



Singapore Statement on Sequencing

June 2019

Recognizing that risks related to the spread of dangerous microorganisms in humans, plants, food, animals and environment, compounded by the growing threat of antimicrobial resistance (AMR), are a global concern.

- Recent Public health and One Health initiatives attempts to protect citizens from health risks posed by pathogenic microorganisms, which could cause as many as 18-19 million deaths annually including 10 million due to AMR by 2050 (more than present deaths from cancer);
- Novel developments in sequencing DNA from microorganisms is revolutionizing the detection and prevention of the spread of such microorganisms and AMR. Equal access and implementation of such new sequencing technology between countries can dramatically reduce the global burden of disease by enabling a novel, real-time surveillance of all animal and human diseases and food safety risks.
- Global sharing of sequencing results will allow for the early detection of emerging threat and rapid identification, investigation, and prevention of national, regional and global disease outbreaks.

Scientists, gathered at the 12th Meeting of the GMI (Global Microbial Identifier) in Singapore, urge all countries to consider the public, animal and plant health, food safety and economic benefits of introducing a global mechanism for the sharing and analysis of DNA sequences (www.globalmicrobialidentifier.org).

- The GMI initiative is a not-for-profit international consortium comprising scientists from over 55 countries collaborating and sharing sequencing data for microorganisms, enabling efficient global surveillance and a new understanding of the importance of microorganisms in general. Membership in GMI is entirely open and encouraged for everyone working in this field.
- GMI provides a framework for coordinating DNA data collection and analyses of microorganisms with the goal of open sharing of sequence data. GMI provides validation guidance for both the sequencing data collection and analyses, as well as capacity building efforts for developing countries
- In a fully realized global sequencing database (or interconnected databases), microorganisms can be rapidly characterized in context of their global diversity, controlling disease outbreaks, enacting food recalls, providing a resource for preventive controls, and tracking the spread of AMR.
- The use of sequencing methodologies revolutionizes our understanding and management of plant, animal, environmental, human health, and food safety. Optimal use is dependent on policies and the willingness and ability of countries to share genomic sequences across borders and in real-time.

Government and intergovernmental organizations must implement sequencing data sharing policies and mechanisms, ensuring equitable access and benefits to people worldwide, with the vision to improve global human health¹.

¹ Many countries are currently re-thinking laws and policies that address the management and conservation of biodiversity, as well as the protection of the public's health and the promotion of Open Science. GMI urges governments and intergovernmental organizations to use this window of opportunity to support and regulate global microbial DNA sequence data sharing.