# AFF

## Biotech

### 2AC --- Bans Fail

#### **Biotech in the military is inevitable.**

Malet ’11/15 [David; 11/13/15; Qualifications; "Captain America in International Relations: the Biotech Revolution in Military Affairs," <https://www-tandfonline-com.proxy.lib.umich.edu/doi/pdf/10.1080/14702436.2015.1113665?needAccess=true>, IC]

The Biotech Revolution in Military Affairs There have been numerous studies of the impacts of a wide array of emergent technologies by hegemonic actors or aspirants (For a preliminary list, see Jervis 1978, Levy 1984, Posen 1984, Shimshoni 1990, Arquilla and Ronfeldt 1997, Adams 1998, Murray and Millett 1998, Tannenwald 2008, Clarke and Knake 2010, Vogel 2012, Waltz and Sagan 2012, Carpenter 2013). However, there has been little examination of what the adoption of biotechnology by the leading military powers has meant or is likely to mean. The United States Office of Technology Assessment defines biotechnology as “any technique that uses a living organism, or parts of organisms, to make or modify products, to improve plants or animals, or to develop microorganisms for specific uses.” 320 D. Malet Other definitions include material patterned after living organisms but not necessarily using them as components (biomimetics). The conventional wisdom on biotechnology has held that coming decades will see Western nations increasingly vulnerable to ever-more sophisticated biological weapons attacks by non-state actors and rogue states. As recombinant genetic technology proliferates, a greater number of actors will possess genetic engineering capabilities that will enhance the lethality and durability of their biological weapons. Proponents of this perspective note that the overwhelming technological advantage in conventional forces enjoyed by the United States creates the incentive for competitors to develop effective asymmetric responses, and that the affordability, accessibility, and relatively easy preparation of biological weapons make them a likely means of doing so. In this view, the superior conventional capabilities of the US military not only fail to deter the proliferation of biological weapons, but encourage their development. Western states will face an increasing number of biologically armed opponents, and will remain on the defensive. The priority for military biotech research is therefore the development of protective equipment and vaccines, antibiotics and antivirals (Department of Defense 1998). However, this scenario requires the presumption that military applications of biotechnology will simply be a secular progression from the bacteriological warfare that has existed throughout history. Even when analysts have factored in the vast possibilities of genetic engineering, it has usually only been to the extent that they can breed deadlier pathogens, and that the growing availability of technology means that it may be used by a broader spectrum of actors. Conventional wisdom therefore predicts an unstable future for the international system, a Hobbesian world in which the weakest have power to kill the strongest. Rather than rogue states and non-state terrorists, it is the most powerful and resource-laden actors in the international system that will enjoy the advantages of “biological warfare” in the twenty-first century as they continuously integrate emergent biotechnologies into their military and national defense infrastructures and extend their dominance. This process will closely resemble the Revolution in Military Affairs (RMA) that occurred during the last 30 years of the twentieth century as the United States adapted its forces to exploit advances in new information technologies. The RMA, first described by the Soviet military intelligence in the 1970s and then witnessed by the world during the unexpectedly uneven 1991 Gulf War, occurred because the United States employed its competitive advantage in integrated computer systems. Rather than a single transformative device, like the atomic bomb, the steady accretion of advanced technologies augmenting existing equipment came to inform doctrine and strategies. The term asymmetric warfare is meant to describe efforts by weaker participants in military confrontations to frustrate the advantages of the stronger power by guerilla tactics or other unconventional methods not envisioned in force planning (Mack 1975). However, high technology also offers asymmetric advantages to the best-equipped actors, and American military planners sought to use the advances of the RMA to field forces that no state competitor could match. Their goals included “dominant maneuver” capability on the battlefield in bringing dispersed resources to bear against targets, “precision engagement” capability delivered by smart weapons, and “full dimension force protection” against all anticipated threats (Rizwan 2000). The ultimate expression of this vision would be a fighter comparable to a “Jedi knight” from the Star Wars films: a super-empowered solider, dressed in a protective stealth cloak and commanding an Defence Studies 321 armed companion drone, able to perform solo missions and to transmit data back to headquarters (Hundley and Gritton 1994). Coincidentally or not, this is precisely how Darth Maul was depicted in 1999’s The Phantom Menace. Military planners likewise foresee similar advantages conferred by developments across the various biotech fields. In coming decades, biotechnology is forecast to bring advances such as “rugged computers” made from biological components that will provide situational awareness to individual soldiers on the battlefield, camouflaged materials and lightweight armor incorporating the properties of living organisms, and ingested biological markers to distinguish friendlies, which would be of particular use in counterinsurgency (Purdue University 2001). From the perspective of those involved in force planning, the anticipated future is not one of vulnerability but unassailability.

### 2AC --- Impact

#### Any solvency deficit risks a global arms race.

Almosara 10 [Joel O.; 6/?/2010 ; The senior consultant to the Pacific Air Forces Surgeon General and commanders on occupational and environmental health programs and Deputy Director of the USAF Counterproliferation Center ; “BIOTECHNOLOGY: GENETICALLY ENGINEERED PATHOGENS,”  [https://media.defense.gov/2019/Apr/11/2002115517/-1/-1/0/53ALMOSARAMONO.PDF](file:///Users/Jayden/Library/Containers/com.microsoft.Word/Data/Library/Preferences/AutoRecovery/%20https:/media.defense.gov/2019/Apr/11/2002115517/-1/-1/0/53ALMOSARAMONO.PDF)]

The developmental trends in biological sciences indicate there is a plethora of possibilities concerning the study of microorganisms and its applicability in creating the next biological warfare agent. Both historical and recent events show the potentially devastating effect of using biological warfare agents and the terror they cause among the populace. Even more alarming is that technological advancements in the field of biological sciences will transform biological warfare agents into a new classification of genetically engineered pathogens eliciting catastrophic consequences. 2 Just as the twentieth century was the “century of chemistry and physics,” the twenty-first century will emerge as the “century of biology.” Nations, groups, and individuals that have the resources, capabilities, and knowledge to develop this technology in the year 2035 will have the global arms race advantage.

### 2AC --- Too Expensive

#### Funding extremely high totaling over 40 billion

BioSpace 22 [BioSpace Editorial Staff 9/21/2020 ; The Home of the Life Sciences Industry. Find biotech, clinical research and pharmaceutical jobs from thousands of employers; “Investment in Biopharma is Reaching an Inflection Point,” https://www.biospace.com/article/investment-in-biopharma-is-reaching-an-inflection-point-/]

Emerging biopharma companies are vital to the creation of many novel therapies and health technologies, and play an important role in the future of early-stage drug development. Little wonder U.S.-based biotech companies are the darling of private equity, venture capital companies and institutional money managers.

During the past two years, fundraising and investment in biotechnology have reached record levels. These factors have translated into elevated IPO activity and an overarching positive outlook.

Private investments have been led by healthtech and biopharma, and the first half of 2020 saw a general year-over-year increase in biotech investment. The surge was led by 26 financings of $100 million plus, totaling more than $5 billion. The first quarter of 2021, on the other hand, climbed to a record $23.4 billion in private investments, beating out the quarterly record set in Q3 2020 by 56%. This momentum continued into the second quarter of 2021 with total investment in healthtech and biopharma equalling $23.9 billion.

According to data from IQVIA, around 80% of the industry's drug development pipeline comes from emerging biopharma companies, which means small companies are the most influential in developing innovative new therapies. Emerging biopharma companies account for 84% of worldwide early-stage R&D and 73% of late-stage research.

In 2020, VC activity in biotech grew by 45%, bringing the global total to $36.6 billion USD, and the U.S. led the way.

### 2AC --- Rogue States

#### **Rogue states will use biotech to create super-soldiers.**

Malet ’11/15 [David; 11/13/15; Qualifications; "Captain America in International Relations: the Biotech Revolution in Military Affairs," <https://www-tandfonline-com.proxy.lib.umich.edu/doi/pdf/10.1080/14702436.2015.1113665?needAccess=true>, IC]

Biological weapons are typically associated with rogue states and terrorist groups; germ weapons used by weak actors against the strong. This article makes a contrary argument, that the emerging use of biotechnology by the United States, China, and other hegemonic powers is likely to afford them a new Revolution in Military Affairs (RMA), one at least as significant as the introduction of the information technology RMA that gave the United States a dominant edge over potential adversaries at the end of the Cold War. It examines recent developments and current R&D programs that call into question the rights of enemy combatants, civilian populations in target areas, and soldiers who will be physically augmented to pursue battlefield objectives. Examples include the Quikclot used to reduce fatalities in the Iraq War, which arguably prolonged public support for the war, and the Pentagon’s publicly detailed research across various programs to create super-soldiers akin to super-heroes. The real advances in biotech will likely only further retrench the major powers of the international system by conferring an asymmetric advantage far beyond the capacity of weaker actors to match.

## 5-G

### 2AC --- CP fails

#### 5G infighting causes economic nosedive – governmental disputes wreck solvency – only the plan solves

**Grossmann 22** [J. DAVID GROSSMAN, VP OF REGULATORY AFFAIRS, CONSUMER TECHNOLOGY ASSOCIATION (CTA)"US 5G leadership depends on ending government infighting," Light Reading, https://www.lightreading.com/regulatorypolitics/us-5g-leadership-depends-on-ending-government-infighting/a/d-id/776413] Blitz

From Wi-Fi and smartphones to telehealth, fitness wearables and more – wireless connectivity is a critical part of our daily lives. However, recent government infighting over spectrum use threatens the technology that so many Americans depend on. As the demand for faster and more reliable wireless connectivity continues to grow, it is time to reform our nation's spectrum policy to make sure that spectrum continues to benefit Americans. (See [After spending $117B, US carriers ask for even more 5G spectrum](https://www.lightreading.com/5g/after-spending-$117b-us-carriers-ask-for-even-more-5g-spectrum/d/d-id/776097)). Spectrum drives a large portion of consumer connectivity and technology and influences America's economy. A recent [Consumer Technology Association (CTA) study](https://cta.tech/Resources/Newsroom/Media-Releases/2022/January/Unlicensed-Spectrum-Generates-95-Billion-Per-Year) found that unlicensed spectrum generates $95.8 billion per year in incremental sales value, and there are billions more in economic benefits from licensed spectrum used by our nation's wireless providers. **DOT and FCC debris** Good spectrum policy can create jobs, spur innovation and grow GDP. Bad spectrum policy places US companies, federal agencies and American consumers at a disadvantage in a world where every country is competing to offer better technology and services. The US is risking the latter due to a lack of coordination between government agencies. For example, the recent auction of the C-band for 5G, which raised nearly $81 billion in revenue, was followed by objections from the Federal Aviation Administration (FAA). This is not the first time in recent memory that spectrum battles have erupted. There is an ongoing dispute over the repurposing of spectrum in the 5.9 GHz band between the Department of Transportation (DOT) and the Federal Communications Commission (FCC). Many more examples of bureaucratic infighting and dysfunction have littered the spectrum landscape. Sadly, these disputes are not just Beltway parlor games; they have real consequences for America's economy. American technology companies face an uncertain environment due to whether the federal government's decisions will be implemented. How can we ask companies to invest billions of dollars in a technology direction when the regulatory rug may be pulled out from under them at the last moment?

## Hybrid War

### 2AC --- Perm do both

#### Perm do both- Cooperating with EU and NATO against Russian Hybrid War tactics solves best.

**Clark 20** [Mason Clark, the Russia Team Lead and Research Analyst on the Russia and Ukraine portfolio at the Institute for the Study of War. His work focuses on Russian military adaptation and learning in Syria. His work has been cited by Task & Purpose, Defense One, the Kyiv Post, the New York Times, BBC, and others. He has briefed multiple senior military and civilian decision makers on Russian military development and the Kremlin’s global campaigns, September 2020, Institute For The Study of War, “Russian Hybrid Warfare Military Learning And The Future of War Series”, <http://www.understandingwar.org/sites/default/files/Russian%20Hybrid%20Warfare%20ISW%20Report%202020.pdf>, Pgs 9-10, JMH]

The United States should take several actions to support this revision of its strategy and approach to Russia.

• Analyze the Kremlin’s decisions within the Russian framework of hybrid war to understand and mitigate Russian lines of effort. Obfuscating the nature and purpose of Kremlin activities is a key objective of hybrid war, and US confusion about the term and the Russian approach to such conflicts hinders the development of effective counterstrategies.

• Confront Russian hybrid wars in their entirety as synthetic threats instead of confronting individual Russian lines of effort separately and partially.

• Counter the Kremlin globally as well as in Europe. Putin is not playing three-dimensional chess, but instead playing many games of checkers simultaneously. The US policy and military community should increase its analysis of the Kremlin’s hybrid wars outside Europe, including in Syria, Libya, and Venezuela while retaining necessary focus on Ukraine, Belarus, and the Baltic States.

• Pursue whole-of-government coordination of information and kinetic operations.

• Reinforce Western norms and institutions—key targets of Russian hybrid wars. The United States should not allow the Kremlin to normalize its malign behavior and worldview.

• Work to align the Russia policy of the United States and its allies. **The United States should particularly seek to standardize across NATO the red lines that would lead to responses to Russian actions.**

• Actively challenge Russian information campaigns. The Kremlin’s information campaign is its center of gravity in each hybrid war. The United States cannot win hybrid wars with Russia if it loses in the information space.

• Deprive Russian PMCs and proxy forces of their deniability. The United States and its allies must relentlessly work to expose the connections between these forces and the Kremlin and highlight that they are direct tools of Russian military policy to reduce the Kremlin’s freedom of action.

• Recognize and plan for the military requirements to confront hybrid threats. The United States should be prepared to confront Russian hybrid wars with the conventional forces that will be required and avoid establishing false red lines for the use of Western forces against Russian aggressions.

• **Recognize that Russia also aims to avoid major great power war. The US must of course continue to deter both nuclear and full-scale conventional war with Russi**a. But it must revise its strategy to recognize that Russia also seeks to avoid such conflicts while nevertheless accomplishing it goals.

• Shift its military posture to confront the global nature of the Kremlin threat.

• Enable deployed US forces to combat Russian hybrid wars with non-kinetic means. Conventional forces can act as a platform for additional cyber, civil-military relations, intelligence, technical, and special operations assets which are essential in hybrid wars.

The challenges presented by Russian hybrid war and preparations for the future of war are not insurmountable. **The West must not throw up its hands at the challenge of confronting an unfamiliar conception of the future of war. The Kremlin is optimizing for its expectations of the future of war, not ours, and the West must fully understand the Russian threat to successfully confront the Kremlin.**

## Norms

### 2AC --- CP fails

#### Norms-based approach leaves no one accountable – it is ambiguous and lacks enforcement.

MaČÁK 17[Kubo MaČÁK, Dr Kubo Mačák is a legal adviser at the International Committee of the Red Cross (ICRC). Prior to joining the ICRC in 2019, he worked as an Associate Professor of Public International Law at the University of Exeter in the United Kingdom. "From Cyber Norms to Cyber Rules: Re-engaging States as Law-makers," Cambridge University press, https://www-cambridge-org.proxy.lib.umich.edu/core/journals/leiden-journal-of-international-law/article/from-cyber-norms-to-cyber-rules-reengaging-states-as-lawmakers/63A45029B685C11BBD9512AC0459FAE5] Blitz

While the first two indicators relate to states’ reluctance to act in ways meaningful for the generation of new rules, the third concerns their actual conduct in relation to cyber governance. It would be inaccurate to claim that states have entirely given up on standard-setting. However, instead of interpreting or developing rules of international law, state representatives have generally sought refuge in the more ambiguous term ‘norms’. It is true that law and norms are ‘intimately intertwined’ concepts and that inter-state agreement on ‘norms’ may gradually influence the development of the law.[38](https://www-cambridge-org.proxy.lib.umich.edu/core/journals/leiden-journal-of-international-law/article/from-cyber-norms-to-cyber-rules-reengaging-states-as-lawmakers/63A45029B685C11BBD9512AC0459FAE5#fn38) Yet, a fundamental difference between the two is that a violation of a binding rule of international law gives rise to international legal responsibility. while the same cannot be said of non-legal norms regulating cyber conduct.

## Space

### 2AC --- China

#### US SpaceX operations would anger China

Jim Pollard, 5-10-2022, "China Fears US Will Use SpaceX to Bring Calamity to World," Asia Financial, <https://www.asiafinancial.com/china-fears-us-will-use-spacex-to-bring-calamity-to-world>

The Starlink internet service run by Elon Musk’s SpaceX may be used by the “hegemony-obsessed US” to dominate space and bring “chaos or calamity” to the world.

That’s according to a recent commentary published by China Military Online, an official website linked to China’s Central Military Commission, which is headed by President Xi Jinping.

It expressed alarm about the use of the Starlink service in Ukraine to interact with drones, and suggested that it may have already played a role in the conflict with Russia via big data and facial recognition technology.

Also on AF: China Already Outflanks US in AI, Says Ex-Pentagon Tech Chief

“SpaceX has decided to increase the number of Starlink satellites from 12,000 to 42,000 – the programme’s unchecked expansion and the company’s ambition to use it for military purposes should put the international community on high alert,” it said. “Clearly, the military applications of the Starlink program will give the US military a head-start on the future battlefield and become an `accomplice’ for the US to continue to dominate the space.”

The report said SpaceX launched 53 satellites last month and now has 2,400 satellites in a low-earth orbit.

Strong US Military Links

While Starlink claims to be a civilian program that provides high-speed Internet services, the commentary claimed it has a strong military background, citing launch sites built within the Vandenberg Air Force Base. The group has launched satellites from American airbases and cooperated with the military “many times,” it said.

Infographic on the commentary published by China Military Online regarding The Starlink internet service run by SpaceX

Three years ago SpaceX received funds from the US Air Force to test how well Starlink satellites can relay encrypted communication to military aircraft, it said.

In 2020, the US Army allegedly signed a deal to use Starlink’s broadband to transmit data, plus a $150-million contract to develop military satellites, and last year it was transmitting data to F-35A fighter jets at speeds “30 times faster than traditional connections,” the commentary added.

Starlink’s satellites could have reconnaissance, navigation and meteorological devices added to them to enhance the US military’s combat capability to boost remote sensing, communications, navigation and positioning, attack and collision, and space sheltering, the report said.

Impressed Pentagon

Pentagon officials were impressed last month by SpaceX’s swift efforts to block an electro-magnetic attack by Russia that aimed to jam its Starlink broadband satellite service and help people in Ukraine retain their link to the internet, according to a report by Defense News.

Elon Musk allegedly boasted that “Starlink was the only non-Russian communications system still working in some parts of Ukraine in the wake of the invasion.”

There have also been reports of Starlink aiding the Ukrainian military in precision strikes on Russian tanks and forces because its high data rates enable better links. Drones could also serve as relay units to transmit data.

China’s Starlink Concerns

The China Military Online report says Starlink is already a “space juggernaut” and a megaproject that could transform global communications and give birth to “a gigantic Starlink biosphere, and monopolize the future space application market.”

It cited experts who say that if SpaceX installs a few root servers in the space, “it can make Starlink the second independent global Internet, which will pose a serious challenge to all countries in defending their cyberspace sovereignty and protecting their information security.”

#### China and US won’t cooperate now – further tensions provide an opportunity for escalation

Bin Li, 5-9-2022, "Space Won’t Be Safe until the U.S. and China Can Cooperate," Scientific American, https://www.scientificamerican.com/article/space-wont-be-safe-until-the-u-s-and-china-can-cooperate1/

China is undeniably one of the world’s top players in space these days, with successful missions to the moon and Mars and a solar probe due to be launched soon. Its rise has spurred competition with the U.S.; “Watch the Chinese,” NASA Administrator Bill Nelson recently warned. Given the strategic value the two nations have placed on their space programs, and the political tension that already exists between the countries, the contest over achievements in space is likely to intensify.

Despite the tension, the U.S. and China must figure out a way to cooperate on some, if not all, issues in the use of space. The most critical area is the safety of space infrastructure, where a lack of communication could be damaging and possibly even deadly. This need was highlighted by the recent saga of a near miss between two of Elon Musk’s Starlink satellites and China’s in-progress crewed space station. Although the Starlink spacecraft are privately owned, the U.S. government is internationally responsible for their space activities under the 1967 Outer Space Treaty.

Yet, there are serious barriers to a tête-à-tête—including the fact that some kinds of cooperation are illegal. The Wolf Amendment prohibits NASA from using government funds to engage with the Chinese government and China-affiliated organizations. However, this legislation does not block all cooperative possibilities, such as exchanging orbit information about human-made space objects through agencies like the North American Aerospace Defense Command. In the case of the Starlink satellites, U.S. representatives said they had determined that the spacecraft posed no risk to the Chinese space station. China, however, disagreed, and adjusted the station’s orbit to be safe. Cases like this could be better handled in the future through direct communication.

Both nations will continue to rely on space infrastructure for civil, commercial and national security purposes. The U.S. has 2,944 satellites, more than half of the total number of operating satellites in the world. This means that it has the most to lose from satellite collisions and risks posed by space debris. China also has a large collection, along with plans to send significant numbers of satellites to low-Earth orbit in the next few years. The risks are growing from what the U.N. calls “congested, contested and competitive” space, and it suits both countries’ interests to undertake constructive dialogues on how to keep orbital passages safe.

But the path ahead may not be smooth. The U.S. has accused China of worsening the issue, notably during a 2007 Chinese antisatellite test that created more than 150,000 pieces of space debris. Because everything in orbit is moving so fast, a collision between a small bit of debris and a spacecraft could prove catastrophic. Yet, one year later, the U.S. shot down its own satellite, although this event created fewer and shorter-lived pieces of debris, because the intercept occurred at lower altitude so the pieces burned up more quickly in Earth’s atmosphere.

Despite the acrimony, the two sides appear to agree on some important legal rules applicable to space. For instance, in a recent white paper, China professes to use outer space “for peaceful purposes.” Although this claim is open to interpretation, similar language is also widely used in U.S. space policy documents and even the Space Force’s 2020 doctrine. The fact that there is some ambiguity to the term may be a good starting point for the two countries to embark on a dialogue about whether antisatellite testing, for instance, is a peaceful activity. Although defensive in nature and not an act of war, it can pose threats to others by creating more space debris.

China appears keen to be involved in the international rulemaking process for space under the framework of the United Nations, according to statements in the recent white paper. Realistically, China can achieve this goal only through open and constructive engagement with other stakeholder nations. Promisingly, in February, when asked about the danger posed by the Starlink satellites to the Chinese space station, a Chinese spokesperson expressed willingness to establish a long-term communication mechanism with the U.S. to protect the safety of its astronauts and space station.

But the continuing finger-pointing could hold both countries back. For instance, the U.S. and China recently exchanged diplomatic fire over a U.S. unilateral commitment to stop all antisatellite missile testing. Though the move could seriously reduce the future creation of space debris, the U.S. only did so while blaming Russia and China for their previous tests. Not surprisingly, in response China demanded that the U.S. “fully reflect upon its negative moves in the field of outer space.”

To make real progress, the two countries should adopt a “think big, start small” approach. Because there is a lack of mutual trust between the two sides at this stage, it would be unrealistic to expect an agreement on space safety issues as a whole. By tackling smaller problems, such as rules about communicating when a crewed space station is at risk of collision, the two sides may more easily find common interests and are more likely to work in a cooperative manner. Thus, they can establish mutual trust in this process and, over time, expand their cooperation to other spheres in space.