Springing into action: The Wyss Institute introduces its new biosafety process

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Increasingly, scientists across the world and in the Unites States are reporting new and groundbreaking innovations in biotechnology with transformative implications in human health and environmental sustainability. Examples range from synthetically created, metabolically-engineered bacteria for the sustainable production of fuel to gene editing therapies that could one day help in the prevention and treatment of a large number of human diseases.

While these technologies are developed in laboratories, researchers are not only giving utmost consideration to the potential beneficial impacts but also to a new set of potential risks arising in synthetic biology research. It is crucial that scientists employ the highest level of safety measures within the laboratory to prevent any unintentional effects on human health or environment.

To that end, the Wyss Institute is developing a proactive biosafety process to review all proposed biotechnology research and manage potential risks pre-emptively, thereby ensuring the appropriate controls are in place throughout all experiments. Intended for use now and in the future, the Institute's working model is wide enough in scope to accommodate and prepare for future novel technologies.

The Wyss Institute's biosafety model outlines the overall process involved in risk management, providing a plan for how risks can be identified and controlled prior to and during experiments happening in Wyss Institute laboratories.

What's more, another key component of the Institute's model is to review and continually share information with institutional oversight and federal regulatory partners. A dynamic model of review and control such as this allows for biosafety practices to evolve alongside the science, and ensures all necessary approvals are in place for the research to occurring.

The Wyss Institute is making its current process and its working documents available to the public to encourage discussion and further development of proactive measures. The Institute's scientists hope these resources will be helpful to other laboratories in the United States and worldwide as they develop their own strategies for risk management of emerging biotechnologies.

"All of us in the scientific community need to be vigilant, and to continue to refine and further shape processes for ensuring safety for our staff and the world at large as new technological capabilities emerge," said Wyss Institute Founding Director Donald Ingber, M.D. Ph.D., who is also the Judah Folkman Professor of Vascular Biology at Harvard Medical School and Boston Children's Hospital and Professor of Bioengineering at Harvard School of Engineering and Applied Science. "Proactive risk management will not only protect these technologies from having unintended ecological and environmental consequences, but will also ensure that they are used for their intended uses—to improve human health and the well-being of our planet."

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