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[Policy Brief] A Bio-Future for the US-ROK Strategic Alliance

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This policy brief offers a concise summary and set of recommendations from a longer paper, featured in the Fall/Winter issue of KEI's flagship journal Korea Policy. The full paper can be found here and the entire Korea Policy issue here.

Executive Summary

For the United States and South Korea, aligning efforts in biotechnology and biomanufacturing within the strategic alliance will support shared goals for technological leadership, economic competitiveness, and supply chain resiliency. Although there are some constraints, there is also a multitude of opportunities for both countries to enhance cooperation in this critical technology sector to support mutual aims in supply chain security and strategic technology development amidst rising tensions between the United States and China.

Background

Against the backdrop of a rising China, the strategic alliance between the United States and South Korea, or the Republic of Korea (ROK), has expanded beyond traditional security concerns to now encompass security concerns related to emerging technologies, supply chains, and economic vulnerabilities in a new global comprehensive strategic alliance. As an emerging technology sector, biotechnology has been identified as an area of bilateral cooperation due to its important role in economic competitiveness, supply

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chain security, and technological innovation, especially in response to China's state-led advancements. As both countries navigate intensifying global competition, biotechnology has emerged as a critical frontier within the evolving strategic alliance, with potential impacts on healthcare, agriculture, and manufacturing.

Biotechnology, in particular, can support larger priorities within the US-South Korea bilateral relationship for de-risking supply chains and maintaining technological leadership against increasing pressure from China. Both the United States and South Korea share key vulnerabilities in biotechnology supply chains, especially with regard to active pharmaceutical ingredients (APIs) and biomanufacturing. Strengthening cooperation and leveraging the respective strengths of each country will support efforts to de-risk vulnerable supply chains. Increasing research, commercial, and investment ties between the United States and South Korea are bolstering the development of this critical technology sector between the two nations. Both countries possess strong innovation ecosystems that can be leveraged symbiotically to maintain economic and technological competitiveness against China's state-led advancements.

Although there is plenty of optimism for the global comprehensive strategic alliance between the United States and South Korea, there remain certain constraints that could limit bilateral cooperation. In South Korea, political gridlock following the opposition Democratic Party's parliamentary win could hinder policy alignment with President Yoon Suk-yeol's administration. In the United States, the inauguration of the Donald Trump administration could affect the continuity of US-South Korea cooperation in biotechnology. South Korea's precarious position between the United States and China may limit the nation's efforts to align more closely with the United States in critical technology development. In past instances, such as the 2017 THAAD deployment, China has leveraged economic retaliation to discourage South Korea's alignment with US security measures.

Economic and demographic constraints, such as South Korea's aging population and slow economic growth projections, could place domestic priorities in conflict with larger aims for bilateral cooperation between the United States and South Korea. Finally, there lies an inherent mismatch between the United States' aims for economic statecraft and technology security vis-à-vis China and its commitments to allies and partners. This tension between domestic economic security interests and foreign policy strategies may eventually come to challenge the US-ROK strategic alliance.

Policy Recommendations and Opportunities for Strengthened Cooperation

Looking forward, there are material steps policymakers can take to enhance the global comprehensive strategic alliance and provide the necessary counterbalance to China's ambitions in the biotechnology sector:

– **Expand Supply Chain Security Partnerships**: Joint efforts should focus on diversifying API production and securing critical biotechnology supply chains. South Korea's collaboration with the United States and India on API production capacity could help reduce dependencies on China. Moreover, enhancing biomanufacturing ties between the two nations will support ongoing US efforts to shift biotechnology supply chains away from Chinese contract development and manufacturing organizations (CDMOs).

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– **Strengthen Bilateral Ties in Agricultural Biotechnology**: To reduce regulatory friction, the United States should support South Korea's proposed changes to its Living Modified Organisms (LMO) Act, which would expedite the approval process for certain biotechnological products. Such harmonization would support mutual food security goals and economic gains in agricultural biotech.

– **Multilateral Engagements and Cooperation:** Beyond the US-ROK strategic alliance, the two nations have converging interests in supply chain security and technology protection that could be leveraged within larger multilateral forums, such as the Indo-Pacific Economic Framework and the Bio-5 Coalition.

Conclusion

The US-ROK strategic alliance has made significant strides in biotechnology cooperation. With targeted actions to fortify supply chain security, streamline regulatory frameworks, and support mutual aims in multilateral forums, the alliance can strengthen the respective biotechnology sectors of each nation and enhance resilience against external pressures, particularly from China. Continued commitment to collaboration in biotechnology will bolster economic, strategic, and military advantages for both nations.

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