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The Role of Raccoons in Tick-Borne Disease Ecology

Inhalt

Understanding the contribution of wildlife species to the maintenance and spread of zoonotic pathogens is a key component of the One Health concept. However, the role of raccoons in the epidemiology of tick-borne encephalitis virus (TBEV) has remained unexplored. In this study, raccoons from Baden-Wuerttemberg, one of the main endemic TBE areas in Germany, were screened for TBEV infections using molecular and serological methods.

TBEV RNA and neutralizing antibodies were detected in a substantial proportion of the examined animals. Overall, 40.9% (38/93) of raccoons tested positive for TBEV as first evidence of TBEV infections in raccoons in Germany, with prevalences ranging from 20.0 –66.6%. Positive raccoons clustered in eastern Baden-Wuerttemberg, where 15 of 24 raccoons from district Ostalbkreis tested positive. A second hotspot was identified in the urban district of Heidelberg-Wieblingen, with 11 of 22 animals tested positive. In total, 18 individuals were positive by both PCR and virus neutralization assay.

Given their high tick infestation rates, wide-ranging movements and increasing adaptation to urban environments, raccoons may represent an epidemiologically relevant bridge linking wildlife reservoirs, tick populations, domestic animals and humans. Our findings highlight the importance of including invasive wildlife species in TBEV surveillance and the need for a One Health approach to better understand pathogen circulation at the human–animal–environment interface

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TBE, TBEV, Raccoon, Ticks

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No, I am not a Junior Scientist.

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