

Position Description

Position title	Research Fellow – Bioinformatic, Molecular & Cellular Biotechnologist
Reports to	Cytogeneticist
Business unit	Variety Development
Location	The position is located primarily in Acacia Ridge (IRIS Laboratories)
Direct reports	N/A

Position details

SRA purpose	Sugar Research Australia invests in and manages a portfolio of research, development and adoption projects that drive productivity, profitability and sustainability for the Australian sugarcane industry. We have highly dedicated and passionate people working on industry-critical projects to deliver tangible value outcomes and impact for our industry stakeholders.
Business unit purpose	The Variety Development business unit leads the development of world-class varieties to maximise a whole-of-industry profitability for sugar production, from the creation of new germplasm through to supply of new varieties to productivity service organisations for distribution to growers. The business unit continuously seeks to innovate variety production methods to improve efficiency for the industry and identify biosecurity threats to protect the Sugar Industry. It incorporates novel traits into elite new varieties to improve profitability in current and future markets and identifies industry trends and issues impacting commercial variety performance. Long term perspectives and plans are required to support future product diversification opportunities and potential changes to the production environment. Strategic, tactical and technical insights are key contributions into SRA investment decisions particularly in relation to outcomes delivered through genetic solutions. The medium-term ambitions are balanced against the difficult technical and logistic challenges of executing annual work plans.
Position purpose	For over a century, sugarcane cultivation in Australia predominantly relied on monoculture practices with minimal fallow cropping, leading to heavily cultivated regions lacking opportunities for soil regeneration and reduction of soil-borne pathogens. The persistence of soil borne pathogens contributes to substantial economic losses annually, significant challenge to the sustainability of the Australian sugarcane Industry. Research focuses on incorporating novel resistance genes into breeding germplasm to develop sugarcane varieties with enhanced resilience against these pathogens. This research project aims to identify genes for resistance to soil borne pathogens with the ultimate goal of developing advanced tools to help conventional screening for soil-borne diseases and advance the development of resistant varieties. This project will utilise advance genomics methods specifically the cutting-edge technology spatial RNA-seq. With the goal of identifying novel expressed genes within specific root cells which encode disease resistance and developing molecular markers for selection of improved resistance. This project lays the groundwork for improving resistance in the sugarcane breeding program, crucial to accelerate the development of resistant varieties to manage parasitic pathogens, ensuring sustainability of the Australian sugarcane industry.

Key responsibilities	• Conduct research in Pathology including Disease screening, and microscopy of sugarcane roots. • Develop transcriptomic experiments designed for spatial RNA-seq on sugarcane roots. • Provide expertise in sequencing technology and bioinformatics to reinforce the project's capabilities. • Conduct and contribute to the writing up of research findings for dissemination of high quality and/or high impact research as a member of a team or independently and produce conference/seminar papers/publications/ reports from that research. • Demonstrates commitment to fostering the continuous development of a safer, healthier and more sustainable workplace at SRA, in a way that would be expected for this position. • Own your professional growth by engaging in development opportunities which enhance your skills and career. • Any other duties as required from time to time.
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Key success factors

Experience, knowledge and capabilities	Essential • PhD in Bioinformatics, Biotechnology, Genetics, Molecular Biology, Genetics, or a related field. • Strong experience in RNA sequencing (RNA-seq), and other high-throughput transcriptomic approaches. • Proficiency in computational analyses of large data sets such as transcriptomic data and demonstration of some expertise using R, Python, or Linux-based pipelines. • Ability to schedule work, record results in a clear, logical manner and organized, manner to maintain an effective working environment. • As the the project involves field trials, experience in phenotyping and integrating transcriptomics with agronomic traits is useful. Desirable • Demonstrated experience in Bioinformatics. • Experience in biological, molecular, life sciences with proficiency and expertise in plant molecular & cell biology. • Experience in Pathology. • A strong track record of publications in peer-reviewed journals related to plant computational biology. • Ability to work in an interdisciplinary team with molecular biologists and pathologists. • Strong communication skills for presenting findings at conferences and workshops.
Qualifications, licences and training	Essential • PhD in Bioinformatic, Molecular Genetics and Plant Pathology. Desirable • Experience in Phenotyping or allied field, or equivalent professional experience. • A current manual driver's licence is required to drive SRA vehicles.