Oregon State University
Department of Botany and Plant Pathology
Postdoctoral Scholar in grapevine genetic engineering

Position Information

Department: Horticulture (HORT)
Position Title: Postdoctoral Scholar
Job Title: Postdoctoral Scholar
Appointment Type: Fellow
Job Location: Corvallis
Position Appointment Percent: 100
Appointment Basis: 12
Faculty Status: Post Doctorate
Tenure Status: Fixed-Term
Pay Method: Salary
Recommended Full-Time Salary: starting at $54,840/year

Position Summary

The Department of Horticulture invites applications for a full-time (1.0 FTE), 24month, fixed-term Postdoctoral Scholar position with the possibility to extend another year. Reappointment at 12-month intervals will be at the discretion of the Department Head based on the annual performance review.

A postdoctoral scholar position is open in Dr. Laurent Deluc's laboratory to develop new tools for transgene-free gene editing. Developing an efficient CRISPR editing technology that produces transgene-free grapevine is paramount for the grape industry. Several approaches are currently being pursued within the grapevine community that primarily use RiboNucleoProtein as gene editing reagents to be delivered. The delivery was performed via biolistic, transfection to protoplasts, nanomaterial-complexation, and short peptide-facilitated transport. However, the inherent limitation of each technology suggested the need for additional editing toolkits to deliver performant gene-editing reagents with higher efficiency for editing while maintaining the plant-edited material transgene-free. One DNA-based delivery strategy, which has not been extensively visited in grapevine, is a self-replicating viral system delivered to the intact plant regenerable cells via Agroinfiltration-mediated transient assays. We seek a biotechnology plant biologist to join our team and build this potential platform as a new toolkit for transgene-free gene editing for clonally-propagated crops.

We are currently engaged in two research projects aiming to generate transgene-free gene-edited grapevines. The applicant will be responsible for developing this new transgene-free methodology using a geminivirus-related replicon. The applicant will use various cloning techniques (Gibson assembly, Golden Gate) to build the genetic cassette, wild-type, and tissue-cultured embryogenic cells of microvine. The applicant will use fluorescence and confocal microscopy techniques to assess the spatial and temporal dynamics of the gene editing in the targeted plant material after Agrobacterium transformation. The applicant will likely generate NGS data to validate the absence

of cassette insertion in the genome of the microvine. The research will be conducted primarily in the lab but will require the greenhouse's propagation and phenotyping of microvine plant material.

The applicant must have a Ph.D. recently defended in the biological sciences related to plant developmental biology, molecular biology, genetics, or genomics. Required skills include basic molecular biology, cloning, plant tissue culture, and genetic engineering. Preferred skills include bioinformatic skills for large-scale sequencing data.

The applicant will work closely with the project PI, one research associate, graduate and undergraduate students and will be responsible for analyzing results, writing manuscripts, and contributing to developing research approaches and directions. No prior postdoctoral experience is required. The position will be renewed annually, dependent upon achieving project goals. The position is based at Oregon State University, Corvallis, Oregon.

To be considered for this position, send a CV, copies of up to three relevant publications, a cover letter that includes 1) professional interests, 2) general research interests, and 3) dimensions of diversity important to your career, and the names and contact information for up to three references to delucl@oregonstate.edu. Please include “Gene Editing Postdoc” in the subject header. Informal inquiries are welcome at the same address. The review of applications will begin on November 15, 2022, and will continue until the position is filled. The position start date is negotiable and can be deferred based on the applicant's need.

Position Duties

75% Research

- Design and develop self-replicating viral vector(s) containing variant gene editing reagents.
- Agrobacterium-mediated transformation of embryogenic and meristematic grapevine tissues
- Test hypotheses for the regeneration of transgene-free gene-edited grapevine plant tissues

20% Writing and Reporting

- Carefully experimental designs and the characterization
- Write manuscripts based on results from experiments
- Present posters and/or talks at regional and national meetings

5% Service

- Contribute to departmental or professional committees and outreach activities

Minimum/Required Qualifications

Recent (no earlier than 07/2020) Ph.D. in the biological sciences related to developmental biology, molecular biology, genetics, or biotechnology

Basic molecular biology skills, understanding of plant anatomy, and hands-on familiarity with tissue and genetic transformation.

Preferred (Special) Qualifications:

A demonstrable commitment to promoting and enhancing diversity

Working Conditions / Work Schedule:

The research will be conducted in the lab and greenhouse.

Posting Detail Information:

Number of Vacancies: 1
Anticipated Appointment Begin Date: 12/01/2022
Anticipated Appointment End Date: 11/30/2024
Posting Date: 09/07/2022
Closing Date: open until filled

Special Instructions to Applicants

When applying, you will be required to attach the following electronic documents:

1) A resume/CV; and
2) A cover letter indicating professional interests, general research interests, and dimensions of diversity important to your career.
3) You will also be required to submit the names of at least three professional references and their e-mail addresses as part of the application process.

For additional information, please contact: Laurent Deluc at delucl@oregonstate.edu

OSU commits to inclusive excellence by advancing equity and diversity in all we do. We are an Affirmative Action/Equal Opportunity employer and particularly encourage applications from members of historically underrepresented racial/ethnic groups, women, individuals with disabilities, veterans, LGBTQ community members, and others who demonstrate the ability to help us achieve our vision of a diverse and inclusive community.