



RESEARCH PROGRAM ON  
Grain Legumes and  
Dryland Cereals

## International Hands-on Training on Genome Editing Technologies

October 14-25, 2019

Platform for Translational Research on Transgenic Crops (PTTC), ICRISAT, Patancheru, Hyderabad, India

<b>Learn</b>	<p><b>Theory:</b> Principles, techniques and applications of Genome Editing / Biosafety and ethics</p> <p><b>Hands on session areas:</b></p> <ul style="list-style-type: none"> <li>Different bioinformatics tools for the genome editing, The</li> <li>Molecular biology behind technology</li> <li>Genetic transformation methodologies</li> <li>Functional characterization methods</li> </ul>
<b>Organized by</b>	Platform for Translational Research on Transgenic Crops (PTTC)- BioNCube/BioNEST International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
<b>In Collaboration with</b>	Asia-Pacific Association of Agricultural Research Institutions (APAARI) under its Programme Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB)
<b>When</b>	<b>October 14 - 25<sup>th</sup> 2019   0830 – 1700</b>
<b>Where</b>	PTTC, ICRISAT, Patancheru, Hyderabad-502324

## Training Schedule

Time	Session title	Lead
<b>Day 1 Monday</b>		
0830 - 0900	Registration	
0900 - 1000	Welcome and Introduction	
1000 - 1030	Tea Break & Group Photo	
1030 - 1130	Genome editing in Agricultural Biotechnology	Invited talk - TBA
1130 - 1300	Visit to CMBGE lab area and glasshouses	
1300 - 1400	Lunch	
1400 - 1500	What is Genome editing- Glossary, Types, Discovery, & Mechanism	
1500 - 1530	Tea Break	
1530 - 1700	i) - Bioinformatics tools for guide RNA designing, codon optimization, off-target prediction	

<b>Day 2 Tuesday</b>		
0830 - 1000	Continue..	
1000 - 1030	Tea Break	
1030 - 1130	ICGEB New Delhi	Invited talk - TBA
1130 - 1300	ii). Strategy, cloning of the guideRNA and Cas9 in to the plant transformation vector	
1300 - 1400	Lunch	
1400 - 1500	Activity (ii) continues	
1500 - 1530	Tea Break	
1530 - 1700	Activity (ii) continues	

<b>Day 3 Wednesday</b>		
0830 - 1000	Activity (ii) continues	
1000 - 1030	Tea Break	
1030 - 1100	Activity (ii) continues	
1130 - 1200	Gateway cloning setup for the guide RNA, Cas9 donor vectors with the plant transformation vector	
1200 - 1300	Genetic transformation - media preparation	
1300 - 1400	Lunch	
1400 - 1500	Bacterial transformation for the Gateway LR ligated reactions	
1500 - 1530	Tea Break	
1630 - 1700	Continues...	

<b>Day 4 Thursday</b>		
0830 - 0930	Confirmation of the recombinant clones by colony PCR	
0930 - 1000	Tea break	
1130 - 1300	Continues..	
1300 - 1400	Lunch Break	
1400 - 1500	iii). Genetic transformation - seed sterilization	
1500 - 1530	Tea break	
1530 - 1730	Continues...	

<b>Day 5 Friday</b>		
0830 - 1000	Plasmid DNA isolation for the colony PCR positive colonies	
1000 - 1030	Tea break	
1030 - 1115	Confirmation of the recombinant plasmids by restriction digestion/sequencing	
1115 - 1300	Continues..	
1300 - 1400	Lunch break	
1400 - 1500	Agrobacterium transformation for the confirmed recombinant plasmids by electroporation	
1500 - 1530	Tea break	
1400 - 1500	Genetic transformation - Explant preparation and Cocultivation	

**Day 6 Saturday City trip**

**Day 7 Sunday Holiday**

<b>Day 8/ Monday</b>		
0830 - 1000	Agro-colony PCR for confirmation of the recombinant clones	
1000 - 1030	Tea break	
1030 - 1130	Private sector	Invited talk
1115 - 1300	Functional characterization of the gene edited plants	
1300 - 1400	Lunch break	
1400 - 1500	Genomic DNA isolation for the putative gene edited plants	
1500 - 1530	Tea break	
1530 - 1700	Continues..	

<b>Day 9/ Tuesday</b>		
Visit to the CCMB/Industry for gene editing facilities		

<b>Day 10/Wednesday</b>		
0830 - 1000	Molecular confirmation of the putative gene edited plants by PCR	
1000 - 1030	Tea break	
1115 - 1300	Continues..	
1300 - 1400	Lunch	
1400 - 1500	Surveyor assay for identifying the gene edited plants	
1500 - 1530	Continues..	
1530 - 1600	Tea break	
1600 - 1700	Continues..	

<b>Day 11/Thursday</b>		
0830 - 0900	Indels analysis - Nano pore sequencing	
0900 - 1000	Library preparation	
1000 - 1030	Tea break	
1030 - 1300	Continues..	
1300 - 1400	Lunch break	
1400 - 1530	Continues..	
1530 - 1600	Tea break	
1600 - 1700	Loading and sequencing	

<b>Day 12/Friday</b>		
0830 - 1000	Sequence analysis	
1000 - 1030	Tea break	
1030 - 1300	Indels identification and analysis	
1300 - 1400	Lunch break	
1400 - 1500	Invited talk on Biosafety and ethics	Invited talk
1500 - 1530	Tea break	
1530 - 1700	Discussion/feed back and wrap-up	