David Wilkins

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Current Position

City University of Hong Kong, Hong Kong SAR

Postdoctoral Fellow, microbial ecology **December 2013–present**

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, E. van Sebille, 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.

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, F. M. Lauro, T. J. Williams, R. Cavicchioli. *Biogeographic partitioning of Southern Ocean picoplankton.* 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**. *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

- Programming in a range of languages, but with particular 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 visualisation and graphics, both exploratory and publication quality.
- High-throughput management of large volumes of genetic data and experimental results in Unix-like environments.

Laboratory

- Standard microbiological laboratory techniques including culturing, media preparation, biochemical testing, staining and microscopy and microbial identification, for both research and clinical microbiology.
- Standard laboratory molecular biology 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

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**