**Twist Bioscience Response to the AHTEG Report**

Twist Bioscience fully supports the comprehensive and inclusive approach that the Ad Hoc Technical Expert Group (AHTEG) has taken in fulfilling its charge to evaluate the implications of synthetic biology on the three priorities of the Convention on Biological Diversity (CBD). The Group was given multiple mandates in order to fulfill its role, as outlined in the decision adopted by the Conference of Parties and published on October 17, 2014. In its report dated October 7, 2015, the AHTEG offered a series of conclusions and ways forward to address these mandates.

Perhaps the key mandate was to define synthetic biology in the context of CBD goals. In its report dated October 7, 2015, the AHTEG arrived at the following proposed definition: “synthetic biology is a further development and new dimension of modern biotechnology that combines science, technology and engineering to facilitate and accelerate the understanding, design, redesign, manufacture and/or modification of genetic materials, living organisms and biological systems”. Twist Bioscience finds this to be a functional and comprehensive definition that will apply to our activities for the foreseeable future. We also agree with the decision on a second mandate that living organisms developed using synthetic biology are similar to living modified organisms (LMOs), as defined in the Cartagena protocol.

We do support the specific inclusion of ‘modification of genetic materials’ in addition to ‘living organisms’ and ‘biological systems’ within the definition of synthetic biology. However, Twist Bioscience strongly urges the group to separate abiological (i.e. those cases in which the material is not derived from or used in a living system) use cases from this definition. Twist Bioscience believes that abiological use cases, for example the use of synthetic DNA for data storage, should not fall within the AHTEG definition of synthetic biology and should therefore be excluded from the Cartagena protocol.

The AHTEG also made several recommendations that would promote efforts to address synthetic biology as it relates to biological diversity in a coordinated manner, by tapping into existing CBD processes and those of the United Nations and other international organizations. These also included promoting capacity building and increased cooperation between Parties, governments and relevant organizations to assess the potential benefits and adverse effects of synthetic biology. The end goal of these efforts is to establish guidelines, communication, education and ethical considerations. In particular, the Group urged the CBD to promote the full engagement of local communities and indigenous peoples in activities relating to synthetic biology. Twist Bioscience is supportive of all efforts to assure the prudent and responsible use of synthetic biology internationally by engaging all parties that have a role or stake in assuring the safe use of this technology.

The Group’s recommendation to establish a process to monitor and assess the state of synthetic biology knowledge on a regular basis and review new information on the positive and negative impacts of synthetic biology resonates with the keen interest at Twist Bioscience to continually inform the public of developments in the field, through its web site and public outreach efforts.

We also support the Group’s recommendation to create or expand existing online platforms to share information on the positive and negative aspects of synthetic biology, using such tools as the CBD Biosafety Clearing House. Of particular interest to Twist Bioscience would be mechanisms for assuring that DNA sequences of concern known to pose a threat to biodiversity can be electronically collated by domain experts and made available for worldwide online access. Twist Bioscience customers would also benefit from the recommendation to promote the use of online tools to facilitate work on synthetic biology.

The Group also mentioned concern regarding the unequitable sharing of digital genetic information, as access can be gained to genetic information without necessarily having permission to use the sequence, or the organism from which it was derived. The CBD supports the Nagoya Protocol, which calls for enhancing legal certainty and transparency on procedures for access and benefit-sharing. Twist Bioscience has a distinct interest in the processes for assuring fair use and sharing of digital genetic information, and would be interested in working with the AHTEG, industry, and users of synthetic DNA to establish defined boundaries for these processes.

The AHTEG report articulated a common understanding that the term “components” refers to parts used in a synthetic biology process, including synthetic DNA. Twist Bioscience strongly supports the Group’s decision that such non-living components do not fall under the scope of the Cartagena Protocol on Biosafety.

Twist Bioscience is dedicated to promoting the proper use of synthetic biology, in order to both protect biodiversity and prevent the production and release of biohazards. As such, Twist Bioscience is an unequivocal supporter of the efforts of the Ad Hoc Technical Expert Group on Synthetic Biology.