Christian Marin-Müller, M.S., Ph.D.

Founder and Chief Executive Officer, Speratum Biopharma, Inc.

+1-281-299-7092 | christian@speratum.com | www.linkedin.com/in/cmarinmuller198

PROFESSIONAL SUMMARY

Entrepreneurial scientist and innovator with over a decade of experience developing RNA therapeutics for oncology and nucleic acid drug delivery. Experienced leader in both industry and academic settings. Co-inventor of multiple technologies resulting in novel intellectual property. Doctorate in molecular virology and microbiology, Masters in entrepreneurship and biotechnology.

PROFESSIONAL EXPERIENCE

Founder and CEO / Principal Investigator 2014-Today
Speratum Biopharma, Inc.

- Leading the basic and translational development of RNA therapeutics and polymeric drug delivery technologies, based on my doctoral and post-doctoral thesis work at Baylor College of Medicine and currently in IND-enabling pre-clinical phase, with the goal of reaching the clinic by 2025.
- Built a strong intellectual property portfolio including core technologies licensed from Baylor College of Medicine and in-house innovations.
- Raised over $5M to date to develop proof-of-concept studies and establish platform technologies for both oligonucleotide-based RNA interference therapeutics and novel biocompatible polymers for nucleic acid drug delivery *in vitro and in vivo* as well conduct efficacy and safety studies in various *in vitro* and animal models.
- Founder and director of the first AAALAC-certified animal care and use program in Central America; led design, construction, and certification of the first animal facility for specific pathogen-free (SPF) rodents in the region.
- Experience leading both large and small teams and serving as liaison between science and business experts.

Principal Member of Scientific Ethics Committee for Phase I and Bioequivalence 2016-Today
Ministry of Health of Costa Rica

- As a foundational member of the Scientific Ethics Committee of the Ministry of Health I am leading the development and implementation of the regulatory framework and establishing the functional and ethical parameters of the Committee.
- Primarily focused on reviewing, evaluating, and regulating all Phase I and Bioequivalence clinical studies in the country.
- Intensive training and education in ethics, good clinical practice, clinical trial design and development, and pre-clinical to clinical translation.

Co-Founder and Board of Directors 2015-Today
CR Biomed Cluster, San José, Costa Rica

- Founding member of CR Biomed, a cluster of biotechnology and medical device companies composed of industry, academia, and government institutions interested in improving the operational conditions and the overall science environment in the country and the region.
- Currently serving on Board of Directors.

Postdoctoral Fellow (Former Graduate student and Graduate level Instructor 2007-2013
Department of Surgery (Department of Molecular Virology and Microbiology)
Baylor College of Medicine, Houston, Texas, USA

- Studied the molecular mechanisms involved in pancreatic cancer pathogenesis and drug resistance, with an emphasis on therapeutic development that led to the discovery of a powerful tumor suppressor microRNA and its mechanisms of action, culminating in multiple awarded patents with varied indications across solid tumor types.
- Collaborated on the development of polymeric nanoparticles for nucleic acid drug delivery, culminating in awarded worldwide patents and broad platform applications.
- Graduate Teaching Assistant in core department Virology Course and research mentor to over half a dozen graduate trainees.
- Skilled in molecular methods, genetic engineering, DNA, RNA, and protein analysis, polymer chemistry, tissue culture, lentivirus and retrovirus applications, experience in *in vivo* work with both SPF and transgenic mice, subcutaneous and orthotopic mouse models, rat safety models, and rabbit-based vaccine testing and antibody development.
- Awarded young investigator prize three years in a row and was recipient of commercialization grant from the Cancer Prevention and Research Institute of Texas (CPRIT).

Research Coordinator and Lead Consultant 2011-2013
PhotoImmune, Inc., Houston, Texas

- Led research team in the design and implementation of *in vitro* and *in vivo* testing and validation of a non-nucleoside HIV-inhibitor.
- BSL 3 experience working with HIV (ELISA, virus titration, UV-mediated viral inactivation, PBMC infection and collection, and electron microscopy)

Founder, Vice President of Business Development 2004-2007
Superior Scientific, LLC, Cleveland, OH

- Co-founded a bioscience tools manufacturer and distribution company that provided over 750 thousand laboratory reagents, equipment, and supplies to thousands of industry and academic centers throughout the US and abroad.
- Raised initial investment, formed collaborative partnerships and licensing deals with overseas and domestic manufacturers.
- Conducted inside/outside direct sales and led sales team.
- Managed sub-licenses and exclusive distribution portfolios with over 600 customers.
- Established overseas manufacturing and import pipelines for proprietary product line.

EDUCATION

- **Baylor College of Medicine,** Houston, Texas, USA
  Post-doctoral Fellow, Ph.D. Molecular Virology and Microbiology
  microRNA-based therapeutics and drug delivery targeting pancreatic cancer
  Thesis: The role of miR-198 as a tumor suppressor in the pathogenesis of pancreatic cancer

- **Case Western Reserve (Weatherhead School of Management),** Cleveland, OH, USA
  M.S. Biotechnology, M.S. Entrepreneurship
  Thesis: Launching and leading a laboratory tools and supply company with emphasis on mutation detection and drug delivery technologies

- **Florida Institute of Technology,** Melbourne, FL, USA
  B.S. Molecular Biology, *cum laude*

ADDITIONAL CERTIFICATIONS AND TRAINING

- **Ministry of Health of Costa Rica,** San José. Costa Rica
  Clinical Trial Design, Execution, and Evaluation Certification

- **The Aspen Institute,** Aspen, CO, USA
  Fellow of the Aspen Institute and the Central American Leadership Initiative

- **University of Argentina,** Buenos Aires, Argentina
  Certified in Animal Facility Management and Operation, Director Level C (European Standard)

- **Pfizer Institute for Clinical Investigation (IPCI), Pfizer, Inc.,** San José, Costa Rica
  Certification in Good Clinical Practice (GCP)

- **Costa Rican Institute of Clinical Investigation,** San José, Costa Rica
  Certified clinical research investigator

- **University of Costa Rica, Pharmacology Department** San José, Costa Rica
  Certification in Advanced Statistical Analysis and Experimental Design

- **Sales Concepts, Inc.,** Cleveland, OH, USA
  Professional sales training

- **PADI,** Cleveland, OH, USA
  Open water diver, advanced SCUBA, Nitrox certified

- **ULACIT, Graphic Design Department**
  Graphic design and proficiency in Adobe Suite, including Illustrator, Photoshop, Lightroom, Publisher

PATENTS AND PUBLICATIONS

- **Marin-Müller, C.,** Vega-Martinez, O., Valverde, J.C., WO2022040594A1 Flexible RNA Scaffolding for Reprogrammable Combinatorial RNAi Administration (2023). Patent Pending.

- **Marin-Müller, C.,** Vega-Martinez, O., Valverde, J.C., WO2022036128A1 - Substrate Sequences for the RNAi-Mediated Regulation Of Genomic And Sub-Genomic RNAs (2023). Patent Pending.

- Yao, Q., Chen, C., **Marin-Müller, C.** US8987224 - MicroRNA-198 Functions as a Tumor Suppressor in Pancreatic, Ovarian, Kidney, Colon, Cervical, Lung, Breast, Gastric Cancer, And Osteosarcoma (2015). Patent Awarded.

- **Marin-Müller, C.,** Li, D., Lü, J.M., Liang, Z., Vega-Martinez, O., Crawford, S.E., Estes, M. K., Fisher, W.E., Chen, C., and Yao, Q. Nanoparticle-mediated therapy with miR-198 sensitizes pancreatic cancer to gemcitabine treatment through downregulation of VCP-mediated autophagy. Pharmaceutics 2023, 15, 2038.

- Bravo-Estupiñan, D.M., Aguilar-Guerrero, K., Quiros, S., Acon, M.S., **Marin-Müller, C**., Ibañez-Hernandez, M., and Mora-Rodriguez, R.A. Cancer Med. 2023, 12(24:22130-22155.

- **Marin-Muller, C.,** Li, D., Bharadwaj, U., Li, M., Chen, C., Hodges, S., Fisher, W., Mo, Q., Hung, MC, and Yao, Q. A tumorigenic factor interactome connected through tumor suppressor micorRNA-198 in human pancreatic cancer. Clin Cancer Res. 2013 Nov 1;19(21):5901-13

- **Marin-Muller,C**., Rios, A., Anderson, D., Siwak,E., and Yao,Q. Complete and repeatable inactivation of HIV-1 viral particles in suspension using a photo-labeled NNRTI. J Virol Methods. 2013 Apr;189(1):125-8.

- Bharadwaj, U., **Marin-Muller, C**., Li, M., Chen, C., Yao, Q. 2011. Mesothelin overexpression promotes autocrine IL 6/sIL-6R trans-signaling to stimulate pancreatic cancer cell proliferation. Carcinogenesis, 32(7):1013-24.

- Bharadwaj, U., **Marin-Muller, C**., Li, M., Chen, C., Yao, Q. 2011. Mesothelin confers pancreatic cancer cell resistance to TNF-alpha-induced apoptosis through AKT/PI3K/NF-kB Activation and IL6/Mcl-1 overexpression. Molecular Cancer, 10:106.

- **Marin-Muller, C.,** and Yao, Q. The role of mesothelin in pancreatic cancers. In-Tech Publishing. “Pancreatic Cancer Book 1", ISBN 978-953-307-815-1.

- **Marin-Muller, C**. Yao, Q., and Chen, C. 2010. MicroRNAs and human disease. Encyclopedia of life sciences. DOI: 10.10002/9780470015902.a0021433.

- Li, M., **Marin-Muller, C.,** Bharadwaj, U. Chow, K., Yao, Q., Chen, C. MicroRNAs: Control andLoss of Control in Human Physiology and Disease. 2009. World J. Surg. 33(4):667-84.

- **Marin-Muller, C.,** Yao, Q. Current Understanding and Potential Immunotherapy for HIV-Associated Squamous Cell Carcinoma of the Anus (SCCA). World Journal of Surgery. 2009. World J Surg. 33(4):653-60.

HONORS AND AWARDS

- Mass Challenge Innovation Cohort Selectee, Mass Challenge, Boston, MA, USA (2022)
- Named one of 30 Promises in Business, Forbes, Mexico (2020)
- Named one of the top 60 students in 60 years, Florida Institute of Technology (2019)
- Innovative Scientific Leader Award, Roche Inspiration Tour (2019)
- Named one of "10 minds to Watch", Forbes, Mexico (2018)
- 1st Place, Gifted Citizen Innovation Competition, Mexico (2018)
- Finalist, top 20 of 4000 entrants, Pitch@Palace, St. James Palace, London, England (2018)
- 1st Place, Innovators of America Competition, Concordia, New York, NY (2018)
- 1st Place, PINN Innovation Grant, Interamerican Development Bank (IDB) (2018)
- 1st Place, Entrepreneurship Competition "Heavyweight Category", Get in the Ring (2017)
- Named "Top 40 under 40" by Financier Magazine, Costa Rica (2013 ,2015, 2017)
- 1st Place, Innovative Leader in Latin America, South Summit Conference (2016)
- Fellowship awardee, Aspen Institute and Central American Leadership Initiative (CALI) (2016)
- Declaration of Public Interest for the Republic of Costa Rica for microRNA research (2015)
- Semifinalist, 43 North Startup Competition, Buffalo, NY (2015)
- 1st Place, National Innovation Congress, Costa Rica (2014, 2015)
- 3-time TEDx presenter (2014, 2017, 2021)
- Presidential Recognition from President Laura Chinchilla for outstanding merit (2013)
- Awardee, John B. Carter Technology Catalyst Fund, Baylor College of Medicine (2012)
- Fellowship awardee, Cancer Prevention Research Institute of Texas (CPRIT) (2010)
- Fellowship awardee, Student Scholar Award, International Center for Professional Development (ICPD), Baylor College of Medicine (2011)
- Scholarship Awardee, Scientist Mentoring and Diversity Minority Program, Baylor College of Medicine (2011)
- 1st Place, Poster Presentation, Southern California Chapter of the Society of Toxicology (SCCSOT) (2011)
- 1st Place, Poster Presentation, Dan L. Duncan Cancer Center Symposium (2010)
- 1st Place, Research Presentation, Debakey Department of Surgery Research Symposium, Baylor College of Medicine (2008, 2009)
- 1st Place, Molecular Surgeon Young Investigator Award, Department of Surgery, Baylor College of Medicine (2008, 2009, 2010)

LANGUAGES

Fluent in English, Spanish, and Portuguese. Scientific communicator on international television, radio, and digital media.