

## CURRICULUM VITAE

### Madhusudhana Reddy Janga

Assistant Professor, Institute for Genomics of Crop Abiotic Stress Tolerance (IGCAST)

Department of Plant & Soil Science, Texas Tech University

E-mail: [mjanga@ttu.edu](mailto:mjanga@ttu.edu) Phone (+1) 806-834-6398

[https://www.depts.ttu.edu/IGCAST/Staff/Madhusudhana R. Janga.php](https://www.depts.ttu.edu/IGCAST/Staff/Madhusudhana_R._Janga.php)

### EDUCATION

---

- 2011 Ph.D. Genetics, Osmania University, Hyderabad, India  
2004 M.S. Biotechnology, Barkatullah University, Bhopal, India  
2001 B.S. Biochemistry, Sri Krishnadevaraya University, Anantapur, India

### PROFESSIONAL EXPERIENCES

---

Organization	Designation	Duration From	Duration To
Texas Tech University, Lubbock, TX, USA	Assistant professor	July 2023	Current
University of Missouri, Columbia, MO, USA	Assistant Director of Research – plant transformation core facility	May 2020	June 2023
Sanford Research, Sioux falls, SD, USA	Staff Scientist	May 2018	May 2020
Texas A&M University, College station, Texas, USA	Postdoctoral Research Associate	July 2013	April 2018
E. I. DuPont India Pvt. Ltd. Hyderabad, India	Research Associate - Plant transformation	September 2008	June 2013
Kaveri seeds company Pvt. Ltd. Hyderabad, India	Biotechnologist	November 2007	September 2008
Directorate of oilseeds research (ICAR), Hyderabad, India	Senior Research Fellow	December 2004	November 2007

### AREA OF EXPERTISE

---

- **Plant Tissue culture:**
  - Generation of transgenic lines for various crops: Corn, Soybean, Cotton, Sorghum, Rice, and other species.
  - Genome editing through CRISPR/Cas9 system, gene silencing through RNAi, herbicide and insect resistant transgenic lines generation, characterization of promoters, genes, and generation of marker free events.
  - Established transformation methods using different explants immature embryo, mature embryo, scutellum derived calli, and embryo axis.
  - Standardization of transformation and regeneration protocols for different species and cultivars.
  - Developed embryo rescue method for rice to save one generation advancement per year
- **Molecular biology:**
  - Vector construction: Conventional, Goldengate, Gateway and Gibson assembly methods
  - Molecular characterization: copy number determination using qPCR and southern blotting, flanking sequence analysis
  - Gene expression analysis: qPCR, Northern blotting, western blotting
- **Bioinformatics:**

- Next Generation Sequencing: RNA-Seq, whole exome sequencing (WES), whole genome sequencing (WGS), Chip-Seq, CRISPR-mutant analysis.
- Statistics: R, Bioconductor packages

## MENTORING (Students/Postdocs)

---

- **Graduate Students (4 in progress):**
  - Lekkala Sai Krishna (MS Advisor Spring 2024)
  - Lankireddy Sri Harsha Vardhan Reddy (MS Advisor Spring 2024)
  - Tomar Shraddha (MS Advisor Spring 2024)
  - Nagalla Lakshmi Venkat Sai Ram (MS Co-Advisor Spring 2024)

## TEACHING

---

### Guest lectures:

- **5325 Transgenic & Plant Cell Genetics**, Texas Tech University. “Chromosome and gene organization, DNA structure and replication”
- **PLNT\_SCI\_4550/7550, Plant Biotechnology**, University of Missouri. “Plant tissue culture and transformation methods”
- **Plant biotechnology (AGRO/BIOTC 460)**: Penn State University. “Plant tissue culture and transformation methods”.
- **Advanced Plant Genetics (2021FS BIO\_SC 8300)**: Interdisciplinary Plant Group (IPG), University of Missouri. “*Agrobacterium* mediated plant transformation”
- **Advanced Plant Genetics (2020FS BIO\_SC 8300)**: Interdisciplinary Plant Group (IPG), University of Missouri. “*Agrobacterium* mediated plant transformation”
- **Advanced Molecular Genetics (NRE-763)**, department of Biological and Environmental Sciences (BES) at Alabama A&M University. (Advanced genomic tools and application of NGS technologies in plant genetics, Molecular tools: gene silencing through RNAi and Genome Editing technologies, Plant Transformation techniques, Transgenic plants: resistance to abiotic and biotic stresses, Development of transgenic plants and deregulation)
- **Genetics of human disease (CPHD-725)**, Sanford school of medicine, at University of south Dakota. (Mendelian Diseases: dominant and recessive diseases with case examples)

## RESEARCH FUNDING

---

Year	Status	Agency	Role	Total funding	My portion
2023	Pending	USDA-ARS, Scab initiative	Zhong, S (PI) <b>Janga, M (Co-PI)</b> Leng, Y (Co-PI)	\$125,000	\$35,000
2023	Pending	USDA-NIFA AFRI A1152	Son T (PI) <b>Janga, M (Co-PI)</b> Mostofa M (Co-PI)	\$649,999	\$80,000
<b>Declined</b>					
2023	Declined	USDA-NIFA-SBIR-009962	Luckow, V (PI). Janga, M (Co-PI)	175,000	\$73,750
2023	Declined	United States Department of Energy	Luckow, V (PI). Janga, M (Co-PI)	\$250,000	\$125,000

## Professional Service:

---

- **Associate Editor: Physiology and molecular biology of plants**, Springer publishing group.
- **Reviewer:** Plant Biotechnology Journal, Plant cell reports, The Plant Genome, Physiology and molecular biology of plants, Journal of Phytopathology, International Journal of Molecular Sciences, Non-coding RNA, Plant Science Today, Advances in Bioscience and Biotechnology, Journal of DNA and RNA Research, Journal of Agricultural Science, Genes, Agronomy, Forests.

## Patents

---

1. Rathore KS, **Janga MR**, Pandeya D, Campbell LM. Methods and compositions for modulating gossypol content in cotton plants. US11206798B2. 2019

## Publications

---

1. Toinga-Villafuerte S, **Janga MR**, Isabel Vales M, Rathore KS: Green fluorescent protein gene as a tool to examine the efficacy of Agrobacterium-delivered CRISPR/Cas9 reagents to generate targeted mutations in the potato genome. *Plant Cell, Tissue and Organ Culture (PCTOC)* 2022, **150**(3):587-598.
2. Mukherjee M, Ratnayake I, **Janga M**, Fogarty E, Scheidt S, Grassmeyer J, DeRiso J, Chandrasekar I, Ahrenkiel P, Kopan R: Notch signaling regulates Akap12 expression and primary cilia length during renal tubule morphogenesis. *FASEB journal: official publication of the Federation of American Societies for Experimental Biology* 2020, **34**(7):9512.
3. Mukherjee M, DeRiso J, **Janga M**, Fogarty E, Surendran K: Foxi1 inactivation rescues loss of principal cell fate selection in Hes1-deficient kidneys but does not ensure maintenance of principal cell gene expression. *Developmental biology* 2020, **466**(1-2):1-11.
4. Mukherjee M, Fogarty E, **Janga M**, Surendran K: Notch signaling in kidney development, maintenance, and disease. *Biomolecules* 2019, **9**(11):692.
5. **Janga MR**, Pandeya D, Campbell LM, Konganti K, Villafuerte ST, Puckhaber L, Pepper A, Stipanovic RD, Scheffler JA, Rathore KS: Genes regulating gland development in the cotton plant. *Plant biotechnology journal* 2019, **17**(6):1142-1153.
6. Pandeya D, López-Arredondo DL, **Janga MR**, Campbell LM, Estrella-Hernández P, Bagavathiannan MV, Herrera-Estrella L, Rathore KS: Selective fertilization with phosphite allows unhindered growth of cotton plants expressing the ptxD gene while suppressing weeds. *Proceedings of the National Academy of Sciences* 2018, **115**(29):E6946-E6955.
7. Pandeya D, Campbell LM, Nunes E, Lopez-Arredondo DL, **Janga MR**, Herrera-Estrella L, Rathore KS: ptxD gene in combination with phosphite serves as a highly effective selection system to generate transgenic cotton (*Gossypium hirsutum* L.). *Plant Molecular Biology* 2017:1-11.
8. **Janga MR**, Raooof MA, Ulaganathan K: Effective biocontrol of Fusarium wilt in castor (*Ricinus communis* L.) with *Bacillus* sp. in pot experiments. *Rhizosphere* 2017, **3**(1):50-52.
9. Joshi SG, Kumar V, **Janga MR**, Bell AA, Rathore KS: Response of AtNPR1-expressing cotton plants to *Fusarium oxysporum* f. sp. *vasinfectum* isolates. *Physiology and Molecular Biology of Plants* 2017, **23**(1):135-142.
10. **Janga MR**, Campbell LM, Rathore KS: **CRISPR/Cas9-mediated targeted mutagenesis in upland cotton (*Gossypium hirsutum* L.)**. *Plant Molecular Biology* 2017:1-12.
11. **Reddy JM**, Raooof MA, Ulaganathan K: Development of specific markers for identification of Indian isolates of *Fusarium oxysporum* f. sp. *ricini*. *European journal of plant pathology* 2012, **134**:713-719.
12. **Reddy JM**, Raooof MA, Ulaganathan K: Variability among *Fusarium oxysporum* f.sp. *ricini* strains causing wilt of Castor. *Journal of Oilseeds Research* 2009, **26**(Special Issue):499-502.
13. Raooof MA, **Reddy JM**, Ulaganathan K: Molecular characterization of different *Fusarium* spp. isolates. *Indian Journal of Oilseeds Research* 2009, **26**(Special issue):178-181.

## Book chapters

---

1. Patel SR, Verma AK, Verma VC, **Janga MR**, Nath G: Bacteriophage therapy–Looking back in to the future. In: *The Battle Against Microbial Pathogens: Basic Science, Technological Advances and Educational Programs*. vol. 2: Formatex; 2015: 284-294.

## Invited talks

---

1. Genome editing for characterization of genes regulating gland development in cotton. 42nd Annual meeting of plant tissue culture association (India) & International symposium on advances in plant biotechnology and genome editing-2021 (APBGE-2021). Session 4: Gene/ Genome Editing for Plant Improvement.
2. CRISPR/Cas9-Mediated Targeted Mutagenesis in Upland Cotton (*Gossypium hirsutum* L.). Beltwide Cotton Conferences 2018. Recorded presentation:  
<https://ncc.confex.com/ncc/2018/videogateway.cgi/id/6683?recordingid=6683>

## Abstracts, posters and research papers presented in Symposia:

---

- **Janga MR**, Campbell LM, Rathore KS. (2018). CRISPR/Cas9-Mediated Targeted Mutagenesis in Upland Cotton (*Gossypium hirsutum* L.). Beltwide Cotton Conferences 2018.
- Stephany Toinga, **Madhusudhana Janga**, Maria Isabel Vales, Keerti S Rathore. (2019). Evaluation of the CRISPR-Cas9 System for Targeted Gene Knockout in Potato (*Solanum tuberosum* L.). ASA, CSSA and SSSA International Annual Meetings (2019). Poster number: 1638.
- **Janga MR**, Campbell LM, Rathore KS. (2017). CRISPR/Cas9-mediated mutagenesis of an integrated transgene in the cotton genome. Poster Number 12: 4th Annual Texas A&M University ENG-LIFE workshop.
- **Janga MR**, konganti K and Rathore KS. (2016). RNA-seq-based transcriptome analysis on various tissues of upland cotton (*Gossypium hirsutum* L.). Poster Number: 300-156-Y, Category: Genes & Genomes: Bioinformatics, **ASPB 2016**.
- **J. Madhusudhana Reddy**, M.A.Raof and K.Ullaganathan 2007. "Cultural, Morphological, and Pathogenic variability in castor wilt pathogen *Fusarium oxysporum* f.sp. *ricini*". National Seminar on Changing Global Vegetable Oils Scenario: Issues and Challenges Before India held at Directorate of Oilseeds Research, Hyderabad during 29-31 January 2007 page:232-235.
- C. Radhika, **J. Madhusudhana Reddy** and V. Dinesh Kumar 2007. "Genetic Diversity of Castor Varieties using RAPD markers." National Seminar on Changing Global Vegetable Oils Scenario: Issues and Challenges Before India held at Directorate of Oilseeds Research, Hyderabad during 29-31 January 2007. page:26-28.
- **Madhusudhana Reddy**, Raof, M. A. and Ullaganathan, K. 2006. "Identification of RAPD markers for castor wilt pathogen *Fusarium oxysporum* f.sp. *ricini*." In international symposium on Frontiers in Genetics and Biotechnology- Retrospect and prospect held at Osmania University, Hyderabad during 7-10 January 2006. page-97.
- Mehtab Yasmeen and **Madhusudhana Reddy**, 2006. "Molecular characterization of *Trichoderma viride* (B-16) isolates through RAPD analysis." In international conference on biotechnology for sustainable agriculture and agroindustry held at pragathi resorts, Hyderabad during 9-11 March 2006.