

Special seminar

Time: September 4, 2019, 14:00–15:00

Place: Training room, International Arid Lab, ALRC

Barley diversity now and 6000 years ago: archaeogenetics and genebank genomics

Dr. Martin Mascher

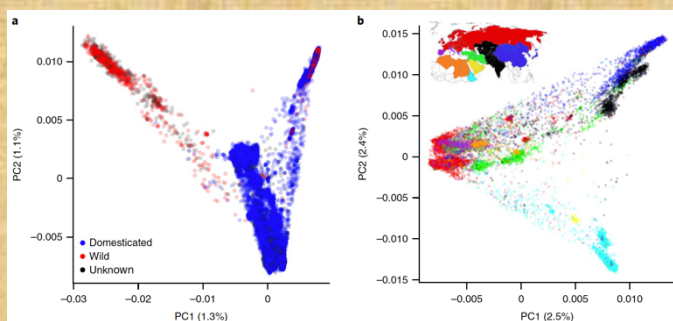
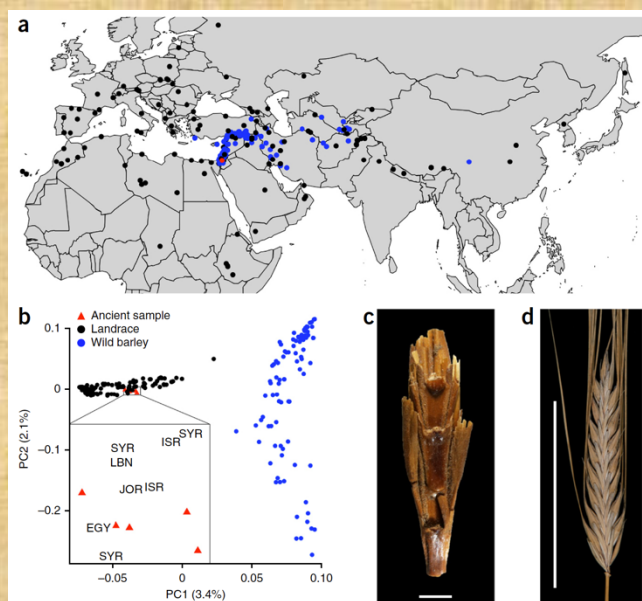
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Abstract

The cereal grass barley was domesticated about 10,000 years before the present in the Fertile Crescent and became a founder crop of Neolithic agriculture. After domestication, during a process of widespread range extension, barley adapted to a broad spectrum of agricultural environments. Today, barley remains an important crop that is used around the world as animal fodder and raw material for the malting industry. In this presentation, I report on the genetic relationship of 6000-year old barley grains found in a cave in the Judean Desert to extant populations. DNA were extracted from archeological remains and used for high-throughput sequencing. Comparison to whole-exome sequence data from a diversity panel of present-day barley genebanks accessions showed the close affinity of ancient samples to extant landraces from the Southern Levant and Egypt. Our findings suggest that barley landraces grown in present-day Israel have not experienced major lineage turnover over the past six millennia, although there is evidence for gene flow between cultivated and sympatric wild populations. We demonstrate the usefulness of ancient genomes from archaeobotanical remains together with sequence data from genebank collections for domestication research.

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References

- Mascher et al. (2016) *Nature Genetics* 48: 1089-1093.
- Mascher et al. (2017) *Nature* 544: 427-433.
- Milner et al. (2018) *Nature Genetics* 51: 319-326.

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