

Mae-Wan Ho: Geneticist, homeopathy supporter, evolution denier campaigning to scuttle GMO crops

Mae-Wan Ho (born 12 November 1941) born in Hong Kong; UK citizen, is a geneticist known for what her critics say are quack views on genetic engineering, vaccinations, homeopathy, evolution and other mainstream science topics. She is a co-founder and director of the Institute of Science in Society (ISIS)^[1], an [interest group](#) that campaigns against what it sees as unethical uses of biotechnology. Ho and the site she controls has posted strong opinion pieces on climate change, GMOs, homeopathy, traditional Chinese medicine, and water memory.

In reviewing the organization, David Colquhoun, pharmacologist at University College London, has accused ISIS of promoting pseudoscience, specifically criticizing Ho's belief in the efficacy of homeopathy. " [ISIS] combines some reasonable stuff about global warming with a lot of utter rubbish about homeopathy (mainly written by the Institute's director, Dr Mae-Wan Ho)." he [writes](#). ISIS is on the [Quackwatch](#) list of questionable organizations.

Ho has authored or co-authored a number of publications, including 10 books, including *The Rainbow and the Worm*, *the Physics of Organisms* (1993, 1998), *Genetic Engineering: Dream or Nightmare?* (1998, 1999), *Living with the Fluid Genome* (2003) and *Living Rainbow H₂O* (2012).

Genetic Engineering

Ho has expressed concerns about the spread of altered genes through horizontal gene transfer and that the experimental alteration of genetic structures may be out of control. One of her concerns is that the antibiotic resistant gene that was isolated from bacteria and used in some GM crops might cross back from plants by horizontal gene transfer to different species of bacteria, [because](#) "If this happened it would leave us unable to treat major illnesses like meningitis and *E coli*."

Her views were [published](#) in an opinion article based on a review of others' research. The arguments and conclusions of this article were heavily criticized by prominent plant scientists in an [article](#) in *Nature*, and the claims of the article were criticized in detail in a response that was published in the same journal. A review on the topic published in 2008 in the *Annual Review of Plant Biology* [stated](#), "These speculations have been extensively rebutted by the scientific community".

Ho, together with Joe Cummins of the University of Western Ontario, have argued that a sterility gene engineered into a crop could be transferred to other crops or wild relatives and that “This could severely compromise the agronomic performance of conventional crops and cause wild relatives to go extinct”. They argued that this process could also produce genetic instabilities, which might be “leading to catastrophic breakdown”, and [stated](#) that there are no data to assure that this has not happened or cannot happen. This concern contrasts with the reason why these sterile plants were developed, which was to prevent the transfer of genes to the environment by preventing any plants that are bred with or that receive these genes from reproducing. Indeed, any gene that caused sterility when transferred to a new species would be [eliminated by natural selection](#) and could not spread.

Ho has also argued that bacteria could acquire the bacterial gene barnase from transgenic plants. This gene kills any cell that expresses it and lacks barstar, the specific inhibitor of barnase activity. In a [blog](#) on ISIS entitled “Chronicle of An Ecological Disaster Foretold,” which was published in an ISIS newsletter, Ho speculated that if a bacterium acquired the barnase gene and survived, this could make the bacteria a more dangerous pathogen.

Evolution

Ho has claimed that evolution is pluralistic and non-Darwinian because there are many mechanisms that can produce variation in phenotypes independently of natural selection. Ho has advocated a form of Lamarckian evolution. She has been criticized by the scientific community for setting up straw man arguments in her criticism of natural selection and supporting discredited evolutionary theories.

Ho has been criticized for embracing pseudoscience in her [rejection](#) of mainstream neo-Darwinism. The paleontologist Philip Gingerich has noted that Ho’s evolutionary ideas are based on vitalistic thinking.

Education

Ho received a Ph.D. in Biochemistry in 1967 from Hong Kong University, was Postdoctoral Fellow in Biochemical Genetics, University of California, San Diego, from 1968 to 1972, Senior Research Fellow in Queen Elizabeth College, Lecturer in Genetics (from 1976) and Reader in Biology (from 1985) in the Open University, and since retiring in June 2000 Visiting Professor of Biophysics in Catania University, Sicily.

- Hong Kong University, B.S. Biology and Chemistry 1st Class 1964
- Hong Kong University, Ph.D. Biochemistry 1968

Affiliations

- 1994- Scientific Advisor, Third World Network
- 1999 Editorial Board, The Ecologist

- 1999- Director, Institute of Science in Society
- 2002- Editor and Art Director, Science in Society
- 2001- Roster of experts, Cartagena Biosafety Protocol

Publications

- Mae-Wan Ho. *Living Rainbow H₂O*, Singapore; River Edge, NJ: World Scientific, 2012. [ISBN 978-9814390897](#).
- Mae-Wan Ho. *The Rainbow and the Worm, the Physics of Organisms*, Singapore; River Edge, NJ: World Scientific, 1998. [ISBN 981-02-4813-X](#).
- Mae-Wan Ho. *Genetic engineering: dream or nightmare? Turning the tide on the brave new world of bad science and big business*, New York, NY: Continuum, 2000. [ISBN 0-8264-1257-2](#).
- Mae-Wan Ho. *Living with the fluid genome*, London, UK: Institute of Science in Society; Penang, Malaysia: Third World Network, 2003. [ISBN 0-9544923-0-7](#).
- Mae-Wan Ho, Sam Burcher, Rhea Gala and Vejko Velkovic. *Unraveling AIDS: the independent science and promising alternative therapies*, Ridgefield, CT: Vital Health Pub., 2005. [ISBN 1-890612-47-2](#).
- Mae- Wan Ho, Peter Saunders. *Beyond Neo-Darwinism: An Introduction to the New Evolutionary Paradigm*, London: Academic Press, 1984. [ISBN 978-0123500809](#)

ID specific organizations for which individual has worked, replace “organization” with the name and then describe role and relevant activities in this space

References

- 1 http://www.i-sis.org.uk/pdf/CV_MaeWanHo.pdf