**Position Overview**

We are seeking to appoint a postdoctoral fellow to work on a recently funded 5-year ARC Linkage program evaluating transport systems that underpin nitrogen efficient maize. Our research mandate is to functionally define nitrogen transport networks that operate in maize to better understand how nitrogen is acquired and redistributed across the plant nitrogen continuum from roots to developing seeds. The research program involves a close collaboration with our Industrial Partner DuPont-Pioneer (Johnston, Iowa US) and the Australian Centre For Plant Functional Genomics (Adelaide, AUS).

**Research Themes:**

1. Heterologous characterisation of maize nitrate and ammonium transport systems using yeast and *Xenopus laevis* oocytes.
2. Characterisation of the cellular and intercellular location and activity of nitrate transport pathways in maize.
3. Define the relationship between nitrogen and water delivery in maize.
4. Evaluation of the novel ammonium transport family AMF in maize.
5. Characterise the molecular regulation of $NH_4^+$ and $NO_3^-$ transport capacity across low, medium and high N responsiveness maize hybrids.

**Postdoctoral Position**

We are seeking a highly motivated, independent scientist with an interest in plant nutrient transport and demonstrated skills across multiple fields including, molecular biology, electrophysiology, membrane transport and bioinformatics. The successful candidate will be expected to deliver research outputs across a number of research themes (see above) but will primarily be responsible in the analysis of heterologously expressed nitrogen transport proteins using either yeast or *Xenopus laevis* oocytes. The applicant will be expected to help in supervision of postgraduate students and provide training in the use of yeast and *Xenopus laevis* oocytes as required. The position will involve annual travel between Adelaide and Des Moines Iowa (US) to participate in research meetings and shared experiments. The applicant will be part of a larger research group that includes research technicians, PhD and Honours students and will be expected to participate equally with others in lab management, promoting healthy and safe working practices.

- **Postdoctoral Fellow:** 1.0 X FTE Level A, Step 6 ($68,751 pa) plus 17% superannuation. The applicant will be appointed on a 2-year renewable contract where renewal is dependent on satisfying pre-determined performance-based measures.

**Location**

The position is based in the joint laboratories of Dr. Brent N. Kaiser and Professor Steve D. Tyerman at the Waite campus of the University of Adelaide. The Waite precinct is Australia's leading research, education and commercialisation cluster. It has the largest concentration of expertise in the Southern Hemisphere in the areas of plant biotechnology, cereal breeding, sustainable agriculture, wine and horticulture and land management. The

Waite's unique collection of a number of Australia's leading agricultural and environmental research organisations is home to ~1000 staff and postgraduate students. The annual research expenditure of the collocated partners is more than $110 million per annum. This research delivers outcomes of direct significance to both Australian and international agriculture and wine industries.

**Industry interaction, support and travel**

The successful candidate will benefit from an extensive collection of DuPont-Pioneer technical support to further research discovery. These technologies include, accelerated plant-based transformation and growth phenotyping capacities, field based plant analysis, nucleic acid and metabolomic technologies and associated bioinformatics support for data analysis. Research visits may be required to the Johnston Campus of DuPont-Pioneer located close to Des Moines Iowa.

**Application Process:**

Please e-mail your completed applications to Dr. Brent N. Kaiser (brent.kaiser@adelaide.edu.au). Your applications must:

- include your résumé/Curriculum Vitae
- address the selection criteria (see below)
- include residency status
- include the names, addresses and/or email details of three referees

**SELECTION CRITERIA:**

ESSENTIAL MINIMUM CRITERIA

1. A PhD degree (or near to completion) in a plant or biological field specialising in the molecular biology and/or biochemistry of membrane bound transport and/or regulatory proteins.
2. A good publication record in peer reviewed journals relevant to experience and opportunity.
3. A demonstrated capacity for self-motivated independent research.
4. Ability to communicate research results to academic audiences.
5. Ability to supervise and mentor students and technical staff.
6. Willingness to work in a strategic industrial-based context for the discovery of novel plant traits that improve crop productivity and sustainability.

DESIRABLE CHARACTERISTICS

1 Experience with yeast and/or *Xenopus laevis* heterologous protein expression systems.

2 Experience in electrophysiology and/or isotopic analytical techniques used for the study of membrane transport protein activity.

3 Knowledge and demonstrated application of current bioinformatics resources.

4 Demonstrated molecular techniques for routine molecular biological-based techniques, including: DNA cloning, sequencing, quantitative RT-PCR, DNA mutagenesis, light and fluorescent microscopy, transient and/or stable plant transformation.