

## NEWS BRIEFS

### Music of the spheres preserved in DNA

Celestial music, a mathematical concept, has a new genetic counterpart. This ancient philosophical conjecture that the universe has its own harmonies has been taken to a new level by encoding musical performance in DNA. Two archival music performances from the Montreux Jazz Festival, held annually in Lausanne, Switzerland, have been stored on strands of DNA and decoded without losing audio quality. The feat was planned and carried out by researchers at École Polytechnique Fédérale de Lausanne (EPFL), Twist Bioscience, Microsoft, and the University of Washington. The two songs—"Tutu," by Miles Davis, and "Smoke on the Water," by Deep Purple—were selected for their role in music history. The recordings were taken from UNESCO's Memory of the World archive, where cultural heritage music collections are preserved. This is the first time

DNA has been used as a long-term archival-quality music storage medium. The researchers accomplished the encoding by translating the binary code of digital language into the nucleotide bases adenine (A), cytosine (C), guanine (G), and thymine (T), such that 00 represents A, 10 represents C, 01 represents G, and 11 represents T. At EPFL's first-ever ArtTech forum in September 2017, the two songs were played after being decoded from the DNA. Organizers said that the demonstration shows that DNA storage can completely change the way we think about our relationship with data, memory, and time. Quincy Jones, world-renowned musician-producer said, "It absolutely makes my soul smile to know that EPFL, Twist Bioscience, and their partners are coming together to preserve the beauty and history of the Montreux Jazz Festival for our future generations, on DNA!" —Karyn Hede, News Editor



Alain Herzog, EPFL

### Navajo peoples may reverse course on genetic research ban

A series of discussions under way among researchers and tribal leaders of the Navajo Nation may end a moratorium on genetic research instituted in 2002. The policy change would coincide with an effort to improve the health of citizens living within its reservation in Arizona. As reported in *Nature* in October 2017, the policy revision is linked to the opening of the Navajo Nation's new oncology center in Tuba City, Arizona, in 2018. Genetic testing would be aimed at personalizing medicine for tribal members, according to Lynette Bonar, chief executive of the Tuba City Regional Health Care Corporation in Arizona. The Navajo Nation would maintain control over any projects and DNA samples collected. A medical ethics board held public hearings on tribal land to discuss the proposed change. In addition, in August 2017, Navajo Nation policy makers, researchers, and community members held a Tribal Data Sharing & Genetics Policy Development Workshop in Albuquerque, NM, to discuss the issue. The goal is to avoid the experiences of the Havasupai tribe, which sued Arizona State University over use of blood samples that were collected for diabetes research but allegedly were later used in other studies without the tribe's consent. The outcome of the current discussion and subsequent comprehensive policy guidelines could reverberate widely, as other Native American groups review their policies on genetic research. —Karyn Hede, News Editor



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