

David Wilkins

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Current position **Consultant bioinformatician**

Previous positions **City University of Hong Kong**, Hong Kong SAR

Postdoctoral Fellow, microbial ecology

December 2013–December 2014

Education **University of New South Wales**, Sydney, Australia

Ph.D, molecular genetics

July 2009–November 2013

- Thesis title: *Microbial Ecology and Biogeography of the Southern Ocean*.
- Supervisor: Prof. Ricardo Cavicchioli.
- Cosupervisor: Dr. Federico M. Lauro.

B.Sc. (Honours, 1st class)

March 2005–April 2009

- Major: Microbiology.
- Minor: Development studies.

**Peer-reviewed
publications**

D. Wilkins, X.-Y. Lu, Z. Shen, J. Chen, and P. K. H. Lee. *Pyrosequencing of mcrA and archaeal 16S rRNA genes reveals diversity and substrate preference of anaerobic digester methanogen communities*. Applied and Environmental Microbiology, 2014 (accepted). doi:10.1128/AEM.02566-14

D. Wilkins, E. van Seville, S. R. Rintoul, F. M. Lauro, and R. Cavicchioli. *Advection shapes Southern Ocean microbial assemblages independent of distance and environment effects*. Nature Communications, 2013. doi:10.1038/ncomms3457

D. Wilkins, F. M. Lauro, T. J. Williams, M. Z. DeMere, M. V. Brown, J. M. Hoffman, C. Andrews-Pfannkoch, J. B. McQuaid, M. J. Riddle, S. R. Rintoul, and R. Cavicchioli. *Biogeographic partitioning of Southern Ocean microorganisms revealed by metagenomics*. Environmental Microbiology, 2013, 15:1318–1333.

D. Wilkins, S. Yau, T. J. Williams, M. A. Allen, M. V. Brown, M. Z. DeMaere, F. M. Lauro, and R. Cavicchioli. *Key microbial drivers in Antarctic aquatic environments*. FEMS Microbiology Reviews, 2013, 37:303–335.

M. H. Y. Leung, **D. Wilkins**, E. K. T. Li, F. K. F. Kong, and P. K. H. Lee. *Diversity and dynamics of the indoor air microbiome in an urban subway network*. Applied and Environmental Microbiology, 2014, in press. doi:10.1128/AEM.02244-14

T. J. Williams, **D. Wilkins**, E. Long, F. Evans, M. Z. DeMaere, M. J. Raftery, and R. Cavicchioli. *The role of planktonic Flavobacteria in processing algal organic matter in coastal East Antarctica revealed using metagenomics and metaproteomics*. Environmental Microbiology, 2013, 15:1302–1317.

M. V. Brown, F. M. Lauro, M. Z. DeMaere, L. Muir, **D. Wilkins**, T. Thomas, M. J. Riddle, J. A. Fuhrman, C. Andrews-Pfannkoch, J. M. Hoffman, J. B. McQuaid, A. Allen, S. R. Rintoul and R. Cavicchioli. *Global biogeography of SAR11 marine bacteria*. Molecular Systems Biology, 2012, 8:1–13.

F. M. Lauro, M. Z. DeMaere, S. Yau, M. V. Brown, C. Ng, **D. Wilkins**, M. J. Raftery, J. A. E. Gibson, C. Andrews-Pfannkoch, M. Lewis, J. M. Hoffman, T. Thomas, and R. Cavicchioli. *An integrative study of a meromictic lake ecosystem in Antarctica*. The ISME Journal, 2010, 5:879–895.

**Other
publications**

K. S. Siddiqui, T. J. Williams, **D. Wilkins**, S. Yau, M. A. Allen, M. V. Brown, F. M. Lauro, and R. Cavicchioli. *Psychrophiles*. Annual Review of Earth and Planetary Sciences, 2013, 41:87–115.

T. J. Williams, **D. Wilkins**, M. Z. DeMaere, F. Lauro, and R. Cavicchioli. *Microbes under the microscope*. Australian Antarctic Magazine, June 2011

F. M. Lauro, M. Allen, **D. Wilkins**, T. J. Williams and R. Cavicchioli. *Genetics, genomics and evolution of psychrophiles*, in Extremophiles Handbook. Springer Verlag GmbH, Heidelberg, Germany, 2010.

Conference abstracts

D. Wilkins, M. H. Y. Leung, and P. K. H. Lee. *Household surface microbial assemblages are shaped by human-associated groups*. 15th International Symposium on Microbial Ecology, Seoul, Korea. August 24–29 2014.

D. Wilkins, F. M. Lauro, T. J. Williams, and R. Cavicchioli. *Biogeographic partitioning of Southern Ocean picoplankton*. 14th International Symposium on Microbial Ecology, Copenhagen, Denmark. August 19–24 2012.

M. H. Y. Leung, **D. Wilkins**, and P. K. H. Lee. *Comparison of bacterial microbiomes in Hong Kong urban household aerosols*. 15th International Symposium on Microbial Ecology, Seoul, Korea. August 24–29 2014.

R. Cavicchioli, F. M. Lauro, M. Z. DeMaere, T. J. Williams, M. V. Brown, S. Yau and **D. Wilkins**. *Microbial ecology of Antarctic aquatic ecosystems determined using metagenomics and metaproteomics*. 14th International Symposium on Microbial Ecology, Copenhagen, Denmark. August 19–24 2012.

R. Cavicchioli, F. M. Lauro, M. Z. DeMaere, T. J. Williams, M. V. Brown, S. Yau and **D. Wilkins**. *Extremophiles in Antarctica: insight into adaptation, evolution and ecosystem function of cold aquatic systems using metagenomics and metaproteomics*. 9th International Congress on Extremophiles, Sevilla, Spain. September 10–13 2012.

Technical skills

Bioinformatic

- Expertise in Perl and R for biological and bioinformatic applications.
- Microbial community analysis using high-throughput sequencing, including both 16S rRNA tag pyrosequencing and shotgun metagenomics.
- Statistical and machine learning techniques to examine microbial community structure and biogeographic distribution.
- Statistical graphics and generation of publication-quality data visualisations.
- High-throughput management of large volumes of genetic data and experimental results in Unix-like environments.
- GitHub profile at <https://github.com/wilkoX>

Laboratory

- Microbiological laboratory techniques including culturing, media preparation, biochemical testing, staining and microscopy and microbial identification, for both research and clinical microbiology.
- Molecular biology laboratory techniques including cloning, nucleic acid extraction and purification, PCR and RT-PCR, gel electrophoresis, spectrophotometry and fluorescence microscopy.
- Experienced in recovery of DNA and RNA from low-yield and recalcitrant samples.

Teaching

City University of Hong Kong, Hong Kong SAR

September 2014–present

Teaching assistant for *Introduction to Energy and Energy-related Environmental Policy*.

University of New South Wales, Sydney, Australia

March 2009–October 2012

Postgraduate tutor, demonstrator and marker for courses *Genetics*, *Genetics (advanced)*, *Microbiology 1*, *Molecules Cells and Genes*, *Microbial Genetics* and undergraduate medicine classes including medical microbiology, biochemistry, molecular biology and genetics.

Scholarships

Australian Postgraduate Award

August 2009–February 2013