

CURRICULUM VITAE

Erin Marie San Valentin

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PROFESSIONAL SUMMARY

Biomedical researcher with interdisciplinary expertise in microbiome science, nanomedicine, and translational clinical research. Over 7 years of experience in molecular biology, medical device development, and regulatory-compliant laboratory operations. Demonstrated leadership in sequencing workflow optimization, COVID-19 testing infrastructure, and nanoparticle-infused medical devices. Experienced in technical and manuscript writing, study coordination, and collaborative research.

EDUCATION

M.Sc., Molecular Medicine, St. Luke's Medical Center College of Medicine, Philippines | August 2024

Graduate research conducted at the **University of Texas MD Anderson Cancer Center** with Dr. Marites Melancon | February 2022 – December 2023

Title: "Biocompatibility assessment of novel tungsten nanoparticle and polymer blend-infused resorbable inferior vena cava filters"

B.Sc., Agricultural Biotechnology, University of the Philippines Los Banos, Philippines | June 2016

Undergraduate thesis conducted at the **International Rice Research Institute** headquarters in the Philippines with Dr. Vito Butardo, Jr. and Dr. Lotis Mopera | August 2015 – June 2016

Title: "Associating total starch and total sugar with grain digestibility in a diverse set of indica rice lines"

HONORS & AWARDS

Research Scientist Award, Society of Interventional Radiology (SIR) Foundation | March 2023

Awarded for outstanding contributions and accomplishments in basic and preclinical research relevant to interventional radiology young scientists. This prestigious award highlights innovation and leadership within the field of interventional radiology research.

Graduate Scholar, Department of Science and Technology – Philippine Council for Health Research and Development | August 2018-May 2020

Awarded a competitive national scholarship supporting full-time MS studies in health research and development. Received comprehensive funding for tuition, living expenses, research, and academic materials as part of a program aimed at developing advanced scientific and research capacity in the Philippines.

Gawad-Patnubay Undergraduate Scholarship, Landbank of the Philippines and International Rice Research Institute | August 2013-May 2016

Awarded for academic excellence and merit during undergraduate studies.

PROFESSIONAL EXPERIENCE

Research Assistant 3, Case Western Reserve University, Cleveland, Ohio | 2023-Present

- Streamlined sample intake processes and coordination for clinical microbiome trials involving the IonTorrent sequencing.
- Developed next-generation sequencing (NGS) libraries for 16S rRNA and ITS sequencing for gut microbiome samples.
- Identified and resolved technical issues in molecular procedures to optimize sequencing results and efficiency.
- Fungal identification through DNA extraction, PCR, and sequence analysis using CLC Sequence Viewer and BLAST for clinical and research samples.
- Collaborated on industry-sponsored and investigator-initiated studies involving gastrointestinal health, bacteriome, and microbiome.
- Mentored visiting students (high school and undergraduates) for the summer immersion program.

Graduate Researcher, The University of Texas MD Anderson Cancer Center, Houston, TX | 2022-2023

- Synthesized and characterized radiopaque nanoparticles for vascular and cancer applications.
- Conducted biocompatibility testing using cell viability and hemolysis assays.
- Conducted animal imaging with microCT and In vivo imaging system (IVIS).
- Mentored visiting medical, undergraduate, and high school students for their immersion programs.

Science Research Specialist II, National Institutes of Health, Manila, Philippines | 2020-2022

- Analyzed and validated COVID-19 patient results obtained from RT-qPCR analysis.
- Developed standard operating procedures (SOP) for a COVID-19 diagnosis and ensured compliance with Good Laboratory Practice (GLP) and biosafety standards.
- Optimized Quality Assurance (QA) protocols and measures for the laboratory.
- Conducted regular QA inspections and evaluated compliance of sites and staff.

Course Facilitator, University of the Philippines Manila, Philippines | April-September 2021

- Provided hands-on trainings and managed workshop sessions on molecular biology techniques for external medical technologists in the context of COVID-19.
- Presented fundamental concepts in molecular biology in relation to a COVID-19 laboratory setting.

Researcher, International Rice Research Institute, Laguna, Philippines | 2016-2017

- Investigated the analysis of grain digestibility parameters of 320 indica rice varieties and performed in vitro assays for total starch and total sugar analyses in rice grains.
- Successfully selected low digestibility rice varieties based on amylolysis assay.
- Identified candidate SNPs related to low and high grain digestibility using locally available bioinformatics tools.

PUBLICATIONS

1. Kodikara S, Mao J, San Valentin EMD, Do KA, Reyes-Gibby CC, Lê Cao KA. Oral microbial signatures of head and neck cancer patients with diverse longitudinal oral mucositis severity patterns. *bioRxiv [Preprint]*. 2025 Jul 18;2025.07.15.665024. doi: 10.1101/2025.07.15.665024. PMID: 40791415; PMCID: PMC12338723.
2. Fernandez Ferrer, M., Retuerto, M., Thavamani, A., San Valentin, E. M., Sferra, T. J., Ghannoum, M., & Sankararaman, S. (in press). Clinical and gut microbiome characteristics of medically complex patients receiving blenderized tube feeds vs non-blenderized tube feeds. *Nutrients*. 2025.
3. Soliman N, Kruithoff C, San Valentin EM, Gamal A, McCormick TS, Ghannoum M. Small Intestinal Bacterial and Fungal Overgrowth: Health Implications and Management Perspectives. *Nutrients*. 2025 Apr 17;17(8):1365. doi: 10.3390/nu17081365. PMID: 40284229; PMCID: PMC12030604.
4. Mishra A, San Valentin EMD, Barcena AJR, Bolinas DKM, Bernardino MR, Canlas G, Ricks KA, Damasco JA, Melancon MP. Antibody-Targeted Bismuth Gadolinium Nanoconjugate for Image-Guided Radiotherapy of Hepatocellular Carcinoma. *ACS Appl Mater Interfaces*. 2025 Mar 12;17(10):15097-15108. doi: 10.1021/acsami.4c21949. Epub 2025 Mar 3. PMID: 40026156.
5. Melancon ST, San Valentin EM, Bolinas DKM, Bernardino MR, Mishra A, Canlas G, Chintalapani G, Jacobsen MC, Barcena AJR, Huang SY. Fabrication of Radiopaque, Drug-Loaded Resorbable Polymer for Medical Device Development. *Polymers (Basel)*. 2025 Mar 7;17(6):716. doi: 10.3390/polym17060716. PMID: 40292576; PMCID: PMC11945502.
6. Melancon AD, Jacobsen M, Damasco J, Perez J, Bernardino M, Valentin ES, Court KA, Godin B, Layman R, Melancon MP. Correction for partial volume averaging in the quantification of radiopaque nanomaterial-embedded resorbable polymers. *Biomed Phys Eng Express*. 2024 Aug 12;10(5). doi: 10.1088/2057-1976/ad6a66. PMID: 39094587.
7. Barcena AJR, Perez JVD, Bernardino MR, Damasco JA, San Valentin EMD, Klusman C, Martin B, Canlas GM, Heralde FM 3rd, Fowlkes N, Bouchard RR, Cheng J, Huang SY, Melancon MP. Bismuth-infused perivascular wrap facilitates delivery of mesenchymal stem cells and attenuation of neointimal hyperplasia in rat arteriovenous fistulas. *Biomater Adv*. 2025 Jan;166:214052. doi:10.1016/j.bioadv.2024.214052. Epub 2024 Sep 24. PMID: 39341164; PMCID: PMC11725062.

8. Barcena AJR, Perez JVD, Bernardino MR, San Valentin EMD, Damasco JA, Klusman C, Martin B, Court KA, Godin B, Canlas G, Fowlkes N, Bouchard RR, Cheng J, Huang SY, Melancon MP. Controlled Delivery of Rosuvastatin or Rapamycin through Electrospun Bismuth Nanoparticle-Infused Perivascular Wraps Promotes Arteriovenous Fistula Maturation. *ACS Appl Mater Interfaces*. 2024 Jul 3;16(26):33159-33168. doi: 10.1021/acsami.4c06042. Epub 2024 Jun 24. PMID: 38912610; PMCID: PMC11725229.
9. San Valentin EM, Damasco JA, Bernardino M, Court KA, Godin B, Canlas GM, Melancon A, Chintalapani G, Jacobsen MC, Norton W, Layman RR, Fowlkes N, Chen SR, Huang SY, Melancon MP. Image-Guided Deployment and Monitoring of a Novel Tungsten Nanoparticle-Infused Radiopaque Absorbable Inferior Vena Cava Filter in a Swine Model. *J Vasc Interv Radiol*. 2024 Jan;35(1):113-121.e3. doi: 10.1016/j.jvir.2023.09.003. Epub 2023 Sep 9. PMID: 37696432; PMCID: PMC10872373.
10. Zhang L, San Valentin EMD, John TM, Jenq RR, Do KA, Hanna EY, Peterson CB, Reyes-Gibby CC. Influence of oral microbiome on longitudinal patterns of oral mucositis severity in patients with squamous cell carcinoma of the head and neck. *Cancer*. 2024 Jan 1;130(1):150-161. doi: 10.1002/cncr.35001. Epub 2023 Sep 8. PMID: 37688396; PMCID: PMC10872366.
11. San Valentin EMD, Do KA, Yeung SJ, Reyes-Gibby CC. Attempts to Understand Oral Mucositis in Head and Neck Cancer Patients through Omics Studies: A Narrative Review. *Int J Mol Sci*. 2023 Nov 30;24(23):16995. doi: 10.3390/ijms242316995. PMID: 38069314; PMCID: PMC10706892.
12. Barcena AJR, Perez JVD, Bernardino MR, Damasco JA, Cortes A, Del Mundo HC, San Valentin EMD, Klusman C, Canlas GM, Heralde FM 3rd, Avritscher R, Fowlkes N, Bouchard RR, Cheng J, Huang SY, Melancon MP. Bioresorbable Mesenchymal Stem Cell-Loaded Electrospun Polymeric Scaffold Inhibits Neointimal Hyperplasia Following Arteriovenous Fistula Formation in a Rat Model of Chronic Kidney Disease. *Adv Healthc Mater*. 2023 Oct;12(26):e2300960. doi: 10.1002/adhm.202300960. Epub 2023 Jul 21. PMID: 37395729; PMCID: PMC10592251.
13. Barcena AJR, Perez JVD, Damasco JA, Bernardino MR, San Valentin EMD, Klusman C, Martin B, Cortes A, Canlas G, Del Mundo HC, Heralde FM, Avritscher R, Fowlkes N, Bouchard RR, Cheng J, Huang SY, Melancon MP. Gold Nanoparticles for Monitoring of Mesenchymal Stem Cell-Loaded Bioresorbable Polymeric Wraps for Arteriovenous Fistulas. *bioRxiv [Preprint]*. 2023 Feb 3:2023.02.01.526611. doi: 10.1101/2023.02.01.526611. Update in: *Int J Mol Sci*. 2023 Jul 21;24(14):11754. doi: 10.3390/ijms241411754. PMID: 36778466; PMCID: PMC9915579.
14. Klusman C, Martin B, Perez JVD, Barcena AJR, Bernardino MR, San Valentin EMD, Damasco JA, Mundo HCD, Court K, Godin B, Fowlkes N, Bouchard R, Cheng J, Huang SY, Melancon MP. Rosuvastatin-Eluting Gold Nanoparticle-Loaded Perivascular Implantable Wrap for Enhanced Arteriovenous Fistula Maturation in a Murine Model. *bioRxiv [Preprint]*. 2023 Feb 3:2023.02.02.526859. doi: 10.1101/2023.02.02.526859. PMID: 36778365; PMCID: PMC9915671.
15. San Valentin EMD, Barcena AJR, Klusman C, Martin B, Melancon MP. Nano- embedded medical devices and delivery systems in interventional radiology. *Wiley Interdiscip Rev Nanomed Nanobiotechnol*. 2023 Jan;15(1):e1841. doi: 10.1002/wnan.1841. Epub 2022 Aug 10. PMID: 35946543; PMCID: PMC9840652.

ORAL PRESENTATIONS

San Valentin, E., Melancon, M.P. (2023). *In Vivo Imaging of Novel Tungsten Nanoparticle and Polymer-infused Resorbable Inferior Vena Cava Filters in a Porcine Model*.

Presented at: **Society of Interventional Radiology (SIR) 2023 Annual Scientific Meeting**, Session: *Venous – Miscellaneous*.

ABSTRACTS

1. Melancon, S., **San Valentin, E.**, Bernardino, M., Owens, T., Mishra, A., Barcena, A., & Huang, S. (2024). Abstract No. 387: Fabrication of a radiopaque, drug-eluting resorbable polymer for medical device development. *Journal of Vascular and Interventional Radiology*, 35(3), S172. <https://doi.org/10.1016/j.jvir.2023.12.460>
2. Workeneh, I., Barcena, A., Bernadino, M., **San Valentin, E.**, Melancon, M., Mishra, A., Owens, T., Melancon, S., &

- Lin, V. (2024). Abstract No. 502: Electrospun bioresorbable polymer blends as vascular grafts. *Journal of Vascular and Interventional Radiology*, 35(3, Suppl), S180–S181. <https://doi.org/10.1016/j.jvir.2023.12.502>
3. Lin, V., Barcena, A., Mishra, A., Bernardino, M., **San Valentin, E.**, Huang, S., & Melancon, M. (2024). Abstract No. 314: Pre-operative portal vein ligation and MSC injection in a rat model. *Journal of Vascular and Interventional Radiology*, 35(3, Suppl), S139. <https://doi.org/10.1016/j.jvir.2023.12.314>
 4. Owens, T., Bernardino, M., Mishra, A., Barcena, A., Workeneh, I., **San Valentin, E.**, & Melancon, M. (2024). Abstract No. 239 The Synthesis and Characterization of Gadolinium Alginate Spheres and Potential Uses as a Contrast-Enhancing Anti-Cancer Material. *Journal of Vascular and Interventional Radiology*, 35(3), S108.
 5. Martin, B. M., Klusman, C. L., Perez, J. V. D., Barcena, A. J. R., Bernardino, M. R., **San Valentin, E. M. D.**, Damasco, J. A., Del Mundo, H. C., Court, K. A., Godin, B., Fowlkes, N., Bouchard, R., Cheng, J., Huang, S. Y., & Melancon, M. P. (2023). Abstract P3007: Rosuvastatin-eluting gold-nanoparticle-loaded perivascular wrap for enhanced arteriovenous fistula maturation in a murine model. *Circulation Research*, 133(Suppl_1), P3007. https://doi.org/10.1161/res.133.suppl_1.P300
 6. Klusman, C., Martin, B., Perez, J., Del Mundo, H., Damasco, J., **San Valentin, E. M.**, Bernardino, M., Barcena, A., Williams, M., Parrish, S., Norton, W., Chintalapani, G., Fowlkes, N., Huynh, T., Huang, S., & Melancon, M. P. (2023). Abstract P1052: Development of a porcine model of arteriovenous fistula for the evaluation of radiopaque polymeric vascular wrap. *Circulation Research*, 133(Suppl_1), P1052. https://doi.org/10.1161/res.133.suppl_1.P1052
 7. Honegger, S., **San Valentin, E.**, Bernardino, M., Damasco, J., Court, K., Godin, B., ... & Melancon, M. (2023). Abstract No. 24• FEATURED ABSTRACT Bismuth Nanoparticle and Dipyrindamole-Loaded Electrospun Polymeric Scaffold as Radiopaque Bioresorbable Drug-Eluting Vascular Graft. *Journal of Vascular and Interventional Radiology*, 34(3), S13
 8. **San Valentin, E. M.**, Damasco, J., Bernardino, M., Honegger, S., Court, K., Godin, B., Canlas, G., Chintalapani, G., Norton, W., Chen, S., Fowlkes, N., Huang, S., & Melancon, M. P. (2023). Abstract No. 273: In vivo imaging of novel tungsten nanoparticle and polymer-infused resorbable inferior vena cava filters in porcine model. *Journal of Vascular and Interventional Radiology*, 34(3, Suppl), S123–S124. <https://doi.org/10.1016/j.jvir.2022.12.273>
 9. Barcena, J., Perez, J., Bernardino, M., Damasco, J., **San Valentin, E. M.**, Del Mundo, H., Cortes, A., Canlas, G., Chen, J., Avritscher, R., Fowlkes, N., Huang, S., & Melancon, M. P. (2023). Abstract No. 31: Bioresorbable mesenchymal stem cell-loaded electrospun polymeric scaffold inhibits neointimal hyperplasia in a rat model of arteriovenous fistula. *Journal of Vascular and Interventional Radiology*, 34(3, Suppl), S16–S17. <https://doi.org/10.1016/j.jvir.2022.12.031>
 10. **San Valentin, E.M.D.**, Damasco, JA, Bernardino, MR, Honegger, S, Court, K, Godin, B, Norton, W, Chen, S, Fowlkes, N, Huang, SY, and Melancon, MP. Tungsten nanoparticle and polymer blends as novel coating for radiopaque resorbable inferior vena cava filter. Poster presentation at the 2022 MD Anderson Summer Experience. Abstract 146.