Dual-Use

- The potential to commit harm with science and technology developed for beneficial purposes
- Has been with us ever since humans first sharpened sticks or forged metal
- Concerns about dual-use research are perhaps the most immediate in biology
  - Self-replication (scale and scope of potential effects)
  - Direct route from research to consequences
- But other disciplines face, or will face, similar issues
Fortunately, we don’t really know.  But …

• Biological science and technology are becoming increasingly powerful and accessible.

• There are people and groups who profess the desire to kill on a mass scale.

• How sure can we be that no such individuals will ever seek to fulfill that ambition with biology?
But Why Worry About State-of-the-Art Research?

- Some research involves materials and organisms that can pose immediate dangers.
- Today’s cutting-edge research is tomorrow’s skilled craft and the day after’s commodity.
- People use the tools with which they are familiar. And an increasing number of people are becoming familiar with biology.
- Those with technical expertise are not immune to the forces that lead others to do harm.
Whose Responsibility Is It to Mitigate This Risk?

Possibilities include:

- Nobody’s – the risk is overblown
  - (See previous slides)
  - Governments and publics may not think so

- The risk is real, but the risk of government overregulation of science is worse
  - Perhaps governments are less well suited to act than others

- The risk is real, but it’s somebody else’s problem
Governance Options for Dual-Use Research

- Governance does not necessarily mean government or regulation
- “Hard” (regulatory) approaches are poorly suited to deal with dual-use research risks, which are
  - Science-intensive
  - Rapidly evolving
  - Subjective
  - Inherently international
The scientific community has “softer” tools that may be more appropriate, such as

- Norms and codes of conduct
- Peer review
- Oversight (of initiation and communication of research)
- Education
- Raising awareness

Therefore, involvement by scientific institutions, publications, societies, and leadership is critical

If overregulation is a danger, so is the risk of losing public trust