

# The prevalence of Di<sup>a</sup>, Mi<sup>a</sup>, and Mur antigens among Malaysians and Indians

Sir,

Low-incidence red cell antigens can be defined as those which are known to occur in <1% of individuals in most populations. The Di<sup>a</sup> antigen of Diego blood group system has a low incidence among Caucasians but occurs commonly among Asians of Mongoloid origin.<sup>[1]</sup> Anti-Di<sup>a</sup> has been known to cause hemolytic disease of newborn and delayed hemolytic transfusion reactions. The Mi<sup>a</sup> and Mur are low frequency antigens belonging to the Miltenberger subsystem of MNSs blood group system. Incidence of anti-Mi<sup>a</sup> and Mur antibodies has been mostly reported among Chinese population, and they are implicated in hemolytic disease of fetus and newborn. The present report gives the prevalence of Di<sup>a</sup> antigen, Mi<sup>a</sup>, and Mur antigens among voluntary blood donors of Malaysia and India.

We conducted a prospective observational study over a period of 7 months (August 2018 to February 2019) at department to transfusion medicine attached to a tertiary care hospital. We screened the blood samples of 75 consecutive voluntary blood donors of Malaysian ethnicity and 97 donors of Indian Ethnicity for Di<sup>a</sup>, Mi<sup>a</sup>, and Mur antigens using commercially available

antisera. The sample size was calculated considering 95% of confidence interval, 5% margin of error, and the prevalence of 1.25% (taken from the literature) and the minimum sample size found to be 19. Column Agglutination Technology was used for antigen typing (Bio-Rad (DiaMed, GmbH, Switzerland). The Malaysian donors comprised 43 males (57.3%) and 32 female donors (42.7%). The distribution of blood group A, B, O, and AB among the Malaysian donors was 26.7%, 21.3%, 48%, and 4%, respectively. The prevalence of the Di<sup>a</sup>, Mi<sup>a</sup>, and Mur in the present study and that was found on review of literature is mentioned in Table 1.

A higher incidence of Di<sup>a</sup> among the Malaysians in the present study, as compared to the reported literature could be due to the genetic drift as might have taken place. The prevalence of Mi<sup>a</sup> and Mur among Malaysians was 2.7% and 1.3%, respectively. All the three are low prevalence antigens among Indians, whereas it is common among Chinese and Malay population.

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**Table 1: The prevalence of Di<sup>a</sup>, Mi<sup>a</sup> and Mur red cell antigens**

Author, ethnicity	Di <sup>a</sup>	Mi <sup>a</sup>	Mur	Sample size
Mak <i>et al.</i> <sup>[2]</sup> in Hongkong Chinese population	-	32 (0.057%)	22	56,161
Prathiba <i>et al.</i> <sup>[3]</sup> in Malaysian population among 3 ethnic groups	-	-	Chinese 32 (4.9%) Malay 18 (2.8%) Indians 19 (3.0%)	655
Komatsu <i>et al.</i> <sup>[4]</sup> in Mongolians	24 (9.92%)	-	-	242
Wei <i>et al.</i> <sup>[1]</sup> in Malaysian population among 3 ethnic groups	Chinese-23 (4.01%) Malay-5 (1.25%) Indian-1 (0.88%)	-	-	Chinese-574 Malay-401 Indian-114
Makroo <i>et al.</i> <sup>[5]</sup> in Indian population from Delhi	-	1 (0.1%)	-	1000
Present study, Malaysians	8 (10.7%)	2 (2.7%)	1 (1.3%)	75
Indians	1 (1%)	0	0	97

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### Conflicts of interest

There are no conflicts of interest.

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