Model 5 - Multiple proteins, two groups (varying σ and shrink the variance estimates and the effective size)

$y_{ij} \sim N(\mu_{ij}, \tau_i)$

$\mu_{ij} = b_i X_{ij}$

$\tau_i = 1/\sigma_i^2$

$\sigma_i \sim$Unif(p$_i$, $p_i + w_i$)

$b_i \sim N(0, T_i)$

$p_i \sim$Unif(0, 10)

$w_i \sim$Unif(0, 10)

$T_i \sim Gamma(0.001, 0.001)$