Postdoc position to study cytonuclear interactions underlying plant robustness under abiotic environment

Fulbright Postdoctoral Fellowships at Volcani Center
[see at: https://fulbright.org.il/program/2/366]

The Department of Plant sciences at the Volcani center in Bet Dagan, Israel, invite applications for one postdoc positions to investigate effects of naturally evolved cytoplasm and nuclear variations (cytonuclear diversity) on circadian clock plasticity and whole plant development in the group led by Dr. Eyal Fridman (https://www.fridmanlab.com/).

Background

Radiation and adaptation of plant populations bear consequences on the genetic makeup of both nuclear and organellar genomes, driven by selective forces as well as stochastic genetic drift and founder effects. One of the great challenges in evolutionary biology and modern breeding is to identify and utilize real causal genetic variations that participate in the relationship between genetic and phenotypic variation. This is the basis for breeding better adapted crops to current and future scenarios of climate change. It is necessary to understand the intra-plant (sink and source) and intra-genomes (nuclear and organelle) relationship for optimizing stress responses and import beneficial gene alleles for basic and applied investigations.

In the group we study the genetics underlying phenotypic plasticity in the Barley1K collection and derived inter-specific population as a model system. The research focus on circadian rhythms and whole plant responses to heat. System genetics is integrated with genome editing to zoom-in on specific loci that make the difference in dynamics of responses to abiotic stress throughout development. This brings novel insight into the role of organelle diversity and circadian clock plasticity (Bdolach et al., PCE 2019), and suggests that major genes facilitate plasticity at certain developmental stages to confer robustness later in reproductive output.

The position is specified as follows:

1) Physiological and molecular characterization of candidate regulatory loci involved in circadian clock plasticity under heat in the model Hordeum spontaneum. Identifying the mechanism underlying sensing of external heat stimuli with a developmental output

2) Development and analysis of a new multi-parental barley population including the circadian clock responses and yield traits in the field
**Requirements**
We seek highly motivated applicant with a background in molecular biology, physiology, bioinformatics or other relevant fields. Candidates will be expected to demonstrate strong interest in the field of plant physiology, molecular biology and plant breeding. Prior knowledge on plant physiology, bioinformatics and experience with cereal plant species will be advantageous.

**Payment/Position**
The position is available immediately and successful candidates would be expected to start at the beginning of 2020. Working hours are fulltime; we encourage any gender to apply. $110,000 ($55,500 per academic year for two years), payable in U.S. dollars. Up to $13,000 travel and relocation grant from Volcani Center.

**Application**
For specific questions concerning the respective projects please contact: fridmane@agri.gov.il, and include a curriculum vitae, list of publications, a statement of research interests by September 12, 2019.