Must we have a BW arms race with ourselves?

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Contribution to final session of seminar series on The Biodefense Challenge: How Should the Life-Science Research Community Respond?
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What is the threat?

BWC aimed at countries.

Is the primary threat now bioterrorism?

-- Computer hackers produce viruses designed to exploit the vulnerabilities of software programs.

-- Will MoBio hackers produce viruses designed to exploit the weaknesses in our protective systems of antibiotics and vaccines?

-- Why have there been so few incidents of bioterrorism compared to computer hacking?

Just because it is possible, is it inevitable?
Jason group list of “living nightmares”

[“Living nightmares: biological threats enabled by molecular biology” by Steven Block in The new terror: Facing the threat of biological and chemical weapons, Drell, Sofaer and Wilson, eds, Hoover Institution Press, Stanford, 1999]

- Binary biological weapons (toxin plasmids kept separate)
- Designer genes created by molecular evolution (one has been shown to speed destruction of antibiotics x32,000)
- Offensive gene “therapy” with aerosolized viruses like AIDS
- Stealth viruses that would be infiltrated and later activated
- Converting animal into human diseases (artificial analogues of AIDS, Ebola, Marburg, hantavirus)
- Designer diseases to use human biology against itself (e.g. triggering programmed cell death)

There are plenty of possibilities to explore -- by would-be bioterrorists or would-be “threat assessors.”
Should we explore the possibilities for purposes of threat assessment?

Pro. We should discover possible new threats ("red team") before potential terrorists do. We can try to develop defenses against them.

Con. We could make our nightmares reality (like weaponized anthrax?).
Is there a better strategy?

Too many possible designer threats.
Need overlapping broad-spectrum defenses.
Requires mostly basic research -- which can be done mostly openly.
What is the future for this collaboration between Princeton’s mobio and security-policy communities?

Everyone has learned a lot and we have something to show:
-- Undergraduate BCW policy course (Tucker)
-- BW module in graduate ethics course
-- Paper? Susan Wright book?, Organizer’s summary of seminar series?

Future:
-- BW mobio-WWS policy task forces?
-- Mobio-WWS senior theses?
-- Another, more focused, seminar series?
-- New science-and-security faculty member working on biodefense issues?

Any future collaboration will need to be co-led by molecular biologists