

Enhancing Biosecurity with Advanced Analysis and Expertise



The White House Office of Science and Technology Policy (OSTP) has released a Framework on Nucleic Acid Synthesis Screening that requires any organization receiving U.S. federal funding to ensure that a biosecurity screening protocol is implemented before generating or purchasing synthetic nucleic acids. This initiative establishes a system that aims to prevent hazardous sequences from reaching illegitimate customers. However, we recognize that many synthetic sequence providers and customers may find themselves needing to quickly understand how to adhere to best practices in screening for sequences of concern for the first time.

Signature Science is a technological leader in developing cutting-edge tools for screening biological sequences. Our team of analysts has >25 years of

experience in functional sequence analysis, specializing in identifying and describing sequences that encode pathogenic or toxic products.

Our biosecurity and emerging threats service leverages a database of sequences of concern from over 200 pathogens, curated by expert canvassing of the scientific literature. Signature Science subject matter experts have manually condensed articles describing the activity of proteins involved in pathogenesis and toxicity into concise summaries. We have also developed and employed controlled vocabularies, including functions of sequences of concern (FunSoCs) and gene ontology (GO) terms to succinctly and thoroughly describe threat potential. Additionally, citations from the scientific literature ensure transparency and allow our assertions to be vetted by outside experts.

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Sequence Screening Services

Our services assist customers to screen synthetic sequences and determine potential pathogenic functions. Our approach goes beyond taxonomy and previous lists of biothreat agents to focus on specific sequences that encode molecules involved in host subversion from human pathogens. Using advanced data analysis techniques, we screen incoming samples for potential biosecurity concerns and report on their mechanisms of pathogenesis or toxicity in a standardized manner.

Services Include:

- Expert reports from nucleotide sequence screening as a service
- Third-party biosecurity software testing and evaluation
- Consulting services to setup a customized biosecurity screening framework
- Analytical method development and implementation
- Sequencing of synthetic nucleotides (BSL-2) with Illumina MiSeq, NextSeq, or ONT MinION instruments.
- Customized datasets to challenge screening software



To tailor our services to your specific needs, we offer a free initial consultation. This session will assess your biosecurity screening requirements and determine the most appropriate services we can provide to enhance your biosecurity protocols.

For more information or to schedule a consultation, please contact:

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White House OSTP
Framework