

CURRICULUM VITAE
Dioscaris R. Garcia, PhD

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EDUCATION

Undergraduate

University of Rhode Island

BS Microbiology, Minor in Chemistry, 2000-2004

Graduate

Brown University

PhD Molecular Pharmacology and Physiology, 2005-2012

Thesis Title: Sigma-2 Receptor-Mediated Cytotoxicity and Calcium Signaling: Evidence for Bifurcating Pathways

POSTGRADUATE TRAINING

Post-Doctoral Scholar under Christopher T. Born, MD, Lifespan, Providence, RI 2013-2015

Visiting Scientist, Brown University, Providence, RI 2013-2015

Post-Doctoral Scholar under Wayne D. Bowen, Brown University, Providence, RI 2012-2013

POSTGRADUATE HONORS AND AWARDS

1. Awarded 2021 Brown University Office of Diversity and Multicultural Affairs and Faculty Affairs (ODMA FA) Mentorship Award in Diversity and Equity in Medicine (MADE). -2021
2. Awarded 2021 Diversity and Inclusion Action Plan Community Award for Faculty at Brown University. -2021
3. Awarded Citation from RI State Senate for Heroism and Service to the Community of Central Falls and Pawtucket during the COVID-19 Pandemic. -2021
4. Awarded Citation from RI State House for Heroic Efforts to help the City of Central Falls during the COVID-19 Pandemic. -2021
5. Awarded Citation from City of Pawtucket for Heroic Efforts to help the City of Pawtucket during the COVID-19 Pandemic. -2021

6. Awarded Citation from Black and Latino Caucus for Efforts to help the Minority Community during the COVID-19 Pandemic. -2021
7. Recognized by Central Falls Mayoral Office as a Community Hero During the COVID-19 Pandemic. -2021
8. Recognized by Central Falls School District for Guidance during the COVID-19 Pandemic. -2021
9. Recognized by Hispanic Chamber of Commerce and Black and Latino Caucus for Service to the Community during COVID-19 -2021.
10. Awarded Citation from RI State Senate for “Visionary Leadership and Invaluable Guidance, and Exceptional Leadership, and Dedicated Community Service during the COVID-19 Pandemic” -2020.
11. Recognized by Pawtucket School District for Leadership and Guidance during COVID-19 Pandemic -2020.
12. Recognized by Central Falls City Council and Mayoral Office for Exceptional Service to the Community during COVID-19 -2020.
13. Stein-Bellet Research Fellow, Sippelle Family Foundation Research Fellow, Sr. Research Scientist, The Diane N. Weiss Center for Orthopaedic Trauma Research, Rhode Island Hospital, Providence, RI 2013-Present
14. Brown University Excellence in Research Mentoring Award Winner, 2019.
15. Nominated for Dean’s Award on Excellence in Teaching and Mentoring 2018, 2019.
16. RI Inno 50 on Fire Winner 2018
17. Recognized as a RI State Wavemaker 2016-2018
18. Awarded Citation from Governor Gina Raimondo for being Named RI State Wavemaker
19. Rhode Island Business Plan Competition: MedTech and Overall Winner for BI Medical, LLC. 2017.
20. Providence Business News Top 40 under 40: Winner, 2017.
21. Awarded Citation from State Treasurer Seth Magaziner for being Named Top 40 Under 40.
22. Providence Business News Most Innovative Biotechnology Company: Winner, 2017.

MILITARY SERVICE (List rank and dates of service)

N/A

PROFESSIONAL LICENSES AND BOARD CERTIFICATION

N/A (List, with dates awarded)

ACADEMIC APPOINTMENTS

Co-Director, The Diane N. Weiss Center for Orthopaedic Trauma Research, Rhode Island Hospital, Providence, RI 2017-Present

Assistant Professor of Molecular Pharmacology, Physiology and Biotechnology, Brown University, Providence, RI 2017-Present

Assistant Professor of Orthopaedics (Research), The Alpert Medical School of Brown University, Providence, RI 2017-Present

Instructor of Molecular Pharmacology, Physiology and Biotechnology, Brown University, Providence, RI 2015-2017

Instructor of Orthopaedics (Research), The Alpert Medical School of Brown University, Providence, RI 2015-2017
Teaching Assistant, Brown University, Providence, RI 2006-2011

HOSPITAL APPOINTMENTS

Senior Research Scientist, Rhode Island Hospital 2013-Present

OTHER APPOINTMENTS

Reviewer, Injury Journal, 2020-Present

Reviewer, Biofouling Journal, 2020-Present

Vice-President, Central Falls Youth Baseball Association, RI. 2021-Present

Chairman, Board of Advisors, The United Community Martial Arts Institute of Rhode Island, RI 2019-Present

Board of Advisors, Regional Fight Sports, Providence, RI 2019-2020

Board of Advisors, BioSci Labs, LLC. Coventry, RI 2017-2019

Scientific Advisor, BI Medical, LLC. Coventry, RI 2017-Present

Chief Technical Officer, BI Medical, LLC. North Kingston, RI 2015-2016

Director of Biomedical Research and Operations, Material Science Associates, LLC. North Kingston, RI 2014-2016

Associate/ Laboratory Director, Material Science Associates, LLC. North Kingston, RI 2013-2016

Consultant, BioIntraface, Inc., North Kingston, RI 2013-2016

Research Associate, Process Development, Amgen Inc., West Greenwich, RI 2004-2005

Research Associate, University of Rhode Island, Kingston, RI 2003-2004

Research Associate, Hybrigene LLC., West Kingston, RI 2002-2003

HOSPITAL COMMITTEES

Department of Orthopaedics Equipment Committee, Rhode Island Hospital, Providence, RI. 2018-Present.

Department of Orthopaedics Diversity and Inclusion Action Plan Committee, Rhode Island Hospital, Providence, RI. 2021-Present.

UNIVERSITY COMMITTEES

N/A

MEMBERSHIP IN SOCIETIES

American Society for Microbiology

Orthopaedic Research Society

Sigma Xi Society

European Society of Clinical Microbiology and Infectious Diseases

PUBLICATIONS LIST

ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. Socha AM, **Garcia D**, Sheffer R, Rowley DC. Antibiotic bisanthraquinones produced by a streptomycete isolated from a cyanobacterium associated with Ecteinascidia turbinata. *Journal of Natural Products*. 2006 Jul;69(7):1070-3
2. Nhiem Tran, Michael N. Kelley, Phong A. Tran, **Dioscaris R. Garcia**, John D. Jarrell, Roman A. Hayda and Christopher T. Born Silver Doped Titanium Oxide - PDMS Hybrid Coating Inhibits Staphylococcus aureus and Staphylococcus epidermidis Growth on PEEK. – *Mater Sci Eng C Mater Biol Appl*. 2015 Apr;49:201-9.
3. Eltorai, Adam EM, Haglin, Jack, Perera, Sudheesha, Brea, Bielisnky A, Ruttiman, Roy, **Garcia, Dioscaris R**, Born, Christopher T, Daniels, Alan H. Antimicrobial Technology in Orthopedic and Spinal Implants. *World J Orthop*. 2016 June 18; 7(6): 361-369.
4. **Garcia DR**, Deckey D, Haglin JM, Emanuel T, Mayfield C, Eltorai AEM, Spake CS, Jarrell JD, Born CT. Commonly Encountered Skin Biome-Derived Pathogens after Orthopedic Surgery. *Surg Infect (Larchmt)*. 2019 Mar 6. doi: 10.1089/sur.2018.161.
5. Jack M. Haglin, **Dioscaris R. Garcia**, Daniel L. Roque., Carole SL. Spake, John D. Jarrell, Christopher T. Born. Assessing the Efficacy of a Silver Carboxylate Antimicrobial Coating on Prosthetic Liners. *Journal of Prosthetics and Orthotics*. August 7, 2019 - Volume Online First - Issue – p doi: 10.1097/JPO.0000000000000271
6. Johnson JP, Born CT, Thomas N, Truntzer J, Mansuripur PK, Kleiner J, McAlister ST, **Garcia D**, Koruprolu S, Development of a novel murine femur fracture and fixation model. *Journal of Orthopaedics* (2019), doi: <https://doi.org/10.1016/j.jor.2019.06.015>.
7. Li Yue, Kayleigh Sullivan, **Dioscaris R. Garcia**, Brett D Owens. A Review of Biological Mechanisms of Bone Tunnel Enlargement Following Anterior Cruciate Ligament Reconstruction. *JBJS Reviews: April 2020 - Volume 8 - Issue 4 - p e0120* doi: 10.2106/JBJS.RVW.19.00120
8. **Dioscaris R Garcia**, David G Deckey, Alexandra Zega, Cory Mayfield, Carole S L Spake, Toby Emanuel, Alan Daniels, John Jarrell, Jillian Glasser, Christopher T Born, Craig P Ebersson. Analysis of Growth and Biofilm Formation of Bacterial Pathogens on Frequently Used Spinal Implant Materials. *Spine Deform*. 2020 Jun;8(3):351-359. doi: 10.1007/s43390-020-00054-z. Epub 2020 Feb 24.
9. **Dioscaris Garcia**, Cory K Mayfield, Jacqueline Leong, David G Deckey, Alexandra Zega, Jillian Glasser, Alan H Daniels, Craig Ebersson, Andrew Green, Christopher Born. Early Adherence and Biofilm Formation of Cutibacterium acnes (formerly Propionibacterium acnes) On Spinal Implant Materials. *The Spine Journal Spine J*. 2020 Jan 20. pii: S1529-9430(20)30001-2. doi: 10.1016/j.spinee.2020.01.001. [Epub ahead of print] PMID: 31972305.
10. Ellis Berns, Mursal Gardezi, Caitlin Barrett, Carole Spake, Jillian Glasser, Valentin Antoci, Christopher T. Born, **Dioscaris Garcia**. Current Clinical Methods for Detection of Periprosthetic Joint Infection. *Surg Infect (Larchmt)*. 2020 Feb 11. doi: 10.1089/sur.2019.314. [Epub ahead of print] PMID: 32043924.
11. Mursal Gardezi, Daniel Roque, Douglas Barber, Carole SL Spake, Jillian Glasser, Ellis Berns, Valentin Antoci, Christopher Born, **Dioscaris R. Garcia**. Wound Irrigation in Orthopedic Open Fractures: A Review. *Surgical Infections Journal*. Published Online:25 Jun 2020 <https://doi.org/10.1089/sur.2020.075>
12. Ambler M, Springs S, **Garcia D**, Born C. Heterogeneity of outcomes for intraoperative music interventions: a scoping review and evidence map [published online ahead of print,

2020 Aug 19]. BMJ Evid Based Med. 2020;bmjebm-2020-111382. doi:10.1136/bmjebm-2020-111382

13. Adrian Turcu, Ellis Berns, Caitlin Barrett, Carole Spake, Jacqueline Leong, Christopher T. Born, **Dioscaris Garcia**. Computational Analysis and Visualization of Biofilm Development on Implant Materials. Orthopaedic Trauma Association Annual Meeting. Oct. 21-24, Conference Paper.
14. **Garcia D**, Gardezi M, Suliman Y, Glasser J, Spake CS, Barrett C, Berns E, Jenkins D, Evans A, Cohen E, Ebersson C, Hayda R, Daniels A, Green A, Owens B, Antoci V, Born CT. Fluorescent-conjugated antibodies as rapid ex vivo markers for bacterial presence on orthopedic surgical explants and synovium: A pilot study. J Orthop Res. 2020 Nov 23. doi: 10.1002/jor.24924. Online ahead of print.
15. Jillian Glasser, Michael Mariorenzi, Travis Blood, Seth O'Donnell, Dioscaris Garcia, Valentin Antoci. Distal femoral valgus cut angles unreliable in total knee arthroplasty, Journal of Orthopaedics, Volume 24, 2021, Pages 29-33, ISSN 0972-978X, <https://doi.org/10.1016/j.jor.2021.02.010>.
16. Valentin Antoci Jr., Jillian Glasser, **Dioscaris R. Garcia**, Shaun Patel. THE CASE OF DISAPPEARING TIBIA IN RHEUMATOID KNEE TENOSYNOVITIS. Journal of Bone and Joint Surgery. –**Accepted to Journal of Orthopedic Case Reports**.
17. Justin Kleiner, Joey Johnson, Jeremy Truntzer, Scott McAllister, Mursal Gardezi, Melanie Ambler, Olivia Cummings, Matt Deren, **Dioscaris R. Garcia**, Christopher Born. The Effect of Smoking Cessation on Serum Biomarkers of Fracture Healing. Journal of Orthopaedic Research. –**Submitted for Review**
18. Dominique M. Dockery, Sai Allu, Troy Li, Jillian Glasser, Valentin Antoci, Christopher T. Born, **Dioscaris R. Garcia**. Pre-operative Skin Surgical Preparation Solutions – A Review of Current Standards –**Submitted for Review**
19. Glasser, Jillian; Barrow, Brooke; Moon, Andrew; **Garcia, Dioscaris**; Antoci, Valentin. Acetabular Component Position Highly Variable in Early Practice. HIP International – **Submitted for Review**
20. Dominique M. Dockery, Sai Allu, Jillian Glasser, Valentin Antoci, Christopher T. Born, MD, **Dioscaris R. Garcia**. Comparison of periprosthetic joint infection rates in the direct anterior approach and non-anterior approaches to primary total hip arthroplasty: A systematic review and meta-analysis. –**Submitted for Review**
21. **Dioscaris Garcia**, Cory Mayfield, Jacqueline Leong, David Deckey, Alexandra Zega, Jillian Glasser, Alan H Daniels, Andrew Green, Valentin Antoci, Christopher Born. Silver Carboxylate-doped Titanium Dioxide-PDMS Coating Inhibits Cutibacterium acnes Early Adherence and Biofilm Formation on Materials of Orthopaedic Relevance. – **Submitted for Review**
22. **Dioscaris R. Garcia**, Anthony Minnah, Jacqueline Leong, Jillian Glasser, Eric Nguyen, Valentin Antoci, Christopher Born. Silver Carboxylate eluting Titanium-dioxide Polydimethylsiloxane coating inhibits Multi-Drug Resistant Acinetobacterium baumannii and Vancomycin-Resistant Enterococcus faecalis adherence on Orthopaedic Implant Materials. –**Submitted for Review**
23. Carole Spake, Ellis Berns, Douglas Barber, Adrian Turcu, Lori Sahakian, Jillian Glasser, Caitlin Barrett, Valentin Antoci, Christopher T. Born, **Dioscaris Garcia**. Fluorescent in Vitro Visual and Quantitative Characterization of Methicillin Sensitive Staphylococcus aureus and Pseudomonas aeruginosa Biofilm Growth on an Orthopedic Implants. – **Submitted for Review**

24. Andrea Gilmore, Ellis Berns, Christopher T. Born, Craig Ebersson, Alan Daniels, Valentin Antoci, **Dioscaris Garcia**. Silver Carboxylate and Titanium Dioxide-Polydimethylsiloxane Coating decreases Adherence of Multi Drug Resistant *Serratia marcescens* on Spinal Implant Materials. –**Submitted for Review**

OTHER PEER-REVIEWED PUBLICATIONS

N/A

BOOKS AND BOOK CHAPTERS

1. Anita Shukla, Dioscaris R. Garcia, Jillian Glasser, Valentin Antoci. Osteolysis and Implant Loosening. Orthopaedic Basic Science: Foundations of Clinical Practice, Chapter 8, Fifth Edition, Wolters Kluwer, 2021.

OTHER NON-PEER REVIEWED PUBLICATIONS

N/A

CORPORATE AUTHORSHIP OR MULTICENTER TRIALS

N/A

ABSTRACTS

1. Paper Presentation: A. Clayton, C. Barrett, C. Moscinski, E. Berns, A. Turcu, J. Glasser, N. Vishwanath, C. S. L. Spake, S. Allu, L. Sahakian, D. Barber, V. Antoci, C. Born, **D. Garcia**; Brown Univ., Providence, RI. Dynamics of Biofilm Formation and Development of *Pseudomonas aeruginosa* and *Staphylococcus epidermidis* on PEEK. ASM/FEMS World Microbe Forum, June 20-24, Live-Streamed Due to COVID-19 Restrictions.
2. Paper Presentation: D. Dockery, S. Allu, N. Vishwanath, E. Berns, T. Li, V. Antoci, C. Born, D. Garcia; Brown Univ., Providence, RI. Synergistic Effects of Silver-carboxylate on Chlorhexidine Gluconate in the Context of Preventatives of Surgical Site Infections by *Cutibacterium acnes* (*C. acnes*) and MRSA. ASM/FEMS World Microbe Forum, June 20-24, Live-Streamed Due to COVID-19 Restrictions.
3. Paper Presentation: N. Vishwanath, S. Allu, A. Turcu, L. Sahakian, E. Berns, A. Clayton, V. Antoci, C. Born, D. Garcia; Brown Univ., Providence, RI. Characterization of *Pseudomonas aeruginosa* and *Staphylococcus epidermidis* Biofilm Developmental Dynamics on Titanium Alloy Spinal Implants. ASM/FEMS World Microbe Forum, June 20-24, Live-Streamed Due to COVID-19 Restrictions.
4. Paper presentation: Dominique M. Dockery, Sai Allu, Jillian Glasser, Valentin Antoci, Christopher T. Born, **Dioscaris R. Garcia**. Comparison of Periprosthetic Joint Infection Rates in the Direct Anterior Approach and Non-anterior Approaches to Primary Total Hip Arthroplasty. AAOS 2021 Annual Meeting, August 31 - September 3 in San Diego, California.
5. Poster Presentation: Ellis Berns, **Dioscaris R. Garcia**, Ahsia Clayton, Catherine Moscinski, Adrian Turcu, Caitlin Barrett, Valentin Antoci, Christopher T. Born. Rapid Visualization and Analysis of Fluorescently Conjugated Antibodies as Ex-Vivo Markers

for Bacterial Presence on Orthopaedic Explants, Tissue, and Synovial Fluid. AAOS 2021 Annual Meeting, August 31 - September 3 in San Diego, California.

6. Podium Presentation: Ellis M. Berns; **Dioscaris R. Garcia**; Christopher Born; Caitlin Barrett; Adrian Turcu; Catherine Moscinski; Ahsia Clayton; Valentin Antoci. Removal Of Staphylococcus Epidermidis Biofilm From Orthopedic Implants With A Novel Irrigation Cocktail. Orthopaedic Research Society Annual Meeting, Long Beach California, February 13-16, 2021.
7. Podium Presentation: Adrian Turcu; Ellis Berns; Caitlin Barrett; Ahsia Clayton; Catherine Moscinski; Christopher Born; Valentin Antoci; **Dioscaris Garcia**. Rapid Visualization and Analysis Of Orthopaedic Device Related Infections With A Novel Software. Orthopaedic Research Society Annual Meeting, Long Beach California, February 13-16, 2021.
8. Podium Presentation: Dominique M. Dockery; Sai Allu; Jillian Glasser; Valentin Antoci; Christopher T. Born; **Dioscaris R. Garcia**. Comparison Of Periprosthetic Joint Infection Rates In The Direct Anterior Approach And Non-anterior Approaches To Primary Total Hip Arthroplasty. Orthopaedic Research Society Annual Meeting, Long Beach California, February 13-16, 2021.
9. Podium Presentation: Jillian Glasser; Valentin Antoci; Brooke Barrow; Christopher Born; **Dioscaris Garcia**. Titanium Surface Roughness May Increase Bacterial Adherence On Orthopedic Implants. Orthopaedic Research Society Annual Meeting, Long Beach California, February 13-16, 2021.
10. Podium Presentation: Caitlin Barrett; Ellis Berns; Gabriella Sansaricq; Christopher Born; **Dioscaris R. Garcia**. Usage Of A Point Of Service Rapid Visualization Assay In The Delineation Of Surgical Site Infection. Orthopaedic Research Society Annual Meeting, Long Beach California, February 13-16, 2021.
11. Podium Presentation: Ryan A. Bain; Christopher Born; **Dioscaris R. Garcia**. An Analysis of The Chemical And Physical Properties Of Polyetheretherketone (PEEK) Implants Coated With A Silver Carboxylate Titanium-Dioxide Polydimethylsiloxane (TiO₂-PDMS) Antimicrobial Matrix. Orthopaedic Research Society Annual Meeting, Long Beach California, February 13-16, 2021.
12. Podium Presentation: Turcu, Adrian, Berns, Ellis, Barrett, Caitlin, Spake, Carole, Leong, Jacqueline, Born, Christopher, Garcia, Dioscaris. "Application of a Novel Software for Analysis and Visualization of Biofilms on Implant Materials" (2020). Warren Alpert Medical School Academic Symposium. Brown Digital Repository. Brown University Library. <https://repository.library.brown.edu/studio/item/bdr:1149006/>
13. Podium Presentation: Dockery, Dominique, Allu, Sai, Born, Christopher, Garcia, Dioscaris. "Silver-Carboxylate/Chlorhexidine Gluconate Eluting Hybrid Matrix as Preventatives of Surgical Site Infections by MRSA and Cutibacterium acnes (C. acnes)" (2020). Warren Alpert Medical School Academic Symposium. Brown Digital Repository. Brown University Library. <https://doi.org/10.26300/05vf-de74>

14. Podium Presentation: Valentin Antoci, Jillian L Glasser, Brooke Barrow, Christopher Born, **Dioscaris Garcia**. Titanium Surface Roughness May Increase Bacterial Adherence on Orthopedic Implants. 30th AAHKS Annual Meeting. November 5 – 8, 2020. Dallas, Texas, USA.
15. Podium Presentation: Adrian Turcu, Ellis Berns, Caitlin Barrett, Carole Spake, Jaqueline Leong, Christopher Born, and **Dioscaris Garcia**. Computational Analysis and Visualization of Biofilm Development on Implant Materials 36th OTA Annual Meeting, September 30th-October 3rd, 2020. Nashville, Tennessee.
16. Poster Presentation: C. Barrett, E. Berns, A. Turcu, C. Born, **D. Garcia**. Rapid Detection of Endotoxin and Bacterial Content on Surgical Materials & Allografts. ASM Microbe 2020, June 18-22, 2020, Chicago, USA. Meeting Cancelled because of Corona Pandemic.
17. Poster Presentation: Ellis Berns, Caitlin Barrett, Adrian Turcu, Carole Spake, Christopher Born, and **Dioscaris Garcia**. In vitro platform for the prevention and removal of microbial biofilms during wound debridement with a multi-functional irrigation agent. 30th ECCMID 2020, Abstract number: 4120, Paris, France. Meeting Cancelled because of Corona Pandemic.
18. Poster Presentation: Caitlin Barrett, Ellis Berns, Jacqueline Leong, **Dioscaris Garcia**, and Christopher Born. A rapid visualization assay for the detection of orthopaedic-related infection on surgical hardware, tissue, synovial fluid and allografts. 30th ECCMID March, 18, 2020, Abstract number: 4123, Paris, France. Meeting Cancelled because of Corona Pandemic"
19. Poster Presentation: Caitlin Barrett; Jillian Glasser; **Dioscaris Garcia**; Christopher Born. A Rapid Visualization Assay For The Detection Of Orthopedic Related Infection On Surgical Hardware, Tissue, Synovial Fluid And Allografts. Orthopaedic Research Society Meeting. Phoenix, Arizona Feb. 2020.
20. Poster Presentation: **Dioscaris R. Garcia**; Troy Li; Christopher Born Silver Carboxylate Antimicrobial: A Novel Wound Care Therapeutic. Orthopaedic Research Society Meeting. Phoenix, Arizona Feb. 2020.
21. Poster Presentation: Alexis Fairman; Soobin Wang; Dahlia Alkekhia; Alessia Battigelli; Wentian Yang; Douglas Moore; Valentin Antoci; **Dioscaris R. Garcia**; Christopher Born; Roy Aaron; Joseph Crisco; Anita Shukla Modification Of Biomaterials With Polyelectrolyte Multilayer Films For Controlled Delivery Of Osteolysis Inhibitors. Orthopaedic Research Society Meeting. Phoenix, Arizona Feb. 2020.
22. Poster Presentation: Ellis M. Berns; Lori Sahakian; Carole SL Spake; Zayn Biviji; **Dioscaris R. Garcia**; Christopher T. Born In-vitro Platform For The Prevention And Removal Of Microbial Biofilms During Wound Debridement With A Multi-functional Irrigation Agent. Orthopaedic Research Society Meeting. Phoenix, Arizona Feb. 2020
23. Poster Presentation: Ryan Bain, Andrea Gilmore, **Dioscaris Garcia**, and Christopher Born. An Assessment of the Biofilm-Prevention Efficacy of a Silver Carboxylate Eluting

- Titanium Dioxide and Polydimethylsiloxane Matrix on Spinal Implant Materials 2019 Annual AIChE Student Conference” and went from November 8-11 in Orlando.
24. Poster Presentation: Berns E, Barrett C, Turcu A, Sahakian L, **Garcia D**, Born, C "In-Vitro Platform for the Removal of Microbial Biofilms and Bacterial Content with an Irrigation Solution. *Warren Alpert Medical School Academic Symposium*. Providence, RI, November, 2019.
 25. Poster Presentation: **Dioscaris Garcia**, Zayn Biviji, Carole Spake, Ellis Berns, Christopher Born. Quantitative In-Vitro Model for the Visualization and Characterization of Bacterial Biofilms on Medical Implants. ASM/ESCMID Conference on Drug Development, Boston, MA on September 3-6, 2019.
 26. Poster Presentation: **Dioscaris Garcia**, Troy Li, Sai Allu, C. Born. Silver-Carboxylate Eluting Hybrid Matrix Coated Sutures as Preventatives of Surgical Site Infections by *Cutibacterium acnes*. ASM/ESCMID Conference on Drug Development, Boston, MA on September 3-6, 2019.
 27. Poster Presentation: **Dioscaris Garcia**, Andrea Gilmore, Ryan Bain, Christopher Born. Silver Carboxylate-Eluting Titanium Dioxide Polydimethyl Siloxane Coating Prevents *Serratia marcescens* Adherence on PEEK. ASM/ESCMID Conference on Drug Development, Boston, MA on September 3-6, 2019.
 28. Poster Presentation: **Dioscaris Garcia**, Grace Plassche, Olivia Lee, and Christopher Born. Novel Enviromimetic Culturing Prototype for Elucidation of Soil-Derived Marine Bacteria. ASM/ESCMID Conference on Drug Development, Boston, MA on September 3-6, 2019.
 29. Poster Presentation: **Dioscaris Garcia**, Sai Allu, Troy Li, and Christopher Born. Silver-Carboxylate Eluting Hybrid Matrix Coated Sutures as Preventatives of Surgical Site Infections by Methicillin-Resistant *Staphylococcus aureus*. ASM/ESCMID Conference on Drug Development, Boston, MA on September 3-6, 2019.
 30. Poster Presentation: Lori Sahakian, Ellis Berns, **Dioscaris Garcia**, and Christopher Born. Biofilm Platform for Development of Irrigation Agents. Brown University Summer Research Symposium, August 1, 2019-August 2, 2019, Brown University, Providence RI.
 31. Poster Presentation: Troy Li, **Dioscaris Garcia**, and Christopher Born. Silver Carboxylate Antimicrobial: A Novel Wound Care Therapeutic for the Antibiotic Resistant Era. Brown University Summer Research Symposium, August 1, 2019-August 2, 2019, Brown University, Providence RI.
 32. Poster Presentation: Andrea Gilmore, Ryan Bain, **Dioscaris Garcia**, Christopher Born. An Analysis of the Antimicrobial Effects of a Silver Carboxylate Coating on Multi Drug Resistant *Serratia marcescens* on Orthopaedic Biomaterials. Brown University Summer Research Symposium, August 1, 2019-August 2, 2019, Brown University, Providence RI.
 33. Poster Presentation: Caitlin Barrett, Gillian Melikian, Zeenat Gardezi, **Dioscaris Garcia**, and Christopher Born. Determining Endotoxin Content and Bacterial Colonization using a Rapid Visualization Assay on Synovial Fluid, Tissue and Allografts. Brown University

Summer Research Symposium, August 1, 2019- August 2, 2019. Brown University, Providence, RI.

34. Poster Presentation: Gillian Melikian, Caitlin Barrett, Zeenat Gardezi, **Dioscaris Garcia**, Christopher Born. Detection of Bacterial Colonization and Endotoxin Content Surgical Material and Tissue Allografts via Rapid Immunologic Screening. INBRE SURF, July 26, 2019. University of Rhode Island, Kingston, RI.
35. Podium Presentation: Gilmore, Andrea J. **Dioscaris Garcia**, Christopher, Born. Silver Carboxylate Coating Prevents Adherence of Multi Drug Resistant *Serratia marcescens* on Polyetherether Ketone. 4th International PEEK Meeting, April 25-26, 2019. Washington, D.C.
36. Podium Presentation: Garcia, D.R., Jarrell, J.D., Born, C.T. The Efficacy of a Silver Carboxylate Coating on Prosthetic Liners. 2019 American Academy of Orthotists and Prosthetists. March 6-9, 2019. Orlando, FL.
37. Poster Presentation: **Dioscaris R. Garcia**; Troy Li; Daniel Roque; Christopher Born. Eradication of Methicillin-Resistant *Staphylococcus aureus* and *Propionibacterium acnes* Colonization by a Silver Carboxylate Complex-Eluting Skin Surgical Prep. 2019 Orthopaedic Research Society. February 2-5, 2019. Austin, TX.
38. Poster Presentation: **D. R. Garcia**, C. C. Spake, C. Fonseca, D. Barber, C. T. Born; Combinatorial Platform for the Visualization and Quantification of Bacterial Biofilms on Orthopaedic Implants. 8th Annual American Society for Microbiology: Biofilms. October 7-11, 2018. Washington D.C.
39. Poster Presentation: **D. R. Garcia**, J. Glasser, I. Lopez Lopez, L. Sipprelle, J. Leong, M. Gardezi, Y. Suliman, C. T. Born; A Rapid Visual Quantitative Diagnostic Methodology for the Detection of Bacterial Infections in Orthopaedics. 8th Annual American Society for Microbiology: Biofilms. October 7-11, 2018. Washington D.C.
40. Poster Presentation: **Dioscaris R. Garcia**, Troy Li, Dan Roque, Christopher T. Born; Silver Carboxylate Complex-Eluting Skin Surgical Prep Eliminates Methicillin-resistant *Staphylococcus aureus* and *Propionibacterium acnes* Colonization. 8th Annual American Society for Microbiology: Biofilms. October 7-11, 2018. Washington D.C.
41. Poster Presentation: Spake C., Fonseca C., **Garcia, D.**, Born C. Platform for the Visualization of Bacterial Biofilms on Orthopaedic Implants. Brown University Warren Alpert Medical School Annual Summer Research Showcase. October, 2018. Providence, RI.
42. Poster Presentation: **Dioscaris R. Garcia**, Troy Li, Dan Roque, Christopher T. Born. Eradication of Methicillin-Resistant *Staphylococcus aureus* and *Propionibacterium acnes* Colonization by a Silver Carboxylate Complex-Eluting Skin Surgical Prep. When to Heal: Timing Interventions for Maximal Effectiveness -- Wound Care Symposium. September 14-15, 2018. Providence, RI.
43. Podium Presentation: **Dioscaris R. Garcia**, PhD, John D. Jarrell, PhD, PE Christopher T. Born. Inhibiting *Pseudomonas aeruginosa* Growth Associated with Prosthetic Liners.

- 2018 American Orthotic Prosthetic Association. September 25-29th, 2018. Vancouver, Canada.
44. Poster Presentation: Li T, Garcia DR, Born CT. Silver Carboxylate Complex-Eluting Surgical Skin Prep Eliminates Methicillin-resistant Staphylococcus aureus and Propionibacterium acnes Colonization. Brown University Summer Research Symposium, Providence, RI. August, 2018.
 45. Poster Presentation: Glasser J, Lopez IL, Leong J, Sipprelle L, **Garcia DR**, Born CT. Rapid Visualization Quantitative Diagnostic Tool for the Detection of Bacterial Bioburden. Brown University Summer Research Symposium, Providence, RI. August, 2018.
 46. Poster Presentation: Plassche G, **Garcia DR**, Born CT. Novel Culture Methodologies to Maximize the Growth of Rare Actinomyces and Their Production of Secondary Bioactive Metabolites with Antimicrobial Activity. Brown University Summer Research Symposium, Providence, RI. August, 2018.
 47. Poster Presentation: Gilmore A, **Garcia DR**, Born CT. An Analysis of the Antimicrobial Effects of a Silver Carboxylate Coating on Multi-Drug Resistant Serratia marcescens on Orthopaedic Biomaterials. Brown University Summer Research Symposium, Providence, RI. August, 2018.
 48. Poster Presentation: Fonseca C, Spake CSL, **Garcia DR**, Born CT. Platform for the Visualization of Bacterial Biofilms on Orthopaedic Implants. Brown University Summer Research Symposium, Providence, RI. August, 2018.
 49. Poster Presentation: Jillian Glasser; Immaris Lopez Lopez; Jaqueline Leong BA; Lynne Sipprelle; **Dioscaris Garcia, PhD**; Christopher Born, MD. Rapid Visualization Quantitative Diagnostic Tool for the Detection of Bacterial Bioburden. 11th Annual RI-INBRE-SURF Conference. July 27th, 2018. Kingston, RI.
 50. Podium Talk: Christopher T. Born and **Dioscaris R. Garcia**. Rapid Visualization and Classification of Bacterial Biofilms on Orthopaedic Materials. Foundation for Orthopaedic Trauma Meeting. February 2nd, 2018. Las Vegas, NV.
 51. Poster Presentation: D. Roque, **D. Garcia**, J. Haglin, C. Born. Imparting Antibiotic-Independent Antimicrobial Properties to Prosthetic Liners Through the Application of a Silver-doped Hybrid Coating. ASM/ESCMID Conference on Drug Development to Meet the Challenge of Antimicrobial Resistance. September 6-8th, 2017. Boston, Massachusetts.
 52. Podium Presentation: Justin Kleiner, Joseph Johnson, Jeremy Truntzer, Scott McAllister, Mathew Edward Deren, Mursal Gardezi, Olivia Cummings, Melanie Ambler, **Dioscaris Garcia**, Christopher T. Born. The Effect of Smoking Cessation on Serum Biomarkers of Fracture Healing. Orthopaedic Trauma Association. October 12, 2017.
 53. Poster Presentation: Anthony Minnah, Eric Nguyen, **Dioscaris R. Garcia**, John D. Jarrell, Christopher Born. An Analysis of the Antimicrobial Effects of a Ag-doped TiO₂-PDMS coating on the adherence and proliferation of Multidrug Resistant A. baumannii and Vancomycin Resistant E. faecalis on Orthopaedic Biomaterials. 2017 AAOS/OTA/SOMOS/ORS Extremity War Injuries XII: Homeland Defense as a Translation of War Lessons Learned (EWI XII) research symposium. January 30-February 1, 2017, Washington D.C.

54. Paper Presentation: David G. Deckey, Alexandra Zega, **Dioscaris R. Garcia**, Alan Daniels, John Jarrell, Craig Ebersson, Christopher T. Born. Analysis of Growth and Biofilm Formation of Bacterial Pathogens on Frequently-Used Spinal Instrumentation. AAOS, 2017, Annual Meeting, March 14-18 in San Diego, California.
55. Poster Presentation: Kevin Mertz; **Dioscaris R. Garcia**; John Jarrell; Christopher Born. A Silver-based, Titanium Dioxide/polymer-hybrid Coating as a Preventative for *C. Albicans* Biofilms. Orthopaedic Research Society, March 19-22, 2017, San Diego, California.
56. Poster Presentation: Douglas T. Barber; **Dioscaris Garcia**; Christopher Born. Rapid Detection and Quantification of Biofilms on Orthopaedic Implants. Orthopaedic Research Society, March 19-22, 2017, San Diego, California.
57. Poster Presentation: Cory K. Mayfield, Alexandra Zega, David Deckey, **Dioscaris Garcia**, John D. Jarrell, Christopher Born. Adherence and Proliferation of *Propionibacterium acnes* on Materials of Orthopaedic Relevance. ASM Microbe 2016 in Boston, Massachusetts, June 16-June 20, 2016.
58. Poster Presentation: Jack M. Haglin, Artym V. Hayda, **Dioscaris R. Garcia**, John D. Jarrell, and Christopher T. Born. Assessing the Efficacy of Silver-doped Antimicrobial Coatings on Prosthetic Liners. ASM Microbe 2016 in Boston, Massachusetts, June 16-June 20, 2016.
59. Poster Presentation: Cobb, Caryn, Fox, Henry M., Deckey, David G., Kondo, Ayano, Hayda, Artym V., **Garcia, Dioscaris R.**, Daniels, Alan, Jarrell, John D., Born, Christopher T. Development of in vitro Co-Culture Model for the Detection and Quantification of Biofilm on Orthopaedic Explants. Student National Medical Association Dr. Wilbert C. Jordan Research Forum, Austin, Texas March 23-27, 2016.
60. Poster Presentation: **Dioscaris R. Garcia**, Alan H. Daniels, Alexandra Zega, David Deckey, Ayano Kondo, John Jarrell, Craig Ebersson, Andrew Green, Roman A. Hayda, Christopher Born. Characterization of the Adherence Patterns and Biofilm Density of Commonly Encountered Bacterial Pathogens to Spinal Instrumentation of Differing Compositions. Orthopaedic Research Society, Orlando FL, March 5-8, 2016.
61. Poster Presentation: Deckey DG, **Garcia DR**, Daniels AH, Zega AM, Kondo A, Jarrell JD, Ebersson CP, Green A, Hayda RA, Born CB. Characterization of the Adherence Patterns and Biofilm Density of Commonly Encountered Bacterial Pathogens to Spinal Instrumentation of Differing Compositions. Poster Presentation. 10th Annual Massachusetts Medical Society (MMS) Research Poster Symposium, Waltham, MA, December 2015.
62. Poster Presentation: Anthony Minnah, Eric M. Nguyen, **Dioscaris R. Garcia**, John D. Jarrell, Christopher Born. Characterization of the Antimicrobial Effects of a Silver-Doped Titanium Dioxide-PDMS Hybrid Coating on the Adherence and Proliferation of Multi-Drug Resistant *A. baumannii* on Spinal Implant Rods of Varying Compositions. Biomedical Engineering Society Annual Meeting, Tampa, FL, October 7-10 2015.
63. Poster Presentation: Anthony Minnah, Eric Nguyen, **Dioscaris R. Garcia**, John D. Jarrell, Christopher Born. An Analysis of the Antimicrobial Effects of a Ag-doped TiO₂-PDMS coating on the adherence and proliferation of Multidrug Resistant *A. baumannii* and Vancomycin Resistant *E. faecalis* on Orthopaedic Biomaterials. Biomedical Engineering Society Annual Meeting, Minneapolis, MN, October 5-8 2016.

64. Poster Presentation: Anthony Minnah, Eric Nguyen, **Dioscaris R. Garcia**, John D. Jarrell, Christopher Born. An Analysis of the Antimicrobial Effects of a Ag-doped TiO₂-PDMS coating on the adherence and proliferation of Multidrug Resistant *A. baumannii* and Vancomycin Resistant *E. faecalis* on Orthopaedic Biomaterials. Society for the Advancement of Chicanos and Native Americans in Science National Conference, Long Beach, CA, October 13- 15 2016.
65. Poster Presentation: Gardezi M, **Garcia D**, Born C, Jarrell J. Effects of Temperature and Ionic Strength on Rapid Visualization Assay for Identifying Gram Negative and Gram Positive Bacteria on Orthopedic Infection Sites: POSTER #41. Rhode Island Hospital Poster Symposium October, 2016.
66. Poster Presentation: Barber D, **Garcia D**, Born C. Developing a Model for the Classification of Bacterial Biofilms on Orthopaedic Materials. Rhode Island Hospital Poster Symposium October, 2016.
67. Poster Presentation: Irons B, Hayda T, **Garcia D**, Born C. Elucidation and Purification of Secondary Bioactive Metabolites with Antimicrobial Activity from Natural Sources: POSTER #26. Rhode Island Hospital Poster Symposium October, 2016.
68. Poster Presentation: Mertz K, **Garcia D**, Born C. A Silver-based, Titanium Dioxide/polymer-hybrid Coating as a Preventative for *C. albicans* Biofilms: POSTER #42. Rhode Island Hospital Poster Symposium October, 2016.
69. Poster Presentation: Minnah A, Jarrell JD, **Garcia DR**, Born C. An Analysis of the Antimicrobial Effects of a Ag-doped TiO₂-PDMS Hybrid Coating on *E. faecalis* on Orthopaedic Biomaterials: POSTER #43. Rhode Island Hospital Poster Symposium October, 2016.
70. Poster Presentation: Gardezi M, **Garcia D**, Born C, Jarrell J. Effects of Temperature and Ionic Strength on Rapid Visualization Assay for Identifying Gram Negative and Gram Positive Bacteria on Orthopedic Infection Sites: POSTER #41. Brown University Summer Undergraduate Poster Symposium. August, 2016.
71. Poster Presentation: Barber D, **Garcia D**, Born C. Developing a Model for the Classification of Bacterial Biofilms on Orthopaedic Materials. Brown University Summer Undergraduate Poster Symposium. August, 2016.
72. Poster Presentation: Irons B, Hayda T, **Garcia D**, Born C. Elucidation and Purification of Secondary Bioactive Metabolites with Antimicrobial Activity from Natural Sources: POSTER #26. Brown University Summer Undergraduate Poster Symposium. August, 2016.
73. Poster Presentation: Mertz K, **Garcia D**, Born C. A Silver-based, Titanium Dioxide/polymer-hybrid Coating as a Preventative for *C. albicans* Biofilms: POSTER #42. Brown University Summer Undergraduate Poster Symposium. August, 2016.
74. Poster Presentation: Minnah A, Jarrell JD, **Garcia DR**, Born C. An Analysis of the Antimicrobial Effects of a Ag-doped TiO₂-PDMS Hybrid Coating on *E. faecalis* on Orthopaedic Biomaterials: POSTER #43. Brown University Summer Undergraduate Poster Symposium. August, 2016.
75. Podium Talk: **Dioscaris R. Garcia**, Alan H. Daniels, Alexandra M. Zega, David G. Deckey, Ayano Kondo, John D. Jarrell, Craig P. Ebersson, Andrew Green, Roman A. Hayda, and Christopher T. Born. Characterization of the Adherence Patterns and Biofilm Density of Commonly Encountered Bacterial Pathogens to Spinal Instrumentation of

- Differing Compositions. Scoliosis Research Society, September 30-October 3, 2015, Minneapolis, Minnesota, USA.
76. Poster Presentation: Nhiem Tran, Michael N. Kelley, Phong A. Tran, **Dioscaris R. Garcia**, Alan Daniels, John D. Jarrell, Roman A. Hayda, and Christopher T. Born. Silver Doped Titanium Oxide - PDMS Hybrid Coating Inhibits Staphylococcus aureus and Staphylococcus epidermidis Growth on PEEK, 2nd International PEEK Meeting, Washington D.C., April, 2015.
 77. Poster Presentation: Adherence Patterns and Biofilm Density of Commonly Encountered Bacterial Pathogens to Spinal Instrumentation of Differing Compositions with Silver-Doped Polydimethylsiloxane/Titanium Dioxide Coatings, Alexandra Zega, David G. Deckey, Henry M. Fox, Ayano Kondo, Artym Hayda, **Dioscaris Garcia, PhD**, Alan Daniels, MD, Craig Ebersson, John D. Jarrell, PhD, and Christopher T. Born, MD. 2015 Annual Undergraduate Research Poster Day in the Biological Sciences, Providence, RI, April, 2015.
 78. Poster Presentation: Development of an in vitro Co-Culture Model for the Detection and Quantification of Biofilm on Orthopaedic Explants, Caryn B.C. Cobb, Henry M. Fox, Janice A. Havasy, David G. Deckey, Artym V. Hayda, Alan Daniels, MD, Craig Ebersson, MD, John D. Jarrell, PhD, **Dioscaris R. Garcia, PhD**, and Christopher T. Born, MD. 2015 Annual Undergraduate Research Poster Day in the Biological Sciences, Providence, RI, April, 2015.
 79. Poster Presentation: Development of an in vitro Co-Culture Model for the Detection and Quantification of Biofilm on Orthopaedic Explants, Caryn B.C. Cobb, Henry M. Fox, Janice A. Havasy, David G. Deckey, Artym V. Hayda, Alan Daniels, MD, Craig Ebersson, MD, John D. Jarrell, PhD, **Dioscaris R. Garcia, PhD**, and Christopher T. Born, MD. New England Science Symposium, Boston, MA April, 2015.
 80. Poster Presentation: A Silver-Doped TiO₂-PDMS Hybrid Coating to Deter Infection in Orthopaedic Surgery, David G. Deckey, Alexandra Zega, Henry M. Fox, Ayano Konda, **Dioscaris Garcia, PhD**, Alan Daniels, MD, Craig Ebersson, MD, John D. Jarrell, PhD, and Christopher T. Born, MD. 2015 Annual Undergraduate Research Poster Day in the Biological Sciences, Providence, RI, April, 2015.
 81. Poster Presentation: Development of a Rapid-Detection Assay for the Visualization and Quantification of Bacterial Colonization and Biofilm Formation on Orthopaedic Trauma Explants, Henry M. Fox, Janice Havasy, Caryn B. Cobb, David G. Deckey, Ayano Kondo, Artym V. Hayda, **Dioscaris R. Garcia, PhD**, Alan Daniels, MD, John D. Jarrell, PhD, and Christopher T. Born, MD. 2015 Annual Undergraduate Research Poster Day in the Biological Sciences, Providence, RI, April, 2015.
 82. Podium Talk: **Dioscaris R. Garcia**, PhD., Henry Fox, Caryn Cobb, Janice Havasy Alan Daniels, MD, John Jarrell, PhD., Craig Ebersson, MD, Roman A. Hayda, MD, Christopher T. Born Development of a Rapid-Detection Assay for the Visualization and Quantification of Bacterial Colonization and Biofilm Formation on Orthopaedic Trauma Explants, Foundation for Orthopaedic Trauma Research, Las Vegas, NV, March 2015.
 83. Poster Presentation: Visualization and Characterization of Bacterial Biofilm on Orthopaedic Trauma Explants, Henry M. Fox, David G. Deckey, Ayano Kondo, Artym V. Hayda, **Dioscaris R. Garcia, PhD**, Alan Daniels, MD, John D. Jarrell, PhD, and Christopher T. Born, MD. Brown University Undergraduate Summer Research Symposium, 2014. Brown University, August, 2014, Providence, RI.

84. Poster Presentation: The Characterization of Biofilm Formation on Spinal Implants of Varying Compositions. David G. Deckey, Henry M. Fox, Ayano Kondo, **Dioscaris Garcia, PhD**, Alan Daniels, MD, John D. Jarrell, PhD, and Christopher T. Born, MD. Brown University Undergraduate Summer Research Symposium, 2014. Brown University, August, 2014, Providence, RI.
85. Poster Presentation: Mullur, Jyotsna, **Garcia, Dioscaris**, Bowen, Wayne. Characterization of Sigma-2 Mediated Signaling in Human Neuroblastoma. Brown University Undergraduate Honors Symposium. April, 2012.
86. Poster Presentation: Pham, Vincent, **Garcia, Dioscaris**, Bowen, Wayne. Sigma-2 Receptor-Activated of SPC Transiently Mobilizes [Ca²⁺]_i in the SK-N-SH Neuroblastoma Cell Line. Brown University Undergraduate Honors Symposium. April, 2012.
87. Poster Presentation: Savoca, Emily, **Garcia, Dioscaris**, Bowen, Wayne. Sigma-2 Receptor Expression in Proliferating Tumor Cells and Changes in Drug Sensitivity. Brown University Undergraduate Honors Symposium. May, 2011.
88. Poster Presentation: **Garcia, Dioscaris**, McCurdy, Christopher R., Bowen, Wayne. Sigma-2 Receptor-Mediated Apoptosis and Calcium Signaling: Are They Bifurcating Pathways?. Society for Neuroscience, November, 2010. 470.17.
89. Poster Presentation: **Garcia, Dioscaris**, Bowen, Wayne. Exploring the sigma-2 receptor-selective ligand SN79 as a tool for studying possible sigma-2 receptor heterogeneity. NABRIT Conference. March 2010.
90. Poster Presentation: **Garcia, Dioscaris**, Bowen, Wayne. Sphingosylphosphorylcholine promotes cell survival and proliferation parallel to sigma-2 receptor ligand CB-64D in Neuroblastoma SK-N-SH cells. NABRIT Conference. March, 2008.

SCHOLARLY WORK PUBLISHED IN OTHER MEDIA

1. Brown Boosts Immunity combats vaccine hesitancy in Rhode Island. Brown Herald, Publish date: 2/8/21 by Oliver Keen.
2. Smoother orthopedic implants may minimize bacterial adherence. Rheumatology News, Publish date: September 18, 2015. By: Doug Brunk
3. PBN Top 40 Under Forty, PBN. Published date: 7/20/17. By: PBN Staff.
4. Introducing Rhode Islands Inno's Inaugural 50 on Fire. Published date: 12/19/17. By: Courtney Gabrielson.
5. Laser Focus, Brunonia, Published date: 7/9/2018. By: Amy Anthony.
6. URI Senior Aims for Career in Cancer Research. URI Today. Published date: 5/5/2004. By Todd McLeish.

INVITED PRESENTATIONS

1. Seminar Presentation: Translational Approaches to Orthopaedic-Related Infections. **Dioscaris R. Garcia**, Rhode Island Hospital Department of Orthopaedics Seminar. April, 2016.
2. Seminar Speaker: Characterization of the Adherence Patterns of Staphylococcus aureus on Various Spinal Implant Materials, **Dioscaris R. Garcia, PhD**, Alan Daniels, MD, Craig Ebersson, MD, John D. Jarrell, PhD, and Christopher T. Born, MD. Orthopaedic Department Seminar, Rhode Island Hospital, January, 2014 Providence, RI.

3. Guest Lecturer: Brown University. The Importance of Intellectual Property in Biotechnology, October, 2016.
4. Invited Participant: Rally for Medical Research Hill Day, Washington D.C., September, 2013.
5. Invited Speaker: University of Rhode Island, 6th INBRE SURF Conference, July, 2013.
6. Invited Panelist: Morgan State University. 13th Annual Graduate Career Workshop, September, 2012.
7. Guest Lecturer: Brown University. Principles of Pharmacology, July, 2012.

GRANTS

- 1) \$65,000 2012 Stein/Bellet Foundation for Research Fellowship in Orthopaedic Trauma awarded to Dioscaris Garcia, PhD for FY 2013-2014
- 2) \$20,000 2013 Born CT (PI). Visualization and quantification of bacterial biofilm on orthopaedic trauma explants. Research Grant from Foundation for Orthopedic Trauma (FOT), USA Study Report submitted to FOT Board
- 3) \$64,000 2013 Born CT (PI), Ebersson CP (Co-PI). Bacterial adherence to spinal instrumentation of differing compositions. Stryker Spine Study Report #RA111001 completed and submitted
- 4) \$65,000 2014 Stein/Bellet Foundation for Research Fellowship in Orthopaedic Trauma awarded to Dioscoras Garcia, PhD for FY2014-2015
- 5) \$20,000 2015 Born CT (PI), Truntzer J (Co-PI) Orthopaedic Trauma Association Resident Research Grant “Does Timing of Smoking Cessation Impact Bone Healing? Research scheduled to begin summer 2015
- 6) \$50,000 2015 Sipprelle Family unrestricted research grant (to be paid over 3 years) for the Research Fellowship in Orthopaedic Trauma awarded to Dioscaris Garcia, PhD for FY2015-2016
- 7) \$20,000 2015 Stein/Bellet Foundation Unrestricted Grant for support for Research Fellowship in Orthopaedic Trauma FY2015-2016
- 8) \$50,000 2016 to Weiss Center for Orthopaedic Trauma Research, Born CT (Principal Knowledge Provider) for Innovation Voucher by Rhode Island Commerce Corporation to study additional development and clinical laboratory testing of an antibiotic-independent antimicrobial applicator with broad spectrum effectiveness against Drug-Resistant Bacteria (Grant research completed and submitted on time, 2/2017)
- 9) \$16,000 2016 Foundation for Orthopaedic Trauma Rapid Detection and Quantification of Biofilms on Tissue and Fluids
- 10) \$9,348 2017 Rhode Island IdEA Network for Excellence in Biomedical Research Award Summer Undergraduate Research Fellowship (INBRE-SURF), Co-PI with Christopher T. Born, MD “Comparative Analysis of a Novel Microbial Detection System and Gram Staining Utilizing Synovial Fluid”
- 11) \$9,348 2018 Rhode Island IdEA Network for Excellence in Biomedical Research Award Summer Undergraduate Research Fellowship (INBRE-SURF), Co-PI with Christopher T. Born, MD. “Assessment of the Translational Capabilities of a Visual Diagnostic Tool for the Rapid Detection of Orthopedic Related Infections on Hardware, Tissue and Synovial Fluid.”
- 12) \$100,000 Unrestricted Grant by the Sipprelle family in support of the Weiss Center for Orthopaedic Trauma Research (\$25,000 per year over 4 years)

- 13) \$10,130 2019 MTF Biologics Grant, Co-PI with Christopher T. Born, MD. Detection and Quantification of Bacterial Colonization and Endotoxin Content on Tissue Allografts via Rapid Immunologic Screening.
- 14) \$4,000 2019 Rhode Island IdEA Network for Excellence in Biomedical Research Award Summer Undergraduate Research Fellowship (INBRE-SURF), Co-PI with Christopher T. Born, MD. “Detection of Bacterial Colonization and Endotoxin Content on Surgical Material and Tissue Allografts via Rapid Immunologic Screening.”
- 15) \$12,100 2019 Foundation for Orthopaedic Trauma, Co-PI with Christopher T. Born, MD and Brett Owens, MD. “Detection and Quantification of Bacterial Colonization and Endotoxin Content on Tissue Allografts via Rapid Immunological Screening.”
- 16) \$6,000 2020 Diane N. Weiss Foundation, Grant to support PPE and summer research for Dioscaris R. Garcia, PhD.
- 17) \$8,476 2020 Rhode Island IdEA Network for Excellence in Biomedical Research Award Summer Undergraduate Research Fellowship (INBRE-SURF), Co-PI with Christopher T. Born, MD. “Rapid Detection of Endotoxin and Bacterial Content on Surgical Materials & Allografts.”
- 18) \$20,000 2020 Foundation for Orthopaedic Trauma, Co-PI with Christopher T. Born, MD and Valentin Antoci, MD, PhD. “Silver Carboxylate Eluting Titanium Dioxide-Polydimethyl Siloxane Antimicrobial as an Effective Wound Care Antimicrobial against Biofilm-Forming Antibiotic-Resistant Bacteria and Persister Cells”.
- 19) \$163, 709 2021-2023 1R03AI159776-01 National Institutes of Health R03 Grant, USA “Silver Carboxylate-Eluting Titanium Dioxide/Polydimethyl Siloxane Antibiotic-Independent Antimicrobial Coating as a Safe and Efficacious Alternative for Antibiotic Resistance”.
- 20) \$7,500 2021, Emerging Infectious Disease Scholars (EIDS) Program Dioscaris Garcia, Neel Vishwanath, Sai Allu, Valentin Antoci, MD, PhD, Christopher Born, MD. Silver Carboxylate Eluting Titanium Dioxide-Polydimethyl Siloxane Antimicrobial as an Effective Wound Care Antimicrobial against Biofilm Forming Antibiotic-Resistant Bacteria and Persister Cells/ Assessment of the Potential Necrotic and Apoptotic Effects of Silver-Carboxylate/Chlorhexidine Gluconate Pre-Surgical Skin Preparation Solution on Primary Human Cell Lines Involved in Wound Healing.

UNIVERSITY TEACHING, ADVISING and MENTORING ROLES

1. Michael Amankwaah, Rutgers University-Newark, Leadership Alliance (2021)
2. Gabriella Sansaricq, Brown University, '24 MD
3. Neel Vishwanath, Brown University, '25 MD
4. Ahsia Clayton, Brown University, '24 MD
5. Nikki Moscinski, Brown University, '24 MD
6. Dominique Dockery, Brown University, '23 MD, Summer Assistantship

7. Drew Clippert, Brown University, '22 Sc.B. Health and Human Biology
8. Ellia Jouffroy, Brown University, '22 Sc.B. Biochemistry and Biology
9. Nicolas Ortega, Brown University, '22 Sc.B. Biomedical Engineering (UTRA, 2020)
10. Alexis Fairman, Brown University, '20 ScM, Biomedical Engineering
11. Lori Sahakian, Brown University '20 BS, Biology, Honors, (LINK, 2019)
12. Gillian Melikian, Providence College (Summer Internship, RI-INBRE Grant)
13. Adam Fuller, Brown University '21 BS, Biology
14. Ellis Berns, Brown University (PLME) '18 Sc.B. in Neuroscience, Alpert Medical School '22
15. Ryan Bain, Brown University '21 BS, Biochemical Engineering, (LINK, 2019, UTRA, 2020)
16. Zayn Biviji, Brown University '21 Sc.B Applied Mathematics-Biology
17. Sai Allu, Brown University (PLME) '21 BS, MD '25 (Summer Research Assistantship, 2020)
18. Olivia Lee, Brown University, Sc.B. Applied Mathematics, '19
19. Celina Fonseca University of Massachusetts (Amherst), BS Biochemistry and Molecular Biology '20
20. Jacqueline Leong, Brown University Alpert Medical School, MD '21
21. Lynne Sippelle, Horace Mann School '19 (Summer Internship)
22. Latsany Lopez, Sophia Academy '15 (Brown University Sophia-Royce Summer Internship 2018)
23. Caitlin Barrett, Brown University, BA Biology '21, (Royce Fellowship, 2020, SURF, 2020)
24. Carole Spake, Brown University Alpert Medical School, MD '21
25. Irmaris Lopez-Lopez, University of Puerto Rico, BS '19 (Karen T. Romer Undergraduate Teaching and Research Award Team Grant 2018 \$3570)

26. Patricia Rodarte, Brown University (PLME) BA Health/Human Biology, '20, MD '24 (2018 Awarded and declined Brown Summer Research Assistantship (SRA))
27. Troy Li, Brown University, ScB Biochemistry, '20 (2018 Karen T. Romer Undergraduate Teaching and Research Award Team Grant \$3570) (2019 Karen T. Romer Undergraduate Teaching and Research Award \$3570), Honors.
28. Andrea Gilmore, Brown University, BA Health and Human Biology, '20 (2019 Karen T. Romer Undergraduate Teaching and Research Award \$3570), Honors.
29. Grace Plassche, Brown University, ScB Biology, '19 (Honors Thesis: Development of Novel Enviromimetic Culturing Prototypes for Soil Derived Marine Bacteria).
30. Geronimo Garcia, Jr: Brown University, BA Health and Human Biology, '19
31. Jillian Glasser: Brown University, BA Health and Human Biology, '19 (2018 Research at Brown (RAB) travel award \$250, 2018 grant award from Rhode Island IdEA Network for Excellence in Biomedical Research Award Summer Undergraduate Research Fellowship (INBRE-SURF \$9000), 2018 Top Poster Presentation at American Society for Microbiology, 2019 Nominated Brown Chapter Sigma Xi Honor Society, (Honors thesis: 2. Rapid Quantitative Visualization Assay for the Detection of Bacterial Bioburden)
32. Olivia Cummings: Brown University, BA Health and Human Biology, '19
33. Melanie Ambler: Brown University, B.Sc. Neurobiology, '19 (2018 RAB \$350 travel grant) (Honors Thesis: The Physiological and Psychological Effects of Intraoperative Music on Surgical Patients: A Systematic Review) (Awarded Fubright Scholarship)
34. Toby Emmanuel: MS4, Alpert Medical School (Recipient of Ruth Sauber Medical Scholars Program grant)
35. Brianna Irons: Brown University, ScB Biology '18 (Honors Thesis: Elucidation and Purification of Secondary Bioactive Metabolites with Antimicrobial Activity from the Rhode Island Coastline) (Gap year Research Boston, MA. Applying to Medical School)
36. Justin Kleiner: Brown University, ScB; AMS MD '19
37. Mursal Gardezi: Brown University, ScB Biology '18 (Honors Thesis: Fluorescent-Conjugated Antibodies as Markers of Bacterial Infection on Surgical Sites Ex Vivo), (Recipient Travel Scholarship to Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) 2016 National Diversity in STEM Meeting, San Diego, CA) (Awarded Brown University Royce Fellowship 2017) (RAB travel grant \$200 2018) (one of "7 Exceptional Seniors" profiled in the Brown Alumni Magazine, 2018)(Senior Biology Prize for Academic Excellence) (Yale University School of Medicine)

38. Yasmine Suliman: Brown University, ScB Biology '18 (Honors Thesis: Comparative Analysis of a Novel Microbial Detection System and Gram Staining Utilizing Synovial Fluid), (Karen T. Romer Undergraduate Teaching and Research Award 2017), (Grant from Rhode Island IdEA Network for Excellence in Biomedical Research Award Summer Undergraduate Research Fellowship (INBRE-SURF \$9348) 2017) (Research at Brown (RAB) travel grant \$250, 2018) (Washington University School of Meicine)

39. Daniel Louis Roque: Brown University, ScB Biology '18 (Honors Thesis: Imparting Antibiotic-Independent Antimicrobial Properties to Surgical Sutures and Prosthetic Liners With a Silver-doped Coating), (Karen T. Romer Undergraduate Teaching and Research Award 2017) (Awarded \$300 Research at Brown Travel Grant 2017) (Senior Biology Prize for Academic Excellence, Brown University 2018) (Tufts University School of Medicine)

40. Anthony Minnah: Brown University, ScB Biology '18 (Honors Thesis: An Analysis of the Antimicrobial Effects of a Silver doped Titanium-dioxide Polydimethylsiloxane (PDMS) coating on Multi Drug Resistant *Acinetobacter baumannii* and Vancomycin Resistant *Enterococcus faecalis* on Orthopaedic Biomaterials) (Karen T. Romer Undergraduate Teaching and Research Award) (Recipient Travel Scholarship to Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) 2016 National Diversity in Stem Meeting, San Diego, CA) (RAB travel grant \$300 2017) (Tech Consultant Cambridge MA applying to Medical School)

41. Douglas Barber: Brown University, ScB Biology '18 (Honors Thesis: Developing an in vitro Model for Visualizing and Classifying Bacterial Biofilms on Orthopaedic Materials), (Karen T. Romer Undergraduate Teaching and Research Awards 2016 and 2017) (Research at Brown Travel Grants, 2017 and 2018), 3rd Place Basic Science Research Award for Abstract and Poster 25th Annual Lifespan Research Day) (Yale University school of Medicine)

42. Kevin Mertz: Brown University, ScB Biology '17 (Honors Thesis: A Silver-based Titanium Dioxide-Polymer Hybrid Coating as a Preventative of *Candida albicans* and *Aspergillus fumigatus* Biofilms) (Awarded \$300 Research at Brown Travel Grant, 2017) (USC School of Medicine)

43. Eric M. Nguyen: Brown University, ScB Biology '16 (Honors Thesis: Antimicrobial Effects of a Silver-Doped Titanium Dioxide-PDMS Hybrid Coating against the Adherence and Proliferation of Multi-Drug Resistant *A. baumannii* on Spinal Rod Implants of Varying Compositions) (Tech Consultant Boston applying to Medical School)

44. Nathan Thomas: Brown University, PLME Program in Liberal Medical Education, ScB, AB'14, Warren Alpert Medical School, MD/PhD '18 (Research at Brown Grant December 2013; Summer Research Assistantship Grant, Alpert Medical School; AAOS Sponsored Summer Internship Program, 2015) (Brown University Alpert Medical School)

45. Cory Mayfield: Brown University, ScB Biology '16 (Honors Thesis: Characterization of the Early Adherence and Proliferation of *Propionibacterium acnes* on Materials of Orthopaedic Relevance and the Effects of Silver-Doped Titanium Dioxide-PDMS Hybrid Coating), (Karen T. Romer Undergraduate Teaching and Research Award) (USC School of Medicine)
46. Jack Haglin: Brown University, ScB Biology '16 (Honors Thesis: Assessing the Efficacy of Silver-doped Antimicrobial Coatings on Prosthetic Liners), (Karen T. Romer Undergraduate Teaching and Research Award) (Recipient of Senior Biology Prize for Academic Excellence) (Mayo Clinic School of Medicine)
47. Janice Havasy: Brown University, ScB Biology '16 (Honors Thesis: Optimization of a Rapid-Detection Assay to Visualize and Quantify Bacterial Colonization on Orthopaedic Trauma Explants) (Columbia University School of Medicine)
48. Alexandra Zega: Brown University, ScB Biology '15 (Honors Thesis: Adherence Patterns and Biofilm Density of Commonly Encountered Bacterial Pathogens to Spinal Instrumentation of Differing Compositions with Silver-Doped Polydimethylsiloxane/Titanium Oxide Coatings) (U Penn Dental School)
49. David Deckey: Brown University, ScB Biology '15 (Honors Thesis: Characterization of the Effect of a Silver-Doped Titanium Dioxide-PDMS Hybrid Coating on the Adherence and Proliferation of Methicillin-Resistant *S. aureus* and *P. acnes* on Spinal Implant Rods of Varying Compositions (Royce Fellowship 2014) (Tufts University School of Medicine)
50. Alexander Vesprey: Brown University, ScB Biology '15 (Emory University School of Medicine)
51. Caryn Cobb: Brown University (PLME) BA '15 Health and Human Biology, MD '19 (Honors Thesis: Development of an in vitro Co-Culture Model for the Detection and Quantification of Biofilm on Orthopaedic Explants) (Brown University Alpert Medical School)
52. Henry Fox: Brown University, AB Biology '15) (Honors Thesis: Development of a Rapid Detection Assay for the Visualization and Quantification of Bacterial Colonization and Biofilm Formation on Orthopaedic Trauma Explants) (Karen T. Romer Undergraduate Teaching and Research Award) (Oregon Health Sciences University Medical School)
53. Ayano Kondo: Brown University, ScB Biology '14 (UPenn PhD Biology)
54. Kate Krug: University of Rhode Island, BS '16 Marine Biology
55. Artym Hayda: Wheeler School, '15 (Summer Intern 2014, 2015)

56. Phillip Rasnick: Penn State University, ScB '14 (Summer Intern 2013)
57. Oakley Olson: Brown University
58. Hanae Fuji-Rios: Brown University
59. Mathew Pitman: Leadership Alliance.
60. David Callianese: Providence College
61. Anthony Marcello: University of Rhode Island
62. Martha Amoako: Brown University
63. Paul Jeng: Brown University
64. Wudan Yan: Brown University
65. Matthew Dallos: Brown University
66. Daniel Woolridge: Brown University
67. Rajiv Iyengar: Brown University
68. Vincent Pham: Brown University
69. Kevin Pan: Brown University
70. Justin Shaya: Brown University
71. David Segar: Brown University
72. Igryl Cordero: Brown University
73. Eunice Cho: Brown University
74. Vira Behnam Roudsari: Brown University
75. Vaishali Mittal: Brown University
76. Jyotsna Mullur: Brown University
77. Lisa Kumar: Brown University
78. Kathryn Linder: Brown University

79. Emily Savoca: Brown University

80. Hilary Nicholson: Brown University

THESIS COMMITTEES

1. Discovering Novel Regulators of Osteoclastogenesis using RNA-Sequencing Technology. Alexander Vesprey, MS, Brown University, 2016.

2. Cartilage Progenitors Stimulate Meniscus Tear Reintegration and Fibrochondrocyte Proliferation to Facilitate Healing in Two Independent Ex-Vivo Models of Meniscus Injury Repair Jake Newberry, MS, Brown University, 2019.

3. Clinical implementation of a new technology: provider perspectives and perceived effects of an incentive spirometer patient reminder. Joshua Pangborn, MS, Brown University, 2019.

HOSPITAL TEACHING, ADVISING and MENTORING ROLES

1. Advisor and Mentor to approximately 14 students per semester.
2. Member of the ODMA FA
- 3.

SERVICE TO THE UNIVERSITY AND COMMUNITY

1. Participate in advising and providing guidance for minority students through MAPS (Minority Association of Pre-Health Students).
2. Lecture urban high schools on STEM, and provide career, life, and college advice (Central Falls High School, UCAP).
3. Reviewer in the Central Falls High School Alumni Association Scholarship Committee.
4. Provide internship opportunities for underserved high school students (Central Falls High School, UCAP).
5. Lecture elementary students on STEM.
6. Serve as mentor to doctorate-bound undergraduate, graduate, and medical students within the university.
7. Provide mentorship to first-generation college students.
8. Founder of the Made in Central Falls Seminar Series.
9. Advisor to Central Falls and Pawtucket School Districts during COVID-19 Pandemic.
10. Advisor to Cities of Central Falls and Pawtucket during COVID-19 Pandemic.
11. Advisor to CommerceRI during COVID-19 Pandemic.
12. Invited member of the Central Falls/Pawtucket Emergency Management Agency as Deputy Director.

PATENTS

International Patent Application: PCT/US2015/066460 “Visualization of Bacterial Colonization and Biofilm Formation on Orthopaedic Trauma Explants”, 2015

U.S. Patent No.: 9,174,103 (April 26, 2016)

Provisional Patent Submitted for U.S. Patent Application No.: 62/837,021

Title: NOVEL ENVIROMIMETIC CULTURING PROTOTYPE FOR ELUCIDATION OF SOIL DERIVED MARINE BACTERIA

Filing Date: April 22, 2019

Inventors: Dioscaris R. Garcia, Christopher T. Born