

**Spread, circulation and predominance of Chikungunya Virus East/Central/South African Genotype in Northeast and Southeast Brazil**

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## Letter

Two recent researches described the spread of East/Central/South African (ECSA) lineage of chikungunya virus (CHIKV) in the Northeastern and Southeastern Brazil (Charlys da Costa et al. 2017, Cunha et al. 2017). Initial studies in Northern Brazil, as observed in Caribbean, identified the Asian as the circulating lineage of the chikungunya. However, da Charlys da Costa et al. and Cunha et al. reported the exclusive occurrence of ECSA in two different Brazilian regions: Northeast as well as in Rio de Janeiro State (Charlys da Costa et al. 2017, Cunha et al. 2017), suggesting that the ECSA is the predominant lineage in highly populated Brazilian areas. Despite the well-described vector competence of *Aedes* mosquitoes for CHIKV transmission, *Aedes (Stegomyia) albopictus* seems to have a greater competence for transmission of ECSA lineage compared to the Asian lineage (Vega-Rúa et al. 2015), particularly when variable temperatures mimicking daily fluctuations of temperate climate (Vega-Rúa et al. 2015). This statement is consistent with the fact that *A. albopictus* has not been denounced as a vector of large outbreaks of chikungunya caused by the Asian genotype. This invasive species have capability of cold-tolerant diapausing eggs, it is paramount to establishment in temperate areas (Mitchell 1995) and new regions are invaded each year (Kraemer et al. 2015). The predominance of the ECSA lineage in Brazil represents a potential risk of CHIKV dispersion to areas where *Ae. albopictus* has a broader distribution, particularly in temperate climates, including United States and Europe (Kraemer et al. 2015), territories with intense commercial and touristic relationship with Brazil. Furthermore, the predominance of ECSA in Brazil can contribute to a better comprehension of the current distinct epidemiological scenarios between Caribbean -

where explosive epidemics occurred with *Aedes(Stegomyia) aegypti* and Asian lineage predominated - and Brazil - with an apparent slower dispersion of CHIKV, where *Ae.aegypti* predominate but ECSA was prevalent lineage. Both studies highlighted the importance of virological surveillance for analysis of current epidemiological scenarios and prediction of potential patterns of spreading of arboviral diseases, locally and worldwide.

## References

harlys da Costa A, Thézé J, Komninakis SCV, Sanz-Duro RL, Felinto MRL, Moura LCC, Barroso IM de O, Santos LEC, Nunes MA de L, Moura AA, Lourenço J, Deng X, Delwart EL, Guimarães MR dos AS, Pybus OG, Sabino EC, Faria NR 2017. Spread of Chikungunya Virus East/Central/South African Genotype in Northeast Brazil. *Emerg. Infect. Dis.* 23: 1742–1744.

Cunha MS, Cruz NVG, Schnellrath LC, Medaglia MLG, Casotto ME, Albano RM, Costa LJ, Damaso CR 2017. Autochthonous Transmission of East/Central/South African Genotype Chikungunya Virus, Brazil. *Emerg. Infect. Dis.* 23: 1737–1739.

Kraemer MU, Sinka ME, Duda KA, Mylne AQ, Shearer FM, Barker CM, Moore CG, Carvalho RG, Coelho GE, Bortel W Van, Hendrickx G, Schaffner F, Elyazar IR, Teng H-J, Brady OJ, Messina JP, Pigott DM, Scott TW, Smith DL, Wint GW, Golding N, Hay SI 2015. The global distribution of the arbovirus vectors *Aedes aegypti* and *Ae. albopictus*. *Elife* 4:

e08347.

Mitchell CJ 1995. Geographic spread of *Aedes albopictus* and potential for involvement in arbovirus cycles in the Mediterranean basin. *J. Vector Ecol.* 20: 44–58.

Vega-Rúa A, Lourenço-de-Oliveira R, Mousson L, Vazeille M, Fuchs S, Yébakima A, Gustave J, Girod R, Dusfour I, Leparç-Goffart I, Vanlandingham DL, Huang Y-JS, Lounibos LP, Mohamed Ali S, Nougairède A, Lamballerie X de, Failloux A-B 2015. Chikungunya Virus Transmission Potential by Local *Aedes* Mosquitoes in the Americas and Europe. *PLoS Negl. Trop. Dis.* 9: e0003780.