

## Simon Y. W. Ho

School of Biological Sciences  
University of Sydney  
Sydney, Australia

### APPOINTMENTS

- 2010-            **Senior Lecturer**  
School of Biological Sciences, University of Sydney
- 2008-2010      **Lecturer**  
Research School of Biology, Australian National University
- 2008-2010      **Postdoctoral Fellow (Australian Research Council)**  
Research School of Biology, Australian National University
- 2006-2007      **Postdoctoral Researcher (Leverhulme Trust)**  
Department of Zoology, University of Oxford

### ACADEMIC RECORD

- 2006            **D.Phil. (Zoology), University of Oxford**  
Advisors: Andrew Rambaut, Alan Cooper, Richard Forsey, & Alexei Drummond
- 2003            **M.Sc. (Research), University of Sydney**  
Advisors: Lars Jermiin & John Robinson
- 2002            **B.Sc. (Advanced) (Honours 1 & Medal), University of Sydney**  
Honours thesis: 100%; weighted average mark: 94%  
Supervisor: Lars Jermiin
- 1998            **Sydney Boys High School**

### TEACHING

- 2010-            **Lecturer: *Bioinformatics & Genomics***  
University of Sydney
- 2008-2010      **Lecturer: *Evolution of Biodiversity and Advanced Genetics and Bioinformatics***  
Australian National University
- 2005-2007      **Tutor: *Evolution & Systematics***  
Balliol, Christ Church, Exeter, Hertford, New, and St Hilda's Colleges (Oxford)
- 2005-2007      **Laboratory Demonstrator: *Statistics***  
University of Oxford
- 2001-2002      **Laboratory Demonstrator: *Bioinformatics & Genomics***  
University of Sydney

## HONOURS AND AWARDS

### *Australian National University*

- Discovery Project Grant, Australian Research Council, 2008-2010

### *University of Oxford*

- Edward Penley Abraham Cephalosporin Scholarship, Linacre College, 2004-2006
- Domus Research Prize, Linacre College, 2004-2006
- Commonwealth Scholarship Research Grant, British Council, 2003-2006
- Commonwealth Scholarship, British Council, 2003-2006

### *University of Sydney*

- A.E. and F.A.Q. Stephens Scholarship, Australian Postgraduate Awards, 2003
- John H. Elliot Memorial Prize for Best Thesis in Animal Biology, 2002
- Professor Spencer Smith-White Prize in Biology Honours, 2002
- G.S. Caird Scholarship in Zoology, 2001
- Haswell Prize in Biology, 2001

## PROFESSIONAL ACTIVITIES

### *Professional Services*

- Editorial Board Member, *Mitochondrial DNA*
- I have reviewed >75 papers for 23 journals, including *Nature*, *Science*, PNAS, *PLoS* journals, Royal Society journals, and *Trends* journals

### *Society Memberships*

- Society for Molecular Biology and Evolution
- Society of Systematic Biologists
- Genetics Society of Australasia
- Australasian Evolution Society
- Asian-Australasian Association of Palaeoanthropologists
- The Australian Museum Society

## SCIENTIFIC PUBLICATIONS

- 40 **Ho SYW**, & Gilbert MTP (2010) Ancient mitogenomics. *Mitochondrion*, 10: 1-11.
- 39 Magiorkinis G, Magiorkinis E, Paraskevis D, **Ho SYW**, Shapiro B, Pybus O, Allain JP, & Hatzakis A (2009) The global dynamics and phylogeography of hepatitis C virus 1a and 1b. *PLoS Medicine*, 6: e1000198.
- 38 Steeman ME, Hebsgaard MB, Fordyce RE, **Ho SYW**, Rabosky DL, Nielsen R, Rahbek C, Glenner H, Sørensen MV, & Willerslev E (2009) Radiation of extant cetaceans driven by restructuring of the oceans. *Systematic Biology*, 58: 573-585.
- 37 Chatterjee HJ, **Ho SYW**, Barnes I, & Groves C (2009) Estimating the phylogeny and divergence times of primates using a supermatrix approach. *BMC Evolutionary Biology*, 9: 259.
- 36 **Ho SYW**, & Phillips MJ (2009) Accounting for calibration uncertainty in phylogenetic estimation of evolutionary divergence times. *Systematic Biology*, 58: 367-380.
- 35 Endicott P, **Ho SYW**, Metspalu M, & Stringer C (2009) Evaluating the mitochondrial timescale of human evolution. *Trends in Ecology and Evolution*, 24: 515-521.
- 34 Willerslev E, Gilbert MTP, Binladen J, **Ho SYW**, Campos PF, Ratan A, Tomsho LP, da Fonseca RR, Sher A, Kuznetsova TV, *et al.* (2009) Analysis of complete mitochondrial genome from extinct and extant rhinoceroses reveals lack of phylogenetic resolution. *BMC Evolutionary Biology*, 9: 95.
- 33 **Ho SYW** (2009) An examination of phylogenetic models of substitution rate variation among lineages. *Biology Letters*, 5: 421-424.
- 32 Korsten M, **Ho SYW**, Davison J, Pahn B, Vulla E, Roht M, Tumanov IL, Kojola I, Andersone-Lilley Z, Ozolins J, *et al.* (2009) Sudden expansion of a single brown bear maternal lineage across northern continental Eurasia after the last ice age: a general demographic model for mammals? *Molecular Ecology*, 18: 1963-1979.
- 31 Barnett R, Shapiro B, Barnes I, **Ho SYW**, Burger J, Yamaguchi N, Higham TFG, Wheeler HT, Rosendahl W, Sher AV, *et al.* (2009) Phylogeography of lions (*Panthera leo* ssp.) reveals three distinct taxa and a late Pleistocene reduction in genetic diversity. *Molecular Ecology*, 18: 1668-1677.
- 30 Rambaut A, **Ho SYW**, Drummond AJ, & Shapiro B (2009) Accommodating the effect of ancient DNA damage on inferences of demographic histories. *Molecular Biology and Evolution*, 26: 245-248.
- 29 **Ho SYW**, & Endicott P (2008) The crucial role of calibration in molecular date estimates for the peopling of the Americas. *American Journal of Human Genetics*, 83: 142-146.
- 28 **Ho SYW**, Larson G, Edwards CJ, Heupink TH, Holland PWH, & Shapiro B (2008) Correlating Bayesian date estimates with climatic events and domestication using a bovine case study. *Biology Letters*, 4: 370-374.
- 27 Gilbert MTP, Drautz DI, Lesk AM, **Ho SYW**, Qi J, Ratan A, Hsu C-H, Sher A, Dalén L, Götherström A, *et al.* (2008) Intraspecific phylogenetic analysis of Siberian woolly mammoths using complete mitochondrial genomes. *Proceedings of the National Academy of Sciences of the USA*, 105: 8327-8332.
- 26 Endicott P, & **Ho SYW** (2008) A Bayesian evaluation of human mitochondrial substitution rates. *American Journal of Human Genetics*, 82: 895-902.
- 25 **Ho SYW** (2008) The molecular clock and estimating species divergence. *Nature Education*.
- 24 Barik SS, Sahani R, Prasad BVR, Endicott P, Metspalu M, Bhattacharya S, Sarkar BN,

- Annapoorna PCH, Sreenath J, Sun D, Sanchez JJ, **Ho SYW**, *et al.* (2008) Detailed mtDNA genotypes permit a reassessment of the settlement and population structure of the Andaman Islands. *American Journal of Physical Anthropology*, 136: 19-27.
- 23 Ware JL, **Ho SYW**, & Kjer K (2008) Divergence dates of libelluloid dragonflies (Odonata: Anisoptera) estimated from rRNA using paired-site substitution models. *Molecular Phylogenetics and Evolution*, 47: 426-432.
  - 22 **Ho SYW**, Saarma U, Barnett R, Haile J, & Shapiro B (2008) The effect of inappropriate calibration: Three case studies in molecular ecology. *PLoS ONE* 3: e1615.
  - 21 Buckley M, Walker A, **Ho SYW**, Yang Y, Smith C, Ashton P, Oates JT, Cappellini E, Andrews P, Strahler J, *et al.* (2008) Comment on "Protein sequences from mastodon and Tyrannosaurus rex revealed by mass spectrometry". *Science* 319: 33c.
  - 20 **Ho SYW** (2008) *Confounding Factors in Phylogenetic Analysis*. VDM Verlag, Saarbrücken, Germany. 87 pages. ISBN 978-3-639-04610-6.
  - 19 Hyman IT, **Ho SYW**, & Jermiin LS (2007) Molecular phylogeny of Australian Helicarionidae, Euconulidae, and related groups (Gastropoda: Pulmonata: Stylommatophora) based on mitochondrial DNA. *Molecular Phylogenetics and Evolution*, 45: 792-812.
  - 18 **Ho SYW**, Kolokotronis S-O, & Allaby RG (2007) Elevated substitution rates estimated from ancient DNA. *Biology Letters*, 3: 702-705.
  - 17 **Ho SYW** (2007) Calibrating molecular estimates of substitution rates and divergence times in birds. *Journal of Avian Biology*, 38: 409-414.
  - 16 **Ho SYW**, Shapiro B, Phillips MJ, Cooper A, & Drummond AJ (2007) Evidence for time dependency of molecular rate estimates. *Systematic Biology*, 56: 515-522.
  - 15 **Ho SYW**, Heupink TH, Rambaut A, & Shapiro B (2007) Bayesian estimation of sequence damage in ancient DNA. *Molecular Biology and Evolution*, 24: 1416-1422.
  - 14 Edwards CJ, Bollongino R, Scheu A, Chamberlain A, Tresset A, Vigne, J-D, Larson G, **Ho SYW**, Heupink TH, Shapiro B, *et al.* (2007) Mitochondrial DNA analysis shows a Near Eastern Neolithic origin for domestic cattle and no indication of domestication of European aurochs. *Proceedings of the Royal Society of London B*, 274: 1377-1385.
  - 13 Haile J, Holdaway R, Oliver K, Bunce M, Shapiro B, Gilbert MTP, Nielsen R, Munch K, **Ho SYW**, & Willerslev E (2007) Ancient DNA chronology within sediment deposits: Are paleobiological reconstructions possible and is DNA leaching a problem? *Molecular Biology and Evolution*, 24: 982-989.
  - 12 Saarma U, **Ho SYW**, Pybus OG, Kaljuste M, *et al.* (2007) Mitogenetic structure of brown bears (*Ursus arctos* L.) in north-eastern Europe and a new time-frame for the formation of European brown bears. *Molecular Ecology*, 16: 401-413.
  - 11 Peng Z\*, **Ho SYW**\* (equal first authors), Zhang Y, & He S (2006) Uplift of the Tibetan plateau: Evidence from divergence times of glyptosternoid catfishes. *Molecular Phylogenetics and Evolution*, 39: 568-572.
  - 10 Drummond AJ, **Ho SYW**, Phillips MJ, & Rambaut A (2006) Relaxed phylogenetic inference and dating with confidence. *PLoS Biology*, 4: e88.
  - 9 Binladen J, Wiuf C, Gilbert MTP, Bunce M, Barnett R, Larson G, Greenwood AD, Haile J, **Ho SYW**, Hansen AJ, *et al.* (2006) Assessing the fidelity of ancient DNA sequences amplified from nuclear genes. *Genetics*, 172: 733-741.
  - 8 **Ho SYW**, & Larson G (2006) Molecular clocks: When times are a-changin'. *Trends in Genetics*, 22: 79-83.
  - 7 Murray S, Jørgensen MF, **Ho SYW**, Patterson DJ, & Jermiin LS (2005) Improving the

analysis of dinoflagellate phylogeny based on rDNA. *Protist*, 156: 269-286.

- 6 Weinstock J, Willerslev E, Sher A, Tong W, **Ho SYW**, Rubinstein D, Storer J, Burns J, Martin L, Bravi C, *et al.* (2005) Evolution, systematics, and phylogeography of Pleistocene horses in the New World: A molecular perspective. *PLoS Biology*, 3: e241.
- 5 **Ho SYW**, Phillips MJ, Cooper A, & Drummond AJ (2005) Time dependency of molecular rate estimates and systematic overestimation of recent divergence times. *Molecular Biology and Evolution*, 22: 1561-1568.
- 4 **Ho SYW**, Phillips MJ, Drummond AJ, & Cooper A (2005) Accuracy of rate estimation using relaxed clock models, with a critical focus on the early metazoan radiation. *Molecular Biology and Evolution*, 22: 1355-1363.
- 3 Jermiin LS, **Ho SYW**, Ababneh F, Robinson J, & Larkum AWD (2004) The biasing effect of compositional heterogeneity on phylogenetic estimates may be underestimated. *Systematic Biology*, 53: 638-643.
- 2 **Ho SYW**, & Jermiin LS (2004) Tracing the decay of the historical signal in biological sequence data. *Systematic Biology*, 53: 623-637.
- 1 Jermiin LS, **Ho SYW**, Ababneh F, Robinson J, & Larkum AWD (2003) Hetero: A program to simulate the evolution of DNA on four-taxon trees. *Applied Bioinformatics*, 2: 159-163.

## SCIENTIFIC COMMENTARY

- 23 **Ho SYW**, Lanfear R (2010) Time-dependent molecular rates in human mitogenomes . *Mitochondrial DNA*, in press.
- 22 **Ho SYW**, & Lanfear R (2010) Distinctive characteristics of post-mortem damage in human mitochondrial DNA . *Mitochondrial DNA*, in press.
- 21 **Ho SYW**, & Lanfear R (2010) The role of mito-nuclear interactions in F2 hybrid breakdown. *Mitochondrial DNA*, in press.
- 20 Lanfear R, & **Ho SYW** (2010) Tracking the demographic history of seals using mitochondrial DNA. *Mitochondrial DNA*, 21: 3-4.
- 19 Lanfear R, & **Ho SYW** (2010) Population mitogenomics of extinct species. *Mitochondrial DNA*, 21: 3.
- 18 Lanfear R, & **Ho SYW** (2010) Longevity, mutation rates, and the evolution of avian mitochondrial DNA. *Mitochondrial DNA*, 21: 2.
- 17 Lanfear R, & **Ho SYW** (2010) Evolutionary constraints on mitochondrial DNA depend on the locomotive demands of the host. *Mitochondrial DNA*, 21: 1-2.
- 16 Lanfear R, & **Ho SYW** (2010) MtZoa – A new mitochondrial protein replacement matrix for metazoan phylogenetics. *Mitochondrial DNA*, 21: 1.
- 15 **Ho SYW** (2009) Forensic analysis using mitochondrial DNA. *Mitochondrial DNA*, 20: 101-102.
- 14 **Ho SYW** (2009) Purifying selection in human mitochondrial DNA. *Mitochondrial DNA*, 20: 102.
- 13 **Ho SYW**, & Lanfear R (2009) The effective population size of mitochondrial DNA. *Mitochondrial DNA*, 20: 68.
- 12 **Ho SYW**, & Lanfear R (2009) Extreme organisation. *Mitochondrial DNA*, 20: 67-68.

- 11 **Ho SYW**, & Lanfear R (2009) The influence of altitude on mitochondrial evolution in mammals, *Mitochondrial DNA*, 20: 66-67.
- 10 **Ho SYW**, & Lanfear R (2009) Two migration routes for the first Americans. *Mitochondrial DNA*, 20: 66.
- 09 **Ho SYW**, & Lanfear R (2009) Mitochondrial phylogeography of house mice. *Mitochondrial DNA*, 20:65.
- 08 Lanfear R, & **Ho SYW** (2009) Mitochondrial genome of the thylacine. *Mitochondrial DNA*, 20: 28.
- 07 Lanfear R, & **Ho SYW** (2009) Mitochondrial evolution in tuatara. *Mitochondrial DNA*, 20: 28.
- 06 Lanfear R, & **Ho SYW** (2009) Age-related selection in mitochondrial genomes. *Mitochondrial DNA*, 20: 27.
- 05 **Ho SYW** (2009) Partial deletion of the mitochondrial control region. *Mitochondrial DNA*, 20: 6.
- 04 **Ho SYW** (2009) Goat domestication. *Mitochondrial DNA*, 20: 5.
- 03 **Ho SYW** (2009) Ancient human mitogenomics. *Mitochondrial DNA*, 20: 4.
- 02 **Ho SYW** (2009) Ursid mitogenomics. *Mitochondrial DNA*, 20: 2-3.
- 01 **Ho SYW** (2009) Report on the 3rd International Symposium on Biomolecular Archaeology. *Mitochondrial DNA*, 20: 2.

## PRESENTATIONS

### *Invited Talks*

- 6 **Estimating evolutionary time-scales using DNA: An overview and update**  
Keynote speaker, *Australasian Evolution Society Conference*, Canberra, Australia. Sep 2009.
- 5 **Recalibrating the time-scale of human evolution using mitochondrial DNA**  
*Genetics Society of Australasia Conference*, Adelaide, Australia. Jul 2008.
- 4 **Relaxed molecular clocks and probabilistic calibrations**  
Session chair, *Structural, Functional, and Evolutionary Genomics Conference*, Cambridge, United Kingdom. Jul 2007.
- 3 **Bayesian phylogenetic analysis using *BEAST***  
Natural History Museum, London, United Kingdom. Jul 2007.
- 2 **The molecular clock: Theory and application**  
*Biostatistics M.Sc. Course*, University of Athens, Greece. Jun 2007.
- 1 **A biologist's guide to dating, with a discussion of uncorrelated relaxed-clock models**  
*Dating the Tree of Life Symposium*, University of Geneva, Switzerland. Sep 2006.

### *Other Talks*

- 11 **Evaluating the mitochondrial timescale of human evolution**  
*Conference on Australasian Vertebrate Evolution Palaeontology and Systematics*. Sydney, Australia. Jun 2009.
- 10 **Evaluating the mitochondrial timescale of human evolution**  
*Quaternary Forum*, Canberra, Australia. Jun 2009.

- 9 **Recalibrating the time-scale of human evolution using mitochondrial DNA**  
Session chair, *International Symposium on Biomolecular Archaeology*, York, UK. Sep 2008.
- 8 **Ancient DNA: 'Molecular fossils' provide a window on the past**  
*Tempo and Mode*, Canberra, Australia. Sep 2008.
- 7 **Applications of phylogenetics in ancient DNA analysis**  
*Evolution 2007*, Christchurch, New Zealand. Jun 2007.
- 6 **Measuring rates of molecular evolution from ancient DNA**  
*Australasian Evolution Society Conference*, Sydney, Australia. Jun 2007.
- 5 **Testing a Bayesian model of sequence damage using ancient DNA data sets**  
*International Symposium on Biomolecular Archaeology*, Stockholm, Sweden. Sep 2006.
- 4 **A biologist's guide to dating**  
*Evolution 2006*, New York, USA. Jun 2006.
- 3 **Relaxed-clock phylogenetics**  
*PhyloGroup V*, University College London, United Kingdom. Apr 2006.
- 2 **Phylogenetic inference in a relaxed-clock framework**  
*Molecular Biology and Evolution 2005*, Auckland, New Zealand. Jun 2005.
- 1 **Re-evaluating the Cambrian explosion hypothesis**  
*Annual New Zealand Phylogenetics Meeting*, Kaikoura, New Zealand. Feb 2003.

## WORKSHOPS

### *Workshops Delivered*

- 2 **Bayesian phylogenetic analysis using *BEAST***  
Australian National University. Canberra, Australia. Mar 2010.
- 1 **Bayesian phylogenetic analysis using *BEAST***  
Australian National University. Canberra, Australia. Aug 2008.

### *Invited Workshops*

- 2 **Rates of Molecular Evolution in Plants**  
Vegetation Function Working Group 60. Sydney, Australia. May 2009.
- 1 **Calibrating the Evolutionary History of Southern Hemisphere Plant Clades**  
Vegetation Function Working Group 32. Melbourne, Australia. May 2008.

## COMPUTER PROGRAMS AND MANUALS

- 3 Drummond AJ, Ho SYW, Rawlence N, and Rambaut A (2007) A Rough Guide to BEAST 1.4. University of Auckland, New Zealand.
- 2 Ho SYW (2007) *Sequescence*. University of Oxford, UK.
- 1 Ho SYW (2005) *RateEvolver*. University of Oxford, UK.