$$b_j \mid \pi, U \sim \Sigma_k \pi_k N_R(0, U_k)$$
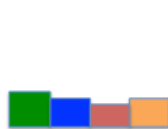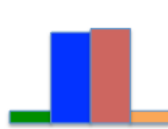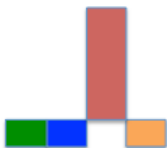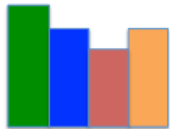
$$b_j{}^t = [b_{liver} b_{lung} b_{brain} b_{thryoid}]$$

rs123-gene1   rs456-gene2   rs789-gene3   rs369-gene4

Pattern 1 →U_1 Pattern 2 →U_2 Pattern 3 →U_3 Pattern 1 →U_1, ω_i = small