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Monkeypox virus in the wild: new insights into animal hosts and between species transmission

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Mpox is an emerging zoonosis caused by the monkeypox virus (MPXV) which is endemic in West and Central Africa. Most zoonotic MPXV spillovers cause isolated cases or short transmission chains, but lineages showing sustained human-to-human transmission have recently spread. Rodents are thought to be MPXV reservoirs, but conclusive evidence linking human mpox cases to these animals is lacking. The spectrum of potential animal hosts as well as zoonotic transmission routes of MPXV are unknown. Here, we present novel insights into MPXV in wildlife. We traced the origin of an mpox outbreak in wild sooty mangabeys in Tai National Park (TNP), Côte d'Ivoire, to the consumption of an MPXV-infected fire-footed rope squirrel, suggesting these squirrels are MPXV reservoirs. Infected mangabeys contaminated fruit with viable MPXV, and the detection of an MPXV-infected strictly herbivorous red colobus monkey suggests that environmental contamination may play a role in between-species transmission. We also identified orthopoxvirus-positive duikers, including an MPXV-infected Maxwell's duiker in TNP. Camera traps and diet metabarcoding revealed duikers as frequent scavengers, including on known MPXV hosts, which may expose them to MPXV. While duikers likely represent accidental MPXV hosts, they are frequently consumed by humans and other animals, and may therefore play a role in MPXV emergence. Indeed, duiker consumption may have led to an mpox outbreak in a wild chimpanzee community in TNP.

Keywords

Monkeypox virus, mpox, reservoir, wildlife

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167

Professional Status of the Speaker

Senior Scientist

Junior Scientist Status

No, I am not a Junior Scientist.

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