



cell-signaling

disease resistance

fertility

genetic regulation

germline development

healthcare

RNA silencing

ELEANOR M. MAINE

Professor

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Dr. Maine has honed her extensive knowledge in genetic regulation of development and cell signaling over 30 years of study. As an internationally recognized researcher in germ line development, she uses a model organism, the nematode *Caenorhabditis elegans*, to understand animal development, including the mechanisms that maintain germ cell proliferation and regulate gamete formation. Dr. Maine's molecular and cell biology laboratory applies a variety of genetic, molecular, and cell biological approaches to study genetic and epigenetic mechanisms in the germline. Her work has applications in assessing fertility and resistance to diseases in animals and fungi. In 2005, she published a research study that was identified by the Faculty of 1000 as one of the most important in biology and medical research.

Education:

1984 Ph.D. Biology, Princeton University

1978 B.A. Biology, Wesleyan University

Recent Research Projects:

Germline Silencing of Unpaired Chromatin. National Institutes of Health. PI: Maine, E.

The goal of this project is to understand the molecular mechanisms that ensure the production of functional gametes and healthy offspring. It addresses questions related to fertility and resistance to disease and investigates processes that are required for formation of functional sperm and eggs.

Molecular and Genetic Analysis of Meiotic Silencing in *C. Elegans*. National Science Foundation. PI: Maine, E.

This project advanced the understanding of several areas of biology, including reproductive biology. It focused on understanding the molecular mechanisms that maintain germline integrity and ensure the production of functional gametes. Candidate gene approaches and genetic screening were used to identify critical regulatory proteins.

Recent Scholarship:

Van Wynsberghe, P.M. and E.M. Maine, “**Epigenetic control of germline development,**” in *Advances in Experimental Medicine and Biology*, T. Schedl, Ed., vol. 757, New York: Springer-Verlag, July 2012.

Fox, P.M., V.E. Vought, M. Hanazawa, M-H. Lee, E. M. Maine, and T. Schedl, “**Cyclin E/CDK-2 regulates proliferative cell fate and cell cycle progression in the *C. elegans* germline,**” *Development*, vol. 138, pp. 2223-2234, June 2011.



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