

Helen Ghislaine Tempest Ph.D.

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Professional Preparation

<i>Brunel University, London, UK</i>	Biology	BSc. 1999
<i>Brunel University, London, UK</i>	Genetics	Ph.D. 2003
<i>Brunel University, London, UK</i>	Comparative Genomics	2003 – 2004
<i>University of Kent, Canterbury, UK</i>	Comparative Genomics	2004 – 2006
<i>University of Calgary, Calgary, Canada</i>	Genetics	2006 – 2008

Appointments

<i>Florida International University, FL, USA</i>	Assistant Professor Human and Molecular Genetics	2009 – Present
<i>Bridge Genoma, London, UK</i>	Senior Molecular Cytogeneticist Research Coordinator	2008 – 2009

Products

(i) Products Closely Related to the Proposal

1. Millan N, Lau P, Hann M, Ioannou D, Hoffman D, Barrionuevo M, Maxson W, Ory S, **Tempest HG** (2012). Hierarchical radial and polar organization of chromosomes in human sperm. *Chromosome Res.* 20:875-887.
2. Griffin DK, Fonseka G, **Tempest HG**, Thornhill AR, Ioannou D (2013). Interphase cytogenetics at the earliest stages of human development. *Human Interphase Chromosomes: The Biomedical Aspects.* Chapter 7: 123-138.
3. Skinner BM, Robertson LB, **Tempest HG**, Langley EJ, Ioannou D, Fowler KE, Crooijmans RP, Hall AD, Griffin DK, Volker M (2009) Comparative genomics in chicken and Pekin duck using FISH mapping and microarray analysis. *BMC Genomics.* 10:357.
4. Ioannou D, **Tempest HG**, Ellis M, Thornhill AR, Griffin DK (2009) Quantum Dots as new-generation fluorochromes for FISH: An appraisal. *Chromosome Res.* 17:519-530.
5. **Tempest HG**, Ko E, Chan P, Robaire B, Rademaker A, Martin RH. (2009) Intra-individual variations in sperm aneuploidy frequencies in control donors. *Fertil Steril.* 91:185-192.

(ii) Other Significant Products

1. International Chicken Genome Sequence Consortium. (Multi-author including **Tempest HG**). (2004). Sequence and comparative analysis of the chicken genome provide unique perspectives on vertebrate evolution. *Nature.* 432: 695-716.
2. Masabanda JS, Burt DW, O'Brien PC, Vignal A, Fillon V, Walsh PS, Cox H, **Tempest HG**, Smith J, Habermann F, Schmid M, Matsuda Y, Ferguson-Smith MA, Crooijmans RP, Groenen MA, Griffin DK. (2004). Molecular cytogenetic definition of the chicken genome: the first complete avian karyotype. *Genetics.* 166: 367-73.
3. Griffin DK, Robertson LB, **Tempest HG**, Vignal A, Fillon V, Crooijmans RPMA, Groenen MAM, Deryusheva S, Gaginskaya E, Carré W, Waddington D, Talbot R, Völker M, Masabanda JS, Burt DW. (2008) Whole genome comparative studies between chicken and turkey and their implications for avian genome evolution. *BMC Genomics.* 9:168.
4. Morris WB, Stephenson J, Robertson LB, Turner K, Brown H, Ioannou D, **Tempest HG**, Skinner BM, Griffin DK. (2007). Practicable approaches to facilitate rapid and accurate molecular cytogenetic mapping in birds and mammals. *Cytogenet Genome Res.* 117: 36-42.
5. **Tempest HG**. (2011). Meiotic Recombination Errors, the Origin of Sperm Aneuploidy and Clinical Recommendations. *Syst Biol Reprod Med.* 57:93-101.

Submitted manuscripts

Ioannou D, Kandukuri L, Quadri A, Becerra V, Simpson JL, **Tempest HG**. Spatial positioning of all 24 chromosomes in the lymphocytes of six subjects: Evidence of reproducible positioning and spatial repositioning following DNA damage with hydrogen peroxide and ultraviolet B. Submitted to PLOS ONE *Manuscript has been accepted subject to minor revisions.*

Synergistic Activities

Research Opportunities for Underrepresented Undergraduates and Graduates in Science: I have actively incorporated my research activities with education. I have primarily achieved this by providing research facilities and projects for undergraduate, graduate and medical students enrolled at Florida International University (FIU). FIU is a Minority Serving Institution and thus the vast majority of students undertaking research within my laboratory are from underrepresented demographics including women. These students conduct active research in my laboratory which has resulted in two peer-reviewed publications in which students (undergraduate and medical students) are first authors (Hann et al., 2011 and Millan et al., 2012) and the manuscript submitted to PLOS ONE includes two students (Quadri and Becerra). I plan to continue mentoring current and future students, many of whom will participate in the proposed research project. I have also participated in several summer programs that expose overseas undergraduate and medical students to research. To date, I have hosted students from Saudi Arabia, Germany and Puerto Rico each of whom have been exposed to basic science research and have participated in small research projects.

Service to the Scientific Community: I frequently peer-review manuscripts submitted to over 20 different journals covering the fields of reproduction, genetics and comparative genomics, including: Nature Communications, Human Reproduction, Environmental Health Perspectives, Chromosome Research and, Fertility and Sterility amongst others. I am a member of the Editorial Advisory Board for Chromosome Research. I have been involved in the organization of two international meetings (15th International Chromosome Conference and the Second Congress of the International Cytogenetics and Genome Society). I actively participate in several international societies, serving on the nomination committee for the Preimplantation Genetic Diagnosis International Society (PGDIS) in 2009 and Chair of the committee in 2011 and 2013, and I serve as the Secretary General of the International Chromosome and Genome Society (ICGS) (elected in 2011).

Collaborators and Other Affiliations

Collaborators

Barrionuevo M¹, Bridger J², Chan P³, Cheng SY⁴, Crooijmans RP⁵, Ellis M⁶, Fowler KE⁴, Gillot D⁷, Griffin DK⁴, Handyside AH⁷, Hall AD⁴, Hann M⁸, Harton GL⁹, Hoffman D¹, Ioannou D⁸, Ko E¹⁰, Langley EJ⁴, Lau P⁸, Martin RH^{8,10}, Maxson W¹, Millan N⁸, Ory S¹, Rademaker A¹¹, Robaire B³, Robertson LB⁴, Skinner BM¹², Simpson JL⁸, Thornhill AR^{4,7} and, Volker M⁴

¹IVF Florida Reproductive Associates; ²Brunel University; ³McGill University; ⁴University of Kent; ⁵Wageningen University; ⁶Digital Scientific; ⁷London Bridge Fertility Center; ⁸Florida International University; ⁹BlueGnome; ¹⁰University of Calgary; ¹¹Northwestern University and, ¹²University of Cambridge.

Graduate Advisors and Postdoctoral Sponsors

University of Kent: Darren Griffin; University of Calgary: Renee Martin

Thesis Advisor and Postgraduate-Scholar Sponsor

Florida International University: Kandukuri L, Ioannou D