



## The H5N1 Manuscript Redaction Controversy

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## The H5N1 Manuscript Redaction Controversy

Scientists are an argumentative bunch, and science is no stranger to controversy. Since the beginning of the scientific revolution, science has witnessed and engaged in great controversies, including heliocentrism, the theory of evolution, the N-ray affair, and most recently the debate over climate warming. Prior controversies were settled with additional scientific study, which provided convincing data for one faction or the other. Today scientists are engaged in a new type of controversy involving the benefits, debits, appropriateness, and wisdom of redacting experimental data from scientific manuscripts on the grounds that the information could be used for nefarious purposes. This controversy was triggered when a government advisory committee known as the National Science Advisory Board for Biosecurity (NSABB) examined two manuscripts describing genetic changes that enabled bird flu virus (H5N1) to become transmissible in mammals. The NSABB then advised the U.S. Department of Health and Human Services that the main conclusions of the study should be published but that much of the methodology and experimental data that would allow repetition of the experiments and/or the *de novo* synthesis of mammalian-transmissible H5N1 virus should be redacted (for the press statement, see <http://www.nih.gov/news/health/dec2011/od-20.htm>).

Unlike other contentious areas of human endeavor, such as religion, philosophy, and politics, science has historically been lucky in that it has always had an accepted mechanism for conflict resolution in the form of carrying out additional experimental work. However, the current H5N1 manuscript redaction controversy cannot be settled by additional experimentation, at least not in real time, because many of the issues involved in favoring or opposing redaction consist of differences in beliefs, principles, and judgment calls. The discussion is further constrained by ignorance and/or uncertainty on major scientific and medical questions regarding the relative value of, and danger posed by, the information to be redacted. For example, precise answers to such questions as to whether infectivity in ferrets translates to humans, the case/fatality ratios of H5N1 infection in humans, and the relative value of mutational information to public health agencies and terrorists are not yet available, and many of the arguments for or against publication are largely a matter of opinion, judgment, and conjecture. It is all but certain that the well-tried tools of experimental science will, in the future, provide additional information that informs the wisdom of the decisions taken today. However, that information is not at hand to affect the current actions, debate, and controversy. Hence, scientists find themselves in somewhat unfamiliar territory as both sides try to convince

their colleagues, and the public, of the wisdom of their positions by mixing hard science with nonscientific forms of argumentation, including belief-based arguments, positions of principle, and the art of politics and political persuasion.

In an attempt to inform the ongoing discussion, *mBio* has commissioned three views on the H5N1 redaction controversy, written by Keim, Racaniello, and Webster (1, 2, 3). Our goal in publishing these views is to provide a venue for differences of opinion that will inform the debate. We note that the overwhelming majority of, if not all, participants in this controversy are well-informed and well-meaning individuals who hope to help and protect both society and science by espousing and promoting their views. We believe that a healthy debate will lead to the best decisions and help avoid great mistakes. We are also fully aware that some aspects of the ongoing debate have echoes in past philosophical debates, since the issues in question are in essence questions of value, belief, judgment, and principle. Consequently, we urge comity, respect, civility, self-examination, consideration, kindness, and generosity as we all navigate through this uncharted territory. In that spirit, we encourage our readership to contribute to the debate by using the commenting feature at the end of the “full text” versions of the online articles.

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