

Prior distribution of $TE_{uORF,i}(x)$



$$RPF_{uORF,i} = 0$$

$$RPF_{CDS,i}$$

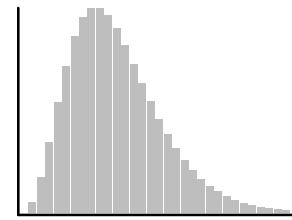
$$TE_{CDS,i} = \frac{RPF_{CDS,i}}{mRNA_{CDS,i}}$$

$$\mu_{im} = mRNA_{uORF,i}$$

$$f(x) = f_{Norm}\left(\log_2(x); \log_2(TE_{CDS,i}), 2SE_{\log_2(TE_{CDS,i})}^2\right)$$

Prior distribution of $mRNA_{uORF,i}(K_{im})$

$$P_m(R_0) = \int f(x) \sum_{K_{im} \geq 0} g(K_{im}) f_{NB}(0; xK_{im}, \varphi_R(xK_{im})) dx$$



$$g(K_{im}) = f_{NB}(K_{im}; \mu_{im}, \varphi_M(\mu_{im}))$$

$$mRNA_{uORF,i} = 100 \quad mRNA_{CDS,i} = 1000$$

$$RPF_{uORF,i} = 0 \quad RPF_{CDS,i} = 2000$$

$$\mu_{im} = 100 \quad TE_{CDS,i} = 2$$

$$SE_{\log_2(TE_{CDS,i})} = 0.156$$

$$\varphi_M(\mu_{im}) = 0.035$$

$$P_m(R_0) = 3.6 \times 10^{-12}$$