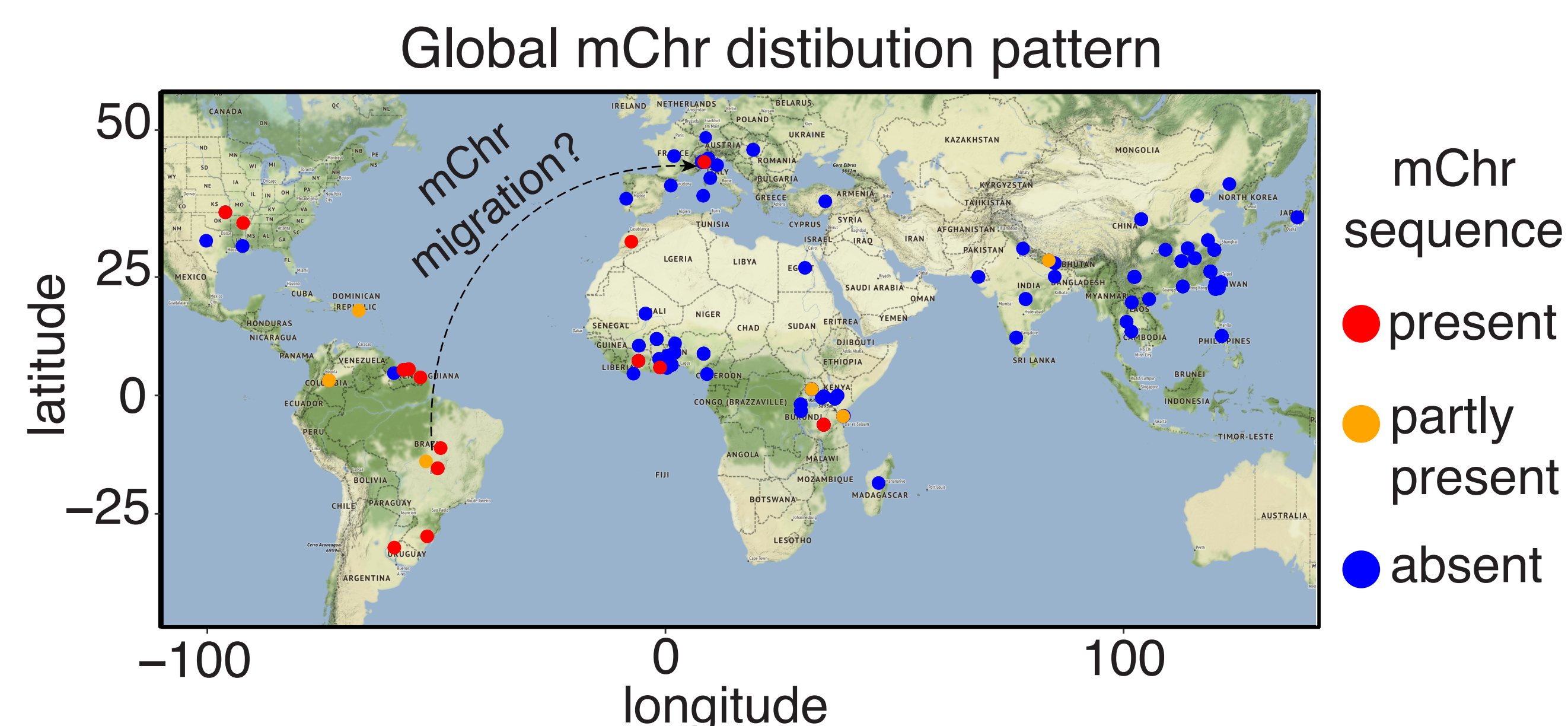
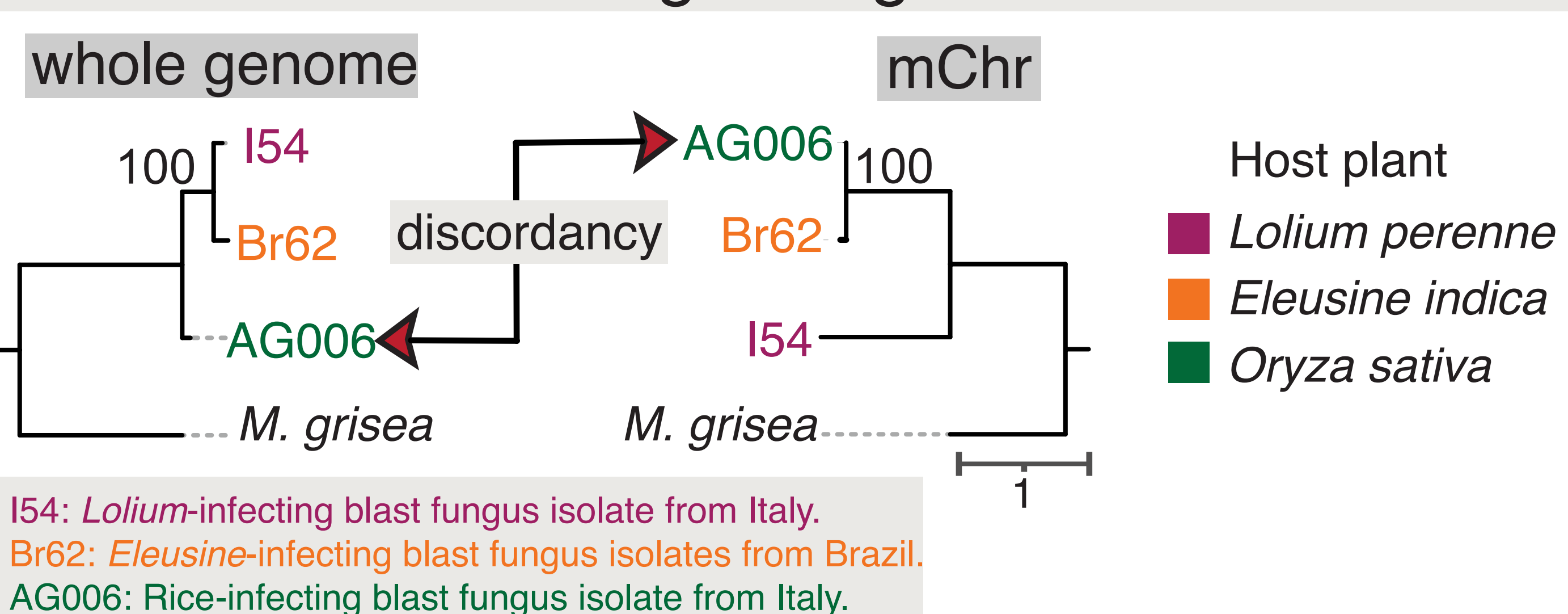
The alien mChr is found in multiple blast fungus lineages



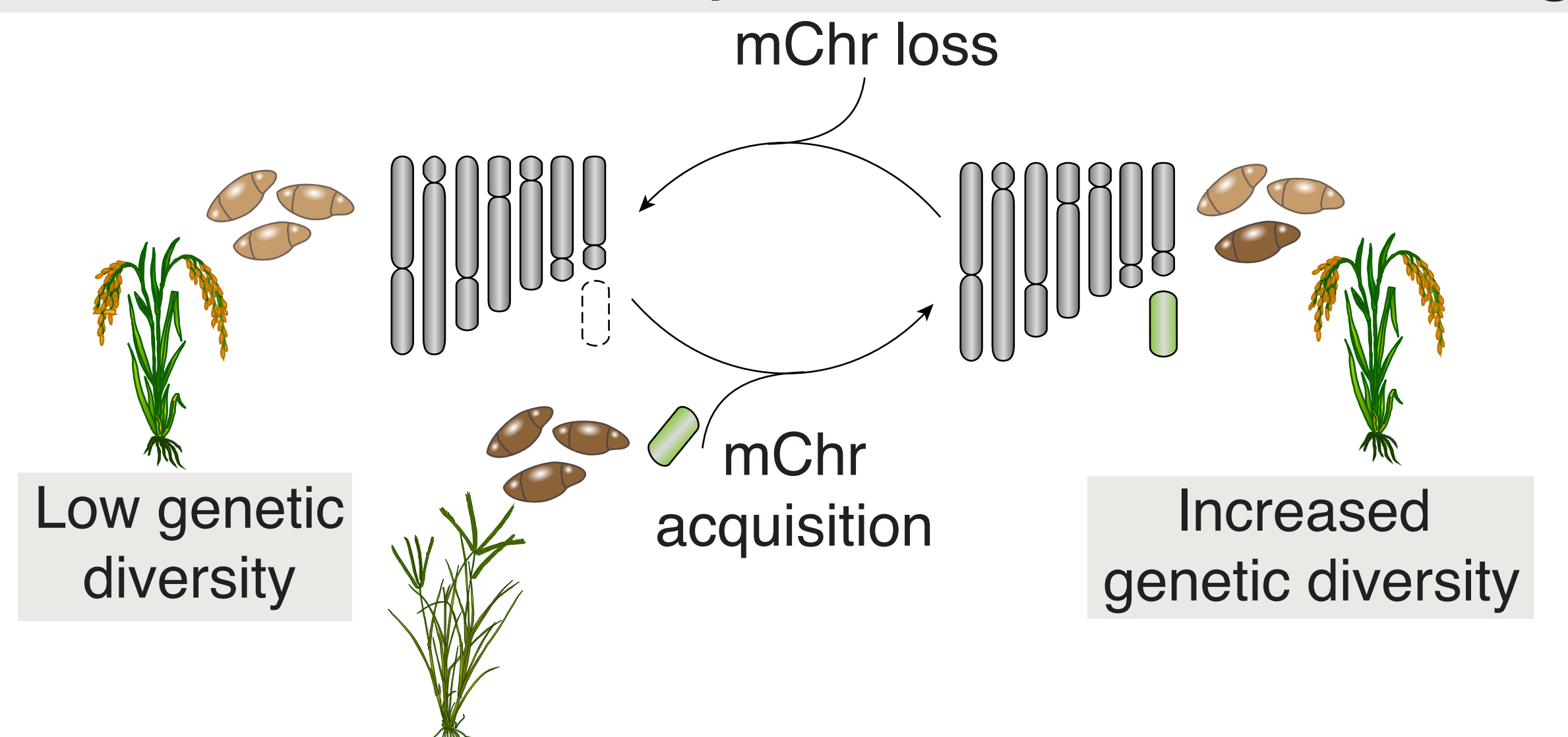
Oryza and *Lolium*-infecting blast fungus field isolates carry the mChr sequence

...and is most similar to an *Eleusine*-infecting isolate from Brazil

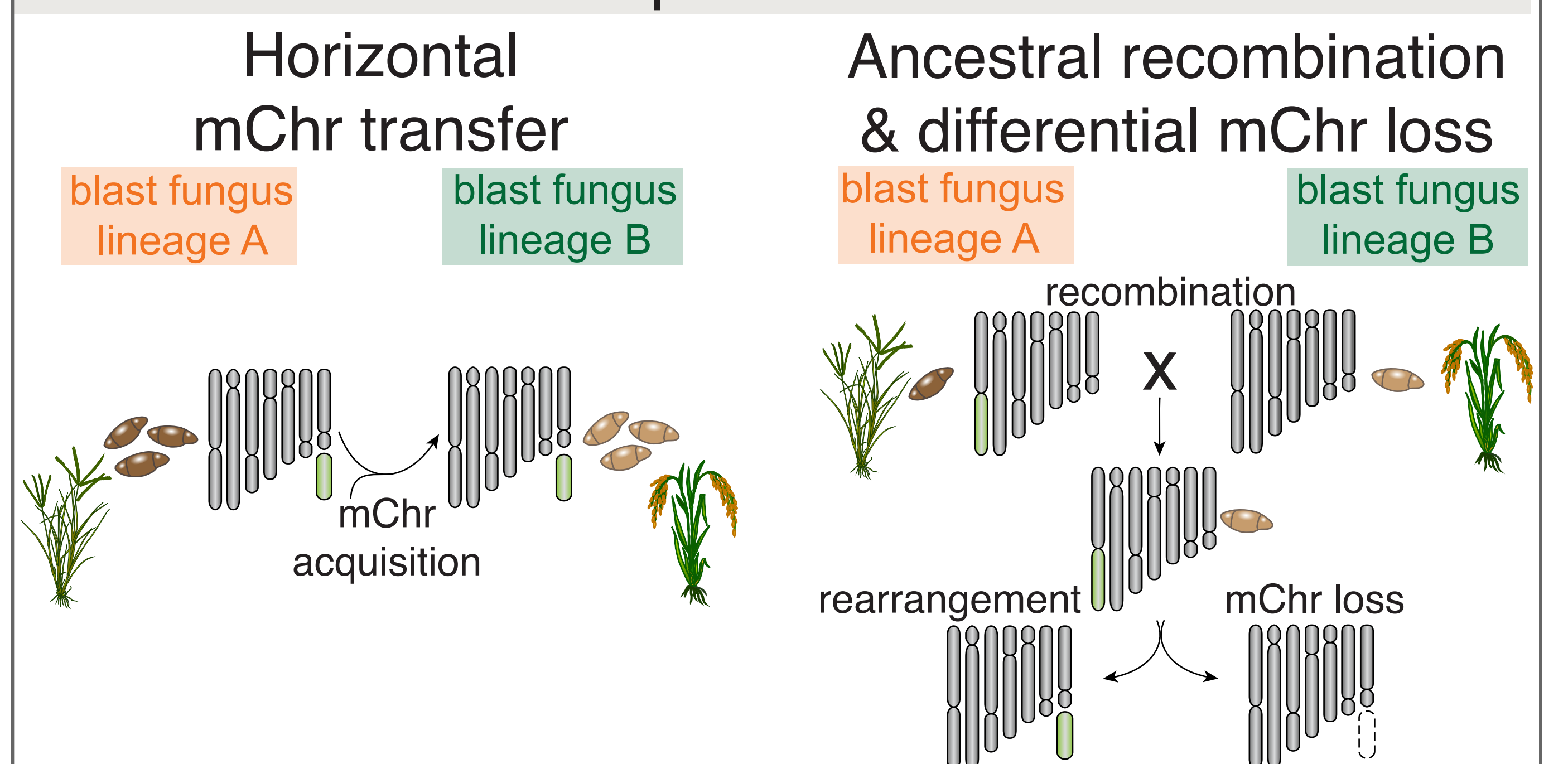
Phylogenetic analyses & geographic distribution hint at the mChr originating from South America



mChr acquisition and loss may be an important determinant of adaptation in the blast fungus



What could result in the variable mChr distribution patterns observed?



References

1. Gladiex et al. *mBio* (2018).
2. Latorre et al. *BMC Biology* (2020).
3. Langner et al. *PLoS Genetics* (2021).
4. Nguyen-Dumont et al. *Biotechniques* (2013).