The null distribution of the maximum value of the $M^2$ test variable. The $M^2$ test variable for each SNP was calculated from a permutated cohort in S4 Table. The distribution of the maximum value of $M^2$ from 10000 permutations is indicated. Vertical lines indicate the mean value and its upper and lower bound with 95% confidence interval. The dotted line indicates the value of $M^2=24.10$ corresponding to a Bonferroni-adjusted p-value of 0.05. Bandwidth = 0.5