

Jahan Marcu, PhD



Contact and Websites:

- Marcuenterprises@gmail.com
- www.MarcuEnterprises.com
- <https://www.rollingstone.com/author/jahan-marcu/>
- <https://valleywellnessnj.com/blog/>
- <https://cannabinerd.substack.com>

EXPERTISE

Cannabinoid receptor pharmacology, endocannabinoid system, education, hemp, cannabis research, teaching, writing, editing, regulations, standards, public relations, public speaking, analytical chemistry, laboratory operations and management

EDUCATION

Ph.D. Cell Biology

Temple University
Philadelphia PA | 2013

Bachelor of Sciences,

Molecular Cell Biology
Minors in Analytical Chemistry & Communications
San Francisco State University
San Francisco, CA | 2007

Publications: >30

VC and Related Enterprises

Aromarc Therapeutics

Profile

Experienced convergence pharmacologist with over 20 years of focus on cannabinoid research and data analysis. Extensive experience conducting bioanalytical assays for in vitro, in vivo, biochemical and chemical assay development and

troubleshooting. His work has significantly impacted product safety, regulatory frameworks, policy development, and emerging sectors within the cannabis industry. Dr. Marcu excels in translating complex scientific concepts into clear, actionable insights for a broad range of audiences, including clinicians, C-suite executives, regulators, and the public. His expertise extends to reviewing and drafting regulatory documents, clinical study reports, and assessing product safety risks. He has a proven track record of public speaking, advisory roles in health and safety regulations, and fostering academic-business partnerships.

Overview

- Court Qualified Cannabis and Synthetic Cannabinoid Expert (2011) Experience:
 - [*Supreme Court Amicus Brief*](#) with Marvin Washington
 - [*State V. Srack*](#) (Synthetic cannabinoids)
 - *Elite Genetics v. Team Elite* (California) No. 30-2020-01129404-CU-BT-CJC
 - *Buddy Boy v. Avista* (Washington State) No. 18204880-32
 - *Drug test interpretation; Tedesko Law Group and Weyerhaeuser* (Arkansas)
 - *Cannabidiol/hemp product litigation* (Texas)
 - *Invited testimonies at senate judiciary hearings and regulatory meetings*
- Rolling Stone online science articles:
 - <https://www.rollingstone.com/author/jahan-marcu/>
- Editor and Author of the textbook series [*Cannabis Innovations*](#) (De Gruyter)
- ISO 17025:2017 Trained Laboratory Accreditation Assessor (A2LA)
- Chief Cannabis Science Officer, Physicians Research Center Plus (2020 – present)
- Advisor, Medical Marijuana Act Oversight Committee, State of Delaware (2017-2024)
- Aromarc Therapeutics, Co-Founder (2022 – Present)
- Educator and Advisor, Cannabis Certified (2021- present)

SELECTED PUBLICATIONS:

1. **Marcu, J.** Waking From The Strain Dream: Cannabis Science At A Crossroads. <https://www.rollingstone.com/culture-council/articles/waking-from-strain-dream-cannabis-science-crossroads-1235248871/>
2. **Marcu, J.** The legalization of cannabinoid products and standardizing cannabis-drug development in the United States: a brief report. *Dialogues Clin Neurosci* **22**, 289–293 (2020).
3. **Marcu, J. P. & Schechter, J. B.** Regulated Cannabis and Hemp Market Navigation, Business, Public Health, and Research Challenges. *Cannabis Innovations* 15–40 (2024) doi:10.1515/9783110677508-002.
4. Simon, T. A., Simon, J. H., Heaning, E. G., Gomez-Caminero, A. & **Marcu, J. P.** Delta-8, a Cannabis-Derived Tetrahydrocannabinol Isomer: Evaluating Case Report Data in the Food and Drug Administration Adverse Event Reporting System (FAERS) Database. *Drug Healthcare Patient Safety* **Volume 15**, 25–38 (2023). <https://pubmed.ncbi.nlm.nih.gov/36742440/>
5. Simon, T., Cartnick, G., Kamen, L. & **Marcu, J.** 34 – Relationship Between Misuse of Substances and Abuse as Reported in the FDA FAERS Data [1030]. International Society for Pharmacoepidemiology (2023).
6. Bonn-Miller, M. O., Loflin, M. J. E., Thomas, B. F., **Marcu, J. P.**, Hyke, T., & Vandrey, R. (2017). Labeling Accuracy of Cannabidiol Extracts Sold Online. *Jama*, 318(17), 1708–1709. <http://doi.org/10.1001/jama.2017.11909>
7. **Marcu, Jahan P.**, Shore, Derek, Kapur, Ankur, Trznadel, Megan, Makriyannis, Alexandros, Reggio, Patricia, and Abood, Mary E. (2013). Novel Insights Into CB1 Cannabinoid Receptor Signaling: A Key Interaction Identified Between EC3-Loop and TMH2. *J Pharmacol Exp Ther*.
8. **Marcu, Jahan**, Christian, Rigel T., Zielinski, Anne Horowitz Maxx P., Lau, Darryl, Moore, Dan H. Desprez, Pierre-Yves, Yount, Garret L., McAllister, Sean D. (2011) Cannabidiol enhances the inhibitory effects of delta9-tetrahydrocannabinol on human glioblastoma cell proliferation and survival. *J Mol Cancer Ther*.
9. Balu, A., Woods, A., **Marcu, J.**, Balu, G., Medical Cannabis Certification is Associated with Decreased Opioid Use in Patients with Chronic Pain: A Retrospective Cohort

Study in Delaware. *Del Med J* 93 (1) 18–23 (2021). <http://digital-editions.todaymediacustom.com/medical-society-of-delaware/delaware-medical-journal/jan-feb-2021/#p=22>

10. Marcu, J., Schechter, J. *The role of FDA in Defining Cannabis and Hemp: A Brief Perspective on the Future Cannabis Regulation in the United States*. (2024 Publication in Process) The Cannabis Innovation Series. Regulated Cannabis and Hemp Market Navigation: Business, Public Health, and Research Challenges (Volume 1)
11. Debunking Myths and Misconceptions of the Psychedelics Industry. Rolling Stone: January 7, 2022. <https://www.rollingstone.com/author/jahan-marcu/>
12. **Marcu J.**, Simon TA, Molloy P. A New Ache in the World of Joints. *Archives of Rheumatology & Arthritis Research*; 1 (4) 2021. <https://irispublishers.com/arar/pdf/ARAR.MS.ID.000519.pdf>
13. Shaw C, **Marcu J.** Case Report: Cannabidiol in the management of Acute Opioid Withdrawal. *AJEM*; Vol 2;2.
14. **Marcu, J.** (2019). Regulators need to rethink restrictions on cannabis research. *Nature* 572 (7771). <https://dx.doi.org/10.1038/d41586-019-02531-6>
15. Shaw, C., **Marcu, J.** (2019). Cannabidiol in the Management of Comorbid Rheumatoid Arthritis, Lupus, and Raynaud's Disease. *AJEM* (1)(1)14-18.
16. Russo, E. B., & **Marcu, J.** (2017). Cannabis Pharmacology: The Usual Suspects and a Few Promising Leads. *Advances in Pharmacology (San Diego, Calif.)*, 80, 67–134. <http://doi.org/10.1016/bs.apha.2017.03.004>
17. Upton, R., Craker, L., Elsohly, M., Romm, A., Russo, E. Sexton, M., **Marcu, J.**, Siwsher, D. American Herbal Pharmacopeia, Monograph *Cannabis Inflorescence* Standards of Identity, Analysis, and Quality Control (2013 & 2014) www.herbal-ahp.org.
18. **Marcu, Jahan** (2016). An Overview of Major and Minor Phytocannabinoids. *Neurobiology of Drug Addictions and Substance Misuse, Volume 1 Foundations of Understanding, Tobacco, Alcohol, Cannabinoids, and Opioids*. Elsevier, Academic Press.
19. **Marcu, J.** Schechter, J (2016). Molecular Pharmacology of CB1 and CB2 Cannabinoid Receptors. *Neurobiology of Drug Addictions and Substance Misuse, Volume 1 Foundations of Understanding, Tobacco, Alcohol, Cannabinoids, and Opioids*. Elsevier, Academic Press.
20. Americans for Safe Access (May 2016). Scheduling Cannabis: A Preparatory Document for FDA's 8-Factor Analysis on Cannabis. [\[Link to Article\]](#)

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21. Americans for Safe Access. (August 2016) Medical Cannabis Access for Pain Treatment, A Viable Strategy to Address the Opiate Crisis. [\[Link to Article\]](#)
 22. Americans for Safe Access (March 2016) *Cannabis and Cannabis Resin Critical Review Preparation Document*. [\[Link to Article\]](#)
 23. **Marcu, J** (2015) The Biochemical System Controlling the Effects of Cannabis: An Introduction. *HerbalGram Volume 12, Issue 6, June 2015* [\[Link to Article\]](#)
 24. **Marcu, Jahan**, Console-Bram, Linda, and Abood, Mary (2015). Book Chapter: Current Cannabinoid Receptor Nomenclature and Pharmacological Principles in Endocannabinoid Regulation of Monoamines in Psychiatric and Neurological Disorders (Editor Van Bocksteale, E.)
 25. Brailoiu, G. Cristina; Deliu, Elena; **Marcu, Jahan**; Abood, Mary; Brailoiu, Eugen. (2014) Differential Activation of Intracellular vs Plasmalemmal CB2 Cannabinoid Receptors. *British Journal of Pharmacology*
 26. Shore DM, Baillie GL, Hurst DH, Navas F, Seltzman HH, **Marcu JP**, Abood ME, Ross RA, Reggio PH (2014). Allosteric Modulation of a Cannabinoid G Protein-coupled Receptor: Binding Site Elucidation and Relationship to G protein Signaling. *J Biol Chem*
 27. Console-Bram, Linda, **Marcu, Jahan**, Abood, Mary (2012). Cannabinoid Receptors: nomenclature and Pharmacological Principles. *Prog Neuropsychopharmacol Biol psychiatry*.

DETAILED EXPERIENCE:

Owner, Chief Executive Officer, Delaware Analytical, LLC (2024 – Present). www.delawareanalytical.com

- A licensed research and compliance laboratory in Delaware, providing analytical testing services for cultivators, processors, manufacturers, and dispensaries, as well as supporting law enforcement drug screening. The lab also conducts testing for soil, water, aquaculture, agricultural, and natural products. The lab specializes in developing and implementing custom R&D solutions, to support product innovation and safety. My work also involves contract services and method development to help cannabis operators, agricultural businesses, and regulatory agencies optimize their products and processes while ensuring compliance with industry standards.

Chief Cannabis Science Officer, Physicians Research Center, LLC/ Physician Research Center + (2020 - Present). CEO Teresa Simon prctrails.info@gmail.com.

- Physicians Research Center, LLC provides consulting services in addition to being a clinical research center. PRC's network of healthcare providers, clinical research and epidemiology experts are available to provide support in the development or implementation of Benefit Risk assessments, post marketing risk management strategy, regulatory interactions on safety issues, advisory boards and due diligence assessments for business development opportunities on pharmaceutical products and devices.
 - For clinical research projects – www.prctrials.com
- PRC plus (**Cerium education** program) is a science-based, research-driven education portal for healthcare providers and a school-based program.
 - For Healthcare provider cannabis education - <https://www.prc-trials-plus.com/education>

Co-founder, Chief Science Officer, Aromarc Therapeutics (2022 – Present)

- Aromarc Therapeutics is start up biotech company that is developing a platform for generating lead candidates that effect inflammatory mechanism common to 50+ diseases that lack treatments. This company melds traditional drug development with AI/ML platforms.
- **Focus:** Grant writing, non-dilutive funding efforts, experimental design, subject matter expert assessing AI/ML output.

Consultant/Adjunct Faculty, Northeastern University (2022 – Present). Responsibilities include teaching cannabis related courses and advising on new course development for the medical cannabis and therapeutics program.

- **Cannabis Laws, Rules, and Regulations**, course descriptions: This course provides an interdisciplinary look at the global changes observed in the laws, standards and politics around the cannabis plant and its products. The course provides an overview of the history of medical and adult use cannabis laws, federal cannabis laws, and the conflict between state and federal laws. Also includes discussions about how current cannabis research is conducted, product safety standards, the different varieties of cannabis and cannabinoids, and various cannabis-based pharmaceuticals currently available.

Adjunct Faculty, University of the Sciences, (2021-2022). www.usciences.edu (Note that USciences merged with St. Joseph University in Philadelphia and ended MC course curriculum.)

- **MC 702: Finance and Regulation in the Cannabis Industry**, course description: This course provides a basic understanding of the regulations and financing framework currently shaping the cannabis industry. Topics include federal and state laws affecting the growing, processing, and sale of cannabis with a focus on taxation, banking, and financing methods, such as venture capital, relevant to operating a cannabis business.
- **Other courses included:** MC 711: Pharmacognosy of Cannabis and MC340: Supply Chain Management in the Cannabis Industry

Founding Partner, Marcu and Arora, (2020 – 2024), www.marcu-arora.com

- Marcu & Arora have partnered to bring listeners and clients the best of their combined experiences. Clients are offered a suite of services designed to support cannabis and psychedelic companies. Their podcast, *How to Launch an Industry*, provides a place for the most knowledgeable voices to share their thoughts.

Co-Founder, Past Editor in Chief, American Journal of Endocannabinoid Medicine (AJEM), (2018 – 2024) <https://www.endocannabinoidmedicine.com>

- **Overview:** AJEM, the first and only American medical authority committed to scientific study of the ECS, and to the evidence-based practice of Endocannabinoid Medicine. The objective of the American Journal of Endocannabinoid Medicine is to help educate medical professionals on the role of the endocannabinoid system in homeostasis, and as a therapeutic target for cannabis and cannabinoid prescription and non-prescription products.

AJEM aims to present and interpret the currently available authoritative research, while stimulating questions regarding the role of medical cannabis in all forms, as a growing methodology in the field of treatment and patient care. The intent of AJEM is to be utilized as a clinical resource and contribute to the examination and overall scientific discussion of the endocannabinoid system.

Advisor, Medical Marijuana Act Oversight Committee, State of Delaware (October 2017-Present)

- **Overview:** Marcu holds a government contract for providing advising to the State of Delaware's medical cannabis program. The Medical Marijuana Act Oversight Committee was established to evaluate and make recommendations regarding the implementation of Title 16, Ch 49A of the Delaware Code. **Co-Founder, Chief Science Officer, the International Research Center on Cannabis and Health (IRCCH) (July 2018 to June 2020)**
- **Overview:** Building on years of expertise in working with cannabis and health, IRCCH was created to bridge a gap between research and clinical practice. The first research project affiliating IRCCH and NYU was launched in April of 2018. Two additional projects are currently planned for Summer 2020 with plans for continued expansion. IRCCH was created by a center grant from NYU, and is also funded privately.
- **Current Focus:** Helping research partners run clinical studies, creating accredited education for clinicians, conducting clinical and social research, participating in standards development, providing advising to government programs and to industry.

Director, Patient Focused Certification (PFC), May 2013-July 2018.
(www.patientfocusedcertification.org)

- **Overview:** PFC is a third-party international certification (assessment and compliance) program for the medical cannabis industry based on the new quality standards for medical cannabis products and businesses issued by the American

Herbal Products Association (AHPA) and the American Herbal Pharmacopeia (AHP) Cannabis monograph. PFC Certification and professional training is available in all medical cannabis states and the District of Columbia. The program provides components for operators, legislators and regulators to promote the adoption of safe and reasonable industry standards and regulations from seed to consumption.

- Created and taught several entire course series internationally (See additional document PFC course guide)

Chief Science Officer, Americans for Safe Access (ASA). Executive Director: Debbie Churgai. 2005-July 2018 (www.safeaccessnow.org)

- **Overview:** Started as a volunteer and rose in the organization to become their chief science officer (CSO) and Director of their Patient Focused Certification program. As CSO, responsibilities included organizing a series of educational seminars and conferences on medical cannabis, cannabinoids, and endocannabinoids, contributing author on medical research materials, fundraising and volunteer work with HIV/AIDS and other terminally ill patients.
- **Focus:** Publishing critical reviews and other regulatory documents regarding cannabis and cannabinoids. Working with regulators on implementing product safety standards for medical cannabis products.

Director of Research and Development, Green Standard Diagnostics, CEO Beth McCauley, May 2013-2016

- **Current Focus:** Medical cannabis research and herbal supplement regulation, advising, and consulting. Other services include method development and validation of quantitative analysis (Contamination, potency, and genetics) of medicinal plants. Research is presently focused on studying disease markers of the endocannabinoid system in spinal fluid of patients with amyotrophic lateral sclerosis, in collaboration with Washington State University and University of Mississippi.

Graduate Student, Temple University School of Medicine, Department of Anatomy and Cell Biology, Center for Substance Abuse, Dr. Mary Abood. September 2008- May 2013.

- **Research Focus:** Presently involved in two research projects: 1) mutational analysis of the CB1 receptor and 2) investigating cannabinoid receptor signaling mechanisms in bone cells via CB1 and CB2 receptors.
- **Techniques Used:** PCR for generating plasmids with specific mutations, cell culture methods to create and maintain stable CB1 mutant cell lines, immunocytochemistry, radio-ligand binding assays, western blot analysis, isolation of stem cells from animals, and assays for determining the metabolic inactivity of bone.

Training: Introduction to the Art and Science of Psilocybin-Assisted Therapy (CME), New York, NY December 2021

- William A. Richards, PhD. and Brian D. Richards, PsyD.
at the New York Academy of Medicine

Training: ExperChem Laboratories, Toronto, Canada May 2015.

- Certification received for completing training entitled *Marihuana for Medical Purposes Regulations* for Canada's national medical cannabis program.

Training: American Chemical Society, Denver, CO March 2015. Title: *Method Development, Validation Procedures, and Regulatory Compliance Issues*.

- A professional education and training course instructed by Dr. Shib Mookherjea of ValQual international, Inc.

Training: National Science Foundation International, March 2014. Title: *SOPs and Record Keeping for Compliance to 21 CFR 111*.

- Training course on recording keeping for regulatory compliance regarding botanical products.

Training: Grace Discovery Sciences, Deerfield, IL, April 2014. Title: *The role of Automated Flash Chromatography in Botanical Identity and Good Manufacturing Practices Compliance*.

Training: Alkemist Labs, Costa Mesa, CA September 7-8, 2013 High-Performance Thin Layer Chromatography:

- Alkemist laboratory is an independent contract laboratory specializing in natural product analysis. With more than 850 species of botanicals analyzed and an internal herbarium containing 6,000 specimens enabling multiple species cross referencing, we are your natural choice for 3rd party analysis and partners in quality control. Key services include botanical microscopy for ID and detection of adulterants, HPTLC fingerprint and marker identity analysis, UV/VIS and HPLC quantitative analysis.

Lab Manager & Technician, California Pacific Medical Center Research Institute, Dr. Dieter Gruenert May 2007-August 2008

- **Research Focus:** studying the cystic fibrosis transmembrane receptor and maintaining Dr. Dieter Gruenert's research program. This involved processing of material transfer agreements & reimbursement payments for cell lines, providing cell culture protocols & cell culture troubleshooting for laboratories, maintaining cell lines in culture for international shipping, maintaining an extensive cell line inventory, and routine characterization of the cell lines.
- **Techniques used:** Advanced and specialized cell culture techniques for human airway epithelial cells, basic culture techniques for stem and hematopoietic cells, qRT-PCR, and Mycoplasma detection.

Technician, California Pacific Medical Center Research Institute. Mentor, Dr. Sean McAllister. July 2005-April 2008

- **Research Focus:** Investigating anticancer activity of synthetic and natural cannabinoids in brain cancer cell lines. Determining if synergistic inhibitory effects

of cannabinoids, on cancer cells, are present using combinations of plant constituents.

- **Techniques Used:** Basic cell culture, MTT assay for analysis of cell proliferation, cell flow cytometry, Boyden Invasion Chamber Assay, and western blot.

Staff Research Associate II, Department of Diabetes and Endocrine Research, University of California San Francisco, Mt. Zion Campus. Principle Investigator Dr. Ira Goldfine. March 2005-August 2008.

- **Research Focus:** Maintaining a mouse colony. Investigating breast cancer pathology from the over expression of the human fetal insulin receptor in transgenic mice.
- **Techniques Used:** Plasmid Transformation, Polymerase Chain Reaction, DNA extraction, Harvesting organs from transgenic mice for whole mounts, paraffin embedding, and protein analysis.

International Research Internship, University of Leiden, Holland. Principle Investigator: Dr. Arno Hazekamp. Summer 2006.

- **Research Focus:** Extraction, isolation, and molecular structure determination of plant compounds.
- **Techniques used:** Centrifugal Partition Chromatography, High-Performance Liquid Chromatography, Gas Chromatography-Mass Spectrometry, Thin Layer Chromatography, and Nuclear Magnetic Resonance

PROFESSIONAL AFFILIATIONS/ACADEMIC SERVICE:

Committee co-founder and former Subcommittee chair of Training, Assessment and Credentialing, ASTM D37 Cannabis Committee (2017-Present).

- **Scope:** The development and maintenance of international standards and guidance for knowledge and skill requirements for the education, training, assessment and credentialing of personnel in all facets of the cannabis industry. The work of this subcommittee will be coordinated with other ASTM Committees and outside organizations having mutual interest.

Co-Founder, Chair, Historian CANN, the Cannabis Subdivision of the American Chemical Society, 2015-Present.

- The objectives of this division shall be to provide networking opportunities, mentoring relationships, and updates on technology, industry and public policy. The division will also provide support for individuals new to the field in the form of training and scholarship. Lastly, the division shall provide a platform for cannabis professionals to develop standards and practices in a field where self-regulation is essential for the success of a venture and of the industry.
- **Current Focus:** The subdivision is planning three educational symposia with international experts on cannabis at the 2016 American Chemical Society National

Conference for the divisions of Chemical Health and Safety, Agriculture and Food, and Small Chemical Business.

Member, International Cannabinoid Research Society, 2006-Present.

- **Overview:** The International Cannabinoid Research Society (ICRS) is a professional society for scientific research in all fields of the cannabinoids.

Faculty, Master Class on Cannabis, University of Wageningen, Netherlands, Dr. Arno Hazekamp. Sept 2011-Current.

- The International Master's Course on Medical Cannabis involves meeting with the professionals behind the Dutch medicinal cannabis program, visiting a legal cannabis growing facility in Veendam, The Netherlands, visiting pharmacies that dispense medicinal cannabis, and learning to assess the cannabis at different stages of growth including forensic techniques for analyzing cannabis in a quality control laboratory.
- Additional Topics covered in his course include basic chemistry of cannabinoids and terpenes, quality control, clinical studies, and administration forms. By a combination of lectures, excursions, literature review and discussions, the course is a unique stepping stone to a more scientific understanding of cannabis as a medicine.

OTHER TEACHING and RELATED EXPERIENCE:

National Institute of Pediatrics of Mexico (Mexico City, MX 5/24/17) Title: *CME for Clinicians that work with Cannabis*

Department of Public Health of Mexico City (Mexico City, MX 5/25/17) Title: *Health and Safety of Cannabis Products*

Yale University Oncology Educational Lecture (9/29/14): Title: *How Cannabis works: Cannabis and Cannabinoid Pharmacology.*

Society of Cannabis Clinicians Educational lecture (12/15/14): Title: *Cannabinoids and Cancer: Optimism and Healthy Skepticism.*

Research Posters (2021 – 2023)

Simon, T., Cartnick, G., Kamen, L. & **Marcu, J.** 34 – Relationship Between Misuse of Substances and Abuse as Reported in the FDA FAERS Data [1030]. International Society for Pharmacoepidemiology (2023).

Simon, T. A., Gomez, A. & **Marcu, J.** What Cannabis Related Data Is Reported In The FDA FAERRS Database. Cannabis Research Conference (2021).

Marcu, J. P3-53 Comparison Of Cannabis And Psilocybin Adverse Events in a National Reporting System. International Cannabinoid Research Society (2022).

CME (Continuing Medical Education) for health care professionals

Dr. Marcu has created and taught CME and accredited educational content for a number of organization, including but not limited to the following organizations:

- www.theanswerpage.co
- <https://www.cannabisclinicians.org>
- <http://aacmsite.org/Default.aspx?tabid=104>
- ATECAM Holistic Nursing Conferences
- Temple University
- Kings County Hospital
- Delaware Medical Society