

Oracle for Research — Application Form

Oracle for Research collaborates with researchers and university entrepreneurs to find solutions to humankind's complex, disruptive, and high-impact social, environmental, economic, and technical challenges, bringing about positive, transformational change in the world. Through the Oracle for Research program, Oracle grants Oracle Cloud credits to accelerate research and discovery.

- Oracle does not mine or monetize your research data. [Learn more here.](#)
- Researchers must apply for and have their projects accepted by Oracle for Research to receive Oracle Cloud credits.
- Information collected in this application is confidential and is used only in conjunction with the Oracle for Research program. We will not share or use your information for marketing or other public purposes without your express permission.
- Oracle Cloud credits awarded may be used for Oracle Cloud Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) [products](#), based on general availability at the time the Oracle Cloud credits are used.
- Awarded Oracle Cloud credit amounts will vary depending on the proposal and usage requirements documented in the application form.
- Oracle for Research accepts project proposals based on criteria that include the potential impact of the project, the extent to which Oracle Cloud will likely have a positive effect on the project success, and the research experience of the PI and their institution.
- Additional signatures or acceptance of Oracle's Cloud Service Agreements will be required prior to Cloud credit activation.
- Oracle for Research program availability is subject to regional restrictions.
- Oracle for Research reserves the right to refuse applications that do not align to [Oracle's values](#).

To be considered, please complete this form and submit it by email to: OracleForResearch_ww@oracle.com

Application Form:

1. Please provide your information:

First name: Jean
Last name: Ettics
Job title: Professor, Department of Neuroscience
Institution: Cloud State University
Institutional email address: Jean.Ettics@csu.edu
Institution street address: 1234 Science Way
Institution city: Austin
Institution state/province: Texas
Institution country: United States
Institution mail/zip code: 78713
Institute tax ID (optional): ABC1234567
Phone number: 512-123-4567
Time held in current job title at institute: 2 years

2. Who is the lead researcher conducting the work on this project?

- a. Me Someone Else
- b. If someone else, please provide:

Name: Huxley Hodgkin
Job title: Postdoctoral Research Fellow
Institution: Cloud State University
Institutional email address: HHuxley@csu.edu
Phone number (optional):
Time held in current job title at institute: 18 months

3. Do you have any academic or institution partners or collaborators on this project?

- a. Yes No
- b. If yes, provide names and job titles:

The Nernst Institute of Neuroscience

4. Do you have an existing Oracle account?

- a. Yes No
- b. If yes, please provide:

Cloud account email address: HHuxley@csu.edu
CSI number: 1234567
Cloud account name (optional): neurocsu

5. Do you have any existing contacts within Oracle?

- a. Yes No
- b. If yes, provide names and job titles:

John Smith, Oracle Technical Architect

6. How did you hear about Oracle for Research?

- Colleague / Mentor / Other Researcher
- Web Search
- Social Media
- Event
- Advertisement
- I've worked with Oracle for Research before
- Other: _____

7. Who will act as your primary technical contact (e.g. who will own and administer the Oracle Cloud tenancy)?

- a. Me Someone Else
 b. If someone else, provide:

Name: Rosa Franklin

Job title: Professor, Department of Genetics

Institutional email address: Rosa.Franklin@dna.csu.edu

8. Is your institution aware and supportive of your application to the Oracle for Research Program?

- Yes No

9. Have all approvals required by your institution to submit this application been obtained?

- Yes No

10. Who is the Legal Signature Authority who will receive the quote and agree to the contract terms on behalf of the academic institution?

- a. Me Someone Else
 b. If someone else, provide:

Name: Charlie D'Win

Institutional email address: Charles.Dwin@csu.edu

Project Details:

11. Provide details of your project:

Research project name: Understanding and Detecting Sudden Unexpected Death in Epilepsy (SUDEP) in SCN8A Encephalopathy

Proposed project duration (months): 12

Research public relevance, description and goals:

SCN8A encephalopathy is a rare and devastating neurological disorder that arises from de novo, gain-of-function mutations in the SCN8A gene. The SCN8A gene encodes for the voltage-gated sodium channel isoform Nav1.6, a protein that is found throughout the body with an abundance of expression found in the central nervous system (CNS). In SCN8A encephalopathy, gain-of-functions in the SCN8A gene result in hyper excitability of Nav1.6 channels. The results of these gain-of-function mutations in SCN8A encephalopathy are devastating to patients given the prevalence of Nav1.6 throughout the body. Patients develop seizure onset between 0-18 months of age and these seizures are often refractory to treatment. Additionally, patients often suffer from severe cognitive impairments, developmental delay, GI/respiratory dysfunction, and mild to severe motor disorder. Sudden unexpected death in epilepsy (SUDEP) is also prevalent in approximately 10% of SCN8A patients. Our understanding of SUDEP in SCN8A encephalopathy is currently inadequate. Using EEG recordings from a mouse model of SCN8A encephalopathy, we aim to analyse seizures in our mice over time with a novel machine learning algorithm created in

our lab. Our goals will be to try to better understand when and why SUDEP occurs in our mouse model and if any current or experimental antiepileptic medications can prevent or delay this event from occurring. If successful, we believe our experiments will help determine when and what treatment an animal should receive to prevent the occurrence of SUDEP.

12. Provide expected milestones (milestones should outline expected progress at regular intervals throughout the project):

Milestone #1 summary: Data Migration & Setup

Estimated completion date: 31-March-2022

Description: Migrate the Ettics's lab EEG database to Oracle Cloud and get acclimated to using OCI

Milestone #2 summary: Training

Estimated completion date: 30-June-2022

Description: Train our novel machine learning algorithms on previous data from control and SCN8A mice.

Milestone #3 summary: Prediction

Estimated completion date: 30-Sept-2022

Description: Use our machine learning algorithm to predict the probability of SUDEP in SCN8A mice in real time using collected data.

Milestone #4 summary: Observation & Conclusion

Estimated completion date: 31-Dec-2022

Description: Observe how approved and experimental antiepileptic drugs alter seizure frequency and power spectrum. Gather evidence for which drugs are most successful at delaying or preventing SUDEP.

(Add additional milestones as needed)

13. How will a cloud credit award from Oracle improve, advance or accelerate your research?

This award from Oracle for Research will help our research in multiple ways. First, this award will give us access to significantly improved computational resources that will expand our lab's research capabilities and decrease our analysis latency time. Additionally, this award will help improve our lab's overall productivity. We believe the results from this project will lead to a publication in a high impact journal and provide preliminary data for our next grant submission.

14. Will this project result in the creation of a publicly available database or research tool? Yes No

This project will produce a novel, open source dataset containing hundreds of recorded seizures from our SCN8A mouse model. This dataset can be used by other researchers in the field for their unique studies. Additionally, our novel machine learning algorithm developed during this project will be made publicly available on our lab's GitHub page.

15. What is the primary field of research for this project?

Select one:

- Advanced Engineering (e.g.: aerospace, automotive, civil, manufacturing)
- Agricultural Sciences
- Artificial Intelligence and Machine Learning
- Business (e.g: supply chain)
- Cognitive and Behavioural Sciences
- Computer Science
- Environmental and Earth Sciences (e.g.: climate studies, ecology, geology, meteorology)
- Energy (e.g.: oil and gas, alternative fuels, utilities)
- Law
- Life Sciences (e.g.: healthcare, medical and pharmaceutical)
- Physical Sciences (e.g.: physics, chemistry, astronomy, astrophysics)
- Social Sciences (e.g.: anthropology, economics, jurisprudence, political science, sociology)
- Other (please specify):

Cloud Infrastructure:**16. Anticipated computing infrastructure requirements:**

Select at least one:

- Not sure / consultation required
- Artificial Intelligence / Machine Learning
- Analytics
- CPU Compute
- Database / Data Warehouse
- GPU Compute
- High-Capacity Networking
- High-Speed Networking
- High Performance Computing
- Storage
- Other (please specify):

17. Do you have cloud services or databases that need to be migrated to Oracle Cloud? Yes No

18. Which cloud infrastructure platforms have you used for your research, currently or in the past?

- I have not used cloud computing in my research work
- Amazon Web Services (AWS)
- Google
- IBM
- Microsoft Azure
- On-Premise Infrastructure
- Other (please specify):

19. Please describe or estimate what technical support will be required to transition and conduct your research on Oracle Cloud, if any (e.g. infrastructure support, tools support, data loading support, admin support, etc.):

We anticipate needing initial support acclimating the OCI environment and minimal sporadic support at intervals throughout the duration of the project.

20. Does your project require any specific privacy restrictions or security requirements?

Select at least one:

- My data has no extra restrictions or required protections
- Data sets that include personally identifiable information (PII)
- GDPR restricted data
- Geographically restricted data (e.g. my data must remain within my country borders)
- HIPAA restricted data
- Proprietary data
- UK government data
- US federal data requiring FEDRAMP certifications
- Other (please specify):

Oracle meets a broad set of international and industry specific compliance standards for service deployments in Oracle Cloud. [Learn more here.](#)

21. Will you be willing to share benchmark data or other Cloud-performance related data with Oracle (for example, comparing Oracle's cloud infrastructure with on-premises or an alternative cloud infrastructure provider)?

- Yes No

Project Support:**22. Is this research project supported or funded by an external agency or organization?** Yes No

This project is funded for two years at \$250k per year by the Academy of Epilepsy Research.

23. Are you aware of any ongoing sales transactions or open requests for proposals (RFPs) between Oracle and your institution? Yes No**24. Do you intend to submit papers resulting from this project?** I plan to submit my papers

We anticipate that this project will result in two peer-review scientific papers. Potential journals to target will be Epilepsia, Journal of Neuroscience, and Brain.

 I don't intend to submit my papers to peer-reviewed journals I don't intend to publish my results anywhere**25. While we cannot select every project for featured marketing and PR, outreach initiatives within the research community are both valuable and appreciated by Oracle.**

Please select all options that apply to you:

 I am willing to act as a reference for future customers I am willing to write a guest article with my by-line included for the Oracle for Research blog about my work I am willing to be featured as an Oracle for Research case study I am willing to discuss my work with Oracle for Research at seminars within my university or organization I am willing to discuss my work with Oracle for Research in external webinars, meetings and conferences I am willing to act as a collaborator or learning resource to other Oracle for Research participants I am willing to participate in PR activities with Oracle I am not willing to share my work or participate in any reference, marketing or PR activities related to this project