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To: Editor PNAS

Montpellier, January 31st, 2023

Dear Editor,

Please find our manuscript entitled “***Origin of New World monkeys increasingly puzzling: an eosimiid primate of South Asian affinities in the Paleogene of South America***” that we wish to submit (Direct Submission) as a Research Report to *PNAS*.

When and how ancestors of New World monkeys (platyrrhine primates) arrived in South America represent one of the most attractive and challenging topics in mammal evolution. Such fundamental macroevolutionary and paleobiogeographic issues have long remained unanswered due to a lack of fossil record, especially from Amazonia whose rainforests shelter nowadays the most diversified primate communities. Recent field efforts in the rainforests of Western Amazonia have unearthed some of the first representatives of anthropoid primates and hystricognathous rodents of South America. Despite a weak fossil record, limited to a few dental remains, we have to admit that two distinct anthropoid primate clades of African origin colonized South America near the Eocene/Oligocene transition (*ca.* 34 Ma).

In this manuscript, we report the discovery of a new fossil primate from Brazilian Amazonia that, surprisingly, points to a third clade involved in the Paleogene colonization of South America by primates. This discovery provides increasingly puzzling insights into the origin and historical biogeography of New World monkeys, as the new taxon we describe has strong affinities with stem anthropoid primates not of African but of South Asian origin!

This discovery sheds new light on some of the life-history traits of these pioneer lineages that invaded South America (very small bodied-size and insectivory/frugivory), which would have increased the chances of survival on a natural floating island during this extraordinary over-water trip to South America from Africa. Our divergence time estimates indicate that the transatlantic dispersal(s) could have occurred during the intense flooding events associated to the late middle Eocene climatic optimum (*ca.* 40.5 Ma) in Western Africa.

We think this article is appropriate for publication in *PNAS* because this discovery provides unexpected and challenging new data regarding the origin and historical biogeography of New World monkeys, especially the pattern and timing of their early dispersal from Africa to South America. These results are unexpected, unprecedented and contribute in many aspects to the most hotly debated issues about platyrrhine origin. This discovery will undoubtedly have a major impact on a wide community of scientists, including primatologists, molecular biologists, phylogeneticists and biogeographers.

We hope that you will be interested in our work and we look forward to hearing from you soon.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Laurent Marivaux', with a long horizontal flourish extending to the right.

Dr. Laurent MARIVAUX, on behalf of coauthors