



genetics
healthcare
neurons
neuroscience
spinal cord

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The work of Dr. Lewis is important for developing treatments for nervous system diseases, disorders and tumors, as well as methods for facilitating the repair of particular nerves after injury or neuro-degeneration. Dr. Lewis specializes in identifying genes and patterning mechanisms that instruct spinal cord nerve cells (neurons) to develop into specialized cells. These neurons are critical for enabling and regulating movements, like walking and running. Dr. Lewis directs a research group that applies genetics, cell biology and developmental biology to investigate how the correct number and pattern of neurons forms in the vertebrate spinal cord, and how these neurons acquire their specific characteristics and functions. Dr. Lewis has been a Royal Society University Research Fellow at Cambridge University as well as a fellow of King's College, Cambridge. She also served on a five-year term as an elective committee member of the British Society of Developmental Biology.

Education:

1998 Ph.D. Genetics and Developmental Biology, University College, UK.

1997 M.A. with distinction, Women's Studies, Westminster University, UK

1993 B.A. (Hons) First Class, Natural Sciences, Cambridge University, UK

Recent Research Projects:

Identifying Transcription Factors Expressed by Ventral Spinal Cord Interneurons. National Institute of Neurological Disorders and Stroke.
PI: Lewis, K.

This study investigates how different types of nerve cells are made in a growing vertebrate embryo. It will identify important regulatory genes that determine the functional characteristics of distinct classes of nerve cells that normally regulate locomotion.

Determining the Transcription Factor Code that Specifies CiA interneurons. Medical Research Council, UK. PI: Lewis, K.

This study identified regulatory genes that specify the functional characteristics of a particular population of spinal cord nerve cells in zebrafish embryos called CiA interneurons or V1 cells.

Recent Scholarship:

England, S., M. F. Batista, J. K. Mich, J. K. Chen, and K. E. Lewis, **“Roles of hedgehog pathway components and retinoic acid signaling in specifying zebrafish ventral spinal cord neurons,”** *Development*, vol. 138, pp. 5121-5134, Dec. 2011.

Cerda, G., M. Hargrave, and K. E. Lewis, **“RNA profiling of FAC-sorted neurons from the developing zebrafish spinal cord,”** *Developmental Dynamics*, vol. 238, pp. 150-162, Jan. 2009.



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