

# Hot tomato pollen is different, but how?

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Tiny tomato pollen has an outsized role in reproduction, providing essential cellular and genetic material for fertilization and fruit generation. Unfortunately, high temperatures reduce pollination efficiency, harm fruit set and size, and ultimately diminish yield. This project attempts to answer basic questions about pollen growth and function during normal and heat-stressed conditions. Pollen from ~200 genetically diverse tomato and wild relative accessions will be observed as it grows at various temperatures.

High-throughput microscopy will be paired with computer vision to phenotype the thousands of image sequences generated by this experiment. By combining pollen growth phenotypes with genome sequence data for all accessions, we plan to identify relevant genomic regions to target for functional description and crop improvement.