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Gene targeting approaches in corn

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Even though transgenic plant production in the industry is routine, the current technology relies on methods resulting in integration of the transgenes in random sites in the genome causing unpredictable and instable gene expression. In contrast to randomly generated traits, precision genome modification/integration presents distinct advantages by producing well-defined events, reduced cost for trait introgression and potentially shortened timelines to market. Targeted integration of traits into predefined genetic loci and targeted genome modification presents the opportunity for precision genome engineering, which likely could deliver more stable and predictable biotech traits. Rapid developments in the field of gene targeting specifically, Site-Specific Recombination (SSR) and Homologous Recombination (HR) and the potential of the technology to revolutionize genomics and plant biotechnology has resulted in its broad adoption. Both this technology has been widely applied in animals but with limited success in plants. I will discuss the significant breakthroughs and refinements made in the application of SSR and HR for gene targeting in corn.

Biography

Ajith Anand has completed his PhD under Professor M S Swaminathan from Madras University and Post-doctoral studies in the Departments of Biochemistry, Kansas State University and the Plant Biology Division, Samuel Roberts Noble Foundation, Oklahoma. He is currently employed with DuPont Pioneer, researching on enabling technologies for precision genome modification and monocot transformation. He has published more than 30 papers in refereed journals, authored five book chapters, organized and served in professional conferences, routinely presented research papers in international conferences and has filed patents. He is also a member of several societies and serves as the Editorial Board Member of reputed journals.

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