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Microbiology

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Born in 1977 in London

Studied Mathematics, Statistics and Genetics at Trinity College Dublin

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### PROJECT

## Plasticity, Robustness and Adaptation in Dauer Formation in Nematodes

In this proposed Wiko fellowship I will study the dauer decision in *C. elegans* as an example of phenotypic plasticity. Specifically, in collaboration with Mark Viney and other members of the Adaptive Plasticity working group, I will develop a computational model of the dauer decision in *C. elegans*, to investigate three key questions:

- 1) Why do rates of dauer formation differ between different worm genotypes?
- 2) How does the network structure of the dauer pathway affect the phenotypic plasticity response?
- 3) Is the *C. elegans* dauer pathway fundamentally different in structure from pathways underlying programmed development?

### Recommended Reading

Viney, M. E., M. P. Gardner, J. A. Jackson (2003). "Variation in *Caenorhabditis* dauer larva formation." *Dev. Growth Differ.* 45: 389-396.

Park, D., A. Estevez, D. L. Riddle (2010). "Antagonistic Smad transcription factors control the dauer/non-dauer switch in *C. elegans*. *Development.*" 137: 477-485.

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### PUBLICATIONS FROM THE FELLOWS' LIBRARY

Coghlan, Avril (San Francisco, Calif., 2013)

Duplication and retention biases of essential and non-essential genes revealed by systematic knockdown analyses

<https://kxp.k10plus.de/DB=9.663/PPNSET?PPN=1043717188>