



Dr. Matthew Moscou

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Matthew Moscou is a Group Leader at the Sainsbury Laboratory. His research group focuses on understanding immunity in the grasses with three major research areas: (1) deciphering the genetic architecture of resistance to non-adapted pathogens, (2) the molecular characterization of suppression in polyploid genomes, and (3) biotechnology approaches for crop improvement. We investigate these questions using a combination of genetics and bioinformatics, leveraging the considerable genetic and genomic resources available for the grasses.

Matthew's career started at the University of California, Riverside, USA where he studied Pure Mathematics and Physics (BSc), working as a programmer and molecular biologist in the laboratory of Prof. Timothy Close. Matthew's conducted his PhD work at Iowa State University, Ames, Iowa, with his work focusing on gene expression and regulation during the interaction of barley with different obligate biotrophic fungal pathogens. Matthew joined as a post-doctoral scientist at the Sainsbury Laboratory in 2010 in the newly formed 2Blades Group under the supervision of Dr. Eric Ward. Matthew became a group leader in 2014 with a focus on understanding immunity to non-adapted pathogens of grasses. He has a long track record working on genomics and immunity in grass species, including wheat (*Triticum aestivum*), barley (*Hordeum vulgare*) and *Brachypodium distachyon*. He is the co-discoverer of the transcription activator-like effector (TALE) code. This discovery has been instrumental in the development of TALE nucleases, which represent a novel advance in the field of site-directed mutagenesis with broad applications in basic biology, plant breeding, and human medicine including the direct treatment of disease and for use in gene therapy.