

Dave Ting Pong Tang

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Summary

I am currently a post-doctoral researcher at the Telethon Kids Institute, working on the analysis of human whole exome sequencing data sets. The main goal of my current research is to develop integrative approaches towards identifying disease causal variants and genes. Prior to this position, I was a Marie Curie Early Stage Researcher in the lab of Piero Carninci, primarily working on the analysis of high-throughput transcriptome sequencing data sets. As part of this work, I developed methods to identify sequencing artefacts and studied different classes of non-coding RNAs. My ultimate goal is to further our understanding of how the non-coding aspect of the human (and mammalian) genomes plays a role in governing biological function.

I am passionate about bioinformatics and maintain a [technical blog](#) dedicated to bioinformatics. I am an open science and reproducible research advocate. It is my dream that one day my work will have a direct positive impact on the lives others.

Personal

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| DOB | 1983 March 31 st |
| Birth place | Hong Kong |
| Nationality | Australian and British National (Overseas) |

Education

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| 2010–2015 | PhD Candidate, Vrije University, the Netherlands. PhD thesis : High-throughput sequencing and transcriptomics: methods development and data analysis of large expression data sets. |
| 2001–2005 | BSc (Honours) in biochemistry and microbiology, University of Queensland, Australia. Honours thesis : Using a supertree approach to detect laterally transferred genes within <i>Staphylococcus</i> . |

Past Scientific Positions

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| 2010–2015 | Research Associate in the lab of Piero Carninci at RIKEN Yokohama, Japan |
| 2008–2010 | Research Assistant in the lab of Sean Grimmond at The University of Queensland, Australia |
| 2006–2008 | Research Assistant in the lab of Brian Dalrymple at the Commonwealth Scientific and Industrial Research Organisation, Australia |
| 2005–2006 | Research Assistant in the lab of Mark Ragan at the University of Queensland, Australia |

Research Interests

- Investigating the potential role of DNA variants in relation to biological function and disease.
- Genomics and transcriptomics; in particular the study of non-coding RNAs and transposable elements expression.
- The application of bioinformatics, in particular machine learning and data mining methods, to biological problems.

Bioinformatic Skills

- Data analysis of high-throughput sequencing data from DNA-seq, RNA-seq, CAGE-seq, sRNA-seq, and ChIP-seq.
- Knowledge and the ability to use various bioinformatic databases, APIs, repositories, and tools.
- The application of biostatistics for the analysis of high-throughput sequencing data.

Computer Skills

- Operating systems: Linux/Unix (RHEL/CentOS and Ubuntu), OS X, and Windows.
- Programming/scripting languages: Perl, R, [C](#), bash, JavaScript, HTML, SQL, and PHP.
- Open science and reproducible research tools: git, cloud computing (AWS), WordPress, Jekyll, Docker, and R Markdown/Markdown.

Honours and Awards

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| 2010 | CSIRO Chairman's Medal |
| 2008 | CSIRO Partnership Excellence Award |

Academic and Administrative Experience

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| 2015 | MODHEP workshop presenter on analysing CAGE data |
| 2013–2014 | Organiser of the Chat with Guest sessions at RIKEN CLST DGT |
| 2013–2014 | Organiser of the Student Journal Club at RIKEN CLST DGT |
| 2013 | Organising committee for the BrainTrain conference |
| 2013 | Organiser of the BrainTrain workshop: Identifying regulatory elements in the genome |
| 2012 | Session chair for the Patients and Medicines forum |
| 2012 | Presenter at the RIKEN OSC bioinformatics course |

Editorial Activities

Referee/Reviewer (number of grant proposals/manuscripts reviewed in parenthesis) for: National Health and Medical Research Council (1), BMC Genomics (1), PeerJ (1), and Scientific Reports (1).

Workshop and Course Attendances

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| 2016 | Consumer and Community Involvement in Research workshop |
| 2015 | UQ winter school in mathematical and computational biology |
| 2014 | RIKEN/KI doctoral course: Employing Genome-wide Technologies for Functional Regulation in Development and Disease |
| 2013 | AMATA conference ECR workshop |
| 2013 | Coursera data analysis course from Johns Hopkins University |
| 2013 | BrainTrain courses and workshops |
| 2013 | RIKEN/KI doctoral course: Epigenomics: Methods and Applications to Disease and Development |
| 2012 | SISSA summer school on dopaminergic neurons |
| 2012 | RIKEN/KI doctoral course: Functional Regulation in Development and Disease |
| 2011 | UQ winter school in mathematical and computational biology |
| 2011 | RIKEN/EBI bioinformatics roadshow |

Hobbies and Interests

Sports (especially basketball), cycling, bioinformatics blogging, self study, and reading.

Academic References

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Publications

- [1] G. Baynam, N. Pachter, F. McKenzie, S. Townshend, J. Slee, C. Kiraly-Borri, A. Vasudevan, A. Hawkins, S. Broley, L. Schofield, H. Verhoef, C. E. Walker, C. Molster, J. M. Blackwell, S. Jamieson, **Tang, D.**, T. Lassmann, K. Mina, J. Beilby, M. Davis, N. Laing, L. Murphy, T. Weeramanthri, H. Dawkins, and J. Goldblatt. The rare and undiagnosed diseases diagnostic service - application of massively parallel sequencing in a state-wide clinical service. *Orphanet J Rare Dis*, 11(1):77, 2016. URL: <http://www.ncbi.nlm.nih.gov/pubmed/27287197>.
- [2] **Tang, D.**, D. Anderson, R. W. Francis, G. Syn, S. E. Jamieson, T. Lassmann, and J. M. Blackwell. Reference genotype and exome data from an Australian Aboriginal population for health-based research. *Sci Data*, 3:160023, 2016. URL: <http://www.ncbi.nlm.nih.gov/pubmed/27070114>.
- [3] Y. Hasegawa, **Tang, D.**, N. Takahashi, Y. Hayashizaki, A. R. Forrest, et al. CCL2 enhances pluripotency of human induced pluripotent stem cells by activating hypoxia related genes. *Sci Rep*, 4:5228, 2014. URL: <http://www.ncbi.nlm.nih.gov/pubmed/24957798>.
- [4] **Tang, D. T.**, C. Plessy, M. Salimullah, A. M. Suzuki, R. Calligaris, S. Gustincich, and P. Carninci. Suppression of artifacts and barcode bias in high-throughput transcriptome analyses utilizing template switching. *Nucleic Acids Res.*, 41(3):e44, Feb 2013. URL: <http://www.ncbi.nlm.nih.gov/pubmed/23180801>.
- [5] A. Saxena, **Tang, D.**, and P. Carninci. piRNAs warrant investigation in Rett Syndrome: an omics perspective. *Dis. Markers*, 33(5):261–275, 2012. URL: <http://www.ncbi.nlm.nih.gov/pubmed/22976001>.

- [6] S. Francia, F. Michellini, A. Saxena, **Tang, D.**, M. de Hoon, V. Anelli, M. Mione, P. Carninci, and F. d’Adda di Fagagna. Site-specific DICER and DROSHA RNA products control the DNA-damage response. *Nature*, 488(7410):231–235, Aug 2012. URL: <http://www.ncbi.nlm.nih.gov/pubmed/22722852>.
- [7] R. D. Thiagarajan, N. Cloonan, B. B. Gardiner, T. R. Mercer, G. Kolle, E. Nourbakhsh, S. Wani, **Tang, D.**, K. Krishnan, K. M. Georgas, B. A. Rumballe, H. S. Chiu, J. A. Steen, J. S. Mattick, M. H. Little, and S. M. Grimmond. Refining transcriptional programs in kidney development by integration of deep RNA-sequencing and array-based spatial profiling. *BMC Genomics*, 12:441, 2011. URL: <http://www.ncbi.nlm.nih.gov/pubmed/21888672>.
- [8] R. D. Thiagarajan, K. M. Georgas, B. A. Rumballe, E. Lesieur, H. S. Chiu, D. Taylor, **Tang, D. T.**, S. M. Grimmond, and M. H. Little. Identification of anchor genes during kidney development defines ontological relationships, molecular subcompartments and regulatory pathways. *PLoS ONE*, 6(2):e17286, 2011. URL: <http://www.ncbi.nlm.nih.gov/pubmed/21386911>.
- [9] H. S. Chiu, J. C. Szucsik, K. M. Georgas, J. L. Jones, B. A. Rumballe, **Tang, D.**, S. M. Grimmond, A. G. Lewis, B. J. Aronow, J. L. Lessard, and M. H. Little. Comparative gene expression analysis of genital tubercle development reveals a putative appendicular Wnt7 network for the epidermal differentiation. *Dev. Biol.*, 344(2):1071–1087, Aug 2010. URL: <http://www.ncbi.nlm.nih.gov/pubmed/20510229>.
- [10] N. Cloonan, Q. Xu, G. J. Faulkner, D. F. Taylor, **Tang, D. T.**, G. Kolle, and S. M. Grimmond. RNA-MATE: a recursive mapping strategy for high-throughput RNA-sequencing data. *Bioinformatics*, 25(19):2615–2616, Oct 2009. URL: <http://www.ncbi.nlm.nih.gov/pubmed/19648138>.
- [11] K. Georgas, B. Rumballe, M. T. Valerius, H. S. Chiu, R. D. Thiagarajan, E. Lesieur, B. J. Aronow, E. W. Brunskill, A. N. Combes, **Tang, D.**, D. Taylor, S. M. Grimmond, S. S. Potter, A. P. McMahon, and M. H. Little. Analysis of early nephron patterning reveals a role for distal RV proliferation in fusion to the ureteric tip via a cap mesenchyme-derived connecting segment. *Dev. Biol.*, 332(2):273–286, Aug 2009. URL: <http://www.ncbi.nlm.nih.gov/pubmed/19501082>.
- [12] **Tang, D. T.**, E. A. Glazov, S. M. McWilliam, W. C. Barris, and B. P. Dalrymple. Analysis of the complement and molecular evolution of tRNA genes in cow. *BMC Genomics*, 10:188, 2009. URL: <http://www.ncbi.nlm.nih.gov/pubmed/19393063>.
- [13] J. W. Kijas, D. Townley, B. P. Dalrymple, M. P. Heaton, J. F. Maddox, A. McGrath, P. Wilson, R. G. Ingersoll, R. McCulloch, S. McWilliam, **Tang, D.**, J. McEwan, N. Cockett, V. H. Oddy, F. W. Nicholas, and H. Raadsma. A genome wide survey of SNP variation reveals the genetic structure of sheep breeds. *PLoS ONE*, 4(3):e4668, 2009. URL: <http://www.ncbi.nlm.nih.gov/pubmed/19270757>.