

Curriculum Vitae

Jeffrey Scott McLean

PERSONAL INFORMATION:

Jeffrey Scott McLean
Associate Professor with Tenure, School of Dentistry, Department of Periodontics
Associate Professor, School of Dentistry, Department of Oral Health Sciences
Adjunct Associate Professor, University of Washington, Department of Microbiology

1959 NE Pacific St
Room D-586
Health Sciences Building
Seattle, Washington 98195 USA
Lab D558

Birthdate: December 10, 1973

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News and Events on our Lab website:
<https://research.dental.uw.edu/mclean/>

Selected publications and news/Press:
<http://research.dental.uw.edu/mclean/publications/>

Complete List of NIH Compliant Publications:
<https://www.ncbi.nlm.nih.gov/myncbi/jeffrey.mclean.1/bibliography/public/>

Google Scholar:
https://scholar.google.com/citations?hl=en&user=SBCvj6UAAAAJ&view_op=list_works&sortby=pubdate

EDUCATION:

University of Toronto, Ontario, Canada

Honours BSc Biogeochemistry (1992-1997)
Advisor: Dr. Grant Ferris

University of Guelph, Ontario, Canada

MSc Microbiology (1997-2000)
Thesis Advisor: Dr. Terrance J. Beveridge

University of Southern California, Los Angeles CA, USA

PhD * (Sept 2011-June 2013)
Thesis Advisor; Dr. Kenneth H. Nealon
(*Completed while working full time at JCVI)

PROFESSIONAL EXPERIENCE:

1995-1997	University of Toronto laboratory assistant
2000-2001	Research Associate, Pacific Northwest National Laboratory (PNNL), Richland Washington
2001-2002	Science and Engineering Associate II, PNNL
2002-2003	Science and Engineering Associate III, PNNL
2003-2005	Scientist I, Fundamental Science Directorate, PNNL
2005-2006	Scientist II, Fundamental Science Directorate, PNNL
2006-2007	Scientist III (Faculty level), Fundamental Science Directorate, PNNL
2007-2013	Scientist, J. Craig Venter Institute (JCVI) (Non-Profit Faculty Structure), La Jolla, CA

2013-2014	Assistant Professor, JCVI (Institute restructuring similar to Academic structure)
2014-2016	Acting Associate Professor, University of Washington
2016-2018	Associate Professor, University of Washington
2018-present	Associate Professor w Tenure, University of Washington

AWARDS AND RECOGNITION:

- Latonnell Travel Award (Canadian award)
- National Science and Engineering Research Council (NSERC) Industrial Postgraduate Scholarship, Guelph University (1997-1999)
- Outstanding Performance Award, Scientific contribution to the D.O.E. Genomes to Life Microbial Cell Project. PNNL (2003)
- Outstanding Performance Award, Dedication and recognition for contributions toward the Microbial Cell Dynamics Laboratory (MCDL), PNNL (2004)
- 2 National Laboratory On the Spot Awards for outstanding performance, PNNL (2005-2006)
- Outstanding Performance Award, Scientific contribution to an ACS article that was nominated one of top 4 articles of 2007. PNNL (2007)
- Five-year dedication award (JCVI)

SOCIETIES AND MEMBERSHIPS

- American Dental Education Association
- American Association for Dental Research
- American Society for Microbiology
- American Association for the Advancement of Science
- International Society of Microbial Ecology
- International Water Association
- International Dental Association
- American Chemical Society

NATIONAL AND INTERNATIONAL SERVICE

NIH review Panels:

- Standing member NIH NIDCR ODCS panel July 2019-2024
- NIH Director's Early Independence Awards (DP5) Special Emphasis Panel/Scientific Review Group ZRG1 RPHB-W (53)
- Invited NIH NIDCR ODCS review panel Feb 2018
- NIDCR DSR committee (review for Fellowship (F), Career development (K), and New Investigator (R03) applications) June 15-16 2017-06-2
- NIH Review Panel DSR committee (F, K and R03 applications),

Other Review Panel Service

- Proposal Reviewer for the Natural Sciences and Engineering Research Council of Canada
- Proposal Reviewer for The Center for Ecogenetics and Environmental Health CEEH University of Washington
- UW Royalty Research Fund review committee

JCVI Institutional Biosafety Committee 2012-2014

Editorial Board Member

- Journal of Dental Research Jan 2019- present
- Review Editor of Frontiers in MicroBioTechnology

Reviewer for 15+ journals:

- Ad Hoc reviewer for Science, Nature Protocols, Genome Research, International Society of Microbial Ecology Journal (ISMEJ), Journal of Dental Research, Environmental Science and Technology, Environmental Microbiology, Microbial Ecology, Vaccine, Biotechnology and Bioengineering, International Journal of Oral Science, Water Science and Technology, Bioelectrochemistry, Methods of Information in Medicine

ADMINISTRATION AND/OR DENTAL SCHOOL SERVICE

- Co-Director UW School of Dentistry T90/R90 Training Program 2019-present
- Member, Research Advisory Committee, School of Dentistry Oct 2017 – present
- Member, Perio Graduate Research Committee Member 2014- present
- Member, HACK review committee 2016-present

TEACHING

UW School of Dentistry 2014-present

Director Dental Foundations Course #513 (DENTFN513) 2014-present

Continuing Dental Education Presentations

CE1471: Update in Periodontics Faculty of the UW School of Dentistry Department of Periodontics
April 10, 2015

Course instruction:

Graduate Level Supervised Courses:

- ORALB 578A research Techniques in Oral Biology
- ORALB 562 Supervised Teaching in Oral Biology

Oral Microbiology Courses		Students	% involvement	Period	Responsibilities
DENTFN513	Oral Microbiology (Predoc)	65	100	2016-present	Director , organized and implemented new foundations course , lectures, active learning exercises
DENTFN513	Oral Microbiology (Predoc)	65	100	2015-2016	<u>Co-Director</u> , organized and implemented new foundations course, Instructor 3 lectures , attended all lectures, midterm and final exam questions,
PERIO 574 A, Joint with ORALB 569	Grad Periodontal Microbiology Course type: Face-to-Face	10	5	2016	lecture and served as an instructor on several classes
Pediatric Dent Seminar	Pediatric dentistry	5	5	2016	One lecture
ORALM 601	Oral Medicine Research Seminar	10	5	2015	One lecture
Oral Biology 575	Oral Biology 575 Winter 2015 Seminar Series	19	5	2015	One lecture
ORALB 521	Medical Micro	2 nd year dental student	10%	2015	Midterm, Final Exams and student mentoring

ORALB 520	Molecular Microbiology and Oral Diseases	50+	40%	2014	3 lectures Midterm and final exam questions
Microbiology Courses		Students		Period	Responsibilities
GEN ST 197	Freshman Seminar (Director R. Bumgarner)	19		2016-2018	lecture
ENV H 409	Microbiome And Environmental Health (Director R. Bumgarner)	65		2019	lecture

MENTORSHIP AND SUPERVISION

A. Student Mentoring

1. Kris Kearns PhD Candidate Oral Biology (2017 start)
2. Jenny To (Postdoc T90) 2015-present
3. Sesha Hanson-Drury D.D.S. & PhD Candidate, (SURF 2016) -Publication and IADR Poster
4. Meghan Spain UWSOD student (SURF 2015)

UW Graduate Committees

Current

5. Jonathan An, DDS PhD Candidate Student Department of Oral Biology & Pathology
6. Albert Chow, MD Fellow Pediatric Rheumatology Seattle Children's -serving on the Scholarship Oversight
7. Melissa Kordahi M3D -Graduate Student DePaolo Lab Dept. of Pathology University of Washington
8. Ana Chang DDS PhD -Candidate ITHS fellow
9. Shatha Bamashmous, B.D.S. (PhD Candidate)- serving on the Graduate Committee (mentor R Darveau)
10. Yuwen Chiu, D.D.S. (Perio resident MsD degree)-Co-Mentor serving on Research Committee
11. Jason Kum (Perio resident MsD degree)- Co-Mentor serving on Research Committee

Recent Mentoring (UW)

12. Diane M Daubert, DDS PhD (now UW Perio Faculty)
13. Luciana Safioti, DDS (Perio resident MsD degree)-serving on Research Committee
14. Alex Ko (Perio resident MsD degree)- Co-Mentor served on Research Committee
15. Lu "Ruby" Luo (Perio resident MsD degree)- Co-Mentor served on Research Committee
16. Jenny To (PhD Candidate)- served on Graduate Committee (mentor R Darveau)
17. Basma Tamasas (PhD Candidate)- serving on the Graduate Committee (mentor T Cox), PhD project "The role of the major cleft gene, Irf6, in development and function of the tooth and salivary gland, and determining caries susceptibility"
18. Sri Grevich (first year Rheumatology Fellow) -serving on the Scholarship Oversight Committee (mentor A Stevens) project "microbiome changes associated with juvenile arthritis"

Co-mentor for multiple training grants submitted to NIDCR (F and K)

15. Anna Edlund (K99/R00) –awarded

16. Batbileg Bor (UCLA Postdoc)- awarded K99 2017 –scored
17. Joseph Bedree (UCLA PhD Candidate)- awarded
18. K08 application Nini Chaichanasakul Tran (UCLA)-submitted
19. K99 application Jeremy Horst (UCSF)-submitted

Research Mentoring

20. Yasmine Dunn – undergraduate research assistant
21. Archita Gadkari – Research Study Assistant
22. Quanhui, Liu -Research Scientist (Now employed at Illumina Inc.)
23. Archita Gadkari (Research Associate)
24. Yasmine Dunn (UW Student)
25. Erik Henderson (Research Engineer III)
26. Michelle Kim (UW Student)- undergraduate research assistant
27. Anh Thuy Vo (UW Student) undergraduate research assistant
28. Sumita Jain - Research Mentorship temporary (30% effort)

Previous Supervision and Mentorship (2000-2014):

29. Anna Edlund. PhD, Postdoctoral Mentor
30. Youngik Yang, PhD, shared postdoc (JCVI) – Senior researcher Marine Bioinformatic Center Korea
31. Martin Wainstein (B.Sc.)
32. Tim Harrington (Ph.D. candidate, summer internship)
33. Kettner Griswold Jr. (High School Internship at JCVI)
34. Ona, Ositadinma PhD (postdoc PNNL) now Merck scientist
35. Ryan Renslow (Washington State University) –co-mentor now PNNL Staff Scientist
36. Adam Hall, Research Associate JCVI
37. Lisa Zeigler, PhD. –Mentor Junior scientist (JCVI)
38. Christina Bilskis (Staff Scientist, PNNL)
39. Sara Fansler (Staff Scientist, PNNL)

Institutional Supervision Duties:

- Served as a leader in FACS, confocal and optical microscopy and image analysis for PNNL and JCVI providing supervision, training and guidance.
- Manager Microbial Cell Dynamics Laboratory PNNL (2001-2007)

ACTIVE, PENDING AND COMPLETED GRANTS

ACTIVE AS PI (3 R01, 4 R21, 1 NSF):

1. Agency: NIH R01, National Institute of Dental and Craniofacial Research
Title: Domestication and characterization of TM7-the most elusive oral phylum
Date: 04/01/2019 – 12/31/2024
PI: Jeffrey S. McLean (Multiple PI Award)
PIs: Wenyuan Shi (UCLA) and Xuesong He (UCLA)
Total Amount: \$2.6M
Amount to UW (PI McLean): \$800K
2. Agency: NIH R01, National Institute of Dental and Craniofacial Research
Title: Making a Quantum Leap in Plaque Research with Modern Sciences
Date: 5/1/2010-12/31/2020
PI: Jeffrey S. McLean (Multiple PI Award)
PIs: Wenyuan Shi (UCLA) and Xuesong He (UCLA)

Total Amount: \$1.9M
Amount to UW (PI McLean): \$580K

3. Agency: NIH R01, National Institute of Dental and Craniofacial Research
Title: **Exploring the Protective Effects of Normal Oral Flora Against Foreign Pathogens**
Date: 7/1/2016-6/30/2021

PI: Jeffrey S. McLean (Multiple PI Award)

PIs: Wenyuan Shi (UCLA-contact PI), Xuesong He (UCLA)

Total Amount: \$1.8M

Amount to UW (PI McLean): \$424K

4. Agency: NIH R01, National Institute of Dental and Craniofacial Research
Title: 1R21DE027199-01 **Systematic Approach to Explore the Microbial Interactome**
Date: 7/1/2017-6/30/2019

PI: Jeffrey S McLean (Multiple PI Award)

PIs: Renate Lux and Jeffrey McLean

Total Amount: \$450K

Amount to UW (PI McLean): \$108,150

ACTIVELY FUNDED GRANTS AS CO-INVESTIGATOR

5. (Prlc, PI Prime; Dixon, PI Subcontract) 4/1/2018-3/31/2020 0.48 calendar
NIH \$400,000 (Total Award) \$34,024(subcontract)
Title: **The Effect of Perio-implantitis on Innate-like T cell Function and Anti-bacterial Immunity**
This study will help determine if a newly identified, T cell population (MAIT cells) that have been isolated from peri-implant tissues, are hyper or hypo-functional.

RECENT SUBMITTED OR PENDING

2R01DE021108-06 (Contact PI/Lux, Shi and McLean, MPI) 4/1/2017-3/31/2023 0.6 calendar
NIH/NIDCR \$45,000 (subcontract)

Interactive Adhesins: Key Elements for Crosstalk in the Oral Microbial Community

Pending (O'Beirne, PI Prime; McLean, PI Subcontract) 9/6/2017-3/12/2018 0.3 calendar
NIH/NIDCR \$31,935 (subcontract)

Integrated Oral Hygiene Device Targeting High-risk Areas for Periodontal Disease

1R01AG058569-01 (Kaeberlein) 4/1/2018-3/31/2023 0.3 calendar
NIH/NIA \$284,927

Suppression of Age-related Alveolar Bone Loss by Transient Rapamycin Treatment

R21 PI (MPI) (Kotsakis, McLean) NIDCR
Inflammatory Potential In Peri-Implantitis: Contribution Of TLR-2 And -4 Mediated Inflammation Associated To Active Peri-Implant Pathogens.

\$172K

R01 Co-I (Wood) NIH/NIA
Oral Models for Delivery of Adjuvanted Vaccine Biologics

\$331K

COMPLETED GRANTS:

Agency: NIH R01, National Institute of General Medical Sciences
Title: Moving Beyond Diversity by Revealing Biological Functions of Uncultured Bacteria
Date: 12/01/10-11/30/14 (NCE 2016)
PI: Jeffrey S. McLean
Total Amount: \$1.7M
Amount to (PI McLean): \$1.7M

Agency: **NIH R01, National Institute of Dental and Craniofacial Research**

Title: Domestication and characterization of TM7-the most elusive oral phylum

Date: 04/01/2014 – 12/31/18

PI: Jeffrey S. McLean (Multiple PI Award)

PIs: McLean, Shi (UCLA) and He (UCLA)

Total Amount: \$2.1M

Amount to UW (PI McLean): \$935K

1R21DE026338-01 (Contact PI/Darveau, Coats, MPI) 7/1/2016-6/30/2018 1.2 calendar
NIH/NIDCR \$424,875 (Total Award) \$27,000 (subcontract)

Genetic basis for divergent virulence of *P. gingivalis* strains 33277 and 381

1R21DE026344-01 (Contact PI/Darveau, Jain, MPI) 9/1/2016-8/31/2018 0.6 calendar
NIH/NIDCR \$424,875 (Total Award) \$16,939 (subcontract)

Identification of the gene encoding lipid A deacylase, an enzyme required for TLR4-evasion, in *Porphyromonas gingivalis*

1631146 (Seibel) 9/1/2016-8/31/2019 0.6 calendar
NSF \$40,312 (subcontract)

PFI:BIC – Smart Laser-Based Imaging and Optical Spectroscopy System: optical quantification of bacterial load, oral health surveillance, and caries predication

Agency: D.O.E.

Title: Microscale Metabolic, Redox and Abiotic Reactions in Hanford 300 Area Subsurface Sediments

Date: 05/15/08-05/14/12

PI: Haluk Beyenal (WSU)

Co-PIs: Jeffrey S. McLean (PNNL) and Jim K. Fredrickson (PNNL)

Total Amount: 4.3M

Agency: NIH R21, National Institute of Dental and Craniofacial Research

Title: Combined NMR/Optical Microscopy for Oral Biofilm Physiology Studies

Date: 05/15/07-05/14/10

PI: Paul Majors (PNNL)

Co-PI: Jeffrey S. McLean (PNNL)

Total Amount: \$2.1M

Agency: D.O.E. OBER's Genomics:GTL Program

Title: Integrated Genome-Based Studies of *Shewanella* Ecophysiology

Date: 9/31/06- 9/31/09

PI: J.Fredrickson

Co-PIs: Jeffrey S. McLean (PNNL), 10+ others

Agency: D.O.E. Laboratory Directed Research and Development

Title: Controlled Cultivation, Molecular Biology, and Advanced Imaging of Microbial Biofilms

Date: 10/1/04 to 9/31/07

PI: J. McLean

Total Amount: \$603K

Agency: D.O.E. Laboratory Directed Research and Development

Title: Interrogation of Glucose Metabolism by Oral Biofilms Using Combined NMR/Optical Spectroscopy and Stable Isotope Labeling

Date: 10/1/05 to 9/31/07

Co-PI: J. McLean

Total Amount: \$791K

Agency: D.O.E. Laboratory Directed Research and Development

Title: PNNL Metabolomics Measurement and Validation Development for Renewable Energy

Date: 10/1/05 to 9/31/07

Co-PI: J. McLean

Total Amount: \$500K

Agency: D.O.E. Laboratory Directed Research and Development

Title: *In Situ* Magnetic Resonance Investigations of Metabolism and Mass Transport in Biofilms

Date: 10/1/04 to 9/31/05

Co-PI: J. McLean
Total Amount: \$408K

Agency: D.O.E. Laboratory Directed Research and Development
Title: Mathematical Computational Modeling of Biofilms.
Date: 10/1/06 to 9/31/07
Co-PI: J. McLean
Total Amount: 150K

Agency: D.O.E. Laboratory Directed Research and Development
Title: Noninvasive Biofilm Characterization Utilizing Acoustic Microscopy
Date: 10/02/04-8/30/06
Co-PI: J. McLean
Total Amount: 150K

SCHOLARSHIP AND RESEARCH

Contribution to Science # co-first author * corresponding author

1. Many human microbial infectious diseases are polymicrobial in nature, and carefully balanced in terms of the shift from healthy to diseased states. In my funded projects through NIH (NIDCR and NIGMS), my goals were to understand the metabolism (global metabolomics) and gene expression profiles (metatranscriptomics) as well as inter-species interactions within these communities causing these shifts and ultimately discover biomarkers of disease onset (a, b, c). In collaboration with Dr. Wenyuan Shi, we tested the novel dental caries treatment strategy based on Pheromone-Guided "Smart" Antimicrobial Peptides targeting the oral pathogen (d). I served as the primary PI or one of the PIs in a multi-PI project for this body of work focused on the oral microbiome.

- e. Edlund, A., Yang, Y., Yooseph, S., He, X., Shi, W. & **McLean, J.S.***. Uncovering complex microbiome activities via metatranscriptomics during 24 hours of oral biofilm assembly and maturation. *Microbiome* 6, 217 (2018) PMID: PMC6284299
- f. Edlund, A., Yang, Y., Hall, A., Guo, L., Lux, R., He, X., Nelson, K., Neelson, K., Yooseph, S., Shi, W. & **McLean, J.S.***. (2013) An in vitro biofilm model system maintaining a highly reproducible species and metabolic diversity approaching that of the human oral microbiome. *Microbiome* 1, 25
- g. Edlund, A., Y. Yang, S. Yooseph, A.P. Hall, D.D. Nguyen, P.C. Dorrestein, K.E. Nelson, X. He, R. Lux, W. Shi, **J.S. McLean*** (2015) Meta-Omics Uncover Temporal Regulation of Pathways Across Oral Microbiome Genera During in vitro Sugar Metabolism. *International Society for Microbial Ecology Journal (ISME)*. *ISME J.* 2015 May 29. doi: 10.1038/ismej.2015.72. [Epub ahead of print] PubMed PMID: 26023872.
- h. Guo L, **McLean JS***, Yang Y, Eckert R, Kaplan CW, Kyme P, Sheikh O, Varnum B, Lux R, Shi W, He X. 2015. Precision-guided antimicrobial peptide as a targeted modulator of human microbial ecology. *PNAS U S A* 112:7569-7574. PMID: PMC4475959

2. Much of my career has been spent developing innovative methodologies, tools and integrated metabolomic and genomic based approaches to study microbial biofilms(c, a). This includes *in vivo* NMR development for temporal and nanoliter scale depth-resolved metabolomics within live microbial communities (c) and development and application of highly controlled cultivation systems for studying biofilm growth and analyses with transcriptomics (reviewed in a). Recently, I have launched a program in my lab with collaborators to understand the secreted small peptidic molecules within human oral microbiome. I served as the primary PI for this body of work focused on the oral microbiome.

1. **McLean JS*** (2014) Advancements toward a systems level understanding of the human oral microbiome. *Front Cell Infect Microbiol* 4:98. PMID: PMC4114298
2. **McLean, J. S. ***, S.J. Fansler, P.D. Majors, K. McAteer, L.Z. Allen, M.E. Shirliff, R. Lux, W. Shi (2012) Identifying Low pH Active and Lactate-Utilizing Taxa within Oral Microbiome Communities from Healthy Children Using Stable Isotope Probing Techniques. *PLoS ONE*, 7 (3), e32219. PMID:22403637 PMID:PMC3293899
3. **McLean, J. S.***, O. Ona, and P. Majors. 2008. Correlated biofilm imaging, transport and metabolism measurements via combined nuclear magnetic resonance and confocal microscopy. *ISME J* 2:121 - 31. PMID:PMC 4454505
4. Edlund A, Garg N, Mohimani H, Gurevich A, He X, Shi W, Dorrestein PC, **McLean JS***. Metabolic Fingerprints from the Human Oral Microbiome Reveal a Vast Knowledge Gap of Secreted Small Peptidic Molecules. *mSystems*. (2017) Jul 18;2(4). pii: e00058-17. doi: 10.1128/mSystems.00058-17. eCollection 2017 Jul-Aug. PubMed PMID: 28761934; PubMed Central PMCID: PMC5516222.

3. While many new health or disease-associated microbes have been identified through 16S rDNA based diversity analyses, further research on most of these microorganisms has been hampered by an inability to uncover their culture requirements. In the absence of culture based physiological analyses, the functional roles of these uncultured strains remain enigmatic despite their apparent correlations with various diseases. My programmatic funding through NIH (NIDCR and NIGMS) enabled the development of novel approaches and applications of cutting edge methodologies applied to overcome this problem such as single cell sequencing and metagenomics on newly discovered and now cultivated Phyla such as TM7 which we discovered are highly prevalent ultrasmall bacteria with reduced genomes in humans. I served as the primary PI or one of the PIs in a multi-PI project for this work. (# co-first author * corresponding author)

- a. Lasken RS & **McLean JS** (2014) Recent advances in genomic DNA sequencing of microbial species from single cells. **Nature Reviews Genetics** 15(9):577-584 (*co-corresponding author) PMID: PMC4454502
- b. **McLean J. S.**, He, X., A. Edlund, S. Yooseph, A. P. Hall, S.-Y. Liu, P. C. Dorrestein, E. Esquenazi, R. C. Hunter, G. Cheng, K. E. Nelson, R. Lux and W. Shi (2015). "Cultivation of a human-associated TM7 phylotype reveals a reduced genome and epibiotic parasitic lifestyle." **PNAS** 112(1): 244-249. PMID: 3930314
- c. **McLean, J. S.***, M.-J. Lombardo, J. H. Badger, A. Edlund, M. Novotny, J. Yee-Greenbaum, N. Vyahhi, A. P. Hall, Youngik Yang, C. L. Dupont, M. G. Ziegler, H. Chitsaz, A. E. Allen, S. Yooseph, G. Tesler, P. Pevzner, R. Friedman, K. H. Neelson, J. C. Venter and R. S. Lasken (2013). "Candidate Phylum TM6 Genome Recovered from a Hospital Sink Biofilm Provides Genomic Insights into this Uncultivated Phylum." **PNAS** Jun 25;110(26):E2390-9. doi: 10.1073/pnas.1219809110 PMID: PMC3696752
- d. **McLean, J. S.***, M.-J. Lombardo, M. G. Ziegler, M. Novotny, J. Yee-Greenbaum, J. H. Badger, G. Tesler, S. Nurk, V. Lesin, D. Brami, A. P. Hall, A. Edlund, L. Z. Allen, S. Durkin, S. Reed, F. Torriani, K. H. Neelson, P. A. Pevzner, R. Friedman, J. C. Venter and R. S. Lasken (2013). "Genome of the Pathogen Porphyromonas Gingivalis Recovered from a Biofilm in a Hospital Sink using a High-Throughput Single-Cell Genomics Platform." **Genome Research** 23(5):867-877. doi:10.1101/gr.150433. PMID: PMC3638142

4. Recent work to discover, sequence and characterize novel bacteria that are associated with subgingival plaque in health, gingivitis and periodontitis, including novel ultrasmall bacteria (200-300nm) with reduced genomes from the TM7/Saccharibacteria phyla that are prevalent across the human oral microbiome (a, b, c).

- a. **McLean, J.S.***, Bor, B., To, T.T., Liu, Q., Kearns, K.A., Solden, L.M., Wrighton, K.C., He, X. & Shi, W. Independent Acquisition and Adaptation of Ultra-Small Bacteria with Reduced Genomes from the Phylum Saccharibacteria to Human Hosts. available as a preprint while under review at Cell (<https://ssrn.com/abstract=3192029>)
- b. Bor, B., **McLean, J.S.**, Foster, K.R., Cen, L., To, T.T., Serrato-Guillen, A., Dewhirst, F.E., Shi, W. & He, X. Rapid evolution of decreased host susceptibility drives a stable relationship between ultrasmall parasite TM7x and its bacterial host. **Proceedings of the National Academy of Sciences of the United States of America** 115, 12277-12282 (2018) PMID: PMC6275545 Torres PJ, Thompson J, **McLean JS**, Kelley ST, Edlund A. Discovery of a Novel Periodontal Disease-Associated Bacterium. **Microb Ecol**. 2018 Jun 2. doi: 10.1007/s00248-018-1200-6. [Epub ahead of print] PubMed PMID: 29860637.
- c. Daubert D, Pozhitkov A, **McLean J**, Kotsakis G. Titanium as a modifier of the peri-implant microbiome structure. **Clin Implant Dent Relat Res**. 2018;1-9. <https://doi.org/10.1111/cid.12676>

1. Complete List of Published Work in MyBibliography:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/jeffrey.mclean.1/bibliography/41073950/public/?sort=date&direction=descending>

PUBLICATIONS:

PEER-REVIEWED ARTICLES IN JOURNALS (* Corresponding Author)

2020 UNIVERSITY OF WASHINGTON

1. Bor B, Collins AJ, Murugkar PP, Balasubramanian S, To TT, Hendrickson EL, Bedree JK, Bidlack FB, Johnston CD, Shi W, **McLean JS**, He X, Dewhirst FE. Insights Obtained by Culturing

Saccharibacteria With Their Bacterial Hosts. *J Dent Res*. 2020 Feb

19. <https://doi.org/10.1177/0022034520905792>. PubMed PMID: 32075512.

- Jonathan Y An, Kristopher A Kerns, Andrew Ouellette, Laura Robinson, H Douglas Morris, Catherine Kaczorowski, So-Il Park, Title Mekvanich, Alex Kang, **Jeffrey S McLean**, Timothy C Cox, Matt Kaerberlein. Rapamycin rejuvenates oral health in aging mice. *eLife*, 2020; 9
DOI: [10.7554/eLife.54318](https://doi.org/10.7554/eLife.54318)

2019 UNIVERSITY OF WASHINGTON

- Baker, J.L., Hendrickson, E.L., Tang, X., Lux, R., He, X., Edlund, A., **McLean, J.S.** & Shi, W. Klebsiella and Providencia emerge as lone survivors following long-term starvation of oral microbiota. *Proceedings of the National Academy of Sciences of the United States of America* (2019). Apr 11. pii: 1820594116. doi: 10.1073/pnas.1820594116
- Bor, B., Bedree, J.K., Shi, W., **McLean, J.S.*** & He, X*. Saccharibacteria (TM7) in the Human Oral Microbiome. *J Dent Res*, 22034519831671 (2019).
- Jain, S., Chang, A.M., Singh, M., **McLean, J.S.**, Coats, S.R., Kramer, R.W. & Darveau, R.P. Identification of PGN_1123 as the gene encoding lipid A deacylase, an enzyme required for Toll-like receptor 4 evasion, in *Porphyromonas gingivalis*. *J Bacteriol* (2019). 2019 Feb 19. pii: JB.00683-18. doi: 10.1128/JB.00683-18.
- Chang AM, Liu Q, Hajjar AM, Greer A, **McLean JS**, Darveau RP. Toll-like receptor-2 and -4 responses regulate neutrophil infiltration into the junctional epithelium and significantly contribute to the composition of the oral microbiota. *J Periodontol*. 2019 Oct;**90(10):1202-1212**. doi: [10.1002/JPER.18-0719](https://doi.org/10.1002/JPER.18-0719). Epub 2019 Jul 1. PubMed PMID: 31111967; PubMed Central PMCID: PMC6791728
- Coats SR, Kantrong N, To TT, Jain S, Genco CA, **McLean JS**, Darveau RP. The distinct immunostimulatory capacities of *Porphyromonas gingivalis* strains 381 and ATCC 33277 are determined by the fimB allele and gingipain activity. *Infect Immun*. 2019 Sep 30;. doi: 10.1128/IAI.00319-19. [Epub ahead of print] PubMed PMID: 31570556.

2018 UNIVERSITY OF WASHINGTON

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Science News (April 28, 2020)

Immune-regulating drug improves gum disease in mice

Date:

<https://www.sciencedaily.com/releases/2020/04/200428112540.htm>

Eureka Alert (April 8, 2019)

Oral bacteria 'battle royale' helps explain how a pathogen causes hospital infections

https://www.eurekaalert.org/pub_releases/2019-04/fi-ob040819.php

Candidate Phylum and Periodontal Disease (Dec 2014-2015)

<http://hsnewsbeat.washington.edu/story/targeted-bacteria-killer-shows-promise-tooth-decay-fight>
<http://dental.washington.edu/targeted-bacteria-killer-offers-promise-in-fighting-tooth-decay-other-diseases/>

Candidate Phylum and Periodontal Disease (Dec 2014-2015)

UW Newsbeat

<http://hsnewsbeat.uw.edu/story/elusive-%E2%80%98dark-matter%E2%80%99-human-microbiome-revealed>
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<http://www.sciencedaily.com/releases/2014/12/141223141604.htm>

Novel genome of recovered from hospital (June 2013)

<http://news.sciencemag.org/2013/06/scienceshot-shining-light-dark-matter-life>

Press from Genome Research Article

Single Cell genome of Periodontal Pathogen (2013)

<http://www.utsandiego.com/news/2013/apr/05/bacteria-single-cell-venter-institute-mclean/>

Pacific Science Center Exhibit

***Meet Your Microbes!* (June 2015 – Dec 2015)**

2015- An exhibit of recent oral microbiome advances in my Laboratory at the Pacific Science Center .

<https://www.pacificsciencecenter.org/exhibits/the-studio/>

INVITED ORAL PRESENTATIONS

I have been an invited speaker/lecturer at a number of conferences, workshops and courses, as noted below:

National and International Invited Oral Presentations

1. Invited Speaker. 2020. OHSU Dean's Research Seminar. Portland, OR Jan 13, 2020
2. Invited Keynote Speaker. Clinical & Translational Science Network 2019, IADR/AADR/CADR
3. Invited Speaker. 2019 New Lineages of Life to New Functions Symposium (NeLLi) San Fran April 2-3, 2019
4. Invited Speaker. Symposium "The Uncultivable Bacteria" Forsyth Institute Cambridge MA Oct 11-12, 2018
5. Invited Speaker. Symposium "Community & Connectivity in the Microbiome". CMiST, Oct 2-3, 2018
6. Invited Speaker. 2018 MRI Symposium, "The Microbiome and Cancer." Fred Hutch CRC Sept 24, 2018
7. Invited Keynote Speaker. Oral Health Sciences retreat. UW School of Dentistry Sept 20th 2017
8. Invited Oral Presentation. American Society for Microbiology General Meeting 2016. Characterization of Ultrasmall Human Oral Bacterial Phyla with Reduced Genomes.
9. Invited Speaker and Panel Member. Current Topics and Methods in Microbiome Research" workshop Center for AIDS Research, Seattle Children's Research Institute May 26th 2016.
10. Invited Speaker Functional Stability and Transcriptional Dynamics and Microbial Dark Matter within the Oral Microbiome. Department of Microbiology Seminar Series April 19 2016
11. Invited Speaker and Oral Session Chair for the 2016 AADR/CADR Annual Meeting & Exhibition (March 16-19, 2016)
12. Invited Speaker Tri-College of Dentists Meeting Seattle WA Feb 26 2016
13. Invited Speaker at Research Day. University of Washington School of Dentistry Sept 25th 2015
14. "Uncovering Microbial Dark Matter, Functional Stability and Transcriptional Dynamics within the Oral Microbiome" Invited Presentation for Mult-Omics For Microbiomes. Hosted by the Pacific Northwest National Laboratory in Kennewick WA, Sept 15 2015
15. "Uncovering Microbial Dark Matter, Functional Stability and Transcriptional Dynamics within the Oral Microbiome" Invited Presentation for the VIDC Scientific Seminar Series Fred Hutch Cancer Research Center. Tuesday April 14, 2015
16. "Functional Dynamics of Oral Microbial Communities." NIH Host-Microbe Conference in Bethesda, MD on April 8th & 9th.2014

17. Invited lecturer for the Integrative Microbiology Course at UCSD led by Joseph Pogliano and Elio Schaechter. Feb 26th 2013 and Feb 25th 2014
18. Functional Dynamics of the Oral Microbiome and Possible Parallels to the CF Lung Community. Invited Speaker for the Monthly San Diego Cystic Fibrosis meeting hosted by Forest Rhower at the Martin-Johnson House at the Scripps Institute of Oceanography Feb 28th 2013
19. "Focusing in on Microbial Biofilms with Advanced Imaging and Genomic Approaches" Session Microbial Biofilms—The Good, The Bad, and The Ugly. Microscopy & Microanalysis 2012 in Phoenix, Arizona, July 29-August 2, 2012
20. "Capturing Genomes of Uncultured Bacteria Related to the Human Microbiome Using High-Throughput Single Cell Approaches" at the CHI XGen Congress & Expo, DNA-seq "Microbes to Man and Back Again" San Diego, CA March 8, 2012.
21. "Focusing in on Microbial Biofilms" San Diego Microbiology Group Invited lecture at the invitation of Moselio Schaechter, Center for Microbial Sciences, SDSU, Biology Dept, UCSD January 18th, 2012
22. Revealing Species Identity and Contribution to Cariogenic Conditions in Plaque. IADR/AADR/CADR. 89th General Session and Exhibition. March 16-19, 2011.
23. Focusing in on Microbial Biofilms: USC Marine Biology seminar Series Sept 9 2008 University of Southern California.
24. Controlled Biofilm Cultivation: Tuesday, February 12th Joint Genomics: GTL Contractor-Grantee Workshop VI & Metabolic Engineering Working Group Interagency Conference on Metabolic Engineering 2008 February 10-13, 2008, Bethesda, MD
25. "Bacterial Nanowires: Extracellular Electron Transport in Metal Reducing Bacteria, Biofilms, and Microbial Fuel Cells." Invited Speaker at the Joint Technical Advisory Conference (TAC) and Inland Northwest Research Alliance. Subsurface Bioremediation and Biotechnology Symposium Bozeman, MT. June 22-23rd.
26. "In situ examination of bacterial physiology." Philips Oral Healthcare Symposium. October 25, 2005
27. "Dynamic Measurements of Biofilm Metabolism In-Vivo." Biofilm Systems IV, Amsterdam RAI, the Netherlands 24-27 September 2006.
28. "Bacterial Nanowires: Extracellular Electron Transport in Bacterial Biofilms and Microbial Fuel Cells." Invited Speaker at the Fundamentals of Biofilms Workshop. Center for Biofilm Engineering., Bozeman, MT on July 26, 2006.
29. "Imaging Biofilms : Tools and Techniques." Invited Speaker at the Biofilm Structure and Quantification Workshop. Center for Biofilm Engineering., Bozeman, MT on July 25, 2006
30. "In-Situ Monitoring of Metabolism in Environmental and Dental Biofilms." Invited Speaker at the Bugs and Biomaterials: Bacteria and the Biointerface, the UWEB 2005 Summer Symposium., Seattle, WA on August 26, 2005.
31. "Biofilm Imaging Capabilities at PNNL," Invited Speaker at the Biofilm Imaging Workshop: A Look Into the Future, April 27, 2004, Pacific Northwest National Laboratory, Richland WA.
32. "Characterization of Suspended Aggregates of Shewanella Oneidensis Strain MR-1 Using Confocal Laser Scanning Microscopy." Invited Speaker at the Pacific Northwest Microscopy Society Annual Meeting, Richland, WA on May 29, 2003.

PEER REVIEWED ABSTRACTS AND POSTER PRESENTATIONS:

I have authored and co-authored more than 75 abstracts that have been presented at national and international meetings.

AUTHOR AND CO-AUTHOR PRESENTATIONS (100+)

1. 5 poster presentations 2019 AADR/CADR Annual Meeting & Exhibition (Vancouver, BC, Canada from June 19-22, 2019)
2. Diane Daubert 1446 - Titanium as a Modifier of the Peri-implant Microbiome Structure. IADR General Sessions San Francisco CA, March 22-25, 2017
3. Sessa Hanson-Drury 2099 - Draft Genome Sequence of Periopathogen *Tannerella forsythia* Isolate 9610 . IADR General Sessions San Francisco CA, March 22-25, 2017
4. Peggy Lee 2108 - Oral Health and Microbiome in Juvenile Idiopathic Arthritis . Presentations at IADR General Sessions San Francisco CA, March 22-25, 2017

5. McLean, JS. Characterization of Ultrasmall Human Oral Bacterial Phyla with Reduced Genomes. ASM Beneficial Microbes Seattle WA Sept 2016
6. 4 poster presentations 2016 AADR/CADR Annual Meeting & Exhibition (March 16-19, 2016)
7. Anna Edlund, Xuesong He, Wenyuan Shi, Jeffrey S. McLean. The application of Meta-omics and an in vitro biofilm model system for understanding health and disease states of the human oral microbiome. AADR meeting Boston March 11, 2015. (Senior Author)
8. Edlund A, Lombardo MJ, Ziegler MG, Novotny M, Yee-Greenbaum J, Badger JH, Tesler G, Nurk S, Lesin V, Brami D, Hall AP, Allen LZ, Durkin S, Reed S, Torriani F, Nealson KH, Pevzner PA, Friedman R, Venter JC, Lasken RS, McLean JS. Genome of the pathogen *Porphyromonas gingivalis* recovered from a biofilm in a hospital sink using a high-throughput single-cell genomics platform presented at the XVIII Annual Meeting of the San Diego Microbiology Group, Scripps Institution of Oceanography, UCSD, 5th of May 2013
9. Anna Edlund, Youngik Yang, Adam P. Hall, Lisa Z. Allen, Lihong Guo, Xuesong He, Shibu Yooseph, Renate Lux, Wenyuan Shi, Karen E. Nelson, Jeffrey S. McLean. An in vitro oral mixed community biofilm model for testing cause and effect relationships between microbial gene expression and function at both species and community level. Poster presentation at the Microbial Genomics & Metagenomics (MGM) Workshop DOE Joint Genome Institute Walnut Creek, CA, September 10-14, 2012 (Senior and Corresponding Author)
10. McLean, J. S. *, Hall A.P., Zeigler L.Z., Yang Y., Edlund A.E., Yooseph, S., Lux R., Shi W., Nelson, K.E., Nealson, K.H. (2012) Investigating the Low pH Active Taxa within Oral Microbiome Communities Using Stable Isotope Probing Techniques. ASM 111th General Meeting, San Francisco Convention Center, June 16-19, 2012
11. **McLean, J. S.**, Wanger G, Gorby YA, Ishii SI, Bretschger O, Nealson KH, Beyenal H (2010) Quantification of Electron Transfer Rates to a Solid Phase Electron Acceptor through the Stages of Biofilm Formation from Single Cells to Multicellular Communities. ASM 110th General Meeting, San Diego Convention Center, San Diego, CA May 23 - 27, 2010
12. Beyenal H, **JS McLean**, Paul D. Majors JK Fredrickson (2010) Microscale metabolic, redox, and abiotic reactions in Hanford 300 area subsurface sediments. DOE-SBR 5th Annual PI Meeting 2010, March 29-31, 2010, JW Marriott Washington, DC
13. **McLean, J. S.**, Wanger G, Beyenal H (2011) Quantification of Electron Transfer Rates to a Solid Phase Electron Acceptor through the Stages of Biofilm Formation from Single Cells to Multicellular Communities. 241st American Chemical Society Meeting & Exposition in Anaheim, California, USA. March 27-31st, 2011
14. L. Guo, R. Lux, **J.S. McLean**, and W. Shi (2011) Creation of a novel *Streptococcus mutans* strain with a "nano-pH meter". IADR/AADR/CADR. 89th General Session and Exhibition. March 16-19, 2011.
15. Gorby YA, S Yanina, DM Moyles, MJ Marshall, **JS Mclean**, A Dohnalkova, KM Rosso, A Korenevski, AS Beliaev, I Chang, BH Kim, KS Kim, DE Culley, SB Reed, MF Romine, D Saffarini, L Shi, DA Elias, DW Kennedy, GE Pinchuk, EA Hill, JM Zachara, TJ Beveridge, KH Nealson, and JK Fredrickson. 2006. "Composition, Reactivity, and Regulation of Extracellular Metal-Reducing Structures (Bacterial Nanowires) Produced by Dissimilatory Metal Reducing (and other) Bacteria." 106th General American Society for Microbiology Meeting. 2006
16. Gorby YA, TJ Beveridge, S Yanina, DM Moyles, MJ Marshall, **JS Mclean**, A Dohnalkova, KM Rosso, A Korenevski, AS Beliaev, I Chang, BH Kim, KS Kim, DE Culley, SB Reed, MF Romine, D Saffarini, L Shi, DA Elias, DW Kennedy, GE Pinchuk, EA Hill, JM Zachara, KH Nealson, and JK Fredrickson. 2006. "Composition, Reactivity, and Regulation of Extracellular Metal-Reducing Structures (Bacterial Nanowires) Produced by Dissimilatory Metal Reducing (and other) Bacteria." 1st Annual ERSP PI Meeting at Airlie Center. 2006
17. Kennedy DW, MJ Marshall, AS Beliaev, A Dohnalkova, L Shi, Z Wang, MI Boyanov, B Lai, KM Kemner, **JS Mclean**, SB Reed, VL Bailey, D Saffarini, MF Romine, JM Zachara, and JK Fredrickson. "The Role of *Shewanella oneidensis* MR-1 Outer Membrane c-Type Cytochromes in Extracellular U(IV)O₂ Nanoparticle Formation." 106th American Society for Microbiology General Meeting. 2006.
18. Majors PD, **JS Mclean**, and RA Wind. "NMR microscopy of dental biofilm metabolism." Presented by Paul D. Majors at ISMRM 14th Scientific Meeting and Exhibition, Seattle, WA on May 9, 2006
19. Marshall MJ, AS Beliaev, DW Kennedy, AE Plymale, A Dohnalkova, L Shi, Z Wang, MI Boyanov, B Lai, KM Kemner, **JS Mclean**, SB Reed, DE Culley, VL Bailey, CJ Simonson, D Saffarini, MF Romine, YA Gorby, JM Zachara, and JK Fredrickson. "Biomolecular Mechanisms of U(IV)O₂ and Tc(IV)O₂ Nanoparticle Formation by *Shewanella oneidensis* MR-1." Environmental Remediation Sciences program (ERSP) 1st Annual PI Meeting, Warrenton, VA. 2006
20. Marshall MJ, DW Kennedy, A Dohnalkova, **JS McLean**, CJ Simonson, AS Beliaev, JM Zachara, and JK Fredrickson. "Antibody-Based Characterization of the OmcA, MtrC, MtrA, and MtrB Proteins under Different Metal-Reducing Conditions." Biogeochemistry Grand Challenge Working Meeting, Richland, WA. 2006
21. **Mclean JS**, O Ona, W Shi, J Costerton, and PD Majors. "Biofilm Metabolism Dynamics Quantified using In-Vivo Nuclear Magnetic Resonance." 4th ASM Conference on Biofilms, Quebec City, PQ, Canada. 2006
22. Bretschger O, E. Kus, K.H. Nealson, F. Mansfeld, Y. Gorby, **JS McLean** Improving the Power Generation of Microbial Fuel Cells Electrochemical society meeting 209th Meeting - Denver, Colorado May 7-12, 2006

23. Ahmed S. and **JS McLean**. "Quantitative Characterization of Biofilms Using an Acoustic Microscope." (Invited Speaker) at National Seminar on NDT (NDE2005), Indian Society for Non-Destructive Testing, Kolkata, India on November 30, 2005.
24. Beliaev AS, YA Gorby, MF Romine, **JS McLean**, GE Pinchuk, EA Hill, JK Fredrickson, J Zhou, and D Saffarini. "Respiratory Pathways and Regulatory Networks of *Shewanella oneidensis* Involved in Energy Metabolism and Environmental Sensing." Genomes To Life (GTL) Meeting (Workshop), Washington, DC on February 6, 2005
25. Biju VP, D Pan, **JS McLean**, JK Fredrickson, HP Lu, A Dohnalkova, MJ Marshall, DW Kennedy, AS Beliaev, D Saffarini, and YA Gorby. "Display and Retraction of 'Outer Membrane' Cytochromes by *Shewanella oneidensis* in Response to Electron Acceptor Availability." Presented by Jeff McLean at American Society for Microbiology 105th General Meeting, Atlanta, GA on June 6, 2005.
26. Fredrickson JK, MJ Marshall, AS Beliaev, A Dohnalkova, DW Kennedy, D Saffarini, KM Kemner, MI Boyanov, B Lai, DE Culley, SB Reed, L Shi, Z Wang, **JS McLean**, VL Bailey, CJ Simonson, MF Romine, and JM Zachara. . "Microbial Metal Reduction: Genomics to Geochemistry." Purdue University Fall 2005 Department of Agronomy Seminar Series, West Lafayette, IN. 2005
27. Fredrickson JK, MJ Marshall, AS Beliaev, A Dohnalkova, DW Kennedy, D Saffarini, KM Kemner, MI Boyanov, B Lai, DE Culley, SB Reed, L Shi, Z Wang, **JS McLean**, VL Bailey, CJ Simonson, MF Romine, and JM Zachara. "Microbial Metal Reduction: Genomics to Geochemistry." (Invited Speaker) at Lawrence Berkeley National Laboratory Life Sciences & Genomics 2005-2006 Seminar Series, Berkeley, CA on December 12, 2005.
28. Ahmed S, MS Good, DS Daly, **JS McLean**, CF Wend, and MF Romine. "Estimating Biofilm Properties Using an Acoustic Microscope." Biofilm Conference, Los Angeles, CA on October 24, 2005.
29. Gorby YA, A Dohnalkova, KM Rosso, S Yanina, HP Lu, D Pan, **JS Mclean**, AS Beliaev, D Saffarini, KH Nealson, and JK Fredrickson. "Bacterial Nanowires: A Novel Mechanism for Extracellular Electron Transfer." Joint International Symposia for Subsurface Microbiology (ISSM 2005) and Environmental Biogeochemistry (ISEB XVII), Jackson Hole, WY on August 15, 2005
30. Gorby YA, S Yanina, DM Moyles, MJ Marshall, **JS Mclean**, A Dohnalkova, KM Rosso, A Korenevski, TJ Beveridge, AS Beliaev, I Chang, BH Kim, KS Kim, DE Culley, SB Reed, MF Romine, D Saffarini, L Shi, DA Elias, DW Kennedy, GE Pinchuk, EA Hill, JM Zachara, KH Nealson, and JK Fredrickson. "Bacterial Nanowires: Novel Electron Transport Machines that Facilitate Extracellular Electron Transfer." Joint Genomics: GTL Contractor-Grantee Workshop IV and Metabolic Engineering Working Group Interagency Conference. 2005
31. Gorby YA, VP Biju, D Pan, **JS Mclean**, D Saffarini, JK Fredrickson, and HP Lu. "Display and Retraction of Outer Membrane' Cytochromes by *Shewanella oneidensis* in Response to Electron Acceptor Availability." 15th Annual Goldschmidt Conference, Moscow, ID on May 23, 2005
32. **McLean JS** "Estimating Biofilm Properties Using an Acoustic Microscope." 105th ASM General Meeting, Atlanta, GA on June 5, 2005
33. Majors PD, **JS Mclean**, CF Wend, RA Wind, J Costerton, and W Shi. "NMR microscopy for the in situ examination of bacterial physiology." Philips Oral Healthcare Biofilm Symposium, Los Angeles, CA on October 25, 2005
34. Scott D. Harvey, Gary M. Mong, **Jeffery S. McLean**, Shannon M. Goodwin, David A. Atkinson, and Nancy B. Valentine, Imprinted Media for the Highly Selective Capture of Chemical and Biological Threats, PNNL-SA-45133, Proceedings of the Homeland Security Meeting, Working Together: Research & Development Partnerships in Homeland Security, April 27-28th, Boston, MA, 2005.
35. Shi L, TC Squier, MU Mayer, H Cao, B Chen, YA Gorby, DF Lowry, **JS Mclean**, S Verma, P Yan, DA Elias, JK Fredrickson, BH Lower, S Ni, and AS Beliaev. "Development and Application of Multipurpose Affinity Probes to Isolate Intact Protein Complexes Associated with Metal Reduction from *Shewanella oneidensis* MR-1." 2005 GTL Project Workshop, Washington, DC on February 7, 2005.
36. Bond LJ, and **JS Mclean**. "Noninvasive Biofilm Characterization Utilizing Acoustic Microscopy." PNNL. External LDRD Review 2004.
37. Bond LJ, MS Good, CF Wend, **JS Mclean**, EJ Ackerman, and CJ Bruckner-Lea. "Ultrasound for Biology Studies at PNNL." 5th International Symposium on the Interface between Analytical chemistry and Microbiology, April 19-21, 2004, Richland WA. 2004
38. Fredrickson JK, MF Romine, AS Beliaev, **JS Mclean**, DA Elias, CS Giometti, YA Gorby, DW Kennedy, JA Klappenbach, MS Lipton, MJ Marshall, GE Pinchuk, AE Plymale, SB Reed, and RD Smith. "Global and Physiological Responses to Substrate Shifts in Continuous and Controlled Batch Cultures of *Shewanella oneidensis* MR-1."
39. Harvey SD, GM Mong, **JS Mclean**, SM Goodwin, DA Atkinson, and NB Valentine. 2004. "Imprinted Media for Highly Selective Capture of Chemical, Biological, and Organic Nuclear Signature Threats." PNNL-SA-42219
40. Holtom GR, Y Zheng, and **JS Mclean**. 2004. "Non-Linear Imaging Methods for Biofilm Research." PNNL-SA-41468
41. Hu, J.Z. , R.A. Wind, H.C. Bertram, **J.S. McLean**, Y.A. Gorby, C.T. Resch, J.K. Fredrickson. High Resolution 1H Spectroscopy of Bacterial Systems and Muscle Tissue Using Non-Destructive MAS, The 45th Experimental Nuclear Magnetic Resonance Conference, 2004, Asilomar, Pacific Grove, CA. April 18-23, 2004
42. Bond LJ, MS. Good, CF. Wend, **JS. McLean**, EJ. Ackerman, and C.Bruckner-Lea. Ultrasound for Biology Studies at PNNL. Northwest Symposium for Systems Biology: Regulation of Cells in Time and Space - Richland, WA June 7-8, 2004

43. Majors PD, **JS McLean**, JK Fredrickson, and RA Wind. 2004. "NMR methods for in-situ biofilm metabolism studies: spatial and temporal resolved measurements." International Conference Biofilms Structure and Activity of Biofilms, Las Vegas, NV on October 25, 2004
44. Majors, P.D., **J.S. McLean**, G.E. Pinchuk, J.K. Fredrickson, Y.A. Gorby, and R.A. Wind : "NMR methods for in-situ biofilm metabolism and transport studies," 5th International Symposium on the Interface between Analytical chemistry and Microbiology, April 19-21, 2004, Richland WA. 2004
45. Majors, P.D., J.Z. Hu, **J.S. McLean**, F.J. Brockman, J.K. Fredrickson, Y.A. Gorby, M.F. Romine and R.A. Wind: "NMR technologies for in situ microbial metabolism studies," Biofilm Imaging Workshop: A Look Into the Future, April 27, 2004
46. **McLean JS**, EA Hill, GE Pinchuk, MF Romine, AS Beliaev, YA Gorby, and JK Fredrickson. "Genome-Wide Transcriptional Profiling and Physiological Response of *Shewanella oneidensis* MR-1 Aerobic and Suboxic Continuous Cultures." 2004 American Association for the Advancement of Science (AAAS) Annual Meeting, Seattle, WA on February 12, 2004
47. Scott D. Harvey, Gary M. Mong, **Jeffrey S. McLean**, Shannon M. Goodwin, David A. Atkinson, and Nancy B. Valentine, Imprinted Media for Highly Selective Capture of Chemical, Biological, and Organic Nuclear Signature Threats, PNNL-SA-42219, Poster presented at the Detector/Sensor and Technology for Homeland and National Security Conference, Gatlinburg, TN, September 14-16, 2004.
48. Wahl KL, DS Wunschel, NB Valentine, CE Petersen, N Beagley, KH Jarman, YA Gorby, EA Hill, and **JS McLean**. "MALDI Mass Spectrometry - A Tool for Microbial Forensics." 6th Annual Microbial Forensics Meeting, McLean, VA on June 24, 2004
49. Wahl KL, DS Wunschel, NB Valentine, CE Petersen, N Beagley, KH Jarman, YA Gorby, EA Hill, and **JS McLean**. "Microorganism Identification Across Different Culture Conditions by MALDI Mass Spectrometry." 5th International Symposium on the Interface between Analytical chemistry and Microbiology, April 19-21, 2004, Richland WA. 2004
50. Elias DA, MJ Marshall, **JS McLean**, AE Plymale, YA Gorby, MF Romine, D Saffarini, RD Smith, JK Fredrickson, AS Beliaev, and MS Lipton. "Proteomic Study of the General Secretion Mutant of *Shewanella oneidensis* MR-1." 104th American Society for Microbiology General Meeting, Washington, DC on May 24, 2003.
51. Majors PD, J Hu, FJ Brockman, JK Fredrickson, YA Gorby, EA Hill, BP Kovacic, **JS McLean**, and RA Wind. "In-situ MR microscopy and spectroscopy of microbial communities." 7th International Conference on Magnetic Resonance Microscopy, Snowbird, UT on September 22, 2003
52. Elias DA, MF Romine, YA Gorby, **JS McLean**, RD Smith, JK Fredrickson, and MS Lipton. "Global Analysis of *Shewanella oneidensis* Strain MR-1 Proteome Using Accurate Mass Tags." 103rd American Society for Microbiology General Meeting, Washington, DC on May 19, 2003.
53. Giometti C. S., T. Khare, S. L. Tollaksen, G. Babnigg, M. A. Hickman, W. Zhu, J. R. Yates, III, Y. A. Gorby, M. F. Romine, **J.S. McLean**, J. K. Fredrickson; Comparison of Protein Expression in *Shewanella oneidensis* MR-1 from Aerobic and Anaerobic Continuous Cultures American Society for Microbiology 103rd General Meeting, Washington, DC on May 19, 2003
54. Good MS, CF Wend, DS Daly, **JS McLean**, PD Panetta, S Ahmed, and LJ Bond. "A Preliminary Study of Quantifying Biofilm Properties Using a 70-MHz Ultrasonic System." Annual Review of Quantitative Nondestructive Evaluation, Greensburg, WI on July 28, 2003.
55. Gorby YA, GE Pinchuk, EA Hill, **JS McLean**, and JK Fredrickson. "Regulation of Floc Formation by Dissolved Oxygen and Divalent Cation Concentrations in *Shewanella Oneidensis* MR-1 Continuous Culture American Society for Microbiology 103rd General Meeting, Washington, DC on May 19, 2003
56. **McLean JS**, YA Gorby, J Hu, PD Majors, DS Wunschel, KM Beck, RA Wind, and JK Fredrickson. "Combined High Resolution Spectroscopic and Microscopic Technologies for Investigating Microbial Metabolism in Biofilms." American Society for Microbiology Conference on Biofilms 2003, Victoria, B.C. November 3, 2003.
57. **McLean JS**, GE Pinchuk, EA Hill, AS Beliaev, YA Gorby, and JK Fredrickson. "Cell Attachment, Aggregation, and Metabolism of *Shewanella oneidensis* Strain MR-1 are influenced by a Complex Combination of Culture Conditions." American Society for Microbiology Northwest Branch Meeting, Vancouver, BC, August 7, 2003.
58. **McLean JS**, HE Trease, YA Gorby, A Dohnalkova, MF Romine, VJ Crusselle, and JK Fredrickson. "Characterization of Suspended Aggregates of *Shewanella Oneidensis* Strain MR-1 Using Confocal Laser Scanning Microscopy. American Society for Microbiology 103rd General Meeting, Washington, DC May 19, 2003.
59. Romine M. F., Y. A. Gorby, **J. S. McLean**, R. D. Smith, J. K. Fredrickson, M. S. Lipton; Global Analysis of *Shewanella oneidensis* Strain MR-1 Proteome Using Accurate Mass Tags D. A. Elias, American Society for Microbiology 103rd General Meeting, Washington, DC on May 19, 2003
60. Gorby Y. A., **J. S. McLean**, A. Dohnalkova, G. Ferris, T. J. Beveridge. Heterogeneous Charge Distribution on the Surface of the Iron-Reducing Bacterium *Shewanella oneidensis* strain MR-1: An Electron Microscopic Study. ASM 102nd General Meeting May 20 - 24, 2002 Slat Lake City Convention Center, Utah 2002
61. Romine M. F., J. K. Fredrickson, Y. A. Gorby, **J. S. McLean**, M. S. Lipton, L. Pasa-Tolic, A. Tsapin, K. Nealson, C. Giometti, S. Tollaksen, R. D. Smith. Global Characterization of Proteins Associated with *S. oneidensis* MR-1 Outer Membrane Vesicles. ASM 102nd General Meeting May 20 - 24, 2002 Slat Lake City Convention Center, Utah 2002

62. Udseth HR, MS Lipton, MF Romine, YA Gorby, **JS McLean**, L Pasa-Tolic, GA Anderson, KK Hixson, DL Auberry, RJ Moore, and RD Smith. "Global Analysis of Shewanella oneidensis Strain MR-1 Proteome Using Accurate Mass Tags." American Society for Mass Spectrometry, Orlando, FL 2002
63. Dohnalkova AC, Gorby YA, **McLean JS**, Fredrickson JK and Kennedy DW: Biogenic Mineral Formation by Metal Reducing Bacteria: Challenges in TEM sample preparation of biological samples containing minerals. Pres. 59th Annual Meeting of the Microscopy Society of America, Long Beach, CA Aug. 2001.
64. Liu C, Zachara JM, Gorby YA, Szecsody JE, Brown CF. **McLean JS**. Coupled Microbial Reduction of Fe(III) and Sorption of Fe(II) on the Iron-Reducing Bacterium Shewanella putrefaciens. ASM 101st General Meeting May 20 - 24, 2001 at Orange County Convention Center, Orlando, Florida 2001
65. **McLean J.S.**, Dohnalkova A., Korenensky A., Rosso K. M., Beveridge T.J., Gorby, Y.A. Bacterial Iron-Reducing Membrane Vesicles: a Potential Source of Biogenic Nanofossils. ASM 101st General Meeting Orange County Convention Center, Orlando, Florida May 20 - 24, 2001
66. Gorby, Y. A., Caccavo F., Geesey G., Neal A., Rai D., Das A., Dohnalkova A., Gray M. S., **McLean J. S.**, and Fredrickson J. K. "Microbially Promoted Solubilization of Steel Corrosion Products and Fate of Associated Actinides." DOE EMSP National Workshop in Atlanta, Georgia, April 25, 2000
67. **McLean, JS**, T. Beveridge and D. Phipps. Chromate removal from contaminated groundwater using indigenous bacteria. In Situ and On Site Bioremediation. Fifth International Symposium. San Diego. California. April 19-22, 1999
68. **McLean, JS**, T. Beveridge and D. Phipps. Chromate removal from contaminated groundwater using indigenous bacteria. Canadian Society for Microbiology 49th Annual Meeting, June 13-16, 1999, Montreal, Canada.

TRAINING AND EXPERTISE:

Genomics

- Bioinformatics (Genomic Assembly, comparative genomics, transcriptomics)
- Single Cell Genomics
- Metagenomics, Metatranscriptomics (RNAseq)
- Stable Isotope Probing Technique,

Certifications and Training:

- BD FacsVantage FacsAria Flow Cytometry Certified Operator
- Microsensor Manufacture and Application Workshop
- Biofilm Imaging and Structure Analysis Workshop
- Radiological Worker training
- RNAseq workshop (2012, 2013)

Imaging and Analytical

- Confocal, Fluorescence and Electron Microscopy
- Image Analysis and Quantification
- Cytometry (FACS) single bacterial cell sorting
- Nuclear Magnetic Resonance
- Agilent BioCel and Qiagen Biorobot training,
- HPLC, LC, GC, GFAAS,

Cultivation

- Biofilm Culturing, Anaerobic Culturing
- Custom Biofilm Bioreactor Construction
- Microbial Fuel Cell Design Construction and Operation
- Fermentation Technology and Related Software (New Brunswick, Fermentec, ATR Biosciences)