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July 1, 2020

New Report Identifies Paths to Pandemic Resilience

- **First Findings Report summarizes collective intelligence view of 180 global science, healthcare and policy experts**
- **Data from sewage, genomic analysis, internet searches and mobile phones can provide early-warning signs of disease spread, according to report**
- **Global clinical trial protocols and privacy-protected digital contact tracing also ranked among top solutions**

Burlington, Massachusetts, July 1, 2020 – A new [report](#) details potential paths to solutions to overcoming the global Covid-19 crisis and ways to prepare for or even prevent a future pandemic.

“There is a tremendous need for a common set of scientific facts about the virus and reliable, verified data,” said Udit Batra, CEO, MilliporeSigma. “We are aiming to establish a common baseline of agreed priorities upon which we can engage the wider scientific and innovation community to continue to build collaborative solutions to pandemics like this one.”

MilliporeSigma, alongside [Massachusetts Institute of Technology \(MIT\)’s Center for Collective Intelligence \(CCI\)](#) and [MIT Media Lab’s Community Biotechnology Initiative \(CBI\)](#), released the results of a three-week collective intelligence exercise that concluded earlier this month. More than 180 science, healthcare and policy experts from around the world (referred to as the “Supermind,” a term used in collective intelligence to describe a powerful combination of individual minds) collaborated to develop solutions to address the current pandemic and develop



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pandemic resiliency. Their findings are now published in a First Findings [Report](#) on the Pandemic Response CoLab [website](#), operated by MIT's CCI.

The Supermind report concludes that the following should be done:

- Look at sewage, genomes, human voices and digital signatures from the Internet and other devices for early-warning signs of disease spread.
- Include and empower marginalized and vulnerable communities to make health equity possible, ensuring representation of minority groups in clinical trials.
- Create resilient supply chains.
- Consider digital contact tracing with privacy protections for pandemic suppression.
- Safely accelerate therapy and vaccine clinical trials.
- Build trust between the public, government and scientists so that scientific facts can be communicated and policies can be better adopted.

"From a contact tracing perspective, we need to unlock a way to use digital technology that protects privacy and is acceptable to all," said Patrick Schneider, chairman of the Life Science Innovation Board at MilliporeSigma. "The Supermind group uncovered many ways to do this."

David Sun Kong, director of MIT Media Lab's CBI, said one of the biggest learnings during the Supermind problem-solving activity was the alignment among the experts that there are many mitigation strategies that could make a significant impact in controlling the pandemic even without a vaccine.

"If we could get the public to consistently and strongly apply even one of these mitigations, from wearing face coverings to having ubiquitous testing to enabling digital contact tracing, we could make significant progress," Dr. Sun Kong said. "Sewers are an interesting place you can monitor to get as much as a seven-day lead time of when an outbreak might happen. If you understand what the genomic viral content is, you can have a baseline and any perturbations could be the early-warning sign of a brand new threat."

The report's results will be activated as part of a larger open science collaboration, the [Pandemic Response CoLab](#), operated by MIT's CCI and CBI. This platform will crowd-source promising solutions in each of the identified domains so that the global scientific and innovation community can continue the work to identify key problems related to Covid-19, propose solutions and recruit the people and resources needed

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to progress from idea to action. The first challenges on face mask innovations are live on the CoLab website now. Anyone is eligible to join and propose ideas. The most promising ideas will receive recognition and mentorship support calls.

A portal of predictive modelling tools and scientific facts, powered by MilliporeSigma's bioinformatics team, is available at www.pandemicresponsetdata.org.

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About the MIT Center for Collective Intelligence

The MIT Center for Collective Intelligence brings together faculty from across MIT to conduct research on how new communications technologies are changing the way people work together. This first-of-its-kind research effort draws on the strengths of many diverse organizations across the Institute including the MIT Media Lab, the Computer Science and Artificial Intelligence Laboratory, the Department of Brain and Cognitive Sciences, and the MIT Sloan School of Management. For more information, visit <https://cci.mit.edu/>.

About the MIT Media Lab Community Biotechnology Initiative

The MIT Community Biotechnology Initiative (CBI) of the MIT Media Lab develops tools and technologies to enable the broadest possible participation in biotechnology. Projects include the creation of low-cost enabling hardware, infrastructure for sharing, and new interfaces for artistic expression with biology. For more information, visit <https://www.media.mit.edu/groups/community-bio/overview/>.

About the Life Science business of Merck KGaA, Darmstadt, Germany

The Life Science business of Merck KGaA, Darmstadt, Germany, which operates as MilliporeSigma in the U.S. and Canada, has some 22,000 employees and 59 manufacturing sites worldwide, with a portfolio of more than 300,000 products focused on scientific discovery, biomanufacturing and testing services. Udit Batra is the global chief executive officer of MilliporeSigma.

Merck KGaA, Darmstadt, Germany completed its \$17 billion acquisition of [Sigma-Aldrich](#) in November 2015, creating a leader in the \$125 billion global life science industry.

Merck KGaA, Darmstadt, Germany, a leading science and technology company, operates across healthcare, life science and performance materials. Around 57,000 employees work to make a positive difference to millions of people's lives every day by creating more joyful and sustainable ways to live. From advancing gene-editing technologies and discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere. In 2019, Merck KGaA, Darmstadt, Germany generated sales of €12.2 billion in 66 countries.

The company holds the global rights to the name and trademark "Merck" internationally. The only exceptions are the United States and Canada, where the business sectors of Merck KGaA, Darmstadt, Germany operate as EMD Serono in healthcare, MilliporeSigma in life science, and EMD Performance Materials. Since its founding 1668, scientific exploration and responsible entrepreneurship have been key to the company's technological and scientific advances. To this day, the founding family remains the majority owner of the publicly listed company. For more information about Merck, KGaA, Darmstadt, Germany, visit www.emdgroup.com.