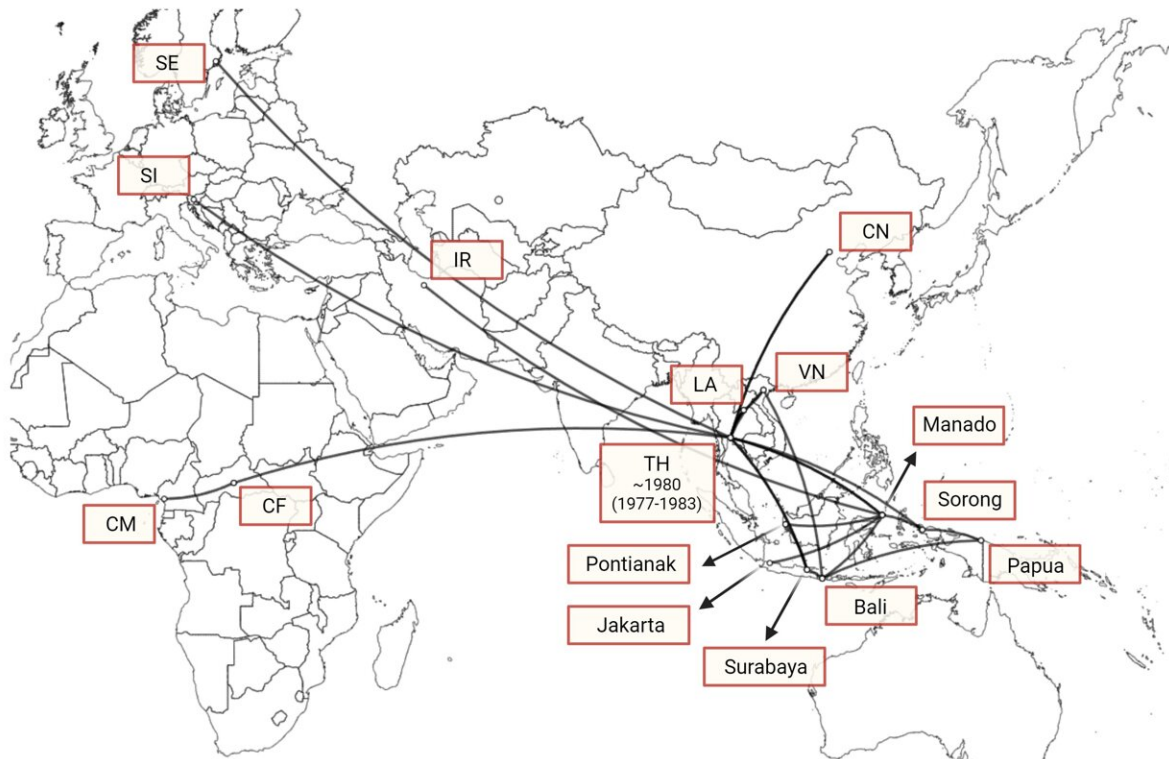


New research traces the spread of HIV in and from Indonesia

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According to the data of the Kobe University research team, the HIV substrain dominant in Southeast Asia was brought to Thailand around 1977, from where it started to spread through this part of the world. The virus was brought to Indonesia at least three different times, sometimes via different countries such as Vietnam and Laos. And while it was mostly Thai substrains that spread to other parts of the world, it was an Indonesian substrain that moved on to Iran. Credit: S.Q. Khairunisa et al.

The HIV variant dominant in Indonesia was introduced from Thailand over multiple events. A Kobe University study traces where it came from and how it spread from there, offering possible insights into the development of treatments against the disease.

The study appears in *Scientific Reports*.

HIV is the [virus](#) causing AIDS, but one of the things that makes it so difficult to treat is that there are many variants of it. Kobe University virologist Kameoka Masanori says, "The diversity is increasing every day and the prevalent virus strains differ from region to region around the world."

Knowing which variants of the virus are prevalent in a given region and how it spreads from one to another is relevant not only to better trace the epidemic, but also to ensure that treatments are deployed against those variants that are most likely to occur in any given region.

In Indonesia, the fourth-most populous country on Earth, only a third of the affected have access to anti-HIV drugs, and little is known about the circulating strains.

"Indonesia is recognized as one of the countries where the HIV/AIDS pandemic is still expanding. Kobe University has established a joint research center for infectious diseases at the Institute of Tropical Diseases at the Universitas Airlangga, Indonesia, and so we decided to decode the [viral genome](#) from blood samples of individuals infected with HIV-1 (out of the two main HIV types, the one causing the vast majority of AIDS cases worldwide) around the country to clarify the viral transmission trends," explains Kameoka.

The researchers' findings show that all of the analyzed viruses belonged to a strain called CRF01_AE, first identified in Thailand. But their

detailed analysis shows that from there, the virus was brought to Indonesia at least three different times, sometimes via different countries such as Vietnam and Laos. And while it was Thai substrains that spread to most of Southeast Asia and also to other parts of the world, it was an Indonesian substrain that moved on to Iran.

In the paper, the researchers write, "As a country with a high incidence of HIV-1 infection in Southeast Asia, Indonesia may contribute to the spread of HIV to other Asian countries."

With their data, the Kobe University research team could trace the timeline of the spread of the CRF01_AE strain. Having originally emerged in Africa, it probably was brought to Thailand around 1977, from where it started to spread through Southeast Asia.

It probably first entered Indonesia around 1980, then again via Laos around 1983 and via Vietnam around 1985. Only then, in 1985, it was recorded for the first time, in Thailand. According to the WHO, it has been the dominant strain of HIV in Southeast Asia since 1990, and has become the dominant strain in East Asia, including China and Japan, in the last decade.

Kameoka says, "I personally believe that it is important to constantly monitor and accumulate information on viral genome [genetic information](#) in endemic areas, as viruses causing infectious diseases can change their properties due to genetic variation. Such information could also be useful for control and countermeasures against [infectious diseases](#) by estimating epidemic routes and transmission trends."

More information: Spatial–temporal transmission dynamics of HIV-1 CRF01_AE in Indonesia, *Scientific Reports* (2024). [DOI: 10.1038/s41598-024-59820-y](https://doi.org/10.1038/s41598-024-59820-y)

Provided by Kobe University

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