HAWAII PACIFIC NEUROSCIENCE

Annual Report 2024

Click above to see How N-Lorem and Hawaii Pacific Neuroscience Foundation worked together on Translational Research Single Center, Single Participant Study of An Experimental ASO (Antisense Oligonucleotide) ATN1 Mutation Treatment for World's 2nd Dentatorubral-Pallidoluysian Atrophy Patient (FDA IND 173123)

Our Commitment to Excellence in Neuroscience Care, Research & Services in Hawaii

HONOLULU

2230 Liliha Street #104
Honolulu, Hawaii 96817, USA

WEST OAHU

94849 Lumiaina Street #203
Waipahu, Hawaii 96797

Call or Text (808) 261-4476 Fax (808) 263-4476
Dedicated Research Line (808) 564-6141, Fax (808) 443-0774
www.HawaiiNeuroscience.com
Online Referral Form

About the Neuroscience Institute

Hawaii Pacific Neuroscience (HPN) is made up of over 20 different disease-specific, “one stop shop” centers of excellence provided by interdisciplinary collaborative team in neuroscience where the patient is the center and focus of all we do here.

Our mission is focused on:

- Care and services of highest quality including groundbreaking innovative research therapies
- Convenient access & locations
- Cost efficient care delivery pathways with measurable quality outcome data
- Culture of servant leadership – to teach & mentor and to care for all regardless of payment abilities

Click to View Video Introduction

https://www.youtube.com/watch?v=YTaER2HbiAg

History

Hawaii Pacific Neuroscience was founded in 2009 by Kore Kai Liow, MD and his wife, Michelle Liow after they moved to the island to retire only discover that patients must wait a long time to have access to quality neuroscience care especially those underserved populations in Hawaii. See full story featured on Hawaii KITV News Station.

https://www.youtube.com/watch?v=I5I4s_WCFI8

HAWAII PACIFIC NEUROSCIENCE

2024 -Celebrating 15 Years of Serving Your Ohana

Lives changed because of our compassionate care	> 15,000 & Growing
Underserved, uninsured patient visits	>10,000 & Growing
Uncompensated care we provided	>$2 million & Growing
Mainland Travel for Advanced care & research avoided	> 900 & Growing
Unique Lives & hope restored because of Clinical Trials	205 & Growing
Groundbreaking research brought to Hawaii	18 & Growing
Research investments brought to Hawaii	> $3 million & Growing
Local partners & economy we support	34 & Growing
Local Doctors, staff careers we nurture & support	62 & Growing
Residents, Med & Research Students we nurture	123 & Growing
PubMed Peer reviewed full length scientific publication	6 & Growing
Patients turned away because of payment ability or “quota”	0
Types of health Insurance not accepted	0
Trust YOU, our patients, local & global partners have in us	Priceless
Difference made in precious lives of patients & families	Priceless

Celebrating our Amazing Doctors and Staff
2024 Christmas Waikiki Sail
MAHALO for your Hard Work, Dedication to Serving our Precious Patients


Our Doctors and Researchers

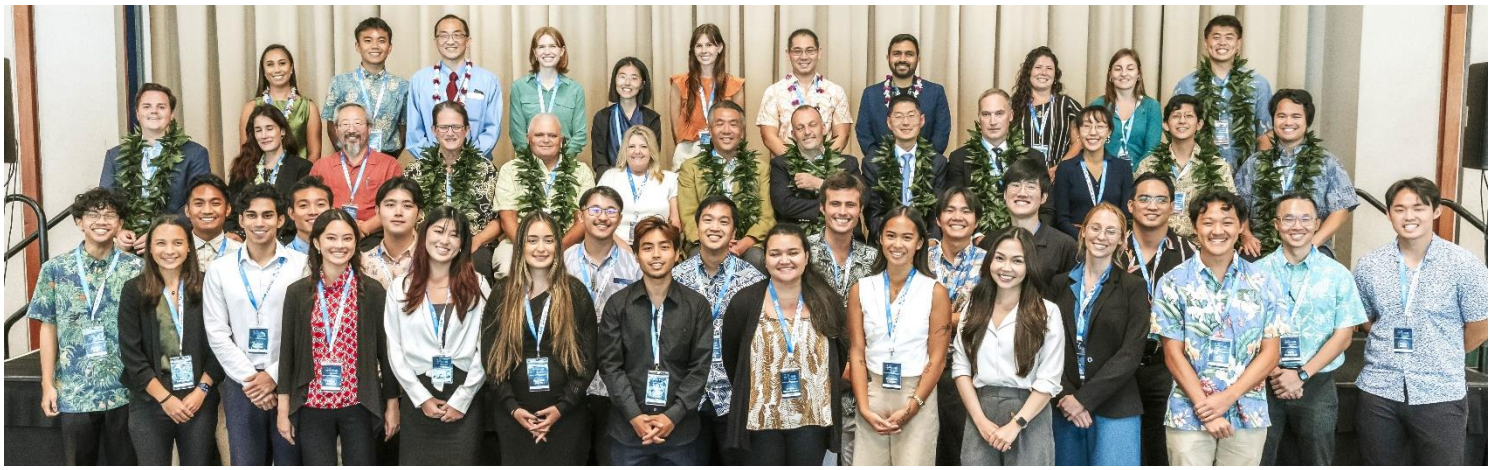

Our amazing 60+ Crew with Captain


Our Dedicated Research Team

15TH ANNIVERSARY HPNS HAWAII PACIFIC NEUROSCIENCE Symposium

SUMMARY of Oct 19th 2024 Symposium

Governor of Hawaii Josh Green, M.D. commented that: *"The incredible research presented by the students today is a testament to the future of healthcare in Hawai'i, and I couldn't be prouder of the strides we're making together. Seeing these students—many of whom are from right here in Hawai'i-working toward becoming doctors who will serve our people fills me with hope. They are the next generation of healers, ready to carry forward the mission of compassionate, world-class care for our islands."*



Mahalo to the more than 250 participants, conference organizing committee, speakers and judges for investing in our students and the next generation of physician leaders. Congratulations to the residents and students who presented over 40 posters and the winners as you are our hope for the future. Mahalo to our sponsors who made it possible to have this event as your investment and partnership to extend care and research to Hawaii's people is changing lives. Most of all to our patients and your advocates, as you are the reason why we have this symposium and the inspiration for all that we do!

Keynote speaker Michael Lim, M.D., Professor and Chair, Dept. Neurosurgery, Stanford University commented that, *"I sense the pride and happiness of Hawaii's teams for they are in complete alignment of your vision to help the people of Hawaii. It was easy to see that they all had a sense of meaning in what they do."*

Join us for 2025 Hawaii Neuroscience and Research Symposium-

August 16th, 2025, Saturday

with Guest of Honor **Sam Shoemaker, MD**

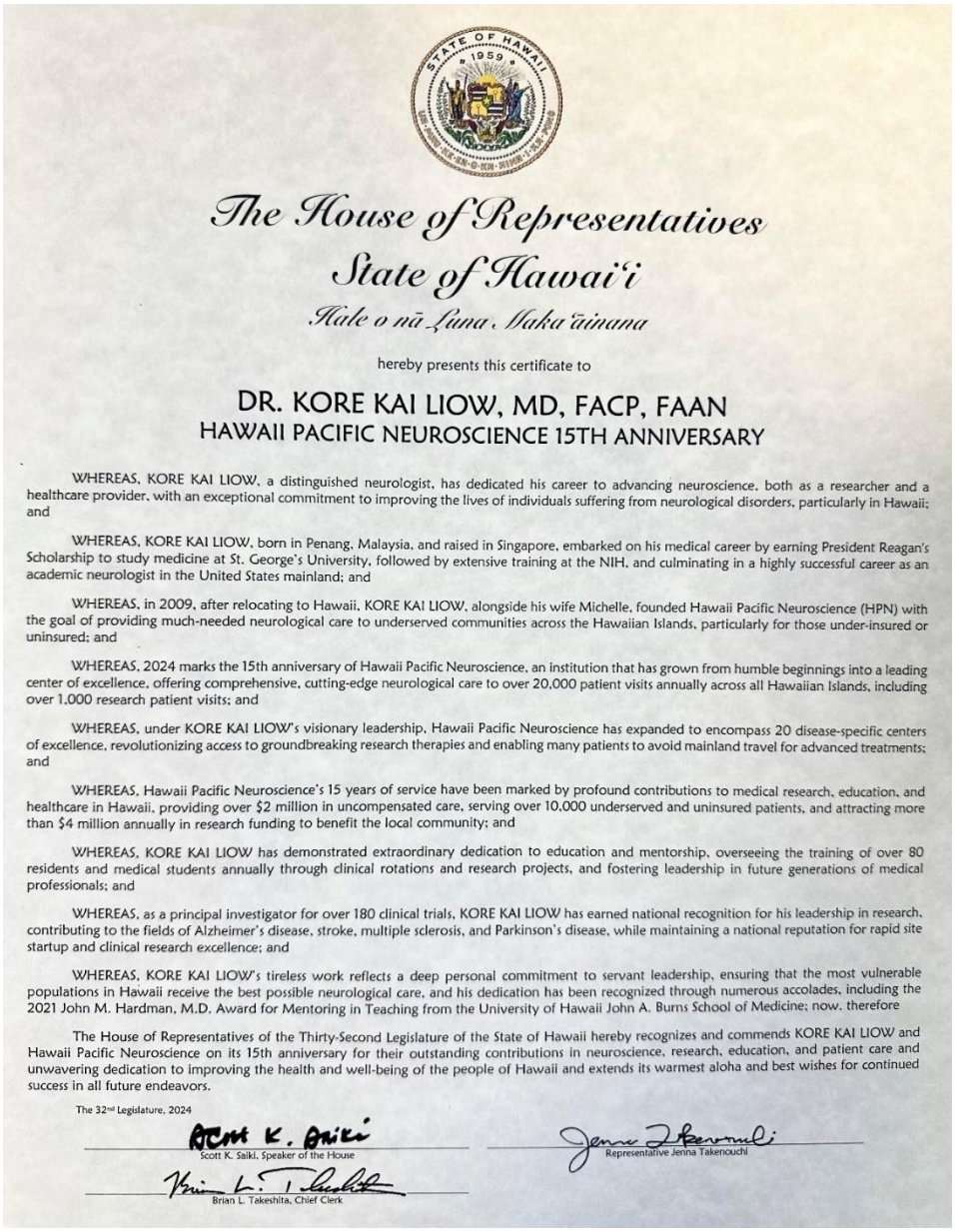
New Dean, University of Hawaii John Burns School of Medicine.

More information: kko@HawaiiNeuroscience.com, kliow@hawaii.edu

2024 Symposium Abstracts and Program Available Online

Oct 19th, 2024 Honolulu, Hawaii. Mahalo to: *Hawaii State* ***Governor Joshua Green, MD*** *for joining us in recognizing the amazing physicians, researchers and dedicated staff of Hawaii Pacific Neuroscience on their 15th anniversary.*

Hawaii State ***House of Representatives****, 32nd Legislature for presenting our 50+ physicians, researchers and staff (represented by Kore Kai Liow, MD) with certificate to recognize their dedication and commitment in serving the underserved in Hawaii, attracting advanced treatments and research to our islands to benefit local community, mentoring residents, students and next generation healthcare leaders for Hawaii.*



The House of Representatives
State of Hawai'i
Hale o nā Lunā Maka'āinana

hereby presents this certificate to

DR. KORE KAI LIOW, MD, FACP, FAAN
HAWAII PACIFIC NEUROSCIENCE 15TH ANNIVERSARY

WHEREAS, KORE KAI LIOW, a distinguished neurologist, has dedicated his career to advancing neuroscience, both as a researcher and a healthcare provider, with an exceptional commitment to improving the lives of individuals suffering from neurological disorders, particularly in Hawaii; and

WHEREAS, KORE KAI LIOW, born in Penang, Malaysia, and raised in Singapore, embarked on his medical career by earning President Reagan's Scholarship to study medicine at St. George's University, followed by extensive training at the NIH, and culminating in a highly successful career as an academic neurologist in the United States mainland; and

WHEREAS, in 2009, after relocating to Hawaii, KORE KAI LIOW, alongside his wife Michelle, founded Hawaii Pacific Neuroscience (HPN) with the goal of providing much-needed neurological care to underserved communities across the Hawaiian Islands, particularly for those under-insured or uninsured; and

WHEREAS, 2024 marks the 15th anniversary of Hawaii Pacific Neuroscience, an institution that has grown from humble beginnings into a leading center of excellence, offering comprehensive, cutting-edge neurological care to over 20,000 patient visits annually across all Hawaiian Islands, including over 1,000 research patient visits; and

WHEREAS, under KORE KAI LIOW's visionary leadership, Hawaii Pacific Neuroscience has expanded to encompass 20 disease-specific centers of excellence, revolutionizing access to groundbreaking research therapies and enabling many patients to avoid mainland travel for advanced treatments; and

WHEREAS, Hawaii Pacific Neuroscience's 15 years of service have been marked by profound contributions to medical research, education, and healthcare in Hawaii, providing over $2 million in uncompensated care, serving over 10,000 underserved and uninsured patients, and attracting more than $4 million annually in research funding to benefit the local community; and

WHEREAS, KORE KAI LIOW has demonstrated extraordinary dedication to education and mentorship, overseeing the training of over 80 residents and medical students annually through clinical rotations and research projects, and fostering leadership in future generations of medical professionals; and

WHEREAS, as a principal investigator for over 180 clinical trials, KORE KAI LIOW has earned national recognition for his leadership in research, contributing to the fields of Alzheimer's disease, stroke, multiple sclerosis, and Parkinson's disease, while maintaining a national reputation for rapid site startup and clinical research excellence; and

WHEREAS, KORE KAI LIOW's tireless work reflects a deep personal commitment to servant leadership, ensuring that the most vulnerable populations in Hawaii receive the best possible neurological care, and his dedication has been recognized through numerous accolades, including the 2021 John M. Hardman, M.D. Award for Mentoring in Teaching from the University of Hawaii John A. Burns School of Medicine; now, therefore

The House of Representatives of the Thirty-Second Legislature of the State of Hawaii hereby recognizes and commends KORE KAI LIOW and Hawaii Pacific Neuroscience on its 15th anniversary for their outstanding contributions in neuroscience, research, education, and patient care and unwavering dedication to improving the health and well-being of the people of Hawaii and extends its warmest aloha and best wishes for continued success in all future endeavors.

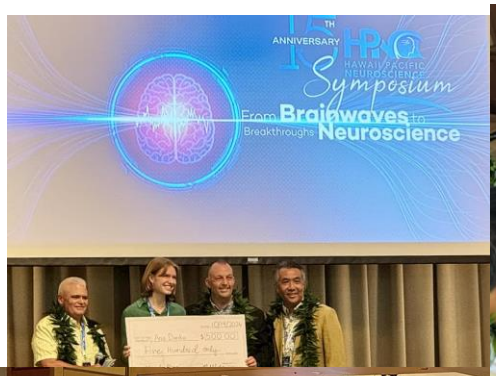
The 32nd Legislature, 2024

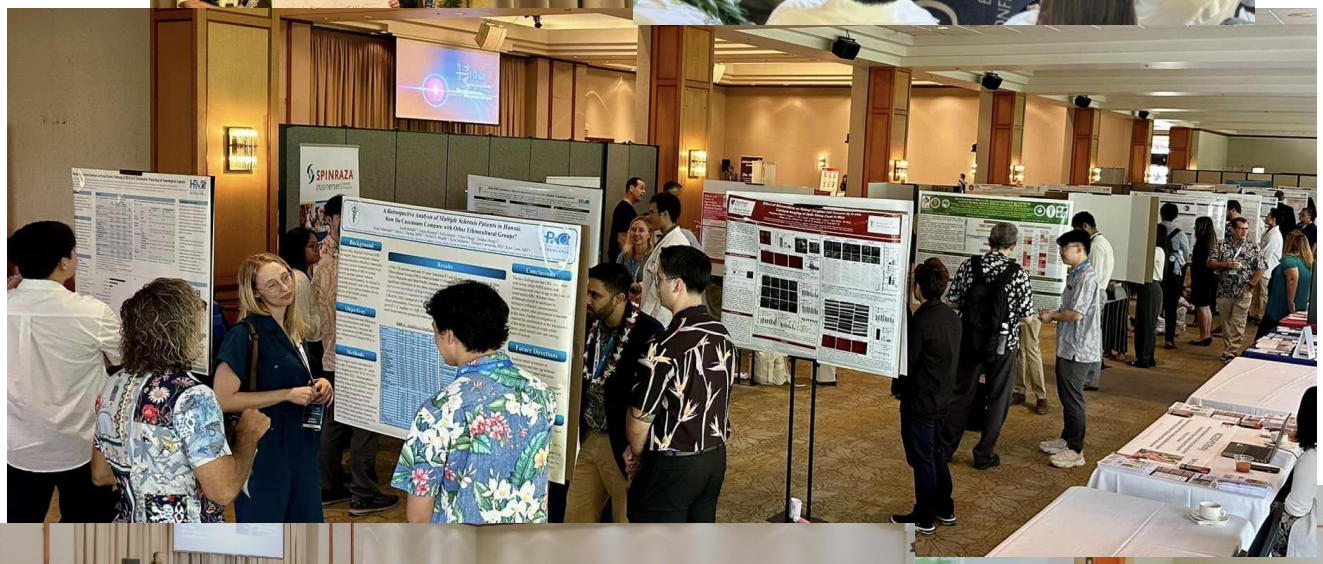
Scott K. Saiki, Speaker of the House

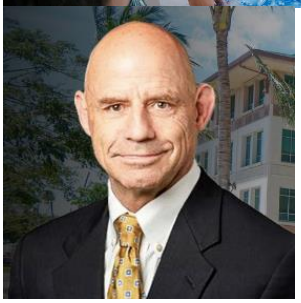
Representative Jenna Takenouchi

Brian L. Takeshita, Chief Clerk

2024 Hawaii Neuroscience Research Symposium Oct 19th, 2024







2024 Symposium Abstracts, Speakers, Judges and Program
2024 Symposium Pictures

Join us for 2025 Hawaii Neuroscience and Research Symposium-

August 16th, 2025, Saturday
with Guest of Honor Sam Shoemaker, MD
New Dean, University of Hawaii John Burns School of Medicine.
More information: https://hawaiineuroscience.com/hpnevents/

kko@HawaiiNeuroscience.com, kliow@hawaii.edu

HAWAII PACIFIC NEUROSCIENCE

Symposium

2025 Hawaii Neuroscience Symposium

Innovations in the "Golden Age" of Neuroscience

August 16th, 2025, Saturday 8:00 – 4:00PM

Honolulu, Hawaii

More information; kko@HawaiiNeuroscience.com

Highlights of Innovations & Medical Breakthroughs in Hawaii
Sam Shomaker, M.D.
Professor and Dean, University of Hawaii John Burns School of Medicine

How Hawaii is Leading Innovation In Neuroscience
Kore Kai Liow, M.D.
HPN Neuroscience Chair & Clinical Professor of Medicine (Neurology), Clinical & Translational Research,University of Hawaii John Burns School of Medicine

Innovations in Rewiring Headache & Pain Pathways
Eonjung Angeline Kim, M.D.
Director, Headache & Facial Pain Center, Clinical Assistant Professor of Medicine (Neurology), University of Hawaii John Burns School of Medicine

Epilepsy - Seizing the Opportunity
Darren DuGas, M.D.
Co-Director, Comprehensive Epilepsy Ctr Director, Video-EEG Epilepsy Monitoring Unit, Clinical Assistant Professor of Medicine (Neurology), University of Hawaii John Burns School of Medicine

Emerging Trends in Neuroscience – Are We Living in the Golden Age of Neuroscience?
David Baskin, M.D.
Presidential Distinguished Chair & Residency Program Director, Dept. Neurosurgery, Houston Methodist Hospital

Innovations in Sleep Apnea
Nicholas Anderson, M.D.
Clinical Lead & Director, Sleep and Insomnia Center, Clinical Assistant Professor of Medicine (Neurology)
U of Hawaii John Burns School of Medicine

Break Throughs in Neuroimmunology -MS and Neuromuscular Diseases
Natalia Gonzalez Caldito, M.D.
Director –MS & Neuroimmunology Center, ALS and Neuromuscular EMG Center, IV Infusion Ctr Clinical Assistant Professor of Medicine (Neurology) University of Hawaii John Burns School of Medicine

Alzheimer's & Parkinson's Disease Innovations
Michael Sonson, M.D.
Cognitive Neurology Fellow, Cedar Sinai UCLA, Kore Kai Liow, M.D.
Interim Director, Memory Disorders Center, Clinical Professor of Medicine (Neurology), University of Hawaii John Burns School of Medicine

Brain Research, Innovation & Translation Laboratory (BRITL) foster collaboration, bench to bedside translation and a culture of innovation and collaboration between departments, centers, institutions, and outside organizations.

Physicians and scientists of diverse backgrounds work closely within and across centers, institutes, and schools to collaborate whether they are basic laboratory-based scientists, bio statisticians or clinicians to encourage cross disciplinary translation bench to bedside research. Our diverse faculty also mentor aspiring diverse residents, medical students & select graduate and undergraduate students under the Hawaii Neuroscience Scholar Program -
Brain Research, Innovation and Translation Lab (BRITL) &
Summer Internship Program (SIP)
Alzheimer's Neural Network EEG Research Lab

2024 BRITL Graduates

2024 BRITL Scholars and Interns

Celebrating Hawaii 2024 Match BRITL

(Brain Research, Innovation & Translation Lab)

Scholar Graduates

Frances Morden	Neurosurgery	University Texas Galveston
Connor Goo	PM & R	University Michigan
Richard Ho	Radiology	Mount Sinai New York
Kyung Moo Kim	Psychiatry	University Hawaii
Michelle Pang	OB-GYN	Cedar-Sinai Medical Center
Joo Won Choi	Neurology	UCSD
Vera Ong	Neurosurgery	Stanford
Rachel Lew	Surgery	Mayo Rochester
Kayti Luu	OB-GYN	University Hawaii
Max Nakamoto	Psychiatry	UCSF
Michelle Stafford	Psychiatry	University Hawaii
Yi Yu	Pediatrics	University Hawaii
Maverick Abella	Orthopedic Surgery	Cedar-Sinai Medical Center

(2024 BRITL Graduates)

Congratulations & Welcome
2024-2025 BRITL Scholars & Medical Students

The Brain Research, Innovation & Translation Laboratory (BRITL) Neuroscience research program is part of the University of Hawaii John Burns School of Medicine MD5 MED 599 Neuroscience Research Course. University Hawaii medical students may sign up for elective credit while working at BRITL in MD5 MED 599 Neuroscience research credit.

BRITL is part of Hawaii Pacific Neuroscience's robust clinical and academic research programs where we foster a culture of innovation and collaboration. Physicians and scientists work closely within and across centers, institutes, and schools to collaborate whether they are basic laboratory-based scientists, bio statisticians or clinicians to encourage cross disciplinary translation bench to bedside research. BRITL students work alongside and collaborate with at Hawaii Pacific Neuroscience Clinical Research Center whose ground breaking work is funded by NIH and other agencies and recognized nationally.

2024 2025 BRITL Scholars/Medical Students

Tyrone John Sumibcay, MS2, *Program Leader*
Matthew Kao, MS2, *Program Leader*
Janette Keola, MS2, *Program Leader*
D-Dré Wright, MS3, *Program Mentor*
Anita Cheung, MS3, *Program Mentor*
Ryan Nakamura, MS3, *Program Mentor*
Shay Nakahira, MS3
Kirra Borrello, MS3
Bradon Hong, MS3
Jonathan Carino, MS3
Nina Krupa, MS3
Eli Snyder, MS3
Erin Kim, MS2
Kylie Yamauchi, MS2
Ryan Nishi, MS2
Jiwoo Kim, MS2
Erin Evangelista, MS2
Megan Kawamura, MS2
Nina Krupa, MS2
Michael Read, MS2
Jan Augustine Aurelio, MS1
Mitch Cadiz, MS1
Xavier Heidelberg, MS1
Albert Jiang, MS1
Matthew Ko, MS1
Kevin Nguyen, MS1
Cameron Nishida, MS1
Shashi Sharma, MS1
Jenna Tsuzaki, MS1
Yash Vyas, MS1

2023-2024 Publications & International Presentations

2024 Hawaii Research Symposium Abstract

Questions, contact BRITL Program Director Kore Kai Liow, MD, kliow@hawaii.edu
Info: Brain Research, Innovation, Translation Labs. Summer Internship Opportunities

2023-2024 Full Length PUBMED Indexed Publications

Borrello K, Nakahira S, Fontana P, Guittu D, Hunter C, Lee A, Jahansooz J, Weldon E 4th, Roman M, Ahn HJ, Carrazana E, Liow K. Progression of Dopaminergic Therapy Changes in Parkinson's Disease in Asian and Native Hawaiian and Pacific Islander Populations. Mov Disord Clin Pract. 2024 Nov 18;. doi: 10.1002/mdc3.14280. [Epub ahead of print] PubMed PMID: 39555887.

Meropol SB, Norris CJ, Frontera JA, Adeagbo A, Troxel AB; COVID-19 Neuro Databank/Biobank Consortium. The National Institutes of Health COVID-19 Neuro Databank/Biobank: Creation and Evolution. Neuroepidemiology. 2024 Jun 26:1-13. doi: 10.1159/000539830. Epub ahead of print. PMID: 38934169.

Tiffany Cava Morden F, Xin Liang B, Nguyen L, Carrazana E, Ghaffari-Rafi A, Kai **Liow K**. Partial Rhombencephalosynapsis Presenting in an Adult with Cerebello-Trigeminal-Dermal Dysplasia. Epilepsy Behav Rep. 2024;27:100688. doi: 10.1016/j.ebr.2024.100688. eCollection 2024. PubMed PMID: 39050404; PubMed Central PMCID: PMC11268192.

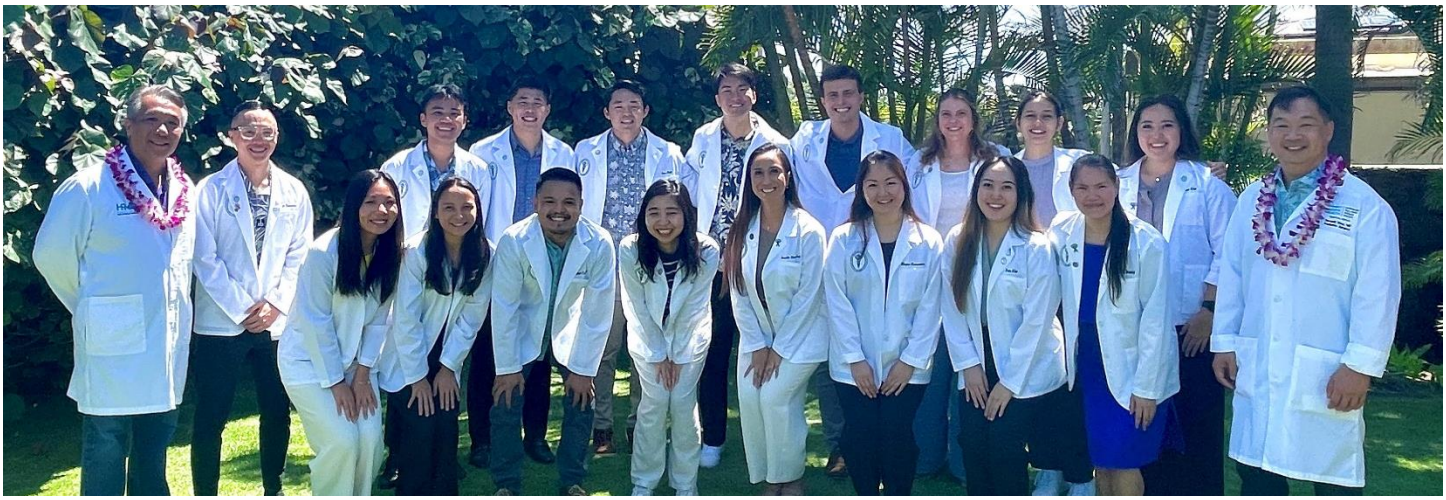
Liow K, Wheless JW, Cook DF, Rabinowicz AL, Carrazana E. Diazepam Nasal Spray Administration Is Effective to Control Seizure Clusters Irrespective Of Time Of Day. Front Neurol. 2024 May 24;15:1335421. doi: 10.3389/fneur.2024.1335421. PMID: 38854958; PMCID: PMC11157958.

Weldon EJ, Nakamura RW, Van T, Goo C, Lee AY, Jahansooz JR, Carrazana E, **Liow KK**. Exercise and Recovery Following Mild-to-Moderate Traumatic Brain Injury in the Community Setting. Cureus. 2024 Feb;16(2):e53459. doi: 10.7759/cureus.53459. eCollection 2024 Feb. PubMed PMID: 38435185; PubMed Central PMCID: PMC10909398.

Goo C, Morden F, Wong K, Aquino S, Kawamura J, Rubel V, Masca S, Gorenflo R, Carrazana E, Liow K. Familiarity and Perceptions of Aducanumab in Caregivers of Hawaii Alzheimer's Disease Patients: Results of a Telephone Survey. Cureus. 2023 Dec 5;15(12):e50001. doi: 10.7759/cureus.50001. PMID: 38186481; PMCID: PMC10767469.

Kim NN, Tan C, Ma E, Kutlu S, Carrazana E, Vimala V, Viereck J, Liow K. Abnormal Temporal Slowing on EEG Findings in Preclinical Alzheimer's Disease Patients With the ApoE4 Allele: A Pilot Study. Cureus. 2023 Oct;15(10):e47852. doi: 10.7759/cureus.47852. eCollection 2023 Oct. PubMed PMID: 38021568; PubMed Central PMCID: PMC10679961.

Lee AY, Jahansooz JR, Guittu D, Suzuki R, Pak L, Ishikawa KM, Goo C, Chen JJ, Carrazana E, Viereck J, Liow KK. Barriers to Alzheimer Disease Clinical Trial Participation in a Minority Population. Cogn Behav Neurol. 2024 Mar 1;37(1):40-47. doi: 10.1097/WNN.0000000000000359. PubMed PMID: 37878413; PubMed Central PMCID: PMC10948321



Siriwardhana C, Carrazana E, **Liow K**, Chen JJ. Racial/Ethnic Disparities in the Alzheimer's Disease Link with Cardio and Cerebrovascular Diseases, Based on Hawaii Medicare Data. J Alzheimers Dis Rep. 2023;7(1):1103-1120. doi: 10.3233/ADR-230003. eCollection 2023. PubMed PMID: 37849625; PubMed Central PMCID: PMC10578323.

French J, Biton V, Dave H, Detyniecki K, Gelfand MA, Gong H, **Liow K**, O'Brien TJ, Sadek A, DiVentura B, Reich B, Isojarvi J. A randomized phase 2b efficacy study in patients with seizure episodes with a predictable pattern using Staccato® alprazolam for rapid seizure termination. Epilepsia. 2023 Feb;64(2):374-385. doi: 10.1111/epi.17441. Epub 2022 Dec 7. PubMed PMID: 36268811; PubMed Central PMCID: PMC10107237.

Weldon EJ 4th, Hong B, Hayashi J, Goo C, Carrazana E, Viereck J, **Liow K**. Mechanisms and Severity of Exercise Intolerance Following COVID-19 and Similar Viral Infections: A Comparative Review. Cureus. 2023 May;15(5):e39722. doi: 10.7759/cureus.39722. eCollection 2023 May. Review. PubMed PMID: 37398713; PubMed Central PMCID: PMC10310058.

Howard JF Jr, Bresch S, Genge A, Hewamadduma C, Hinton J, Hussain Y, Juntas-Morales R, Kaminski HJ, Maniaol A, Mantegazza R, Masuda M, Sivakumar K, Śmiłowski M, Utsugisawa K, Vu T, Weiss MD, Zajda M, Boroojerdi B, Brock M, de la Borderie G, Duda PW, Lowcock R, Vanderkelen M, Leite MI. Safety and efficacy of zilucoplan in patients with generalised myasthenia gravis (RAISE): a randomised, double-blind, placebo-controlled, phase 3 study. Lancet Neurol. 2023 May;22(5):395-406. doi: 10.1016/S1474-4422(23)00080-7. PubMed PMID: 37059508.

Liang BX, Carrazana E, Viereck J, **Liow KK**. The Gomez-Lopez-Hernandez Syndrome: The Contribution of 2 Hispanic Giants of Pediatric Neurology. J Child Neurol. 2023 Apr;38(5):347-350. doi: 10.1177/08830738231176057. Epub 2023 May 18. PubMed PMID: 37203136.

Bril V, Drużdż A, Grosskreutz J, Habib AA, Mantegazza R, Sacconi S, Utsugisawa K, Vissing J, Vu T, Boehnlein M, Bozorg A, Gayfieva M, Greve B, Woltering F, Kaminski HJ. Safety and efficacy of rozanolixizumab in patients with generalised myasthenia gravis (MycarinG): a randomised, double-blind, placebo-controlled, adaptive phase 3 study. Lancet Neurol. 2023 May;22(5):383-394. doi: 10.1016/S1474-4422(23)00077-7. PubMed PMID: 37059507.

Buffenstein I, Kaneakua B, Taylor E, Matsunaga M, Choi SY, Carrazana E, Viereck J, **Liow KK**, Ghaffari-Rafi A. Demographic recruitment bias of adults in United States randomized clinical trials by disease categories between 2008 to 2019: a systematic review and meta-analysis. Sci Rep. 2023 Jan 2;13(1):42. doi: 10.1038/s41598-022-23664-1. PubMed PMID: 36593228; PubMed Central PMCID: PMC9807581.

Fang C, Hernandez P, **Liow K**, Damiano E, Zetterberg H, Blennow K, Feng D, Chen M, Maccecchini M. Buntanetap, a Novel Translational Inhibitor of Multiple Neurotoxic Proteins, Proves to Be Safe and Promising in Both Alzheimer's and Parkinson's Patients. J Prev Alzheimers Dis. 2023;10(1):25-33. doi: 10.14283/jpad.2022.84. PubMed PMID: 36641607.

2023-2024 National and International Presentations led by BRITL student scholars

The Safety and Effectiveness of Dual Calcitonin Gene-Related Peptide (CGRP) Therapies for Migraine Treatment: A Focus on Small Molecule Antagonist and Ligand Monoclonal Combinations. Ho Hyun Lee, Anita J Cheung,, Julia R Jahansooz, Edward J Weldon, Anson Y Lee, Kyle M Ishikawa, Nicole Little, Enrique Carrazana, , Kore K Liow. Migraine Trust International Symposium September, 2024. London, England.

Pharmacokinetics and tolerability of single-dose Staccato® alprazolam in adolescents with epilepsy and population PK analysis to support dose selection in adolescents
Klein, Pave; Aungaroon, Gewalin; Biton, Victor; **Liow, Kore Kai**; Phillips, Steven; Wychowski, Thomas6; Sadek, Ahmed; Elshoff, Jan-Peer; Roebling, Robert; King, Aliceson; Ford, Andrea10; Rospo, Chiara C; Schoemaker, Rik; Chanteux, Hugues. **15th European Epilepsy Congress (EEC), Rome, Italy. September, 2024**

Cheung AJ, Nishimura MK, Miyaki KJ, Stephens TA, Weldon EJ, Jahansooz JR, Lee AY, Matsunaga M, Chang JC, Carrazana E, Viereck V, **Liow KK**. Exploring Radiculopathy in Underserved Communities: A Focus on AANHPI Populations and Risk Factors. **Neurology 102 (17_supplement_1), 5405 American Academy of Neurology 2024 Annual Meeting, April 15, 2024 Denver, CO**

The Safety and Efficacy of Dual Calcitonin Gene-Related Peptide Therapies for Migraine Treatment. Ho Hyun Lee, Reyn Yoshioka, Man Ian Woo, Lana Liquard, Julia Jahansooz, Edward Weldon, Anson Lee, Kyle Ishikawa, Nicole Little, Enrique Carrazana, Jason Viereck, Kore Liow. **Neurology 102 (17_supplement_1), 3820 American Academy Neurology Meeting, 2024 April.**

Pharmacokinetics and Tolerability of Single-dose Staccato® Alprazolam in Adolescents with Epilepsy and Population PK Analysis to Support Dose Selection in Adolescents. **American Academy Neurology Meeting, 2024 April.**

Tobacco, Marijuana, and Antidepressant Use Prior to Concussion Are Associated with Increased Depression Risk in Post-concussive Syndrome Patients. Eli Snyder, Ryan Nakamura, Miriya Ogawa, Kaylin Bersamin, Edward Weldon, Julia Jahansooz, Anson Lee, Kyle Ishikawa, Janette Abramowitz, Enrique Carrazana, Jason Viereck, Kore Liow. **Neurology 102 (17_supplement_1), 3832. American Academy of Neurology 2024 Annual Meeting; April 14, 2024; Denver, CO.**

VNS in Lennox-Gastaut Syndrome: Real-world Experience from CORE-VNS (P3-1.014)
Paul Lyons, James Wheless, Ryan Verner, Jose Ferreira, Kore Liow, James Valeriano, Gholam K. Motamedi, **Neurology 102 (17_supplement_1), 6902. American Academy Neurology Meeting, 2024 April.**

Factors Associated with Depression Risk in Post-Concussive Syndrome Patients in Hawaii. 2024. Eli Snyder, Ryan Nakamura, Miriya Ogawa, Kaylin Bersamin, Edward Weldon, Julia Jahansooz, Anson Lee, Kyle Ishikawa, Janette Abramowitz, Enrique Carrazana, Jason Viereck,, Kore Liow. **American Neuropsychiatric Association 34th Annual Meeting; March 8, 2024; Houston, TX**

Progression of Parkinson's Disease in Asian and Native Hawaiian and Pacific Islander Populations. Borrello K, Nakahira S, Fontana P, Giuttu D, Hunter C, Jahansooz JR, Weldon EJ, Lee AY, Roman M, Ahn HJ, Viereck J, Carrazana E, Liow K. Poster presentation at **International Conference on Alzheimer's and Parkinson's Diseases and related neurological disorders (ADPD), Lisbon, Portugal**. March 2024.

VNS in Lennox-Gastaut Syndrome: Real World Experience from CORE-VNS. Paul Lyons1, James Wheless2, Ryan Verner3, Jose Ferreira4, Kore Liow5, James Valeriano6, and Gholam Motamedi7, on behalf of the CORE-VNS Registry Group. **American Epilepsy Society Meeting, 2023 December.**

Pharmacokinetics and Tolerability of Single-dose Staccato® Alprazolam in Adolescents with Epilepsy and Population PK Analysis to Support Dose Selection in Adolescents. **American Epilepsy Society Meeting, 2023 December.**

Cheung AJ, Nishimura MK, Miyaki KJ, Stephens, TA, Weldon EJ, Jahansooz JR, Lee AY, Matsunaga M, Chang JC, Carrazana E, Viereck V, Liow, KK. Exploring Radiculopathy in Underserved Communities: A Focus on AANHPI Populations and Risk Factors. The 3rd **International Conference on Controversies in Neuropathic Pain, November 20, 2023, Brussels, Belgium (Oral Platform Presentation)**

EEG slowing and CSF amyloid status: Implications for Alzheimer's disease detection and progression. N Kim, S Nakahira, A Lee, E Hagen, E Carrazana, J Viereck, K Liow
Journal of the Neurological Sciences 455. World Congress of Neurology, Montreal, CANADA, 2023 October

Investigating Young Atypical Stroke Risk Factors and Etiologies in Native Hawaiian and Pacific Islander Populations. D-Dre Wright, Michelle Lu, Anson Y. Lee, Edward J. Weldon, Julia R. Jahansooz, Kyle M. Ishikawa, Enrique Carrazana, Jason Viereck, Kore K. Liow. **Journal of the Neurological Sciences 455. World Congress of Neurology, Montreal, CANADA, 2023 October.**

Chronic Migraine and Comorbidity Characterization: A Focus on Native Hawaiians and Other Pacific Islanders. Anita Cheung MPH Michelle Lu, Anson Y. Lee, Julia R. Jahansooz MS, Edward J. Weldon, Meliza Roman, Enrique Carrazana, Jason Viereck, Kore Kai. Liow, Journal of the Neurological Sciences, Volume 455, 121626 . 2023 **World Congress of Neurology, Montreal, CANADA, 2023 October.**

Impact of Return-to-Exercise on Traumatic Brain Injury Recovery in a Community Setting. Edward Weldon, Ryan Nakamura, Tracy Van, Ana Nakamura, Chancen Law, Connor Goo, Meliza Roman, Enrique Carrazana, Jason Viereck, Kore Liow. American Academy of Neurology. **Neurology 100 (17_supplement_2), 2895. 2023 American Academy Neurology Annual Meeting, April 2023, Boston, MA**

Investigating the Prevalence of Psychiatric Disorders in Multiple Sclerosis with Autoimmune Comorbidities (P5-3.008). Shin Chang, Plyfaa Suwanamalik-Murphy, Jenna Okazaki, Donovan Roy, Masako Matsunaga, Connor Goo, Enrique Carrazana, Jason Viereck, Kore Liow. **Neurology 100 (17_supplement_2), 2371. 2023 American Academy Neurology Annual Meeting, April 2023, Boston, MA**

Different Experiences in Chronic Migraine Etiology, Treatment and Comorbidities of Hawaii's Ethnic Groups (P14-12.006). Michelle Lu, Kacey Yamane, Dane Keahi, Michael Tong, Connor Goo, Devashri Prabhudesai, John Chen, Vimala Sravanthi Vajjala, Enrique Carrazana, Jason Viereck, Kore Liow. Neurology 100 (17_supplement_2), 2566. 2023 American Academy Neurology Annual Meeting, April 2023, Boston, MA

The Gomez-Lopez-Hernandez Syndrome: the contribution of two Hispanic giants of Pediatric Neurology.(P4-3.004). BX Liang, J Viereck, KK Liow, E Carrazana. Neurology 100 (17_supplement_2), 2782. 2023 American Academy Neurology Annual Meeting, April 2023, Boston, MA

Barriers To Alzheimer's Disease Clinical Trial Participation in Hawaii's Minority-Majority Population. Anson Y Lee, Julia R Jahansooz, Darrell Guittu, Rexton Suzuki, Lauren Pak, Kyle M Ishikawa, Connor Goo, John J Chen, Enrique Carrazana , Jason Viereck, **Kore K Liow**. 2023 **ADPD Advances in Science & Therapy. March 2023, Gothenburg, Sweden.**

Impact of Mild Cognitive Impairment On One's Fall Risk And Risk For More Frequent And Severe Traumatic Brain Injuries. Chloe Delos Reyes, Ryan Nakamura, Anson Lee, Edward Weldon, Julia Jahansooz, Kyle Ishikawa, Enrique Carrazana, Jason Viereck, Kore Liow. **Journal of the Neurological Sciences, Volume 455, 121903. 2023 World Congress of Neurology, Montreal, CANADA**

The Clinical Research Center (CRC) is fully staffed with full time investigators and credentialed, experienced and qualified research raters and staff.

The CRC is a highly sought after site and have a national reputation for successful completion and recruitment including rapid site start up. The CRC has successfully completed over 100 clinical trials and actively involved in investigations of:

- NIH NINDS Funded Hawaii site for NeuroCOVID Databank/Biobank
- Nationally Designated ALZ-NET US Site 6239 to support Evidence-Based Care of Alzheimer's, MCI, Preclinical Alzheimer's Disease
- Parkinson's, & other movement disorders including Huntington's chorea, tremors
- Epilepsy, Seizures including acute abortive therapies in overnight EMU
- MS, Neuroimmunology, Vaccine research
- Pain, Headache, Migraines research
- Neuromuscular including myasthenia gravis
- Concussion, traumatic brain injury
- Narcolepsy and other sleep disorders
- Stroke and Neurovascular research
- Neurodevice, neuromodulation studies
- Rare Neurological Diseases

Fully Equipped & Experienced Phase 0, I, II, III and IV Trial Capable

The Neuroscience Center with its Centers of Excellence for disease specific disorders are fully integrated so that patients have easy access to the benefits of world class groundbreaking clinical research at the Clinical Research Center specially equipped with:

- Biomarker (CSF, serum, genetic) sampling,
- Phase 0 & Phase I Normal Volunteer and Patient Subject Studies
- PK studies in overnight PK Unit
- IV Infusion studies in IV Infusion Center
- 20 Exam rooms with dedicated Monitor rooms
- Central IRB for Rapid Site Start Up
- On-site 3T MRI
- On-site Radiology Department
- Onsite Spinal Tap/Fluoroscopic LP
- Onsite Pharmacy
- Onsite IV Infusion Center
- Onsite Emergency resuscitation equipment
- Central Laboratories use & experience
- Accredited Local Laboratory
- Refrigerated, ambient temperature centrifuge.
- Refrigerators -20C freezer, -70 Freezer
- Onsite ABRET accredited & CliniLab certified EEG & VEEG Labs
- Onsite AASM Accredited & CliniLab certified Sleep Laboratory
- IATA certified Lab
- Ongoing GCP training
- Onsite EMG, EEG
- Locked/secure Drug storage temperature controlled and monitored daily

According to NIH Rare Diseases Clinical Research Network (RDCRN), an estimated 25 million Americans are affected by one of the more than 7,000 known rare diseases. Only a few hundred of these disorders have any treatments available.

Hawaii Pacific Neuroscience Center for Rare Neurological Diseases aim to:

-Hope through clinical and translational research

-Provide comprehensive compassionate care to patients affected

-Raise disease awareness and education

Our mission is to improve the lives of those affected by rare neurological disorders by leveraging insights from neuroscience and advantages in technology to meet unmet needs of those affected in Hawaii and Pacific Islands.

Our vision is to empower patient populations, their ohana and health care providers through collaboration, mentorship, and research to improve the lives of those affected.

We focus our effort in:

- Advancement of research through biological insights conducted at the Clinical Research Center
- Providing comprehensive multidisciplinary care at Center for Rare Neurological Diseases
- Education of other physicians and investigators interested in neurological rare diseases.
- Exploration of partnerships and collaborations with academia, patients groups, and industry

Center for Rare Neurological Diseases leverage the expertise of multidisciplinary neuroscience Team so that each patient workups and treatment is individually tailored to their presentations and needs involving input from their family/ohana. Plans can include medications, lifestyle recommendations and research options. Clinical Research Center is a part of the global network of top neuroscience centers involved in research in rare diseases recognized nationally.

Clinical Trials available in Hawaii

Publications by Hawaii's specialists & researchers

Our specialists and staff are passionate about making a difference not just for our patients but for their precious families and caregivers. We understand the challenges of facing these issues and want to be sure you do not feel alone in this journey we recommend resources at NIH- https://ncats.nih.gov/rdcrn

Kore Kai Liow, MD, FACP, FAAN
Director, Center for Rare Neurological Diseases
Principal Investigator, Clinical Research Center
Hawaii Pacific Neuroscience
Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawaii John Burns School of Medicine

Hawaii Patient at Center for Rare Neurological Diseases became 2nd Patient in the World Treated with Groundbreaking ASO (Antisense Oligonucleotide) Therapy for DRPLA Genetic Disease

Kuri grew up in Hawaii just like any normal child until she was around 9 years old when she began to lose her balance and motor skills. Mom also noticed that she is not keeping up with schoolwork and noted the decline in her cognitive skills and ability. Soon, the nightmares of frequent seizures set in. Genetic testing showed that Kuri suffered from a rare genetic disorder known as Dentatorubral-pallidoluysian atrophy (DRPLA).

DRPLA is caused by a mutation in the ATN1 gene which provides instructions for making a protein called atrophin-1. DRPLA is a rare genetic disorder. See Kuri's Story. There is currently no cure or even hope for DRPLA until 2024 February when the first patient in New York was treated with Groundbreaking ASO Technology. Kuri recently became the second DRPLA patient in the world to receive this ASO technology therapy generously provided by n-lorem Foundation.

n-Lorem is a "non-profit committed to discovering and providing personalized experimental treatments, **for free, for life,** to the most isolated and desperate of patients. We mount a drug discovery program to develop a drug that is targeted for that single patient."

Hawaii's neuroscience specialists and researchers at Center for Rare Neurological Diseases and Clinical Research Center at Hawaii Pacific Neuroscience are glad to join n-Lorem to volunteer their time to provide the needed research care for Kuri **for free for life** so hope is restored for this precious family.

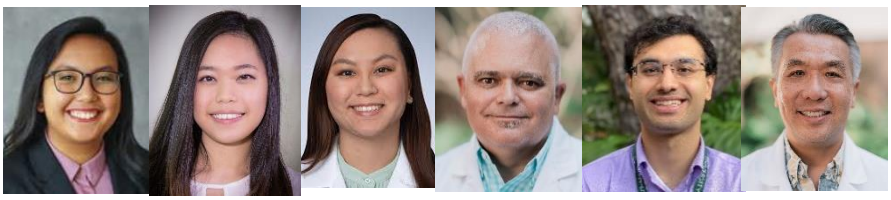
Please support Kuri by making a donation to Hawaii Pacific Neuroscience Foundation.
For progress and to follow Kuri's journey, Cure Disease Kuri Channel

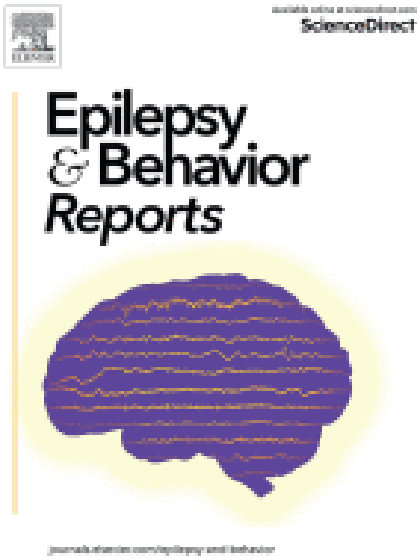
"Our specialists & researchers in Hawaii are honored to be part of Kuri's journey and contribute to this worldwide effort to find a cure for DRPLA" said NIH trained neurologists and researcher Kore Kai Liow, MD, Principal Investigator at Clinical Research Center where he oversees research programs in various neurological disorders including rare neurological conditions like DRPLA affecting people in Hawaii & the Pacific Regions. Questions: Info@HawaiiNeuroscience.com

PubMed Full Length Publication

Partial Rhombencephalosynapsis Presenting in an Adult with Cerebello-Trigeminal-Dermal Dysplasia

Frances Tiffany Cava Morden, Bao Xin Liang, Linda Nguyen, Enrique Carrazana, Arash Ghaffari-Rafi, Kore Kai Liow,
Epilepsy & Behavior Reports,Volume 27,2024,100688,ISSN 2589-9864, https://doi.org/10.1016/j.ebr.2024.100688





Brain Research, Innovation, Translation Labs (BRITL), Hawaii Pacific Neuroscience, University of Hawaii, John A. Burns School of Medicine

Gomez-Lopez-Hernandez syndrome (GLHS), also known as cerebello-trigeminal-dermal dysplasia, is a neurocutaneous disorder typically presenting in childhood. GLHS is characterized by rhombencephalosynapsis (RES) and partial alopecia, with or without trigeminal anesthesia. We describe a rare case of GLHS in a paucisymptomatic adult who presented with new-onset seizure-like activity.

Magnetic resonance imaging revealed partial midline fusion of the cerebellar hemispheres, incomplete development of vermis, and slight medialization of the dentate nuclei: all consistent with the diagnosis of RES. Radiographic evidence combined with partial alopecia, truncal ataxia, and muscular hypotonia are suggestive GLHS diagnosis.

Our report not only highlights the importance of maintaining GLHS on the differential for new-onset seizure-like activity, but also demonstrates how patients with GLHS may be minimally symptomatic and diagnosed in adulthood.

Brain Research, Innovation & Translation Laboratory (BRITL) Neuroscience research program is part of the University of Hawaii John Burns School of Medicine MD5 MED 599 Neuroscience Research Course.
Recent BRITL Publications

Hawaii Center for Psychiatric Neuroscience, 1 of 37 US sites among Cleveland Clinic, Emory & Johns Hopkins, selected to Investigate RE104 – a Novel Shorter Acting Psychedelic for Post Partum Depression. Honolulu June 2024

According to Reunion Neuroscience, Post Partum Depression (PPD) is a major form of depression affecting 10-15% of all mothers of newborns, accounting for 23% of pregnancy-related death, including suicide and overdose, poisoning (CDC 2022). Women suffering from PPD often experience significant changes in mood, appetite and sleep contributing to feelings of hopelessness, lack of concentration, loss of energy, poor self-esteem and maternal disinterest. The only viable regulatory approved therapy indicated for PPD has side effects that include sedation (with Black Box warning) and potential addiction and embryo-fetal toxicity. SSRIs, which are often prescribed off-label, take a long time for onset and only show limited efficacy, representing a concern for the safety, well-being and long-term development of the child. There continues to be a significant unmet need for a solution that offers a faster onset of action, greater efficacy after only a single dose, with limited interruption in breast feeding and a faster return to normal daily activities.

RE104 is a patented, clinical-stage drug candidate designed as a safe, fast-acting, short duration serotonergic psychedelic therapeutic to provide lasting benefits to patients with underserved mental health disorders. RE104 rapidly converts to the clinically-active serotonergic form of the drug, 4-OH-DIPT (4-hydroxy-N,N-diisopropyltryptamine) after administration. Phase 1 clinical data indicates that RE104 shown to be generally safe and well-tolerated and was rapidly cleared from systemic circulation, produces a pharmacology similar to psilocybin with a reduced duration of the psychoactive experience.

The Center for Psychiatric Neuroscience (CPN) is proud to be one of 37 sites in US along with John Hopkins for selected to investigate RE104 in the RECONNECT Trial, a Phase 2, Multicenter, Randomized, Double-Blind, Parallel-Group, Active Dose-Controlled study evaluating RE104 in moderate and severe PPD patients.

The study is seeking patients experiencing a major depressive episode that began at any time starting at the beginning of the second trimester (≥14 weeks) of pregnancy through 4 weeks post delivery. For more information, call (808) 564-6141 or NIH Info.

The Center for Psychiatric Neuroscience (CPN) mission and goal is to improve mental health through a deeper understanding of neuroscience and brain function. It brings together & supports investigators who share a mission to understand neural mechanisms underlying psychiatric illness, to elucidate mechanisms of psychotropic drug action and to develop novel therapeutic modalities for mental illness. CPN is part of the Clinical Research Center (CRC).

Center for Psychiatric Neuroscience
Clinical Research Center
Hawaii Pacific Neuroscience
2230 Liliha Street #104
Honolulu, HAWAII 96817, USA

CLINICAL TRIALS

Hawaii Memory Center & Alzheimer's Research Unit selected to Investigate Phase 1b study evaluating NMRA-511 for Treatment of Agitation Associated with Alzheimer's Dementia *August 2024 Honolulu*

Agitation is one of the most disruptive and burdensome symptoms for individuals and their families as it is associated with greater caregiver stress, increased morbidity and mortality, and earlier placement in long-term care facilities. Despite the significant impact of agitation in AD, there is currently only one approved product available, which carries a black-box warning for mortality in elderly people.

According to Neuroma website, NMRA-511 is an oral, highly potent and selective antagonist of the vasopressin 1a receptor (V1aR) and is highly brain penetrant. Modulation of the V1aR is known to play a role in the regulation of aggression, stress and anxiety responses.

Phase 1b study is a multicenter, randomized, double-blind, placebo-controlled, parallel-group cohort designed to evaluate the safety, tolerability, and efficacy of NMRA-511 20 mg twice-daily (BID) in approximately 88 people with agitation associated with dementia due to AD. Eligible patients include:

- 55 to 90 years
- Diagnosis of Alzheimer's dementia
- Agitation
- Mini-Mental State Examination (MMSE) score 5 - 24

"Our Hawaii patients, caregivers, families, neurologists & researchers are honored to contribute to the development of Novel Alzheimer's Therapy" Kore Kai Liow, MD, Neurologist & Principal Investigator, Hawaii Memory Disorders Center & Alzheimer's Research Unit, Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawai`i John Burns School of Medicine.

Dedicated Hawaii Alzheimer's Research Hotline (808) 564-6141

Hawaii Center for Psychiatric Neuroscience, 1 of 37 US sites among Cleveland Clinic, Emory & Johns Hopkins, selected to Investigate RE104 – a Novel Shorter Acting Psychedelic for Post Partum Depression.

According to Reunion Neuroscience, Post Partum Depression (PPD) is a major form of depression affecting 10-15% of all mothers of newborns, accounting for 23% of pregnancy-related death, including suicide and overdose, poisoning.

Women suffering from PPD often experience significant changes in mood, appetite and sleep contributing to feelings of hopelessness, lack of concentration, loss of energy, poor self-esteem and maternal disinterest. The only viable regulatory approved therapy indicated for PPD has side effects that include sedation (with Black Box warning) and potential addiction and embryo-fetal toxicity. RE104 is a patented, clinical-stage drug candidate designed as a safe, fast-acting, short duration serotonergic psychedelic therapeutic to provide lasting benefits to patients with underserved mental health disorders. Phase 1 clinical data indicates that RE104 shown to be generally safe and well-tolerated and was rapidly cleared from systemic circulation, produces a pharmacology similar to psilocybin with a reduced duration of psychoactive experience.

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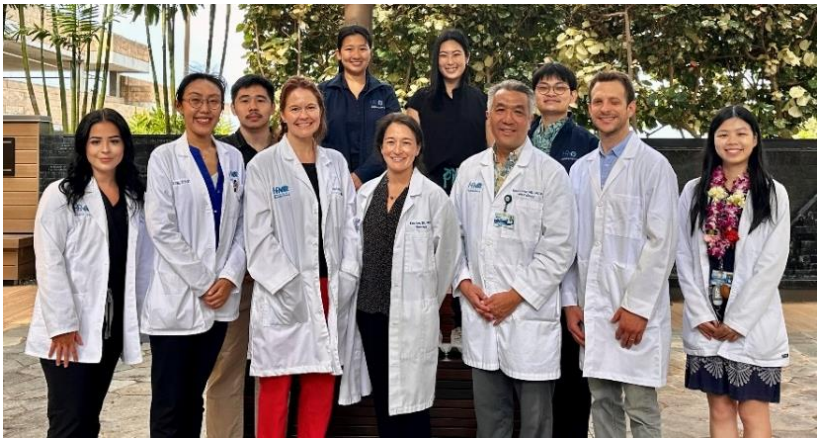

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Picture with Janette Abramowitz, MD (Psychiatrist) and Alex Takayesu, MD (Perinatal Psychiatrist) and Kore Kai Liow, MD (Neurologist & Principal Investigator).

Center for Psychiatric Neuroscience
Clinical Research Center
Hawaii Pacific Neuroscience
2230 Liliha Street #104, Honolulu, HAWAII 96817, USA

CLINICAL TRIALS

Headache & Facial Pain Center
Headache Research Unit
Hawaii Pacific Neuroscience
Locations in Honolulu & West Oahu
(808) 261-4476

Eonjung Angeline Kim, M.D.

Neurology
Director, Headache & Facial Pain Center
Sub- Investigator, Headache Research Unit

Headache

SPECIALISTS

Fellowship: Headache Medicine, Montefiore Headache Center, NY
Neurology Residency: Icahn School of Medicine at Mount Sinai, NY
Medical School: Lewis Katz School of Medicine at Temple University, Philadelphia

Dr. Kim specifically sought out and joined Hawaii Pacific Neuroscience (HPN) because she deeply resonated with HPN's commitment to serving a diverse patient population especially those who are underserved. Growing up and trained in New York City, she strongly advocates for breaking down socioeconomic barriers to healthcare access.

She recognized that headache disorders demand a multifaceted approach, encompassing considerations such as sleep patterns, mood, stress levels, dietary habits, and concurrent medical comorbidities. She is excited about establishing a one-of-a-kind comprehensive headache program, through collaborative efforts working with sleep, preventive lifestyle and other specialists. She is excited to bring new advancements in headache treatments and research leveraging her fellowship experience, to maximize treatment outcome and enhance patients' quality of life.

Our Headache Center is recognized nationally for its work not only in providing most advanced cutting edge treatments, but also work with other centers in US and global to offer groundbreaking Clinical Research. **Headache Clinical Trials available at Headache Research Unit**

Publications by our specialists and researchers at the Headache Center & Research Unit

Our specialists and staff are passionate about making a difference not just for our patients but for their precious families and caregivers. We understand the challenges of facing these issues and want to be sure you do not feel alone in this journey and have local resources available to you.

AMERICAN ACADEMY OF NEUROLOGY®
2024 April Annual Meeting
Denver, Colorado

The Safety and Efficacy of Dual Calcitonin Gene-Related Peptide Therapies for Migraine Treatment

Ho Hyun Lee[1,2], Reyn Yoshioka[1,3], Man Ian Woo[1,4], Lana Liquard[1,5], Julia Jahansooz[1,2], Edward Weldon[1,2], Anson Lee[1,2], Kyle Ishikawa[2], Nicole Little[1], Enrique Carrazana[1], Jason Viereck[1], Kore Liow[1,2]
[1]Headache & Facial Pain Center, Hawaii Pacific Neuroscience, Honolulu HI, [2]John A. Burns School of Medicine, University of Hawaii, Honolulu, HI, [3]University of San Diego, Sandiego, CA, [4]University of Hawaii at Mānoa, Honolulu, HI, [5]McGill University, Montreal, QC

Objective
To assess the safety and efficacy of dual CGRP therapies.

Background
Although singular regimens of calcitonin gene-related peptide (CGRP) medications are shown to be effective in treating migraines, a considerable number of patients continue to experience suboptimal outcomes. Adding a second CGRP inhibitor could provide increased relief; however, limited research is available to support this practice.

Design/Methods
This retrospective chart review analyzed 67 patients diagnosed with episodic or chronic migraine and treated with two CGRP medications simultaneously between May 2018 and July 2023. The prescribed CGRP inhibitors were receptor monoclonal antibodies (erenumab), ligand monoclonal antibodies (fremanezumab, galcanezumab, and eptinezumab), or receptor small molecule antagonist (ubrogepant, rimegepant, and atogepant). Variables, including age of onset, current age, sex, race, ethnicity, baseline symptoms, and adverse events, were collected. Pre-treatment severity was reported by patients on a scale of 1-10, along with monthly headache frequency. They were compared to post-treatment results evaluated for 1 to 8 months.

Results
Of the 67 patients, 33 patients experienced a 14% average reduction in headache severity ($p = 4.4 \times 10^{-6}$), while 37 patients showed an average reduction of 5 days in monthly headache frequency ($p = 1.4 \times 10^{-6}$). No major adverse events were reported even when considering different mechanisms of action or whether the medications were used acutely or prophylactically. While statistically insignificant, dual-CGRP therapies involving small molecule antagonists are consistently associated with a lower incidence of adverse events compared to combinations with monoclonal antibodies only.

Conclusions
The observed reduction in headache severity and frequency suggests a dual blockade is beneficial for migraine symptom control in selected patients. Safety regarding this treatment option is also supported by these findings; specifically, the small molecule antagonists appear to be the safest option to include in dual regimens.

AMERICAN ACADEMY OF NEUROLOGY®
2024 April Annual Meeting
Denver, Colorado

Tobacco, Marijuana, and Antidepressant Use Prior to Concussion are Associated with Increased Depression Risk in Post-Concussive Syndrome Patients

Eli Snyder[1,2], Ryan Nakamura[1,2], Miriya Ogawa[1], Kaylin Bersamin[1,4], Edward Weldon[1,2], Julia Jahansooz[1,2], Anson Lee[1,2], Kyle Ishikawa[2], Janette Abramowitz, MD[1], Enrique Carrazana, MD[1], Jason Viereck, MD[1], Kore Liow, MD[1]
[1]Concussion and TBI Center, Hawaii Pacific Neuroscience, Honolulu HI
[2]John A. Burns School of Medicine, University of Hawaii, Honolulu, HI
[4]University of Hawaii at Manoa, Honolulu, HI

Objective: This study aims to assess alcohol, tobacco, marijuana, and antidepressant use pre- and post-mild traumatic brain injury (mTBI) as potential risk factors for depression in the context of PCS (DPCS).

Background: Post-Concussion Syndrome (PCS) describes symptoms which persist beyond the typical recovery time frame for mTBI. Although there is a confirmed correlation between mTBI and depression risk, there is a paucity of literature investigating risk factors for DPCS. Associations between tobacco or marijuana use and DPCS have not been previously demonstrated.

Design/Methods: This single-center, retrospective study included 297 patients diagnosed with PCS between January 2020 and January 2023. Data comprised Patient Health Questionnaire (PHQ)-2/PHQ-9 surveys, substance use pre- and post-PCS diagnosis, and antidepressant use pre- and post-PCS diagnosis. P-values were calculated using Fisher's exact tests and Pearson's Chi-squared tests.

Results: Of the initial 297 patients identified, 82% received depression screening, and 31% were at risk of DPCS based on PHQ-2 scores. Tobacco use pre-mTBI ($p=0.027$) and marijuana use pre- ($p=0.002$) and post-mTBI ($p=0.004$) were associated with increased risk of DPCS. Elevated DPCS risk was seen in patients who used selective serotonin reuptake inhibitors (SSRIs) ($p=0.003$), serotonin-norepinephrine reuptake inhibitors (SNRIs) ($p=0.010$), or atypical antidepressants ($p=0.032$), pre-mTBI or SNRIs ($p=0.047$) or atypical antidepressants ($p=0.003$) post-mTBI. Combining all antidepressants into one variable, the use of any antidepressant pre-mTBI was associated with increased DPCS risk ($p<0.001$). Patients who didn't use antidepressants pre or post-mTBI demonstrated lower risk of DPCS than patients who used antidepressants pre-mTBI and post-mTBI and patients who used antidepressants pre- but not post-mTBI.

Conclusions: This study highlights several risk factors for DPCS which may inform improved PCS patient management and emphasizes the need to develop standardized screening protocols for DPCS. Future prospective studies including PHQ-2/PHQ-9 scores pre- and post-mTBI may better elucidate relationships between DPCS and substance and medication use.

AMERICAN NEUROPSYCHIATRIC ASSOCIATION
2024 March Annual Meeting
Houston Texas

Factors Associated with Depression Risk in Post-Concussive Syndrome Patients in Hawaii

Eli Snyder[1,2], Ryan Nakamura[1,2], Miriya Ogawa[1,3], Kaylin Bersamin[1,4], Edward Weldon[1,2], Julia Jahansooz[1,2], Anson Lee[1,2], Kyle Ishikawa[2], Janette Abramowitz, MD[1], Enrique Carrazana, MD[1], Jason Viereck, MD[1], Kore Liow, MD[1]
[1]Concussion and TBI Center, Hawaii Pacific Neuroscience, Honolulu HI
[2]John A. Burns School of Medicine, University of Hawaii, Honolulu, HI
[3]Brigham Young University, Provo, UT
[4]University of Hawaii at Manoa, Honolulu, HI

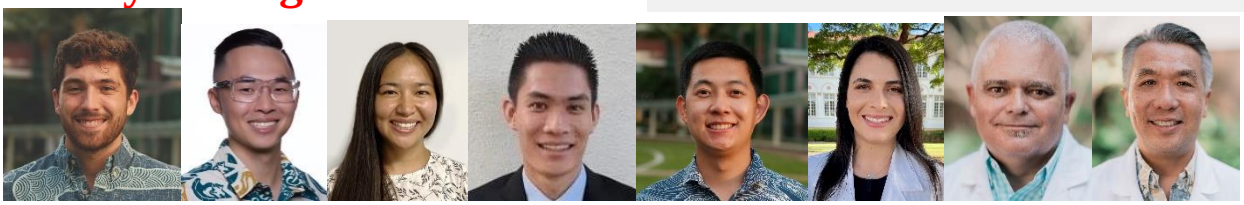
Background: Post-Concussion Syndrome (PCS) describes symptoms persisting beyond the typical recovery period for mild traumatic brain injury (mTBI). While a confirmed correlation between mTBI and depression risk exists, literature investigating risk factors for depression in the context of PCS (DPCS) remains scarce. This study aims to assess patient demographics, concussion etiologies, clinical course, substance use, and medication use associated with DPCS risk.

Methods: This single-center, retrospective study included patients diagnosed with PCS between January 2020 and January 2023. Data comprised demographics, concussion etiology, loss of consciousness (LOC) following injury, PCS symptoms, Patient Health Questionnaire (PHQ)-2/PHQ-9 surveys, and substance and CNS-active medications pre- and post-PCS diagnosis. Statistical analysis involved Fisher's exact tests and Wilcoxon rank sum tests.

Results: Of the initial 297 patients, 82% received depression screening, with 31% exhibiting higher DPCS risk based on PHQ-2 scores. The following factors were associated with increased risk: Patients with an unspecified LOC duration (p=0.037); patients presenting with confusion (p=0.014), insomnia (p=0.035), or memory loss (p=0.003) at PCS diagnosis; pre-TBI tobacco use (p=0.039), pre- (p=0.003) and post-TBI marijuana use (p=0.009); and patients who used selective serotonin reuptake inhibitors (p=0.005), serotonin-norepinephrine reuptake inhibitors (p=0.010), atypical antidepressants (p=0.040), or mood stabilizers (0.022) pre-TBI or atypical antidepressants (p=0.005) post-TBI.

Conclusions: This study highlights several risk factors for DPCS, which may inform improved PCS patient management and emphasizes the need for standardized screening protocols for DPCS.

Exercise and Recovery Following Mild to Moderate Traumatic Brain Injury in the Community Setting



Edward J Weldon 1 2, Ryan W Nakamura 1 2, Tracy Van 2, Connor Goo 1 2, Anson Y Lee 1 2, Julia R Jahansooz 1 2, Enrique Carrazana 2, Kore K Liow 1

1 University of Hawaii John A. Burns School of Medicine, Honolulu, USA

2 Concussion and TBI Center, Concussion Research Lab, Hawaii Pacific Neuroscience, Honolulu, USA

3 Brain Research, Innovation & Translation Laboratory, Hawaii Pacific Neuroscience, Honolulu, USA

Introduction The recommendations on return to exercise post-traumatic brain injury (TBI) remain debatable. As recent as 10 years ago, the conventional recovery modality for a mild TBI was to reduce neurostimulating activity and encourage rest until the symptoms subsided. However, emerging literature has challenged this notion, stating that returning to exercise early in the course of mild TBI recovery may be beneficial to the recovery timeline. This study surveys Hawaii's diverse population to identify trends in exercise and recovery for TBI patients to shape recommendations on return to exercise.

Methods A single-center retrospective chart review of the patients with mild-to-moderate TBI was selected from a patient database at an outpatient neurology clinic between January 2020 and January 2022. The variables collected include demographics, the etiology of injury, and symptoms at diagnosis. Self-generated phone surveys were completed to evaluate exercise patterns post-TBI.

Results The patients who recovered within two years displayed similar exercise patterns to the patients who took more than two years to recover. Exercise frequency, intensity, and duration did not differ significantly ($p=0.75$, $p=0.51$, and $p=0.80$, respectively; $n=100$). Hiking and walking were more common in the long recovery (LR) group ($p=0.02$), likely reflecting advanced age compared to the short recovery (SR) group (50 versus 39 years, $p<0.01$). Additionally, no correlation exists between exercise intensity and worsening symptoms ($p=0.920$), suggesting that the patients exhibit exercise patterns suitable for sub-symptomatic recovery.

Conclusion Return to exercise does not appear to be a predictor for mild-to-moderate TBI recovery. The patients appear to self-regulate an exercise regimen that will not exacerbate their symptoms or recovery time; thus, it may be suitable to recommend return to exercise as tolerated. These, and other findings in the literature, suggest that patients should be encouraged to return to exercise shortly after a mild TBI so long as the exercise does not exacerbate their symptoms.

Weldon EJ, Nakamura RW, Van T, Goo C, Lee AY, Jahansooz JR, Carrazana E, Liow KK. Exercise and Recovery Following Mild-to-Moderate Traumatic Brain Injury in the Community Setting. Cureus. 2024 Feb;16(2):e53459. doi: 10.7759/cureus.53459. eCollection 2024 Feb. PubMed PMID: 38435185; PubMed Central PMCID: PMC10909398. Other Recent BRITL Publications

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(808) 261-4476

ALS Neuromuscular

Natalia Gonzalez Caldito, M.D.
Director, ALS & Neuromuscular Center (MGFA Center, ALS Center, MDA Center),
Director, Infusion Center
Sub investigator, Neuromuscular Research Unit
Neuroimmunology Fellowship: Northwestern University, Chicago
Neuromuscular Fellowship: University of California School of Medicine, Irvine
Neurology Residency: University Texas Southwestern, Dallas

I am thrilled to lead the first of its kind Neuromuscular program with focus on Neuroimmunology in Hawaii and the Pacific Regions. This vision is driven by the critical need for specialized expertise in diagnosing and treating neuromuscular disorders, particularly in underserved areas where access to advanced care is limited. My vision is to create a center of excellence that serves patients with neuromuscular disorders especially related to immune system.

With the development of new therapeutic targets and approval of new medications to treat these disorders, this field is rapidly evolving and gaining complexity. Thus, I plan to leverage the expertise gained during my dual fellowship in neuromuscular and neuroimmunology to tackle this. The development of a multidisciplinary team will be key with physical therapists, occupational therapists, speech therapists, and social workers to build a strong and comprehensive care network for our patients. This team will ensure that our patients receive not only top-notch medical care but also holistic support for their physical and emotional well-being.

My commitment to research and clinical trials to expand the horizons of available treatments and enhance the quality of care we provide. The ultimate goal is to become a trusted resource for patients who may otherwise have limited options for managing their neuromuscular conditions. I would empower our patients through conferences and QA panel discussions, actively collaborate with local & national organizations to raise awareness and empower individuals to take control of their conditions.
My vision is to create a Neuromuscular Center in Hawaii that embodies equity, compassion, and innovation to make a lasting impact on their lives.

Clinical Trials available at Neuromuscular Research Unit

Publications by our specialists and researchers at the Neuromuscular Center

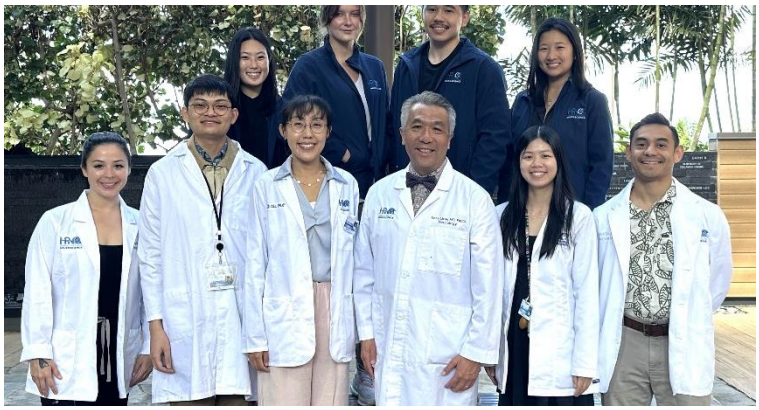
Our specialists and staff are passionate about making a difference not just for our patients but for their precious families and caregivers. We understand the challenges of facing these issues and want to be sure you do not feel alone in this journey and encourage you to contact local resources available to you. Our Neuromuscular Rehabilitation Center has been selected as a national MGFA (Myasthenia Gravis Foundation of America) Partner.

mg MYASTHENIA GRAVIS FOUNDATION OF AMERICA — For a World Without Myasthenia Gravis

ALS ASSOCIATION

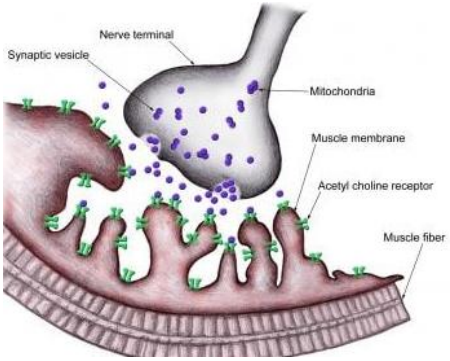
MDA Muscular Dystrophy Association

Hawaii ALS and Neuromuscular Center & Neuromuscular Research Unit selected to Investigate Iptacopan –factor B inhibitor for Generalized Myasthenia Gravis.

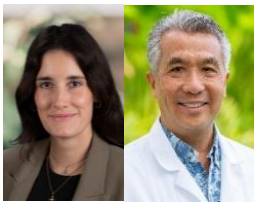


According to Myasthenia Gravis Foundation, Generalized myasthenia gravis is a form of MG with generalized muscle weakness, approximately 85% of all MG patients. Symptoms may include droopy eyelids (ptosis) and/ or double vision, difficulty speaking, difficulty breathing, problems chewing and swallowing, trouble performing everyday tasks, or generalized muscle weakness.

Iptacopan (LNP023) is a small molecule that inhibits complement factor B (FB). When taken orally, iptacopan binds to FB and prevents the formation of the alternative pathway (AP) C3-convertase (C3bBb). This limits the cleavage of C3 to the active fragment C3b, which may prevent C3b-mediated extravascular hemolysis (EVH) in certain disorders. Iptacopan also prevents the formation of AP C5 convertase, which prevents downstream cell destruction, inflammation, and excessive complement deposition.



The study is a randomized, double-blind, placebo-controlled, multicenter, Phase III study, to evaluate efficacy, safety and tolerability of iptacopan in patients with AChR+ gMG who are on stable Standard of Care treatment. Participants who meet the eligibility criteria will be randomized in a ratio of 1:1, to receive either iptacopan or matching placebo, for 6 months (180 days) while continuing on a stable SOC treatment. The study consists of a 6-month double-blind treatment period for the primary efficacy and safety analysis followed by a 24 month open label extension period. A safety follow up assessment will be performed, one 7 days after the last administration of study treatment and one 30 days after the last administration of study treatment for all participants. For more information, call (808) 564-6141 or NIH Info.



"Our Hawaii patients, caregivers, families, neurologists & researchers are honored to contribute to the development of Novel Neuromuscular Therapy" ***Natalia Gonzalez, MD****, Director of Hawaii ALS and Neuromuscular Center and Sub investigator Neuromuscular Research Unit, who is dual fellowship trained in Neuromuscular and Neuroimmunology and Kore Kai Liow, MD, Neurologist & Principal Investigator, Neuromuscular Research Unit Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawai`i John Burns School of Medicine.*

CLINICAL TRIALS

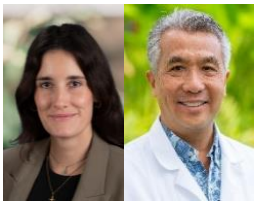
Hawaii ALS and Neuromuscular Center is a member of MG Foundation of America Partners in MG Care. ***Dedicated Neuromuscular Research Hotline (808) 564-6141***

Hawaii ALS and Neuromuscular Center & Hawaii Center for Rare Neurological Diseases 1 of 30 US sites selected for Chronic Inflammatory Demyelinating Polyradiculoneuropathy (CIDP) HYbISCUE Study

According to Takeda, CIDP is a rare, acquired, immune-mediated neuromuscular disorder. It is typically characterized by progressive, symmetric symptoms such as weakness, tingling or loss of feeling in distal and proximal limbs, loss of reflexes and difficulty walking. CIDP is often misdiagnosed. The role of IG therapy as maintenance treatment in CIDP has been well-established and is the guidelines-based standard of care for this complex and heterogeneous condition. However, IVIG treatment that can be challenging for patients such as long treatment duration associated with high IG volumes, potential for venous access challenges, and infusion setting limitations.

HYQVIA [Immune Globulin Infusion 10% (Human) with Recombinant Human Hyaluronidase], the Only up to Once Monthly (every 2, 3 or 4 weeks) Subcutaneous Immunoglobulin (SCIG) Infusion to Treat CIDP, Can Be Administered by a Healthcare Professional or Self-Administered after Appropriate Training. FDA Approval is based on Phase 3 ADVANCE-CIDP 1 Study Demonstrating a Statistically Significant Difference in Relapse Rate in Favor of HYQVIA Versus Placebo at 6 Months.

The main aims of HYbISCUE Study are to understand why adults with Chronic Inflammatory Demyelinating Polyradiculoneuropathy (CIDP) chose a certain treatment, why they changed to HyQvia from another therapy, how satisfied they are with HyQvia and their previous treatment, how their work productivity and activity is impacted and learn about their CIDP signs and symptoms.
For more information, call (808) 564-6141 or NIH Info.



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CLINICAL TRIALS

Dedicated Neuromuscular Research Hotline (808) 564-6141

AMERICAN ACADEMY OF NEUROLOGY®

2024 April Annual Meeting
Denver, Colorado

Exploring Radiculopathy in Underserved Communities: A Focus on AANHPI Populations

Anita J. Cheung MPH [1,2], Matthew K. Nishimura[1,3], Kai J. Miyaki[1,4], Tea A. Stephens[1,5], Edward J. Weldon[1,2], Julia R. Jahansooz MS [1,2], Anson Y. Lee[1,2], Masako Matsunaga PhD, MPH, MS, RDN[2], Jason C. Chang MD[1,2], Enrique Carrazana MD[1,2], Jason Viereck MD, PhD[1,2], Kore K. Liow MD, FACP, FAAN1,[1,2]

1. *Spine & Pain Management Center, Hawaii Pacific Neuroscience*
2. *John A. Burns School of Medicine, University of Hawaii, Honolulu, HI,*
3. *Pitzer College, Claremont, CA*
4. *Boston University, Boston, MA*
5. *University of Hawaii, Honolulu, HI*

Background/ Objectives:
Radiculopathy (RP) is a debilitating nerve compression condition. This study aims to address the paucity of research on RP in Asian American, Native Hawaiian and other Pacific Islanders (AANHPI) populations and to identify differences in clinical presentation, comorbidities, and treatment of AANHPI in contrast to other ethnocultural racial groups in Hawaii.

Methods:
This retrospective cohort study utilizes data from a single neurological care center in Hawaii. Adults aged ≥18 years diagnosed with RP between 2016-2023 were identified using ICD10 codes. Patients without electromyography (EMG), magnetic renaissance imaging (MRI), or sufficient demographical data were excluded. Statistical analysis was completed on R, with $p<0.05$ considered statistically significant.

Results:
Data from 1287 out of 1,640 patients are included in the analysis, with 353 excluded. The cohort consisted of 28% Asians and 20% NHPIs. NHPIs had the youngest age of diagnosis, while Asians had the highest age of diagnosis ($p<0.001$). AANHPI populations were likelier to have public insurance ($p<0.001$). NHPIs had the highest rates of obesity ($p<0.001$ while Asians had the lowest ($p<0.001$). AANHPIs were more likely to have more than two medical comorbidities ($p<0.001$) and higher rates of hypertension ($p<0.001$), hyperlipidemia ($p<0.001$), hypercholesterolemia ($p<0.001$), and diabetes ($p<0.001$). AANHPIs were mainly treated with medications and were less likely to have received physical therapy, steroid injections, or surgery ($p=0.042$)

Conclusion:
AANHPI patients are more likely to be publicly insured, have multiple comorbidities, and are less likely to receive specialized treatments. NHPI are diagnosed earlier and have higher rates of obesity. These findings are important for addressing underlying comorbidities and treatment disparities amongst AANHPI patients

Hawaii Pacific Neuroscience

MS & Neuroimmunology Center
Serving Honolulu, West Oahu & Neighbor Islands
(808) 261-4476 Online Referral form

MS Neuroimmunology

Natalia Gonzalez Caldito, M.D.

Director, MS & Neuroimmunology Center, IV Infusion Center
Sub investigator, MS Research Unit
Fellowship: MS and Neuroimmunology, Northwestern University, Chicago
Neurology Residency: University Texas Southwestern, Dallas

I am thrilled to establish the first of its kind Neuroimmunology and Comprehensive MS Center for Hawaii and the Pacific Regions. This vision is driven by the critical need for particularly for underserved areas on the island where access to advanced care is limited.
Neuroimmunology is a rapidly developing field, and given its complexity, specialized training is key to mastering the management of these disorders. With my interest, training, and experience, I will help bridge that gap including active clinical trial and research in neuroimmunology for the region. The ultimate goal is to become a trusted resource for patients who may otherwise have limited options for managing their conditions.
As I build my practice and learn more about the needs of my patients, I would empower our patients through conferences and QA panel discussions, actively collaborate with local & national organizations to raise awareness and empower individuals to take control of their conditions.
My vision is to create a Neuroimmunology and Comprehensive MS Center in Hawaii that embodies equity, compassion, and innovation to make a lasting impact on their lives.

The MS & Neuroimmunology Center leverages a multidisciplinary approach of specialists physicians to ensure that MS patients get the benefit of a comprehensive holistic approach including:

- Restore function and quality of life
- Addressing pain & motor functions
- Addressing other symptoms such as fatigue, incontinence, insomnia
- Nutrition counseling and general wellness
- Neurorehabilitation PT, OT, Speech
- Cognitive and memory assessments
- Onsite Sleep Study, EEG, EMG
- Onsite 3T MRI, Floro Xray for Spinal Tap
- Onsite IV Infusion Unit
- Onsite MS Research Unit for Clinical Trials & Research Options

Clinical Trials available at Hawaii MS Research Unit

Publications by our specialists and researchers at the Hawaii MS Research Unit

Our specialists and staff are passionate about making a difference not just for our patients but for their precious families and caregivers. We understand the challenges of facing these issues and encourage our patients to seek out credible resources with local and national support groups. Please check out their website.

National Multiple Sclerosis Society

Hawaii MS and Neuroimmunology Center & Hawaii Infusion Center selected for OAK (ABP 692- Biosimilar Candidate to Ocrelizumab) Study.

A Randomized, Double-blind, Parallel-group Study to Compare Pharmacokinetics, Pharmacodynamics, Clinical Effects, and Safety between ABP692, and Ocrevus (Ocrelizumab) in Subjects with Relapsing-remitting Multiple Sclerosis. ABP 692 is a recombinant humanized glycosylated immunoglobulin isotype class G subclass 1 (IgG1) monoclonal antibody directed against CD20-expressing B-cells.

According to Amgen Website, In the U.S., the cumulative reduction in drug spend for classes with biosimilar competition is estimated to have been $21 billion over the past 6 years. The next few years will likely see several advancements, including expansion of biosimilars into pharmacy benefit reimbursement and biosimilars entering more classes, as well as additional approvals and launches of interchangeable biosimilars in the U.S.

Growth seems to be on the horizon for the marketplace with biosimilars, both in terms of breadth and depth. As of Q2 2022, the FDA lists 96 proposed biosimilar products enrolled in the FDA's Biosimilar Development Program, an increase of more than 70% since October 2015.8

Over the next few years, the growing number of biosimilars will likely lead to an evolution in the U.S. marketplace with biosimilars. These changes are likely to cement the role of biosimilars as viable and integral U.S. treatment options. Biosimilars will find new audiences in different prescriber specialties, pharmacists, payers, and patients. These developments may change the patient support program landscape, interactions at the pharmacy counter, and product-administration devices.

*Our Hawaii patients, caregivers, families, neurologists & researchers are honored to contribute to the development of Neuroscience Biosimilars Therapy" **Natalia Gonzalez, MD**, Director of **Hawaii MS and Neuroimmunology Center** & **Hawaii Infusion Center** and Sub investigator MS Research Unit, who is fellowship trained in MS and Neuroimmunology and Kore Kai Liow, MD, Neurologist & Principal Investigator, MS Research Unit Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawai`i John Burns School of Medicine.* ***Dedicated MS Research Hotline (808) 564-6141.***

National Multiple Sclerosis Society

CLINICAL TRIALS

Comprehensive Epilepsy Center and Epilepsy Research Unit at Hawaii Pacific Neuroscience have a dedicated multidisciplinary team of epileptologist, neurologists, neurosurgeon neuropsychologists and research team whose sole purpose is to improve the quality of life of patients with epilepsy and seizure disorders from all Hawaiian Islands and the Pacific Rim.

Epilepsy Center

We specialize in helping patients who were told by other doctors that there is nothing else could be done or where the diagnosis is not clear. Our professionals are experts in many diverse areas, from new medication development and state of the art diagnostic procedures including overnight Long Term Video-EEG Epilepsy Monitoring Unit (EMU) to improve the cognitive and behavioral functions in patients with epilepsy, implantation, and programming of innovative neuro device to cutting-edge groundbreaking research therapy. Our specialists are bound laulima together by a deep, shared sense of teamwork and compassion including our tireless effort dedicated to advance the understanding of epilepsy and collaborating with other world-class leaders in the epilepsy field in developing better treatments for our patients. At the center, our philosophy isn't simply "no seizures, no side effects"; it is a balance that allows children and adults with epilepsy to lead full, high-quality lives as our Ohana. Our Epilepsy Center is recognized nationally for its work not only in providing most advanced cutting edge treatments, but also work with other centers in US and global to offer groundbreaking Clinical Research at our Epilepsy Research Unit

Epilepsy Clinical Trials available at Epilepsy Research Unit

Publications by our specialists and researchers at the Comprehensive Epilepsy Center

Our specialists and staff are passionate about making a difference not just for our patients but for their precious families and caregivers. We understand the challenges of facing these issues and want to be sure you do not feel alone in this journey and have local resources available to you. Therefore, we work closely with and support Hawaii's local support group. Please visit their website. **Epilepsy Foundation Hawaii**

Darren DuGas, M.D.
Co-Director, Comprehensive Epilepsy Center
Co- Investigator, Epilepsy Research Unit
Hawaii Pacific Neuroscience
Fellowship: Epilepsy, EEG, Yale University
Neurology Residency: Medical College of Wisconsin, Milwaukee

Comprehensive Epilepsy Center & Epilepsy Research Unit in Hawaii Investigates BHV-7000 selective activator of Kv7.2/7.3 potassium channels for Epilepsy among Stanford, UCLA, UCSD and U Penn, *Honolulu, Hawaii September 2024*

According to Biohaven website, Focal onset epilepsy, also called partial epilepsy, is the most common form of epilepsy. Despite current therapies, a high unmet need exists for further seizure reduction with reduced side effects, for people who are still experiencing seizures while taking currently available anti-seizure medications. About 33% of adults fall into this group. Biohaven is working with top US Epilepsy Centers including Stanford, UCLA, U Penn and Hawaii Comprehensive Epilepsy Center, & Hawaii Epilepsy Research Unit to research an investigational medication that may be able to help provide better seizure freedom with fewer side effects.

BHV-7000 is highly selective for Kv7.2/7.3 channels, avoiding activation of the GABAA receptor in vitro, thereby reducing the potential for off-target effects. BHV-7000 is structurally distinct from other Kv7 activators, demonstrates potent anti-seizure effects and is well-tolerated in preclinical seizure models, and has shown potential to be a best-in-class Kv7 activator to regulate the hyperexcitable state in epilepsy - Potent in the maximal electroshock seizure test without impact on neurobehavior or motor behavior, Demonstrated minimal GABAA receptor activation, potentially providing better tolerability.

NIH Info: Phase 2/3 Multicenter, Randomized, Double-Blind, Placebo-Controlled, Study to Evaluate the Efficacy, Safety and Tolerability of BHV-7000 in Subjects With Refractory Focal Onset Epilepsy. Who can participate?

18 to 75 years with a Diagnosis of Focal Onset Epilepsy uncontrolled on current medications.

"Our neurologists, epileptologists & researchers at Hawaii's Comprehensive Epilepsy Center & Epilepsy Research Unit are honored to contribute to this important study and making available this option to our local island populations who no longer has to travel to Mainland for advanced epilepsy treatments" Kore Kai Liow, MD, Neurologist & Principal Investigator, Hawaii Comprehensive Epilepsy Center and Video-EEG Epilepsy Monitoring Unit (EMU), Hawaii Epilepsy Research Unit, Dedicated research hotline (808) 564-6141 or info@HawaiiNeuroscience.com

Video-EEG Epilepsy Monitoring Unit (EMU), Honolulu, Hawaii

Video-EEG Epilepsy Monitoring Unit offers both EEG (electroencephalography) equipment to monitor brain activity and video cameras to record body movements during a seizure. Video-EEG monitoring is a way of simultaneously recording the brain wave activity (EEG) and the patient's behavior.

This combined approach gives us a much greater understanding of seizures than would using either technique alone. The monitoring allows us not only to diagnose a seizure problem accurately, but also to design the best possible treatment plan. Patients are monitored in the unit throughout the day and night. Patients may stay in the video-EEG monitoring unit for 4 days for recording the electrical impulses (EEG) causing seizures.

Our registered and highly skilled and trained technicians closely monitor our patients and these activity round the clock. Our epilepsy experts are well versed in diverse areas of diagnosis and treatment of seizures and epilepsy, including EEG monitoring, presurgical workup and using new and innovative research medications. Hawaii Pacific Neuroscience is a leading establishment in worldwide epilepsy research. We specialize in helping people with difficult to treat seizures and with unclear diagnosis.

Our physicians believe that treating epilepsy does not end with starting antiseizure medications but ends only with the overall wellbeing of people with epilepsy, including their psychological and social well-being. More information Call the Video-EEG EMU at (808) 564-6147.

Our EEG laboratory is the first epilepsy center in Hawaii recognized and accredited by Neurodiagnostic Credentialing and Accreditation of ABRET (American Board of Registration of Electroencephalographic and Evoked Potential Technologists), the accreditation organization for EEG labs in US based in Springfield, IL, USA. The Laboratory Accreditation Board of ABRET is an accreditation program for laboratories meeting technical standards and demonstrating quality output. Our EEG & Neurophysiology laboratory and facilities is also the only EEG facility in Hawaii accredited and nationally certified by Cliniclabs Drug Development in New York so it adheres to the high standards needed in performing EEG during clinical research conducted for these data to be submitted to FDA.

Publications by our specialists and researchers at the EEG & Neurophysiology Laboratory

Darren DuGas, M.D.
Co-Director, Comprehensive Epilepsy Center
Co- Investigator, Epilepsy Research Unit
Hawaii Pacific Neuroscience
Fellowship: Epilepsy, EEG, Yale University
Neurology Residency: Medical College of Wisconsin, Milwaukee

2024 ACNS Annual Meeting & Courses
Orlando FLORIDA FEBRUARY 28 - MARCH 3, 2024

EEG Slowing and CSF Amyloid Status: Implications for Alzheimer's Disease Detection and Progression

Nathan N. Kim[1,2], Shay Nakahira[1,2], Anson Y. Lee[1,2], Eliza Hagen[2], Enrique Carrazana[2], Jason Viereck[1,2], Kore K. Liow[1,2]
[1]John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI, USA
[2]Hawai'i Pacific Neuroscience, Alzheimer's Neural Network EEG (ANNE) Research Lab, Memory Disorders Center, Alzheimer's Research Unit, Honolulu,

Introduction
Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by cognitive decline. Cerebrospinal fluid (CSF) biomarkers amyloid-β and tau proteins play a significant role in the diagnosis of AD. However, alternative non-invasive biomarkers are needed for early detection of the disease. Electroencephalogram (EEG) find ings, particularly slowing of brain wave patterns, have been observed in AD patients, but their relationship with CSF amyloid status remains underexplored.
Methods
This was a retrospective cohort study investigating the association between CSF amyloid status, EEG findings, and AD stage. Demographic information, Mini-Mental State Examination (MMSE) scores, CSF amyloid status, and magnetic resonance imaging reports were collected for each participant. EEG recordings were analyzed through visual analysis and manual counting.
Results
Among 19 participants, 13 were CSF amyloid-positive and six were CSF amyloid-negative. Among CSF amyloid-positive individuals, eight (62%) displayed evidence of diffuse background slowing, while two (33.3%) o f the CSF amyloid-negative individuals exhibited slowing. When comparing individuals with mild cognitive impairment (MCI) and AD, there was no significant difference in CSF amyloid status, but MCI individuals had a higher prevalence of diffuse background slowing and lower average MMSE scores compared to AD individuals.
Conclusion
Despite the lack of a significant difference between diffuse background slowing on EEG and CSF amyloid status, the novelty and practicality of EEG makes additional research on this topic worth pursuing. Integrating EEG analysis with CSF amyloid status could enhance AD diagnosis and facilitate means of early intervention in the disease progression. Longitudinal studies with larger sample sizes are needed to determine the precise relationship between EEG patterns and CSF amyloid status across the AD spectrum.

EEG Slowing and CSF Amyloid Status: Implications for Alzheimer's Disease Detection and Progression

Nathan N Kim,1,3 Charissa Tan,1 Enze Ma,1 Selin Kutlu,1 Enrique Carrazana,1 Vajjhala Vimala,2 Jason Viereck,4 and Kore Liow3,4

1 Neurology, John A. Burns School of Medicine (JABSOM), University of Hawaii, Honolulu, USA

2 Comprehensive Epilepsy Center & Video-EEG Epilepsy Monitoring Unit, Hawaii Pacific Neuroscience, Honolulu, USA

3 Hawai'i Pacific Neuroscience, Alzheimer's Neural Network EEG (ANNE) Research Lab, Honolulu, USA

4 Hawai'i Pacific Neuroscience, Memory Disorders Center, Alzheimer's Research Unit, Honolulu, USA

doi: 10.7759/cureus.47852. PMID: 38021568; PMCID: PMC10679961.

Introduction

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Hawaii Parkinson's Disease and Movement Disorders Center provides comprehensive, compassionate and timely treatment to patients with Parkinson's disease, ataxia, dystonia, essential and other tremors, Lewy body dementia, Frontotemporal dementia, Huntington's Chorea, motor stereotypies and other movement and imbalance disorders. Our goal is to offer knowledge and symptom control to help patients feel empowered and overcome barriers to living life to the fullest.

PARKINSON'S CTR

Our multidisciplinary team of specialists includes neurologists, neurosurgeons and rehabilitation doctors, lifestyle wellness physicians, and other areas work together to determine the most appropriate treatment for your condition. You may work with rehabilitation specialists to manage problems with walking, speaking, swallowing and other aspects of daily life. Your treatment team also includes social workers, physical, occupational and recreational therapists to help you manage Parkinson's disease.

Our Parkinson's Disease and Movement Disorders Center is recognized national for our work in Parkinson's and Movement Disorders Research Unit and is proud to offer Hawaii patients options to participate in groundbreaking research.

Visit Clinical Trials website for latest available PD and Movement Research Studies in Hawaii

Check out our on-going academic research in PD & Movement Disorders in Hawaii

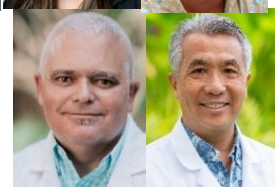
Read recent publications by Hawaii's PD & Movement specialists and researchers

Our specialists and staff are passionate about making a difference not just for our patients but for their precious families and caregivers. We understand the challenges of facing these issues and encourage our patients to seek out credible resources with local and national support groups. Please visit their websites.

Kore Kai Liow, MD

Director, Parkinson's Disease and Movement Disorders Center
Sub investigator, Parkinson's Research Unit
Hawaii Pacific Neuroscience
Clinical Assistant Professor of Medicine, Graduate Faculty, Clinical & Translational Research, University of Hawaii John Burns School of Medicine
Neurology Residency: Boston University Medical School, Boston

Progression of Dopaminergic Therapy Changes in Parkinson's Disease in Asian and Native Hawaiian and Pacific Islander Populations



Kirra Borrello 1, Shay Nakahira 1, Paul Fontana 2, Darrel Guittu 3, Chanel Hunter 3, Anson Lee 1, Julia Jahansooz 1, Edward Weldon 4th 1, Meliza Roman 4, Hyeong Jun Ahn 4, Enrique Carrazana 1 5, Kore Liow 1 6

1John A. Burns School of Medicine, Honolulu, Hawaii, USA.2University of Michigan, Ann Arbor, Michigan, USA.

3University of Hawaii at Manoa, Honolulu, Hawaii, USA.4Department of Quantitative Health Sciences, University of Hawaii John A. Burns School of Medicine, Honolulu, Hawaii, USA.5Neurelis, San Diego, California, USA.

6 Parkinson's and Movement Disorders Center, Hawaii Pacific Neuroscience, Honolulu, Hawaii, USA.

Movement Disorders

CLINICAL PRACTICE

WILEY

Previous research has identified ethnic disparities to be pre- sent in Parkinson’s disease (PD), with PD disproportionately affecting Hispanic and Latino populations at earlier ages of diagnosis and mortality. To characterize differences in PD treatment and progression in Asian and Native Hawaiian and Pacific Islander (NHPI) populations, we conducted a retrospective chart review of change in dopaminergic medi- cations assessed by levodopa equivalent daily dosage (LEDD) score. LEDD score was calculated using medication dosage and frequency, based on a previously established algorithm. Fisher’s exact tests, Kruskal-Wallis rank sum test, and Spearman’s correlation coefficient were used as appropriate.

We analyzed 345 patient records from a single PD treatment center in Hawaii, with mean age of the study sample being 69 years and 48% women. There were 126 Whites (48%), 96 Asians (37%), 30 NHPI (11%), and 10 other (4%). Asian females and White males displayed an increased preva- lence of PD compared to other groups (P = 0.008). Among the mean age at diagnosis, NHPI were diagnosed earliest (64 years, P = 0.040). This aligns with previous literature that identified minority populations to be diagnosed with PD at a younger age compared to Whites. Our research found a positive association between LEDD score and duration of PD in NHPI (P = 0.00063) and Asians (P = 0.0056) (Fig. 1). This contrasts with Whites, whose LEDD score did not increase significantly despite having longer duration of disease compared to other groups. A recent study has suggested that NHPI experience accelerated biological aging (using DNA-methylation as a marker) in comparison to Whites, which could be contributing to our findings. Previous studies demonstrate that other minority populations such as Latinos and African Americans experience similar differences of PD levodopa therapy progression as compared to Whites. Overall, our findings indicate that NHPI and Asian patients require higher medication dosages over time to manage their PD. These studies, along with our research, suggest the possibility that minority populations may experience more severe PD than Whites.

PubMed Citation: *Borrello K, Nakahira S, Fontana P, Guittu D, Hunter C, Lee A, Jahansooz J, Weldon E 4th, Roman M, Ahn HJ, Carrazana E, Liow K. Progression of Dopaminergic Therapy Changes in Parkinson's Disease in Asian and Native Hawaiian and Pacific Islander Populations. Mov Disord Clin Pract. 2024 Nov 18. doi: 10.1002/mdc3.14280. PMID: 39555887*.

Hawaii's awarded Research Study to Relief Motor Fluctuations of Parkinson Disease Investigating Lu AF 28996 Agonist D1 & D2 Receptors. Honolulu, 2024

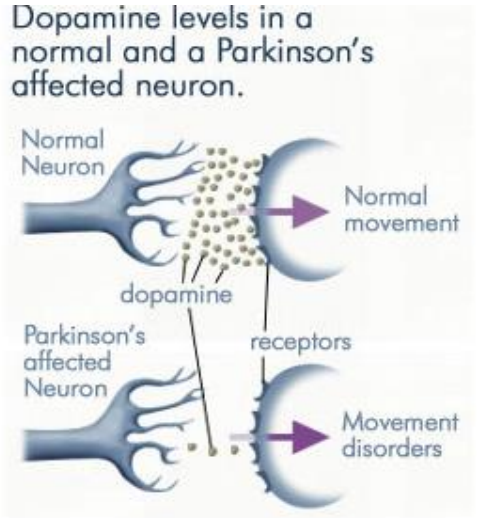
PARKINSON'S CTR

According to Lundbeck, Lu AF28996 has the potential to treat common symptoms in patients with moderate/advanced Parkinson's disease. Typically, patients gradually develop fluctuations in the control of their symptoms with poor or absent motor function (so called OFF episodes) and experience involuntary movements (dyskinesia). Lu AF28996 is a small molecule with agonistic properties towards D1 and D2 receptors. Concerted D1 and D2 dopamine receptor stimulation may play an important role in motor control of Parkinson's disease patients.

Both these symptoms are thought to be treated effectively with Lu AF28996. This compound has the potential to significantly improve the lives of patients with Parkinson's disease, many of whom today do not have effective treatment options. Hopefully we will be able to offer these patients much better symptom control in the future,"

PD patients with experience recognizable and predictable motor fluctuations, with at least 1.5 hours of OFF periods in the awake time, including predictable morning OFF episode are eligible to participate.

"Our team of neurologists, neuroscience specialists and researchers in Hawaii cannot be more proud to be part of this research to develop solutions for patients experiencing motor fluctuation" says Kore Liow, MD, Principal Investigator, Neurologist & Neuroscience Chair at Hawaii Pacific Neuroscience & Clinical Professor of Medicine (Neurology), University Hawaii JABSOM



CLINICAL TRIALS

For more information, See NIH Info or please contact:
Hawaii Parkinson's Disease Center & Hawaii Parkinson's Research Unit 2230 Liliha Street #104, HONOLULU, HI 96817, Research Hotline (808) 564-6141 info@HawaiiNeuroscience.com

Hawaii Memory Disorders Center & Alzheimer's Research Unit is Hawaii's only nationally designated ALZ-NET site to care for patients with memory disorders and part of a network to collaborate and work with other national and global Alzheimer's centers to improve clinical care to improve detection, diagnosis, and access to treatments and advance innovative research in Alzheimer's disease.

The center is recognized internationally as well as locally for –

-Dedicated to caring for patients with memory loss by a fully integrated multidisciplinary team of specialists and researchers

-Funded by NIH to conduct research on Alzheimer's Disease

-Partner with global partners to conduct research to develop better treatments for Alzheimer's

-First in Hawaii to offer patients any new drugs approved by FDA like Aduhelm and Leqembi (since 2019) and successfully treated and monitor patients for safety

-First in Hawaii to offer patients groundbreaking innovative research treatments in phase I, II, III and IV clinical trials **Clinical Trials available at Alzheimer's Research Unit**

-Leader in educating other physicians, residents, medical students, and community in this field **Publications by Specialists & Researchers**

MEMORY CTR

The evaluation at the memory center will be directed by memory neurologist Dr. Liow working with a multidisciplinary team. Each patient is unique, and medical workups will vary depending on the patient's medical history and clinical presentation. Once the evaluation for the patient is complete, the multidisciplinary team will discuss the findings with the patient and family. Together we formulate an individualized plan for treatment and management. We understand the challenges of facing these issues. Therefore, we work closely with and support Hawaii's local support group to be sure you do not feel alone in this journey.

Kore Kai Liow, MD, FACP, FAAN
Director, Memory Disorders Center
Principal Investigator, Alzheimer's Research Unit
Hawaii Pacific Neuroscience
Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawaii John Burns School of Medicine
Neurology Residency: University of Utah School of Medicine
Fellowship: Cortical Neurophysiology & Clinical Research, NINDS, NIH

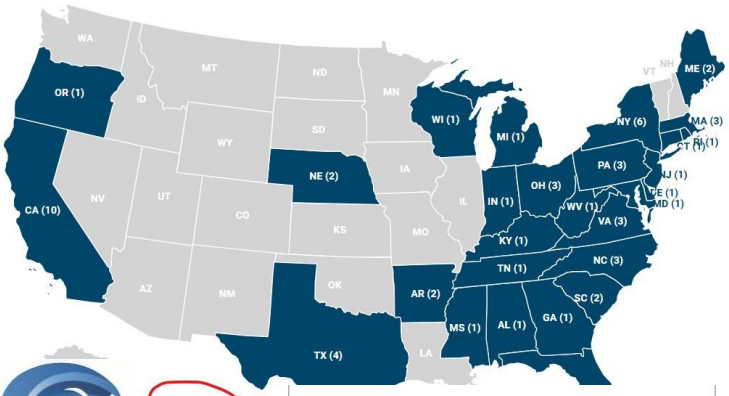
First Hawaii Site Recognized and Selected to be Part of National Alzheimer's Network (ALZ-NET) to support Evidence-Based Care of Alzheimer's Disease in US *Honolulu, October 2024*

Alzheimer's Network for Treatment and Diagnostics (ALZ-NET) is an integrated network of global experts collecting real-world data that can be used by researchers to advance innovative research and improve clinical care to improve detection, diagnosis, and access to treatments. It aims to support evidence-based diagnosis, treatment and quality care. ALZ-NET is approved by the Centers for Medicare and Medicaid Services (CMS) as a Coverage with Evidence Development (CED) study and used as a pathway to Medicare coverage for anti-amyloid Alzheimer's therapies that have received traditional (full) FDA approval.

ALZ-NET is designed to work collaboratively with affiliated studies including those conducted by academia, industry, federal agencies. The ALZ-NET infrastructure, data, and its network of experts is used as a backbone for innovative research. ALZ-NET team work closely with collaborators from study conception and design to execution to meet the needs of each study from start to finish. It collects quality data to support a variety of research needs, such as exploratory research as well as regulatory-required reporting using real-world data.
ALZ-NET seeks to reduce the burden of clinical assessment, monitoring, and care planning while streamlining the collection of real-world data to support clinical care.

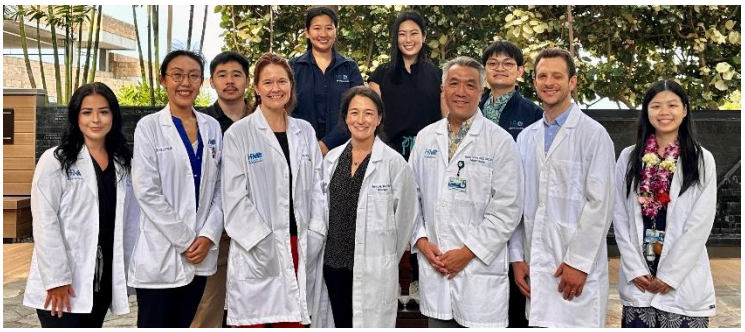
List of US Sites Global Sites

"Our Hawaii patients, caregivers, families, neurologists & researchers at HI Memory Ctr are honored to be recognized and selected to be the first Hawaii site to be part of this global AD network" Kore Kai Liow, MD, Neurologist & Principal Investigator, Hawaii Memory Disorders Center & Alzheimer's Research Unit, Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawai`i John Burns School of Medicine.



Hawaii Site 6239

First Hawaii Alzheimer's Trial Eligibility Verified with Plasma p-Tau level (No CSF or PET Needed) Investigating Mevidalen (D1 Receptor PAM) *September 2024 Honolulu*



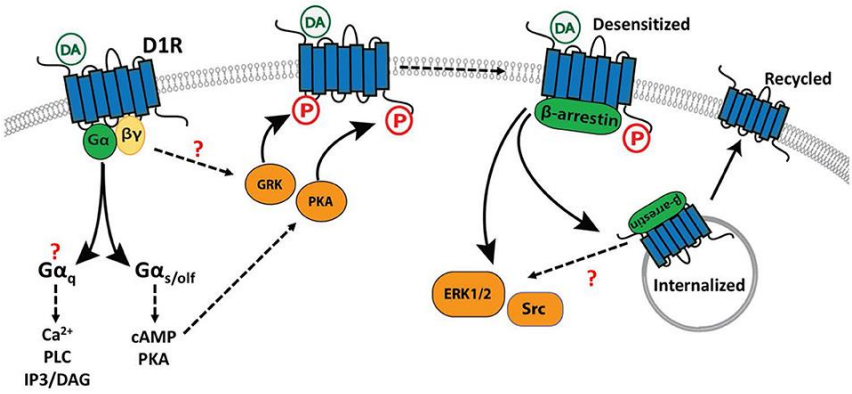
According to AlzForum website, Mevidalen is being developed for the treatment of Parkinson's disease dementia and dementia with Lewy bodies and is a small-molecule, positive allosteric modulator of the dopamine receptor D1 (D1 PAM). The drug increases affinity of the D1 receptor for dopamine and is thought to improve dementia symptoms by amplifying the effect of endogenous dopamine. Many individuals with elevated brain Aβ burden without showing signs of cognitive decline (as seen in many Amyloid PET).

Biomarkers of neurodegeneration, e.g., tau protein accumulation, are better markers of cognitive decline and have a strong association with AD diagnosis. Phosphorylated tau or p-Tau protein, the main component of the neurofibrillary tangles, is more specific to AD pathology.

The study is a Randomized, Double-Blinded Study to Evaluate the Efficacy and Safety of Mevidalen in Patients with Alzheimer's Disease. NIH Website

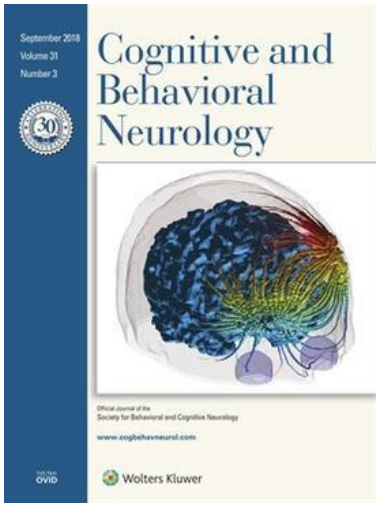
Eligible patients include:

- 50 to 80 years
- MMSE 13 – 24
- Eligible plasma P-tau (we will provide test at no cost)



Jones-Tabah J, Mohammad H, Paulus EG, Clarke PBS, Hébert TE. The Signaling and Pharmacology of the Dopamine D1 Receptor. Front Cell Neurosci. 2022 Jan 17;15:806618. doi: 10.3389/fncel.2021.806618.

"Our Hawaii patients, caregivers, families, neurologists & researchers are honored to contribute to the development of Novel Alzheimer's Therapy" Kore Kai Liow, MD, Neurologist & Principal Investigator, Hawaii Memory Disorders Center & Alzheimer's Research Unit, Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawai`i John Burns School of Medicine. **Dedicated Research Hotline (808) 564-6141**



Barriers to Alzheimer Disease Clinical Trial Participation in a Minority Population

Anson Y Lee [1 2], Julia R Jahansooz [1 2], Darrell Guittu [1], Rexton Suzuki [1], Lauren Pak [1], Kyle M Ishikawa [2 3], Connor Goo [1 2], John J Chen [2 3], Enrique Carrazana [1 2], Jason Viereck [1 2 3], Kore K Liow [1 2 3]

1Memory Disorders Center & Alzheimer's Research Unit, Hawaii Pacific Neuroscience, Honolulu, Hawaii.
2John A. Burns School of Medicine, University of Hawaii, Honolulu, Hawaii.
3Biostatistics Core Facility, Department of Quantitative Health Sciences, John A. Burns School of Medicine, University of Hawaii, Honolulu, Hawaii.

Background: Alzheimer disease (AD), the most common neurodegenerative disorder in the United States, disproportionately burdens minority populations.

Objective: To explore barriers to AD clinical trial participation by Asian and Native Hawaiian patients diagnosed with AD or mild cognitive impairment.

Method: We surveyed 187 patients with a Mini-Mental State Examination score ≥14 between January 2022 and June 2022. The score cutoff for clinical trial eligibility was set by the institution. Individuals also completed a 15-question telephone survey that assessed demographics, barriers to clinical trial participation, and clinical trial improvement methods.

Results: Forty-nine patients responded, with a response rate of 26%. Asian and Native Hawaiian patients were less likely than White patients to participate in AD trials. The main barrier to participation was a lack of information about AD trials. Providing additional information regarding AD trials to patients and family members were listed as the top two reasons patients would consider participating in a clinical trial.

Conclusion: Insufficient information about AD clinical trials is the primary barrier to participation among Asian and Native Hawaiian patients, followed by difficulty coordinating transportation and, in the case of Asians, the time required for clinical trials. Increased outreach, education, and assistance with logistics in these populations should be pursued to improve rates of participation in clinical trials.

Lee AY, Jahansooz JR, Guittu D, Suzuki R, Pak L, Ishikawa KM, Goo C, Chen JJ, Carrazana E, Viereck J, Liow KK. Barriers to Alzheimer Disease Clinical Trial Participation in a Minority Population. Cogn Behav Neurol. 2024 Mar 1;37(1):40-47. doi: 10.1097/WNN.0000000000000359.
PubMed PMID: 37878413; PubMed Central PMCID: PMC10948321

Hawaii 1 of 8 top US sites selected to offer Phase 1 Next Generation High Binding Potency Best-in-Class SQ Anti-Amyloid Beta Antibody. Research underway at Hawaii Memory Center & Hawaii Alzheimer's Research Unit *June 2024, Honolulu*

According to Prothena website, PRX012 is a next-generation, high binding potency antibody, designed to enable subcutaneous dosing on a patient-friendly, convenient administration schedule, potentially providing greater accessibility for patients and caregivers.

Preclinical data have shown that PRX012 binds to beta amyloid plaques and oligomers with high avidity, enabling effective levels of Aβ plaque occupancy at relatively lower dose ranges, which are optimal for ***subcutaneous delivery***. Compared to first generation anti-Aβ antibodies, PRX012 is expected to result in less variance of antibody concentrations in the brain.

Phase 1, placebo-controlled, single ascending dose clinical trial of an investigational drug called PRX012 in adults aged 60 to 85 with probable Alzheimer's disease (AD) or mild cognitive impairment due to AD.

Qualified patients will get FREE travel & FREE Amyloid PET & must be willing to travel to partner Amyloid PET facility in Los Angeles.

"Our Hawaii patients, caregivers, families, neurologists & researchers are honored to contribute to the development of Next generation Alzheimer's Therapy" Kore Kai Liow, MD, Neurologist & Principal Investigator, Hawaii Memory Disorders Center & Alzheimer's Research Unit, Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawai`i John Burns School of Medicine

Dedicated Hawaii Alzheimer's Research Hotline (808) 564-6141

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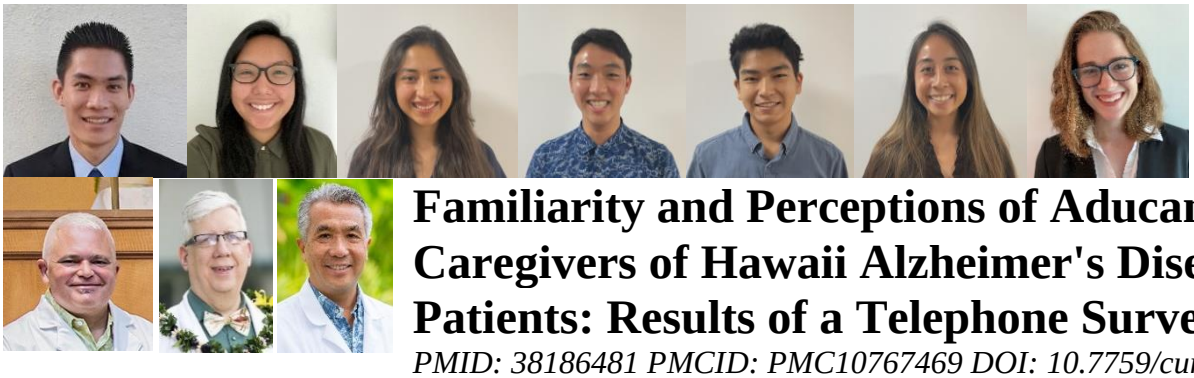


Familiarity and Perceptions of Aducanumab in Caregivers of Hawaii Alzheimer's Disease Patients: Results of a Telephone Survey

PMID: 38186481 PMCID: PMC10767469 DOI: 10.7759/cureus.50001

C. Goo1,2, F. Morden1,2, S. Aquino2, K. Wong2, J. Kawamura2, S. Masca2, R. Gorenflo 1,2, E. Carrazana1,2, J. Viereck1,2, K. Liow1,2;
1University of Hawaii, John A. Burns School of Medicine, Honolulu, HI, United States of America, 2Hawaii Pacific Neuroscience, Memory Disorders Center & Alzheimer's Research Unit, Honolulu, HI, United States of America

Aim: To identify current perceptions of aducanumab among patients with Alzheimer's disease (AD) and their caregivers.

Methods: A total of 352 caregivers of AD patients seen at Hawaii's largest multidisciplinary neuroscience center between January 01, 2019, and June 21, 2021, were surveyed by telephone to understand patient and caregiver knowledge, familiarity, and hesitancy toward aducanumab.

Results: Thirty-seven percent of caregivers were familiar with aducanumab. Caregivers who were spouses of their respective patients with AD (p=0.0023) had increased odds of familiarity. Additional predictors of aducanumab familiarity included patients with higher mini-mental state examination scores (p=0.0076) and those who received mental stimulation (p=0.007). Conversely, caregivers who identified as native Hawaiian and other Pacific Islanders (NHPI) (p=0.044) or the patient's child (p=0.010) were predictors of decreased familiarity. Only 33% of caregivers familiar with aducanumab believed it to be safe and 56% reported "side effects" as their top concern. Thirty percent of caregivers were moderately ready or very ready to use aducanumab if given the opportunity.

Conclusion: Most caregivers of Hawaii AD patients were unfamiliar with aducanumab. Furthermore, those familiar were hesitant to trial the medication. Improved education and awareness of AD therapies are important, so families and caregivers of AD patients can make more informed decisions regarding AD treatment.

Native Hawaiian and Pacific Islander Participation in Alzheimer's Disease Clinical Trials: Exploration of Zip Code Based Heat Map Patterns

Nina Krupa1,2, Kylie Herndon1,3, Kaelyn Pacpaco1,4, D-Dré D. Wright1,2, Ryan Nakamura1,2, Anita J. Cheung, MPH1,2, Anson Y. Lee1,2, Julia R. Jahansooz, MS1,2, Masako Matsunaga, PhD2, Samuel T. Kim1, Enrique Carrazana, MD2, Kore Liow, MD1,2

1Memory Disorders Center and Alzheimer's Research Unit, Hawaii Pacific Neuroscience, Honolulu, HI 2John A. Burns School of Medicine, University of Hawaii, Honolulu, HI

3The University of Cincinnati, Cincinnati, OH 4Iolani School, Honolulu, HI

Objectives: Alzheimer's Disease (AD) is the most common neurodegenerative disorder in the United States, and it disproportionately burdens minority populations. Previous research demonstrated that Asian and Native Hawaiian patients were less likely than White patients to participate in AD clinical trials. Native Hawaiians and Pacific Islanders (NHPI) make up 27% of the population in Hawaii and 0.5% of the United States population. The goal of this study was to determine what percentage of AD clinical trial participants were NHPI, as well as patterns in their demographics.

Methods: A retrospective chart review of AD patients (ICD G31.84) who participated in AD clinical trials at two outpatient neurological clinics between the year 2020 and 2024 was conducted. One-way ANOVA or Kruskal-Wallis rank sum test for continuous variables and Fisher's Exact Test or Pearson's Chi-squared test for categorical variables were used to examine differences across racial groups. ZIP code heat maps were used to depict participation of various ethnocultural racial groups.

Results: Total of 244 patients participated in AD clinical trials. Overall, White patients had the highest percentage of participation (31%), followed by Asians (24%), and NHPI (10%) patients. Based on ZIP code heat maps the three ethnocultural racial groups had different patterns of referral to AD clinical trials. NHPI patients represented, on average, the youngest group diagnosed with AD at 71 years old (p=0.01).

Conclusion: In a majority minority state like Hawaii, NHPI population makes up 20% of the population in this memory clinic, however, they are under-represented in participation in AD clinical trials (10%). ZIP code-based heat maps can provide insights into the pattern of referrals and clinical trial participation for NHPI as well as to their counterparts.

EEG slowing and CSF amyloid status: Implications for Alzheimer's disease detection and progression. Kim, Nathan K, Nakahira S, Lee A, Carrazana E, Viereck J, Liow K Journal of the Neurological Sciences, Volume 455, 121409

EEG Slowing and CSF Amyloid Status: Implications for Alzheimer's Disease Detection and Progression

Nathan N. Kim[1,2], Shay Nakahira[1,2], Anson Y. Lee[1,2], Eliza Hagen[2], Enrique Carrazana[2], Jason Viereck[1,2], Kore K. Liow[1,2]

[1]John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI, USA [2]Hawai'i Pacific Neuroscience, Alzheimer's Neural Network EEG (ANNE) Research Lab, Memory Disorders Center, Alzheimer's Research Unit, Honolulu

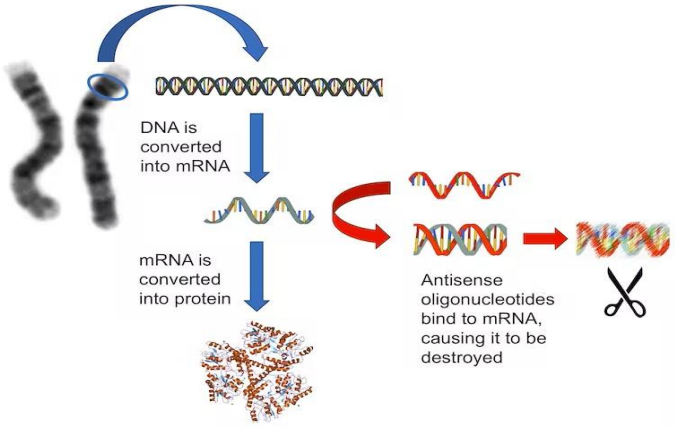
Background and aims Cerebrospinal fluid (CSF) biomarkers amyloid-β and tau proteins play a significant role in diagnosing Alzheimer's disease (AD). However, alternative non-invasive biomarkers are still being investigated for the early detection of the disease. Electroencephalogram (EEG) findings, particularly the slowing of brain wave patterns, have been observed in AD patients, but their relationship with CSF amyloid status has yet to be characterized.

Methods This was a retrospective cohort study investigating the association between CSF amyloid status, EEG findings, and AD stage. Logistic regression analysis was employed to examine the relationship between the presence of abnormal slowing and CSF amyloid status. Demographic information, MMSE scores, CSF amyloid status, and MRI reports were collected for each participant. EEG recordings were analyzed through visual analysis and manual counting.

Results In total 19 participants were included, of which 13 were CSF amyloid positive and 6 were CSF amyloid negative. Among the CSF amyloid positive individuals, 8 (61.5%) displayed evidence of diffuse background slowing, while 2 (33.3%) of the CSF amyloid negative individuals exhibited diffuse background slowing. Logistic regression analysis revealed a statistically significant association between positive CSF amyloid status and the presence of diffuse background slowing (odds ratio = 6.667; p-value = 0.039).

Conclusions This study provided evidence of an association between abnormal diffuse background slowing observed in EEG recordings and positive CSF amyloid status. Integrating EEG analysis may enhance AD diagnosis and facilitate means of early intervention in disease progression.

Hawaii's FIRST Alzheimer's Patient treated with Anti Tau Therapy injected directly into the Brain. Hawaii Alzheimer's Research Unit is 1 of 25 US sites selected for this Novel Phase 1 study among Harvard, Stanford & UCSF. *16th January 2024 Honolulu*



This week, Hawaii's very FIRST patient successfully injected with Tau ASO Therapy directly into the brain via intrathecal route in a Novel phase 1 Therapy in an effort to overcome the issue of poor drug response due to Blood brain barrier as with other therapies. Hawaii Memory Disorders Center and Alzheimer's Research Unit is 1 of 25 sites among Harvard, Stanford, UCSF, NYU & other top centers specializing in memory & Alzheimer's selected to participate.

According to Biogen website, Alzheimer's disease (AD) is a progressive neurodegenerative disease that damages healthy cells in the brain causing cognitive impairment and functional disability. BIIB080 (tau ASO) is an antisense oligonucleotide (ASO) that may reduce production of the tau protein and its accumulation in brain cells, potentially slowing the progress of the disease. BIIB080 is designed to target microtubule-associated protein tau (MAPT) mRNA and prevent production of tau protein. This is a Study to Assess if BIIB080 Can Change Clinical Dementia Rating-Sum of Boxes Scores, and BIIB080 Safety and Tolerability When Injected directly into the Cerebrospinal Fluid of Participants With Mild Cognitive Impairment Due to Alzheimer's Disease (AD) or Mild AD Dementia Between 50 to 80 Years of Age (CELIA). More information: NIH Website

"Our Hawaii patients, caregivers, families, neurologists & researchers are honored to be able to play a role to contribute to this important phase I Novel ground breaking research" Kore Kai Liow, MD, Neurologist & Principal Investigator, Hawaii Memory Disorders Center & Alzheimer's Research Unit, Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawai`i John Burns School of Medicine

Dedicated Hawaii Alzheimer's Research Hotline (808) 564-6141

Study Show Diabetic & Weigh Loss Drug May Protect Against Alzheimer's: Hawaii Memory Disorders Ctr & Alzheimer's Research Unit - 1 of 70 US Centers Investigating Semaglutide GLP-1 RA (Glucagon Like Peptide 1-Receptor Agonist) in Alzheimer's since 2021

HONOLULU July 31, 2024 - Weight loss and diabetic drug similar to Ozempic appeared to slow cognitive decline in patients with mild Alzheimer's disease, new research presented this week in Philadelphia at the Alzheimer's Association International Conference. Hawaii Memory Center and Alzheimer's research Unit is part of Novo Nordisk's phase 3 clinical trials that will compare semaglutide to a placebo in more than 3,000 patients with mild cognitive impairment or early-stage Alzheimer's disease. About a dozen Hawaii patients are currently in these active on-going clinical trials.

Is Alzheimer's an Insulin Signaling Problem? According to Evaluate, study testing the hypothesis that neurodegeneration is linked to low insulin and insulin resistance, and thus that a GLP-1 analogue diabetes drug like Novo's Victoza could improve cognitive function. A correlation between blood glucose levels and rate of cognitive decline can be seen even without clinical diabetes, some have suggested, but type 2 diabetes almost doubles the risk of developing Alzheimer's and is associated with accelerated cognitive decline in people with mild cognitive impairment.

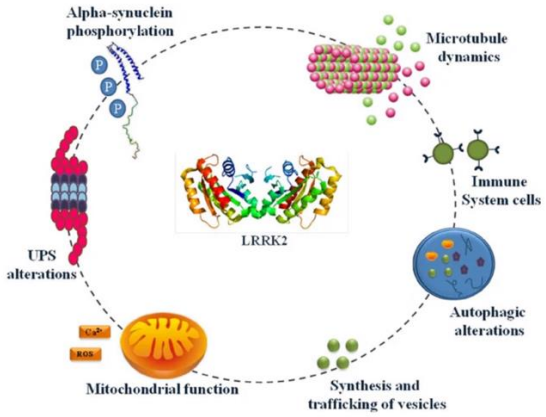
Semaglutide has specifically been shown to reduce measures of neuro-inflammation which may affect cognition and function in a post-hoc analysis of data from three large cardiovascular outcomes trials conducted by Novo Nordisk (LEADER, SUSTAIN 6 and PIONEER 6), which included 15,820 patients with type 2 diabetes with median follow-up of 3.6 years. The rate of developing dementia was statistically significantly reduced by 53% in favour of GLP-1.

Randomized Double-blind Placebo-controlled Clinical Trial Investigating the Effect and Safety of Oral Semaglutide in Subjects with Early Alzheimer´s Disease (EVOKE) (NIH Info)

"Thanks to the support of our community, our team of neurologists, dementia specialists and investigators and dedicated research staff at the Memory Disorders Center & Alzheimer's Research Unit at Hawaii Pacific Neuroscience, in Honolulu cannot be more proud of the work we do here in Hawaii to contribute to the worldwide effort to meet unmet needs in this exciting field in Alzheimer's and Neurodegeneration", says Kore Liow, MD, Principal Investigator and Neurologist, Hawaii Pacific Neuroscience. info@HawaiiNeuroscience.com or Alzheimer's Research Unit Hotline (808) 564-6141 or NIH Info

Hawaii joins Harvard, Duke and UCSF to investigate BIIB122 blocking LRRK2 (Leucine-rich repeat kinase 2) to Restore Lysosomal Activities to *Slow Parkinson's Progression*

According to Parkinson's News Today, Parkinson's does not have a clear genetic cause, but research suggests that mutations in the gene that codes for the protein leucine-rich repeat kinase 2 (LRRK2), also known as dardarin, may increase a person's disease risk. Mutations in the LRRK2 gene, which broadly cause an overactivation of LRRK2, are associated with both familial and sporadic Parkinson's disease, but patients without these mutations also show higher levels of active LRRK2 protein.



The many jobs of LRRK2. Source: Researchgate

While the role of LRRK2 is not fully clear, a body of research suggests that its aberrant activation affects transit within cells, particularly the activity of lysosomes, subcellular compartments responsible for breaking down and recycling excess material and damaged cell parts. Abnormalities in lysosome activity may contribute to neurodegeneration. *Photos credit: https://scienceofparkinsons.com/2022/01/24/lrrk2-2/*

BIIB122/DNL151, co-developed by Denali and Biogen, is a selective small molecule designed to cross the blood-brain barrier and block LRRK2 activity, specifically in the nervous system. The companies believe that doing so could restore lysosomal function and potentially slow Parkinson's progression. Phase 2b LUMA study — will evaluate BIIB122/DNL151 in patients with and without LRRK2 mutations.

Who can qualify? Diagnosed with PD within 2 years, Currently on No PD medications

"Our team of neurologists, neuroscience specialists and researchers in Hawaii cannot be more proud to be part of this ground breaking research to develop a drug to potentially slow Parkinson's disease progression" says Kore Liow, MD, Principal Investigator, Neurologist & Neuroscience Chair at Hawaii Pacific Neuroscience & Clinical Professor of Medicine (Neurology), University Hawaii JABSOM

CLINICAL TRIALS

For more information, See NIH Info or please contact: Hawaii Parkinson's Disease Center & Hawaii Parkinson's Research Unit 2230 Liliha Street #104, HONOLULU, HI 96817
Research Hotline (808) 564-6141 info@HawaiiNeuroscience.com

Hawaii's Memory Ctr continue to offer *Leqembi* to Patients since 2019 after contributing the only Native Hawaiian Pacific Islander Diversity data to CLARITY trial leading to 2023 FDA approval.

Since 2019, neurologists & researchers at Hawaii Memory Disorders Center & Hawaii Alzheimer's Research Unit , Ct for Neuroscience Diversity participated in the investigation of Leqembi's (Lecanemab) and contributed the only Native Hawaiian and Pacific Islander diversity data in the CLARITY trial among 1,795 patients leading to FDA full approval in 2023.

According to FDA website, Alzheimer's disease is an irreversible, progressive brain disorder affecting more than 6.5 million Americans. Leqembi demonstrated a statistically significant and clinically meaningful reduction of decline from baseline to 18 months compared to placebo.

Clarity AD Baseline Characteristics

Demographic Characteristics

Characteristic	Combined Total N=1795	United States N=948
Age, median (range), years	72 (50, 90)	73(50,90)
Age Group, n (%)		
<65 years	353 (19.7)	158 (16.7)
≥65 to <80	1203 (67.0)	637 (67.2)
≥80	239 (13.3)	153 (16.1)
Female , n (%)	938 (52.3)	487 (51.4)
Region, n (%)		
North America	1072 (59.7)	948 (100)
Europe	429 (23.9)	0
Asia-Pacific	294 (16.4)	0
Race, n (%)		
Asian	303 (16.9)	7 (<1)
Black	47 (2.6)	43 (4.5)
Caucasian	1381 (76.9)	896 (94.5)
Native American	2 (<1)	1 (<1)
Native Hawaiian or Other Pacific Islander	1 (<1)	1 (<1)
Other	33 (1.8)	0
Missing	28 (1.6)	0

The most common side effects of Leqembi were headache, infusion-related reactions and amyloid-related imaging abnormalities (ARIA), most commonly presents as temporary swelling in areas of the brain usually resolves over time and may be accompanied by small spots of bleeding. Although ARIA is often not associated with any symptoms, symptoms can occur and include headache, confusion, dizziness, vision changes and nausea.

Since 2019, patients have been closely monitored for these side effects after receiving Lequembi at Neuro IV Infusion Center specifically designed to monitor and manage side effect such as ARIA by team of experienced onsite infusion and neuroscience team which is important as Leqembi is now offered to eligible patients after FDA approval 2023.

Our Hawaii patients, caregivers, families, neurologists & researchers are honored to be able to play a role to contribute diversity and inclusion of Minority Populations to this important research study leading to the FDA full approval of Leqembi" Kore Kai Liow, MD, Neurologist & Principal Investigator, Hawaii Memory Disorders Center & Alzheimer's Research Unit Clinical Professor of Medicine (Neurology), University of Hawaii John Burns School of Medicine. NIH website listing the Hawaii Trial Site ***Hawaii Alzheimer's Research Unit Hotline (808) 564-6141 or info@HawaiiNeuroscience.com***

The Hawaii Memory Disorders Center & Alzheimer's Research Unit collaborates with the Advance Brain Monitoring to launch the Hawaii ANNE (Alzheimer's Neural Network EEG) Lab dedicated to develop an easily accessible, noninvasive, nontoxic and cost effective tool to measures synaptic neuronal network brain electrical activities using BEAM™ (Biomarker based Electrophysiology Advanced Brain Monitoring).

BEAM is a proven EEG platform developed using machine learning AI algorithms to map the progression of cognitive decline across the dementias.

2024 ANNE Research Team

(front row) medical students Michael Read, janette Keola, Kirra Borrelo, Nathan Kim Neurologist Kore Kai Liow, MD, Shay Nakahira, Kaylie Yamauchi, Sarah Hogue, Research staffs

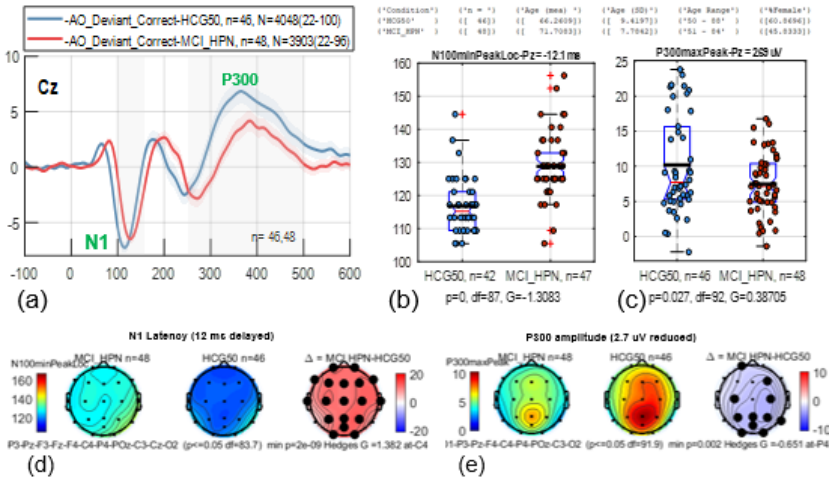
(back row) Kelly Asahi, Jason Edwards, Sam Kim, John Seib, Qi Zhi, DNP, MPH, Ena Zhu

ANNE

Hawaii's ANNE (Alzheimer's Neural Network EEG) Lab AI Machine Learning Research presented at Tokyo September 2024 AAIC (Alzheimer's Association International Conference) Advancements in Modernizing Diagnosis

The Hawaii Memory Disorders Center & Hawaii ANNE (Alzheimer's Neural Network EEG) Lab collaborates with the Advance Brain Monitoring to look at Real-world point of care EEG/ERP biomarker platform for assessment of the neurophysiological deficits in individuals with Mild Cognitive Impairment.

2024 ANNE Research Team (Front- University Hawaii medical students Michael Read, Janette Keola, Kirra Borrelo, Nathan Kim Neurologist Kore Kai Liow, MD, Shay Nakahira, Kaylie Yamauchi, Sarah Hogue, (back row research Staff) Kelly Asahi, Jason Edwards, Sam Kim, John Seib, Qi Zhi, DNP, MPH, Ena Zhu)



BEAM (Biomarker based Electrophysiology Advanced Brain Monitoring) a proven EEG platform developed using machine learning AI algorithms to map the progression of cognitive decline across the dementias. BEAM™ platform (wireless, FDA-cleared EEG system integrated with time-synchronized computer-based neurocognitive testing) was used to assess resting state EEG (eyes-open and eyes-closed, 5-min each) and ERPs in auditory oddball (AO), image recognition memory (SIR), and sustained attention tasks (3 choice vigilance: 3CVT). Pre-defined EEG/ERP measures were reported for each patient in percentiles relative to age-matched normative data. MCI patients exhibited an average 12 ms delay in early processing of auditory stimuli, as measured by N1 latency ($p<0.001$, ES=1.3, df = 87) and 2.7μV reduction of the P300 amplitude ($p<0.03$, ES = 0.4, df=92). In resting state eyes closed, MCI patients exhibited elevated theta power (average ES=0.27) that reached statistical significance (uncorrected) in limited number of channels (e.g. $p<0.05$, ES=0.36 at F4).

These results suggest a possible diagnostic role for point-of-care, rapid-setup EEG/ERP assessment platforms at an individual level. Unlike molecular diagnostic biomarkers of neurodegenerative disease, EEG/ERP biosignatures could provide functional biomarkers based on neural dysfunctions, which are the underpinnings of cognitive symptoms. These methods could assist with tracking trajectory of cognitive decline for individuals.

Hawaii neurologists & researchers are honored to contribute to this ground breaking research to develop a noninvasive, widely available and cost effective tool for Alzheimer's Disease diagnosis to serve our island and rural populations," Kore Kai Liow, MD, Director, Hawaii Memory Disorders Center Principal Investigator, Alzheimer's Neural Network EEG (ANNE) Research Lab, Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research, University of Hawai`i John Burns School of Medicine. Dr. Liow trained in Cortical Neurophysiology at NINDS, NIH and continue to serve NIH on its Scientific Merit Review, Review Study Section. Questions: kliow@hawaii.edu

Hawaii Neuro COVID Clinic
Select site for NIH-NYU NeuroCOVID DataBank-Biobank

As of February 2022, Hawaii Neuro COVID Clinic is one of 20 US sites selected by NIH to serve as a participating site for the COVID-19 Neuro Databank-Biobank or NeuoCOVID Project to maintain a national resource studying neurological complications of COVID-19, project funded by the NINDS, NIH.

Hawaii Neuro COVID Clinic Interdisciplinary Specialists & Services

Specialists in memory, cognitive symptoms
Specialists in headache, facial & neck pain
Specialists in pain, muscle weakness and cognitive evaluation rehabilitation
Sleep specialist – specializes in evaluating "Covidsomnia", restless leg, sleep disorders associated with COVID

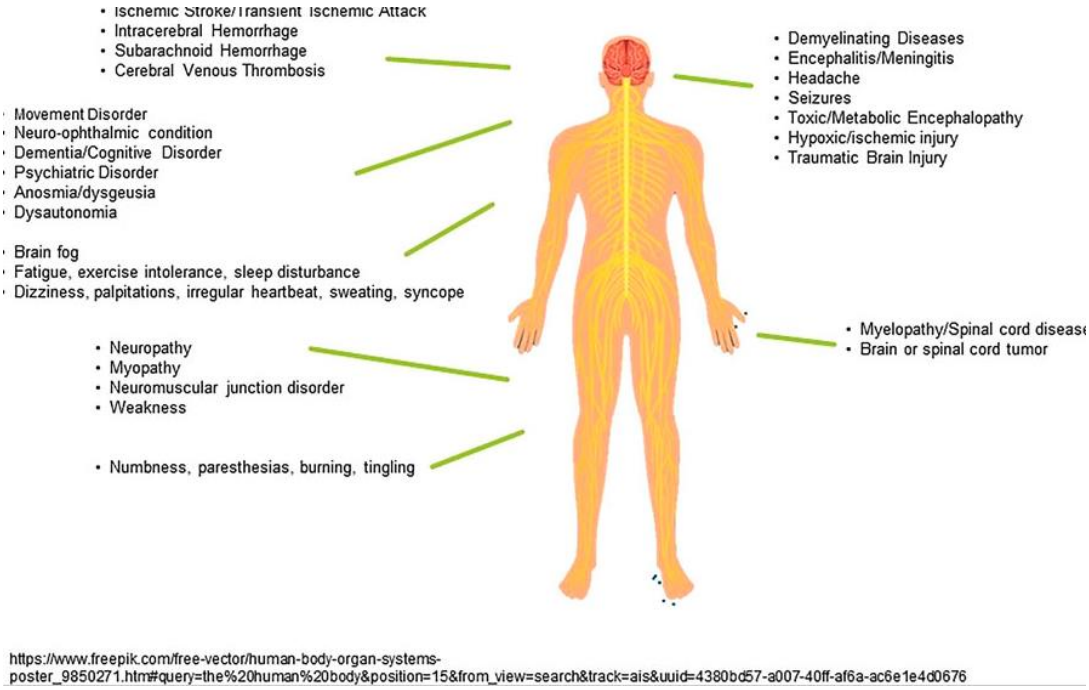
The goal is to provide patients with comprehensive neurologic long term whole-person health care. Based on the findings during the visit, the clinic may recommend further testing with other specialists, physical, occupational, and cognitive therapists. Patients visiting the clinic can expect a detailed neurologic history, physical & neurological examination which may include additional cognitive screenings, EEG, EMG and MRI brain.

"Recent study shows that at least one-third of people who have COVID-19 continue to experience neurological symptoms such as fatigue, brain fog, headache, decreased smell or taste, weakness, or pain. To address and treat neurological complications resulting from patients recovering from COVID-19, Hawaii Pacific Neuroscience has launched a interdisciplinary Neuro COVID clinic specifically to address the needs of these COVID "long haulers" Kore Kai Liow, MD, Neurologist & Director, Hawaii Neuro COVID Clinic, Hawaii Site Principal Investigator, NIH-NYU NeuroCOVID Project., Clinical Professor of Medicine (Neurology), University of Hawaii John Burns School of Medicine.

Hawaii NEURO NeuroCOVID Clinic NIH NeuroCOVID Databank-Biobank in Hawaii
Call or text (808) 261-4476

The National Institutes of Health (NIH) COVID-19 Neuro Databank/Biobank: Creation and Evolution – Hawaii's Role including data on Native Hawaiians & Pacific Islanders (NHPI)

Meropol SB, Norris CJ, Frontera JA, Adeagbo A, Troxel AB; COVID-19 Neuro Databank/Biobank Consortium. The National Institutes of Health COVID-19 Neuro Databank/Biobank: Creation and Evolution. Neuroepidemiology. 2024 Jun 26:1-13. doi: 10.1159/000539830. Epub ahead of print. PMID: 38934169.



https://www.freepik.com/free-vector/human-body-organ-systems-poster_9850271.htm#query=the%20human%20body&position=15&from_view=search&track=ais&uuid=4380bd57-a007-40ff-af6a-ac6e1e4d0676

Diverse neurological conditions are reported associated with the SARS-CoV-2 virus; neurological symptoms are the most common conditions to persist after the resolution of acute infection, affecting 20% of patients 6 months after acute illness. The COVID-19 Neuro Databank (NeuroCOVID) was created to overcome the limitations of siloed small local cohorts to collect detailed, curated, and harmonized de-identified data from a large diverse cohort of adults with new or worsened neurological conditions associated with COVID-19 illness, as a scientific resource.

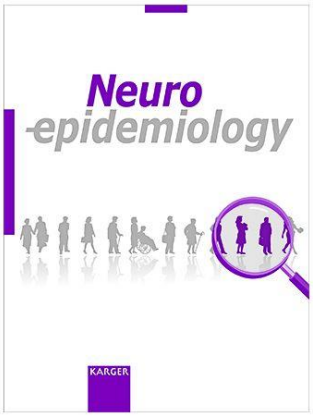
The NeuroCOVID database is a unique and valuable source of comprehensive de-identified data on a wide variety of neurological conditions associated with COVID-19 illness, including a diverse patient population. Initiated early in the pandemic, data collection has been responsive to evolving scientific interests. NeuroCOVID will continue to contribute to scientific efforts to characterize and treat this challenging illness and its consequences.

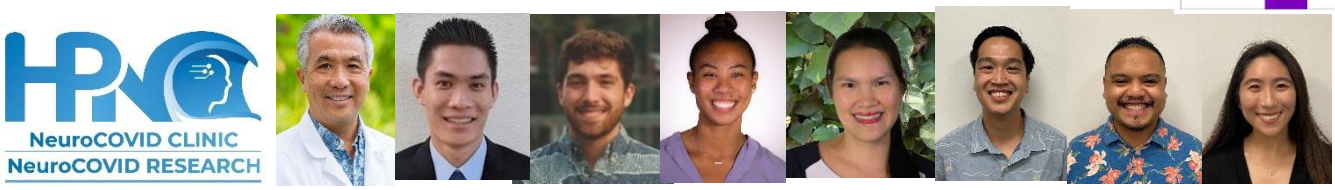
Syndrome taxonomy/classification categories

Neurological category
Demyelinating disease
Encephalitis/meningitis
Headache
Ischemic stroke/TIA
Hemorrhagic stroke (SAH/ICH)
Seizure
Dementia/cognitive disorders
Neuromuscular disorders (neuropathy, myopathy, neuromuscular junction)
Toxic metabolic encephalopathy
Traumatic brain injury
Movement disorder
Spinal cord disorder

Characteristics

	Frequency	Percent
American Indian or Alaskan Native	6	<1%
Asian	35	4%
Black or African American	189	21%
Native Hawaiian or Pacific Islander	5	<1%
White	473	53%
More than 1 Race	8	<1%
Other	79	9%
Unknown	48	5%
Race Not Represented	45	5%
TOTAL	888	100%





Investigator, Kore Liow, MD, Neurologist & Director, HawaiiNeuroCOVID Clinic, Clinical Professor of Medicine (Neurology), Graduate Faculty, Clinical & Translational Research said " We are so proud of our medical students: Connor Goo, Ward Weldon, D-Dré Wright, Anita Cheung, Brandon Hong, Jonathan Carino, Cierra Nakamura of University of Hawai`i John Burns School of Medicine who played a role in the collection of these data leading to NIH publication and proud to contribute to this important NIH research efforts especially in regards to NHPI populations." Professor Kore Kai Liow, MD also serves on NIH NINDS Study Sections, Scientific Review Group (SRG).

NeuroCOVID project has been initiated at New York University Langone Health to create and maintain a national resource documenting and studying neurological complications of COVID-19 and is funded by the NINDS, NIH through the NIH National Center for Advancing Translational Sciences through its Clinical and Translational Science Awards Program NIH, NINDS Grant 3UL1TR002541-01S1.

More Information: NIH website, NYU website, Hawaii Neuro COVID Clinic, Hawaii NeuroCOVID ResearchLab

Department of Quantitative Health Sciences

Guest Lecture for
BIOM640
Introduction to Clinical Research

Path of Drug Discovery:
Bench to Bedside, Clinical Trials to FDA Approval

Kore Kai Liow, MD, FACP, FAAN
Neuroscience Chair & Principal Investigator, Hawaii Pacific Neuroscience, Clinical Professor, Dept. of Medicine (Neurology), Affiliate Graduate Faculty, Quantitative Health and Clinical Research, Dept. Quantitative Health Sciences, University of Hawai`i John Burns School of Medicine

Enrique Carrazana, MD
Clinical Instructor, University of Hawai`i John Burns School of Medicine
Sr Vice President, Strategic Initiatives, Neurelis

Thursday, October 3, 2024
3:00 PM HST

Zoom Link: https://hawaii.zoom.us/j/96007968115

Meeting ID: 960 0796 8115
Passcode: 659592

PHOTOGRAPHY BY: COURTNEY MAU VISUAL

CASTLE CONNOLLY TOP DOCTORS® 2024

HAWAII PACIFIC NEUROSCIENCE

Kore Kai Liow, MD, FACP, FAAN

NEUROLOGIST AND RESEARCHER

contact

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WEST OAHU - 94-849 LUMIAINA STREET, SUITE 203
808.261.4476
HAWAIINEUROSCIENCE.COM

Founder and CEO of Hawaii Pacific Neuroscience (HPN), Dr. Kore Kai Liow has a head for the intricate science of neurology and a servant's heart.

"We established our practice with just one employee," says the Malaysia-born, Singapore-raised, NIH-trained Dr. Liow. Today, the team totals 50 members serving over 20,000 patients from all islands and corners of the Pacific annually. "Additionally, our research team initiates over 20 projects attracting investments exceeding $2 million each year, all aimed at benefiting patients and companies in Hawaii, the Pacific Region and beyond."

"This is a thrilling era for neuroscience, with our team at the Clinical Research Center spearheading ground-breaking research," says Dr. Liow, who has published over 60 peer-reviewed PubMed publications and served on national advisory panels for the CDC, AMA, AAN and more. He is especially passionate about harnessing the power of AI to tackle the most dauting challenges in neurology. "We aim to offer hope and new treatment options for patients across Hawaii grappling with conditions such as Alzheimer's dementia, Parkinson's disease, multiple sclerosis, epilepsy, headaches, pain, sleep disorders, depression, and various other neurological disorders."

Providing care to all individuals, including minority populations, irrespective of their insurance coverage or financial means, is of utmost importance to Dr. Liow—a man of science and faith alike who counts his wife Michelle and her significant contributions to their shared success among his many blessings. "Above all, I attribute our achievements to God's favor, grace, and mercy, which have bestowed upon me the honor of serving our wonderful community."

HAWAII PACIFIC NEUROSCIENCE

Fully Integrated Multidisciplinary Neuroscience Team

Kore Kai Liow, MD (Neurology, Memory)
Nicholas Anderson, MD (Sleep Medicine)
Darren Dugas, MD (Neurology, EEG, VEEG, Epilepsy)
Natalia Gonzalez, MD (Neurology, EMG, Neuromuscular, MS)
Eonjung Angeline Kim, MD (Neurology, Headache)
Christopher Larrinaga, APRN-BC, MSN, CNRN
Nicole Evans, PA-C
Qi Zhi, MPH,D-NP, FNP-BC

Phone: (808) 261-4476 Fax: (808)263-4476
www.HawaiiNeuroscience.com

New Patient Referral Form

☐ **Reason of Referral:** _____

☐ **Procedure ONLY (Specify below)**

☐ **EMG** ☐ **EEG** ☐ **Video EEG** ☐ **Sleep Studies (PSG)** ☐ **MSLT/MWT Evaluation**

Preferred Location

☐ **Honolulu** ☐ **West Oahu**

Fill Demographics ☐ **Translator Needed** **if so, Language:**_____

Patient Name: _____
LAST FIRST MI

Patient Address: _____ ☐ Male ☐ Female

DOB:_____/_____/_____ Phone:_____Alternate Phone: _____
Month Day Year

Primary Insurance:_____Subscriber Number: _____

Secondary Insurance:_____Subscriber Number: _____
(if applicable)

Referring Physician:_____P:_____F: _____

Primary Physician:_____P:_____F: _____

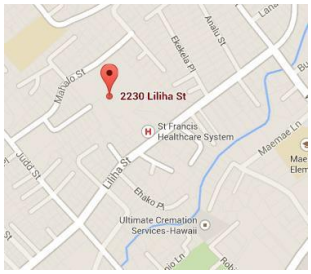
Worker's Compensation (Note: We serve as Concurrent Care Only):
Insurance Name: _____
Claim #: _____
Date of Injury: _____
Employer:_____
Adjuster's Name: _____
Adjuster's Phone #:_____Fax Number #:_____
Nurse Case Manager: _____
Treating Physician: _____

No Fault Information:
Insurance Name: _____
Claim #: _____
Date of Injury: _____
Adjuster's Name: _____
Adjuster's Phone #:_____
Fax Number #:_____

Documents needed: Office notes, pertinent lab results and relevant imaging reports. Appointments will not be scheduled until all pertinent records are obtained.

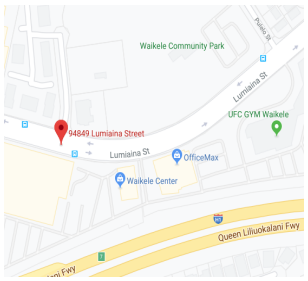
Locations

Honolulu



St. Francis Liliha 2230
Liliha Street, Suite 104
Honolulu, HI 96817

West Oahu



Waikele Professional Center
94849 Lumiaina Street, Suite 203
Waipahu, HI 96797

Hours of Operation:

Monday – Saturday: 8:30am-4:30pm

Procedures:

Electromyography (EMG) is a technique for evaluating and recording the electrical activity produced by skeletal muscles.
Please remember to wear a modest short sleeve shirt and appropriate length shorts. Also, please avoid the use of lotions or oils on your skin. **Time: 60 min**

Electroencephalograph (EEG) is a test that detects electrical activity in your brain using small, flat metal discs (electrodes) attached to your scalp.
Please arrive to your visit with clean, dry, product-free hair. We recommend that you dress modestly and bring a jacket to keep comfortable. **Time: 60 min**

Video EEG (VEEG) is the use of video cameras with EEG to capture visually the onset and characteristics of seizures.
Please arrive to your visit with clean, dry, product-free hair.

Time: Length of testing determined by physician. Please bring change of clothes if overnight stay is planned.

Polysomnography (PSG) is the various types of sleep studies to diagnose sleep disorders.
Please arrive to your visit with clean, dry, product-free hair, and avoid the use of lotions or oils on your skin.
Time: Overnight Stay from 8pm till 5:45am.

Botulinum Toxin is a prescription medicine that is injected into seven key areas of both the head and neck to prevent headaches.
Please avoid this treatment if you're experiencing a fever. **Time: 30 Min**

Time: Dependent on scope of procedure

Hawaii Centers of Excellence for Neurological Conditions

*Memory Disorders Center *Clinical Research Center *Comprehensive Epilepsy Center *Headache and Facial Pain Center *Spine and Pain Management Center *MS and Neuroimmunology Center * Neurodiagnostic Institute of Technology *Nationally certified Video-EEG Epilepsy Monitoring Unit *Parkinson's and Movement Disorders Center * Sleep & Insomnia Center *Stroke & Neurologic Restoration Center *Concussion & TBI Center *Brain Health, Lifestyle Medicine & Wellness Center *Neuromuscular Rehabilitaton Center*