

Staff Research Position Available



Experimental Studies of Ultraconservation and Gene Regulation by Nonsense-Mediated mRNA Decay Induced by Alternative Splicing

Understanding an ultraconserved newly-discovered means of gene regulation

**Research Group of Steven Brenner
University of California, Berkeley**

Project background

Nonsense-mediated mRNA decay (NMD) is a cellular RNA surveillance system that recognizes transcripts with premature termination codons and degrades them. We discovered large numbers of natural alternative splice forms that appear to be targets for NMD, and this has proven to be a mode of gene regulation. We found that all members of the SR family of splice regulators have an unproductive alternative mRNA isoform targeted for NMD. Strikingly, the splice pattern for each is conserved in mouse and always associated with an ultraconserved or highly-conserved region of 100 or more nucleotides of perfect identity between human and mouse. Remarkably, the unproductive splicing and exceptionally conserved sequences seem to have evolved independently in nearly every one of the genes, suggesting that this is a facile mode of regulation.

Job description

Our computational experimental studies have identified thousands of human alternative isoforms that are likely targets of NMD, some of which are associated with ultraconserved elements. This position is for an individual to provide skilled technical experimental support for a research effort to understand:

- The regulatory role of alternative splicing coupled to NMD, targeting mRNAs for degradation
- The functional significance and evolutionary mechanisms that underlie ultraconserved elements

The Staff Research Associate will use a variety of RNA molecular biology technologies, cell culture, RNA biochemistry, as well as newer approaches including RNA-Seq high-throughput sequencing, microfluidic massively-parallel quantitative real time PCR, and ZFN genome editing.

Position requirements

Candidate must have a bachelor's degree in molecular biology or related field with strong references. The ideal candidate will be a skilled experimentalist in some area of RNA biology and capable of learning new technologies. As this position will involve working closely with both experimentalists and computational biologists, communication skills and the demonstrated ability to work independently will be weighted heavily.

The Berkeley academic environment

The Brenner lab is an interdisciplinary research group at the University of California, Berkeley, one of the world's premiere research universities. We are associated with the Department of Plant and Microbial Biology, the Department of Molecular and Cell Biology, the Department of Bioengineering, as well as the University of California, San Francisco and Lawrence Berkeley National Lab. Professor Donald C. Rio is Co-Investigator of this project; he and his group are close collaborators.

The University of California, Berkeley ranks first nationally in the number of graduate programs in the top 10 in their fields, according to the most recent National Research Council study. Berkeley is committed to diversity in its staff, faculty, and student body, and invites all qualified people to apply, including minorities and women, veterans and individuals with disabilities. The salary range for this position is \$34,860–\$47,100 commensurate with experience and qualifications. Information about Berkeley's outstanding benefits are at:

http://atyourservice.ucop.edu/forms_pubs/misc/benefits_of_belonging.pdf. Please refer to the University's

statement on confidentiality, found at <http://apo.chance.berkeley.edu/evalltr.html>. The University of California is an Equal Opportunity/Affirmative Action Employer.

Interested applicants MUST apply through the UC Berkeley Jobs site at <http://jobs.berkeley.edu> using Job ID 10082.

Your application should include a statement of interest, CV, transcript, and names of at least three references.

Please ALSO send your complete application to jobs@compbio.berkeley.edu.

For more information, see <http://compbio.berkeley.edu/>