

IN THEIR GENES: GENETIC POLYMORPHISM IN THE SEROTONIN TRANSPORTER PROMOTER REGION AND ECOLOGICAL SUCCESS IN MACAQUES

S. Chakraborty^{1,2}, D. Chakraborty^{1,2,3}, U. Ramakrishnan³, A. Sinha^{1,2}

¹*National Institute of Advanced Studies, Bangalore, India*, ²*Nature Conservation Foundation, Mysore, India*,
³*National Centre for Biological Sciences, Bangalore, India*

Presenter's Email: mail.subhankarc@gmail.com

A particular sequence length polymorphism in the serotonin transporter promoter region (5-HTTLPR) is known to influence individual behavioural traits and cognitive abilities in humans and rhesus macaques. Macaques have been classified into four continuous grades on the basis of their behavioural attributes, ranging from highly hierarchical and nepotistic species to the most egalitarian and tolerant ones. An earlier, comparative study of several species that spanned these grades revealed only rhesus macaques to be polymorphic at the 5-HTTLPR and concluded that the polymorphism was responsible for their despotic and aggressive behaviour. We studied wild populations of three other species and found that the egalitarian and tolerant bonnet and Arunachal macaques are also polymorphic while liontailed macaques, although belonging to the same grade, are monomorphic. We thus reject a role for this particular polymorphism in interspecific behavioural variability and suggest that polymorphic species, such as rhesus and bonnet macaques, exhibit higher intraspecific variability in individual behavioural traits that may have imparted to them relatively greater ecological success. We hypothesise also that such a polymorphism may not have spread in species such as the liontailed and Arunachal macaques, which are respectively restricted to a narrow, homogeneous ecological regime or consist of populations completely isolated by a mountainous topography, without much opportunity to exploit their potential behavioural variability to increase their geographical range further.

Keywords: 5-HTTLPR, intraspecific variation, behavioural flexibility, behavioural genetics