Press Release

Keio University

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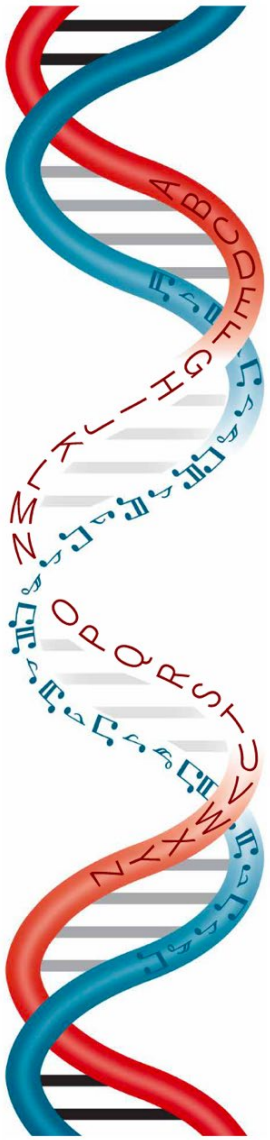
# Global study reveals that songs, languages, and genes tell different stories about human history

Dr. Sam Passmore and Hideo Daikoku of the Keio University Graduate School of Media and Governance and Associate Professor Patrick Savage of the Keio University Faculty of Environment and Information Studies, in collaboration with colleagues from around the world, have conducted the first global comparison of musical, linguistic, and genetic diversity. They developed the Global Jukebox (http://theglobaljukebox.org) – a public database of over 5,000 songs coded using a standardized "Cantometric" classification scheme – and compared it with global databases of genetic and linguistic diversity. Direct comparison of 121 societies with matched musical, linguistic, and genetic data revealed surprising differences in the global distribution of musical, linguistic, and genetic diversity, suggesting that music has its own story to tell about human history. The results were published in the open-access journal *Nature Communications* on May 10, 2024.



## 1. Main Points of Research

- Audio recordings and coded "Cantometric" data for thousands of traditional songs from around the world were analyzed and compared with genetic and linguistic data from 121 societies.
- Statistical analyses revealed that global patterns of similarity in song style are surprisingly independent from similarities among languages and genes.

## 2. Background of Research

Taylor Swift's Eras Tour might be the latest chapter in pop history, but looking back into our musical past could also hold important clues about our culture and who we are as humans, according to a study from Keio University.

Utilizing the Global Jukebox – an online database of over 5,000 songs – the study shows the unique capability of music to reveal new information about our cultural past and how songs sing to us over multiple generations.

According to lead author Dr. Sam Passmore, formerly a postdoctoral researcher at Keio University and now a postdoctoral research fellow at the ANU School of Culture, History and Language, songs, much like our genes and language, are often passed down from generation to generation. "Our parents sing songs to us, we sing those songs to our children, and them to theirs, creating a chain of inheritance and a preference for the musical styles we are accustomed to, such as particular rhythms or types of singing," he says.

"Our study shows that music is another domain that can tell us interesting stories and add new threads to our view of human history," Dr. Passmore notes. "In theory, anything reliably inherited between generations records something about the past."

"Sometimes we see the histories from different disciplines align, providing us with confidence about a series of events, and sometimes they do not align, identifying interesting divergence points in our past."

*(Image of genes, languages, and music CC-BY. Ashley Mastin/*Science Advances, *https://doi.org/10.1126/sciadv.abm2472)*

3. Content of Research and Results

Dr. Passmore, Associate Professor Savage, and their team utilized "Cantometric" descriptions – a method of measuring song styles, without using sheet music – to identify the structure of musical diversity. This illustrated that similarity found in musical style is bound by geographic distance, as well as containing historical signals.

"What we learnt is that musical history often diverges from language and genetic history and that it may be more aligned with other markers such as social organization," Dr. Passmore says.

"We can see there is a strong link between the expansion of Bantu languages and the call-and-response style of singing in Sub-Saharan Africa, as well as the chanted singing style of the Pacific, which has spread alongside the spread of Austronesian languages in the Pacific. Our findings tell us more about the role of music in human society – it's clear it's more complex than it might appear at first glance."

Senior author Dr. Patrick Savage from Keio University and the University of Auckland was surprised by the results. "My first research project found correlations between musical and genetic diversity in Taiwan, so I always thought we might find deeper correspondences throughout the world," he comments. "Turns out I was wrong! But that's how science works, and it's maybe more interesting that music has its own story to tell."

Commenting on the findings, co-corresponding author Dr. Anna Wood from the Association for Cultural Equity said: "The Global Jukebox contains the largest, most representative and sophisticated database of performing arts now available. I am beyond thrilled that it could enable this meticulous piece of research daring to explore seminal questions of cultural evolution."

This study was a collaboration between Keio University, ANU, the University of Auckland, the University of Zurich, Tel Aviv University, and the Association for Cultural Equity.

4. Special notes

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**Details of Journal Article**

**Title**: Global musical diversity is largely independent of linguistic and genetic histories

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