

JEREMY J. BARR

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School of Biological Sciences, Monash University

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Academic Level: B **Employment:** Tenured T&R position **Fraction:** 1.0 Full Time

EDUCATION

University of Queensland, Doctor of Philosophy

School of Chemical Engineering, 03/07–06/11, advisors: Phil Bond, Gene Tyson & Linda Blackall

Doctoral Dissertation: The microbial ecology of granular sludge in Enhance Biological Phosphorus Removal

University of Queensland, Graduate Certificate in Research Commercialisation, 03/09–11/10

University of Queensland, Bachelor of Biotechnology, Honours Class I, 03/03–11/06

PROFESSIONAL EXPERIENCE

Monash University. Lecturer & Group Leader (Level B). 2016–present

San Diego State University. Professor of Practice (Rohwer Lab). 2015–2016

San Diego State University. Adjunct Assistant Professor (Rohwer Lab). 2013–2015

San Diego State University. Post-doctoral Research Fellow (Rohwer Lab). 2011–2013

AWARDS AND HONOURS

InnoHealth Australia. Award and innovation tour of Germany. 2018

AusME. Award for early-career science. 2017

Cold Spring Harbor Laboratory. Workshop on Leadership in Bioscience \$775 USD. 2016

Zahn Innovation Centre. 1st place in Pitch Fest. 2015

CIBER. International Award for biotechnology \$6500 USD. 2015

SDSU President's Scholar. Competitive salary and research award \$120k USD. 2014

Viruses of Microbes. Conference travel grant \$1000. 2014

AusBiotech–GSK Student Excellence Award. 2010

UQ Teaching Excellence Award. 2010

Australian Government. Research Commercialisation Training Scheme scholarship \$16k. 2009

ASM–Becton Dickenson PhD Award. 2009

ASPD5 Conference. Best Presentation Award. 2009

ISME Student Award. 2009

CURRENT FUNDING

2017 Discovery Early Career Researcher Award (DECRA)

01/01/17–31/12/19

Australian Research Council (ARC)

CIA: Jeremy J. Barr

Direct Costs: \$293,124 salary and \$78,876 research support (AUD)

DE170100525: “Mucus Control – Applying concepts from bacteriophage-mucus interactions”

Monash University, Interdisciplinary Research Seed Fund Scheme

01/09/17–31/08/18

Direct Costs: \$29,917 (AUD)

CIA: Jeremy J. Barr

“Antibiotic-bacteriophage synergy against multidrug-resistant *Acinetobacter baumannii*”

PREVIOUS FUNDING

2015 SDSU Presidential Scholarship

01/02/15–31/01/16

Initiative 3: Contribution to the Advancement of the San Diego Region

CIA: Jeremy J. Barr

Direct Costs: \$70,000 salary and \$50,000 research support (USD)

TEACHING EXPERIENCE

Main courses: Research in Action (BIO3990: Monash University; Sem 1&2 2017, 2018); Medical and Forensic Genetics (GEN3051: Monash University; Sem 1 2017, 2018); Advanced Genetics and Biotechnology (GEN5010: Monash University; Sem 2 2018).

Other guest lecturer: Molecular virology and viral pathogenesis (MIC3022: Monash University; Sem 2 2017, 2018); General Microbiology (SDSU; Sem 1 2013, 2014, 2015); Integrative Microbiology (UCSD; Sem 2 2013, 2014, 2015); Microbial Diversity (Occidental College; Sem 1 2014).

PUBLICATIONS

Books & Compositions

Barr, J.J. (2017) Discovered in WWI, bacterial viruses may be our allies in a post-antibiotic age. **The Conversation.** (online)

Barr, B., Crocetti, G., Wild, A., B. Hutchings. & **Barr, J.J.** (2016) The Invisible War: A Tale on Two Scales – Graphic Novel. Eds. **Scale Free Network**, illustrated by Ben Hutchings (online and print).

Kirby, B. & **Barr, J.J.** (2013) Going Viral, In: **The Scientist Magazine.** Feature article (online and print).

Barr, J.J., Cook, A.E., Fukushima, T. & Bond, P.L. (2010) Clone Library Generation. **Microbial Ecology of activated sludge.** (London, U.K.) eds., Seviour, R. & Nielsen, PH.

Patents

Barr, J.J., German, J.G. & Rohwer, F. (2015) Antibacterial and protective formulations and methods for making and using them. **International Application (PCT);** USSN: 15/528,354 filed on February 28th, 2015.

Pending Patents

Barr, J.J., Rohwer, F., Blumberg, RS. & Baker, K. (2017) Phage transcytosis across epithelial cells. **U.S. Patent Pending – Rohwer-F14.** USSN: 5810.127328 filed on January 13th, 2017.

Barr, J.J. & Rohwer, F. (2015) Antibacterial and protective bacteriophage formulations and methods for making and using them. **U.S. Patent Pending – Rohwer-F12.** USSN: 62/232,070 filed on September 24th, 2015.

Published

1. Nguyen, S., Baker, K., Padman, BS., Patwa, R., Dunstan, RA., Weston, TA., Schlosser, K., Bailey, B., Lithgow, T., Lazarou, M., Luque, A., Rohwer, F., Blumberg, RS. & **Barr, J.J.** (2017) Bacteriophage transcytosis provides a mechanism to cross epithelial cell layers. **mBio**, 8 (6): e01874-17. [*IF* = 6.9, *Altmetric* = 114, *Citations* = 0]
2. **Barr, J.J.** (2017) A bacteriophages journey through the human body. **Immunological Reviews**, 279(1): 106-122. [*IF* = 9.6, *Altmetric* = 47, *Citations* = 4]
3. Schooley, RT., Biswas, B., Gill, JJ., Hernandez, AM., Lancaster, J., Lessor, L., **Barr, J.J.**, Reed, SL., Rohwer, F., Benler, S., Segall, AM., Taplitz, R., Smith, DM., Kerr, K., Kumaraswamy, M., Nizet, V., Lin, L., McCauley, MD., Strathdee, SA., Benson, CA., Pope, RK., Leroux, BM., Picel, AC., Mateczun, AJ., Cilwa, KE., Regeimbal, JM., Estrella, LA., Wolfe, DM., Henry, MS., Quinones, J., Salka, S., Bishop, KAL., Young, R. & Hamilton, T. (2017) Development and use of personalized bacteriophage-based therapeutic cocktails to treat a patient with a disseminated resistant *Acinetobacter baumannii* infection. **Antimicrobial Agents and Chemotherapy**, 61 (10): e00954-17. [*IF* = 4.5, *Altmetric* = 196, *Citations* = 1]
4. Quistad, SD., Grasis, JA., **Barr, J.J.** & Rohwer, F. (2017) Viruses and the origin of the microbiome selection and immunity. **The ISME Journal**, 11 (4): 835-840. [*IF* = 9.3, *Altmetric* = 25, *Citations* = 2]
5. Bonilla, N., Rojas, MI., Cruz, GNF., Hung, SH., Rohwer, F. & **Barr, J.J.** (2016) Phage on tap—a quick and efficient protocol for the preparation of bacteriophage laboratory stocks. **PeerJ**, 4: e2261. [*IF* = 2.2, *Altmetric* = 17, *Citations* = 4]
6. **Barr, J.J.,** Dutilh, B.E., Skennerton, C., Fukushima, T., Hastie, M., Gorman, J., Tyson, G., & Bond, P.L., (2016) Metagenomic and metaproteomic analyses of *Accumulibacter phosphatis* enriched floccular and granular biofilms. **Environmental Microbiology.** [*IF* = 3.8, *Altmetric* = 8, *Citations* = 7]
7. **Barr, J.J.,** Auro, R., Sam-Soon, N., Kassegne, S., Peters, G., Bonilla, N., Hatay, M., Mourtada, S., Bailey, B., Youle, M., Felts, B., Baljon, A., Nulton, J., Salamon, P. & Rohwer, F. (2015) Subdiffusive motion of

bacteriophage in mucosal surfaces increases the frequency of bacterial encounters. **Proceedings of the National Academy of Sciences**, 112 (44): 13675-13680. [IF = 9.7, Altmetric = 61, Citations = 23]

8. Tariq, M.A., Everest, F.L.C., Cowley, L.A., Soyza, A.D., Holt, G.S., Bridge, S.H., Perry, A., Perry, J.D., Bourke, S.J., Cummings, S.P., Lanyon, C.V., **Barr, J.J.** & Smith, D.L. (2015) A metagenomic approach to characterize temperate bacteriophage populations from Cystic Fibrosis and non-Cystic Fibrosis bronchiectasis patients. **Frontiers Microbiology**, 6 (97). [IF = 3.9, Altmetric = 14, Citations = 6]
9. Skennerton, C.T., **Barr, J.J.**, Slater, F.R., Bond, P.L. & Tyson, G.W. (2015) Expanding our view of genomic diversity in Candidatus Accumulibacter clades. **Environmental Microbiology Reports**, 17 (5): 1574-1585. [IF = 3.3, Altmetric = 5, Citations = 28]
10. Dutilh, B.E., Cassman, N., McNair, K., Sanchez, S.E., Silva, G.G.Z., Boling, L., **Barr, J.J.**, Speth, D.R., Seguritan, V., Aziz, R., Felts, B., Dinsdale E.A., Mokili, J.L. & Edwards R.A. (2014) A highly abundant bacteriophage discovered in the unknown sequences of human faecal metagenomes. **Nature Communications**, 5. [IF = 12.1, Altmetric = 417, Citations = 131]
11. **Barr, J.J.**, Auro, R., Furlan, M., Whiteson, K.L., Erb, M.L., Pogliano, J., Stotland, A., Wolkowicz, R., Cutting, A.S., Doran, K.S., Salamon, P., Youle, M. & Rohwer, F. (2013) Bacteriophage adhering to mucus provide a non-host derived immunity. **Proceedings of the National Academy of Sciences**, 110 (26): 10771-10776. [IF = 9.7, Altmetric = 262, Citations = 240]
12. **Barr, J.J.**, Youle, M. & Rohwer, F. (2013) Innate and acquired bacteriophage-mediated immunity. **Bacteriophage**, 3 (3): 10771-10776. [IF = 3.6, Altmetric = 2, Citations = 35]
13. Mohanakrishnan, J., Kofoed, M.V.W., **Barr, J.J.**, Yuan, Z., Schramm, A. & Meyer, R.L. (2011) Dynamic microbial response of sulfidogenic wastewater biofilm to nitrate. **Applied Microbiology and Biotechnology**, 91 (6): 1647-1657. [IF = 3.3, Citations = 27]
14. Slater, F.R., Singer, A.C., Turner, S., **Barr, J.J.** & Bond, P.L. (2011) Pandemic pharmaceutical dosing effects on wastewater treatment: no adaptation of activated sludge bacteria to degrade the antiviral drug Oseltamivir (Tamiflu®) and loss of nutrient removal performance. **FEMS Microbiology Letters**, 315 (1): 17-22. [IF = 2.1, Citations = 24]
15. **Barr, J.J.**, Slater, F., Fukushima, T. & Bond, P.L. (2010) Bacteriophage-host interactions cause community and performance changes in a mixed-culture activated sludge system. **FEMS Microbiology Ecology**, 74 (3): 631-642. [IF = 3.6, Citations = 37]
16. **Barr, J.J.**, Blackall, L.L. & Bond, P.L. (2010) Further limitations of phylogenetic group-specific probes used for the detection of bacteria in environmental samples. **The ISME Journal**, 4 (8): 959-961. [IF = 9.3, Citations = 11]
17. **Barr, J.J.**, Cook, A.E. & Bond, P.L. (2010) Granule formation mechanisms within an aerobic wastewater system for phosphorus removal. **Applied and Environmental Microbiology**, 75 (22): 7588-7597. [IF = 3.7, Citations = 37]
18. Wright, C.M., Larsen, J.E., Colosimo, M.L., **Barr, J.J.**, Chen, L., McLachlan, R.E., Yan, I.A., Bowman, R.V. & Fong, K.M. (2010) Genetic association study of CYP1A1 polymorphisms identifies risk haplotypes in nonsmall cell lung cancer. **European Respiratory Journal**, 35 (1): 152-159. [IF = 6.4, Citations = 50]

Impact Factor (IF) collected from journal website where possible, Altmetric scores provide an overview of article attention and impact, citation counts collected from Google Scholar.

CONFERENCES & INVITED TALKS

- 2018** Molecular Microbiology Meeting, Sydney, Australia. *Invited speaker and conference co-organiser*
Nanomedicine Conference, Sydney Australia. *Invited speaker*
Australian Society for Microbiology Meeting, Brisbane, Australia. *Invited speaker*
Australian Society of Rheology, Monash University, Australia. *Invited speaker*
Macquarie University, Molecular Sciences, Sydney, Australia. *Departmental seminar*
La Trobe University, Microbiology, Melbourne, Australia. *Departmental seminar*
Australian Society for Microbiology, NSW-ACT Branch AGM. *Invited speaker*

- 2017** Pharmabiotics Conference, Paris, France. *Invited speaker*
 Australian Society for Microbiology, Hobart, Australia. *Invited speaker*
 AusME Conference, Melbourne, Australia. *Invited speaker*
 22nd Evergreen Bacteriophage Meeting, Washington, USA.
 Bacteriophage EuroSciCon, Online conference. *Invited speaker*
 Advances in Microfluidics & Nanofluidics, Hobart, Australia. *Invited speaker*
 Pasteur Institut, Microbiology Department, Paris, France. *Departmental seminar*
 Monash Health, Infectious Diseases Grand Round, Melbourne, Australia. *Departmental seminar*
 Monash University, Biomedicine Discovery Institute, Melbourne, Australia. *Departmental seminar*
 University of Melbourne, Mathematics Department, Melbourne, Australia. *Departmental seminar*
 University of Melbourne, Microbiology Department, Melbourne, Australia. *Departmental seminar*
- 2016** Utrecht University, Biology Department, Utrecht, Netherlands. *Departmental seminar*
- 2015** Keystones Symposia, Keystones, USA. *Abstract submission & speaker*
 Society for Mathematical Biology Conference, Atlanta, USA. *Invited speaker*
 19th Evolutionary Biology Meeting, Marseilles, France. *Invited speaker*
- 2014** Microbiome and Microbiota Conference, San Diego, USA. *Invited speaker*
 3rd Viruses of Microbes Meeting, Zurich, Switzerland. *Abstract submission & speaker*
 Occidental College, Biology Department, Los Angeles, USA. *Departmental seminar*
 University California, Davis, Biology Department, Davis, USA. *Departmental seminar*
- 2013** 20th Evergreen Phage Conference, Evergreen State College, USA. *Abstract submission & speaker*
 Australian Society for Microbiology, Adelaide, Australia. *Abstract submission & speaker*
 San Diego Microbiology Group, San Diego, USA. *Invited speaker*
 Keystone Symposia on The Microbiome, Santa Fe, USA. *Poster presentation*
 Immunology Conference, Hawaii, USA. *Poster presentation*
- 2012** 14th ISME Conference, Copenhagen, Denmark. *Abstract submission, speaker & poster*
 Cystic Fibrosis Workshop, Rigs Hospital Clinical Microbiology, Copenhagen, Denmark. *Invited speaker*
- 2011** IWA Biofilm Conference, Shanghai, China. *Invited speaker*
- 2010** 13th ISME Conference, Seattle, USA. *Awardee & poster*
 AusBiotech, Melbourne, Australia. *Awardee & invited speaker*
- 2009** ASPD5 Conference, Aalborg, Denmark. *Awardee, abstract submission & speaker*
 Australian Society for Microbiology, Perth, Australia. *Awardee, abstract submission & speaker*
- 2008** 12th ISME Conference, Cairns, Australia. *Poster*

ADMINISTRATION & SERVICE

Bacteriophage SIG convenor. 2017–present
 ASM Member. 2016–present
 SDSU Senate Committee Member. 2013-2014
 San Diego Greater Science Fare Judge. 2012-2016
 Advanced Water Management Centre (AWMC), UQ. Student Representative. 2008-2010
 Secretary for Society of Undergraduate Science Students, UQ. 2003-2006

MENTORING

Doctoral students

Sofia Dahlman (Monash Central Scholarship; 2018–), Duhita Sant (Monash, co-supervised with Mike McDonald; 2018–), Robert Garcia (Warwick–Monash Joint Scholarship, co-supervised with Alfonso Jaramillo; 2018–), Wai Hoe Chin (Monash Central Scholarship; 2018–), Marion Bichet (Monash Central Scholarship; 2018–), Fernando Gordillo Altamirano (Monash Central Scholarship; 2017–).

Master's students

Sophie Nguyen (SDSU Masters in Biology; 2014-2016), Nicholas Samson (SDSU Masters in Engineering; 2013-2015), Natash Talago (SDSU Masters in Biology; 2013-2015).

Honours students

Vanessa Calcinotto (Monash University; 2018).

Undergraduate Studnets

Mike Trim (Monash University, 3990 student; 2018), Vanessa Calcinotto (Monash University, 3990 student; 2017), Cody Oliviera (Monash University, 3990 student; 2017), Angel Liang (Monash University, 3990 student; 2017), Giuliano Cruz (SDSU, Brazilian Scientific Mobility Program; 2015), Rita Auro (SDSU; 2013-2016).

Researchers and Technicians

Ruzeen Patwa (Monash University, Research Assistant; 2017–).