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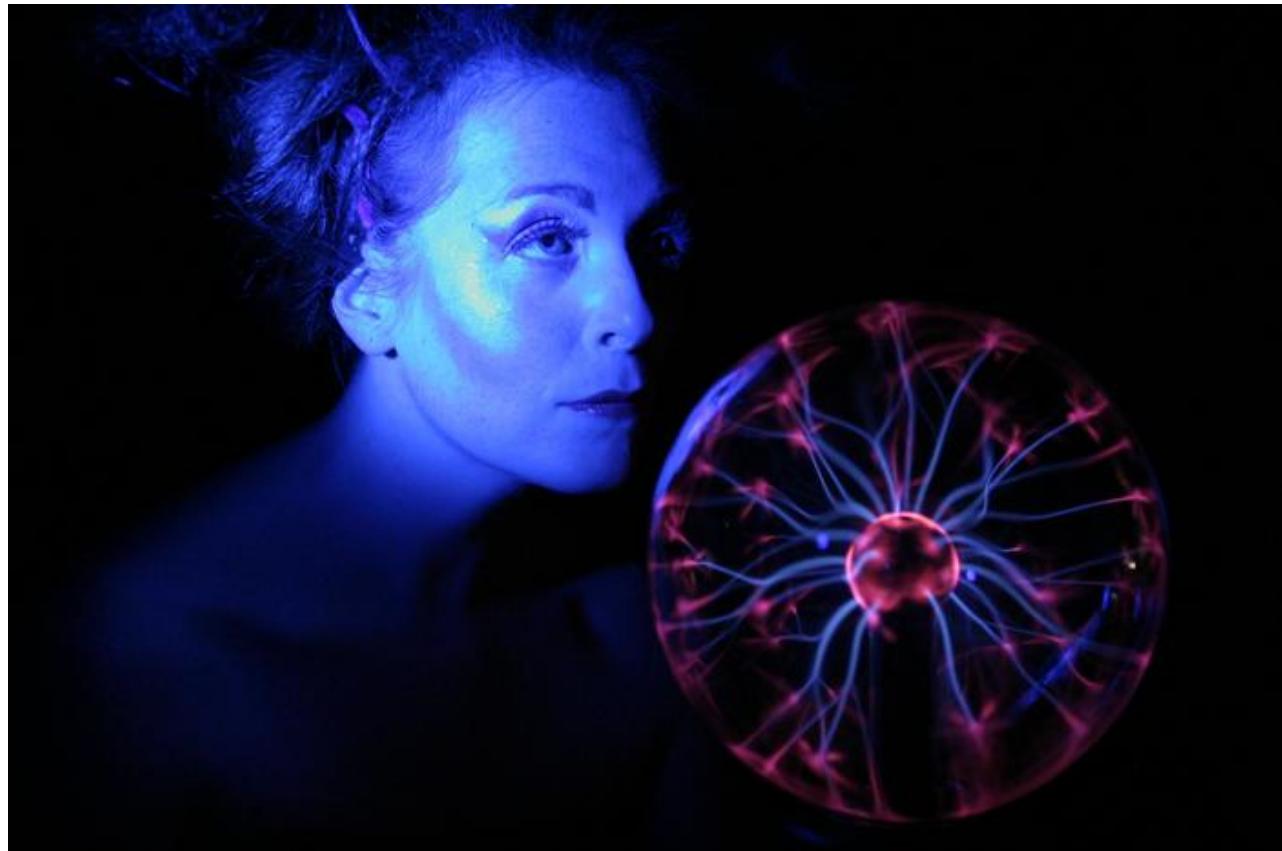
## Hearing your genes evolve

As Leverhulme Artist in Residence at the MRC Laboratory of Molecular Biology in Cambridge from November 2011, I will be working with computational biologist Dr Sarah Teichmann creating a new work for string quartet called '**Hearing your Genes Evolve**'.

My response to contemporary debate about society, culture, science and ethics forms the backbone of my work. I welcome the chance to collaborate with Dr Teichmann at the MRC Laboratory, a stimulating environment that has historically been at the edge of scientific discovery especially in the field of genetics. I look forward to interpreting results from the most up-to-date findings in a fresh and provocative way through my music.

Discussion about developments in DNA, and its implications on inherited genetic traits with reference to future health, is hugely topical. We are constantly wanting to know about what makes up our genetic profiles. The science is often difficult to understand; therefore a central aim of my work is to make the science more meaningful to a wider audience. Debate about genetics has particular relevance for me; in 2006 my son was born with Trisomy 21: Down Syndrome. I am sure that my research will give me a clearer understanding of the science behind his genetic profile.

Dr Teichmann and I have been discussing the potential of using music to help non-scientists understand the principles behind the DNA code. Finding ways of translating scientific data into lay terms encourages broader engagement with science. Through music, I aim to devise a code that interprets the scientific principles employed in evaluating the computational data of four individual DNA profiles, from the '1000 Genomes' project.



Deirdre Gribbin in her performance piece *Venus Blazing* (Photo Nobby Clark).

A musical system will represent the inherent four nitrogenous bases associated with DNA. These four are shortened to ATC and G, and carry codes that control what cells are made up of and what they do. I will match each base to one instrument in the string quartet. For example the first violin will be linked to the 'A' component and will be based on an A tonality. There are many areas of overlap between principles for development in both the genetic programme and invention in musical language to do with how patterns develop and affect others.

From coloured genetic printouts, I will interpret mutations as blocks in the music. These mutations happen as ideas of substitution, where one letter of ATGC substitutes for another. So a sudden switch from one instrument to playing the music of another emulates this mutation process. I am eager to learn from my science colleagues and I anticipate new dialogues and understandings about the music, which will be derived from the scientific data. I will be playing tunes and rhythms in the hallowed atmosphere of the MRC Laboratory in Cambridge and will welcome input from my science colleagues as I work. I look forward to discovering the unexpected and unplanned.

**Dr Deirdre Gribbin**

**MRC Laboratory of Molecular Biology**

Deirdre was awarded an [Artist in Residence](#) Grant in June 2011; £14,620 over 12 months.