## CODE OF ETHICS FOR THE LIFE SCIENCES

By Margaret Somerville and Ronald Atlas See *Science*, Vol 307, Issue 5717, 1881-1882, 25 March 2005

In order to prevent the life sciences from becoming the death sciences through bioterrorism or biowarfare, all persons and institutions engaged in all aspects of the life sciences must:

1. Work to ensure that their discoveries and knowledge first do no harm:

i) by refusing to engage in any research that is intended to facilitate, or there is a high probability of its being used to facilitate bioterrorism or biowarfare, both of which violate the fundamental moral values of humanity; and

ii) by complying with the prohibition of the Biological Weapons Convention to never, under any circumstances, knowingly or recklessly contribute to the development, production or acquisition of microbial or other biological agents or toxins, whatever their origin or method of production, of types or in quantities that cannot be justified on the basis of their being necessary for prophylactic, protective, therapeutic, or other peaceful purposes.

2. Work for the ethical and beneficent advancement, development and use of scientific knowledge.

3. Call to the attention of the public, or the appropriate persons or bodies, activities, including unethical research, that there are reasonable grounds to believe are likely to contribute to bioterrorism or biowarfare.

4. Take reasonable care to assure biosecurity by seeking to allow access to biological agents that could be used as biological weapons only to individuals who there are reasonable grounds to believe will not misuse them.

5. Seek to restrict the dissemination of dual use information and knowledge to those who need to know in cases where there are reasonable grounds to believe that there are serious risks that information or knowledge could be readily misused to inflict serious harm through bioterrorism or biowarfare.

6. Subject research activities to ethics and safety reviews and monitoring to establish their ethical acceptability:

i) to ensure that legitimate benefits are being sought and that they outweigh the risks and harms; and

ii) if human or animal subjects are involved, to ensure that such involvement is ethical and essential for carrying out highly important research.

7. Abide by laws and regulations that apply to the conduct of science unless to do so would be unethical, and recognize a responsibility to work through relevant societal institutions to change those laws and regulations that are in conflict with ethics.

8. Recognize all persons' rights of conscientious objection to participation in research that they consider ethically or morally objectionable and to refuse to participate without penalty.

9. Faithfully transmit the duties and obligations embodied in this code, and the ethical principles upon which it is based to all who are, or may become, engaged in the conduct of

science.