

Chimpanzee study sheds light on natural history of HIV

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The study of chimpanzees in the west African nation of Cameroon by UAlbany researcher Katy Gonder may provide important clues in uncovering the genetic history of AIDS.

(PhysOrg.com) -- A University at Albany scientist's research in African chimpanzee populations may provide new insights into the natural history of simian immunodeficiency virus (SIVcpz), and the origins of HIV-AIDS.

In the cover article of the March 22nd issue of the [Proceedings of the National Academy of Sciences](#), research by UAlbany biologist Mary Katherine Gonder and colleagues examines genetic data from one of the largest samples of chimpanzees to date. The sample originated from the west African nation of Cameroon, home to two chimpanzee subspecies: the central African chimpanzee (*Pan troglodytes troglodytes*) and the

Nigeria-Cameroon chimpanzee (*P. t. ellioti*) which occupies the Gulf of Guinea biodiversity hotspot in Nigeria and Cameroon.

The study showed that the Nigeria-Cameroon chimpanzee constitutes a population exhibiting reproductive and genetic distinctiveness that clearly separates it from other chimpanzee subspecies.

Cameroon, said Gonder, is important in understanding the natural history of HIV-AIDS. Simian immunodeficiency virus found in central African chimpanzees from southern Cameroon is the likely progenitor of HIV-1 groups M and N. However, SIVcpz does not appear to occur naturally in the Nigeria-Cameroon chimpanzee, although the current sample of chimpanzees from this region tested to date remains small. The reasons the Nigeria-Cameroon chimpanzee is not naturally infected with SIVcpz remain unclear, but could be explained by a lack of breeding between Nigeria-Cameroon chimpanzees and central African chimpanzees, extinctions of local chimpanzee communities from a simian AIDS-like syndrome associated with SIVcpz infection, natural resistance to SIVcpz infection, or combinations of these factors.

The research has broad implications for many branches of science and conservation practice. The research found that central and east Africa chimpanzees share most of their genetic history, despite having been thought by scientists, for nearly 100 years, to be very different from each other. According to the research, central and east African chimpanzees have stopped exchanging genes only relatively recently.

"What is revealing," said Gonder, "is how different the Nigeria-Cameroon chimpanzee is from all other chimpanzees. This forced us to reexamine and to reinterpret how chimpanzee populations are structured in other regions of Africa. Overall, our study provides a new model for interpreting chimpanzee population structure, which may have implications for understanding why SIVcpz occurs at a high prevalence

in chimpanzees across equatorial Africa but is absent in Nigeria-Cameroon [chimpanzees](#)."

Provided by University at Albany

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