Postdoc position
Biological Research Centre, Szeged, Hungary

Improving tolerance traits in crops through the epigenetic control of stress-responsive genes.
A Hungarian-Indian project

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Requirements: Solid background in plant molecular biology, fluent english,
Advance: Experience in epigenetics, genome editing, plant physiology, plant transformation, imaging technologies.
Resume:
Modulation of epigenetic control of key regulatory genes for plant improvement is a promising option, but has not been explored. Our project is pioneering such efforts to enhance the efficiency of drought and salt tolerance by altering epigenetic control of key regulatory genes through genome editing. Patterns of DNA methylation and histone modifications will be determined in the genomes of rapeseed subjected to drought and regulatory genes will be identified on the base of differences in epigenetic marks. Epigenetic changes will be related to RNAseq gene expression profiles. Genes with altered epigenetic marks in the promoters and difference in transcript profiles will be selected for engineering using CRISPR/Cas9 technology. Genome-edited mutants will be tested for gene expression, and evaluated for stress tolerance using complex plant phenotyping. We expect that by modulating epigenetic marks of key stress genes by targeted mutagenesis, their altered expression can improve drought tolerance, without releasing GMO plants.