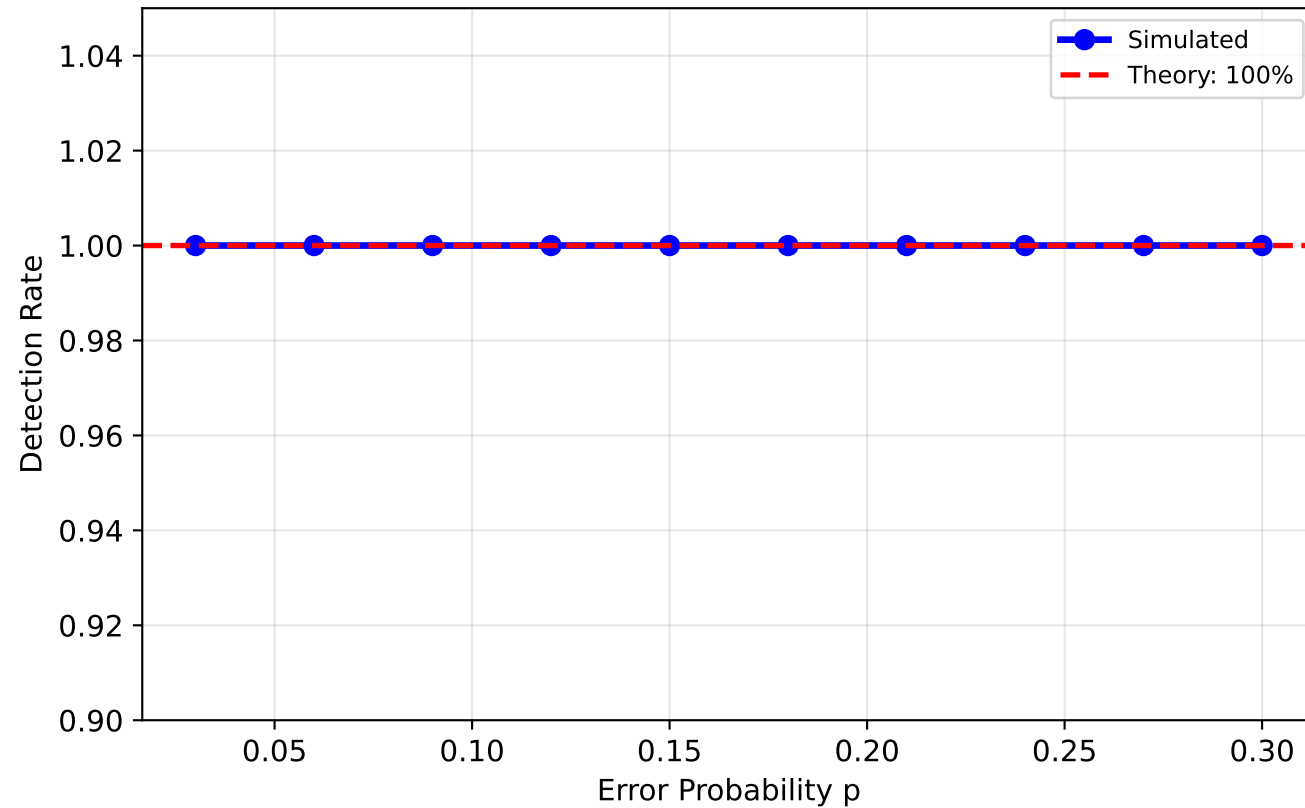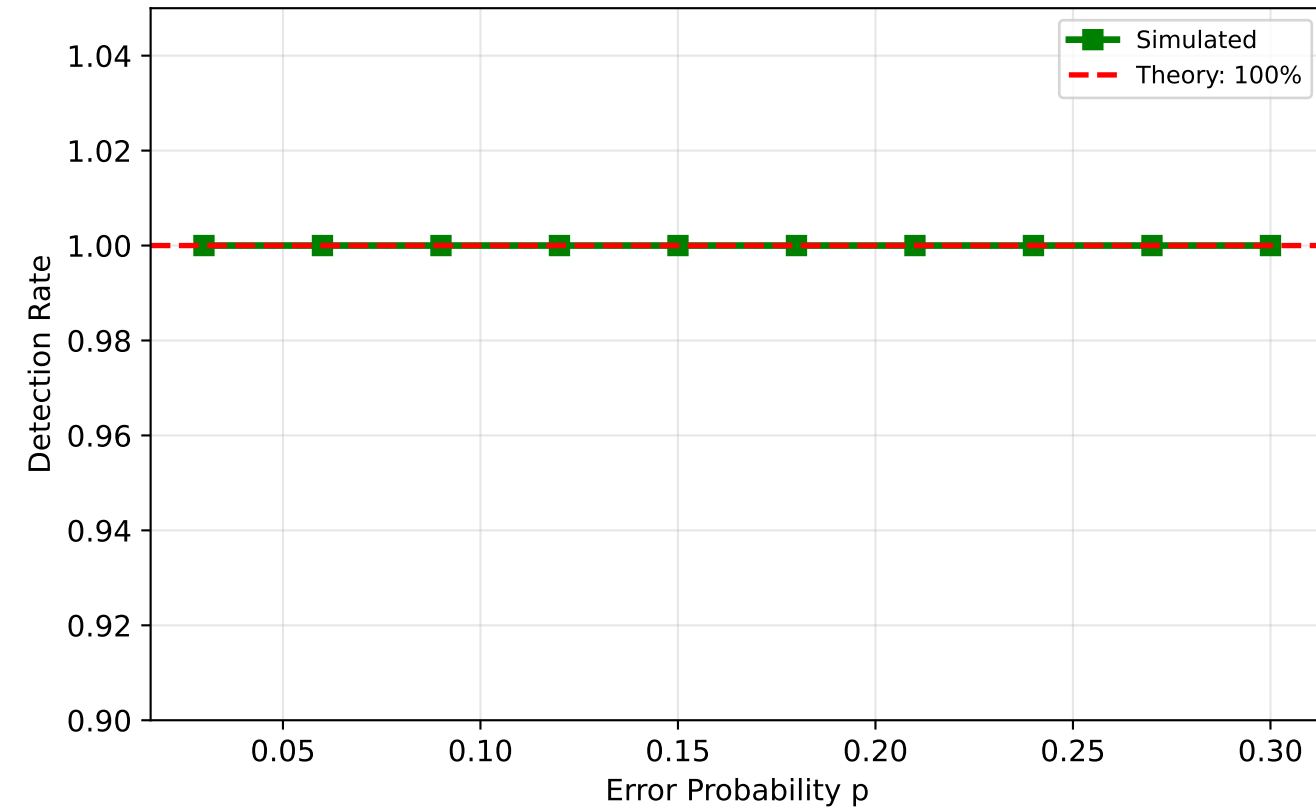**Fig. 2: Complete Biochemical Error Detection Framework**
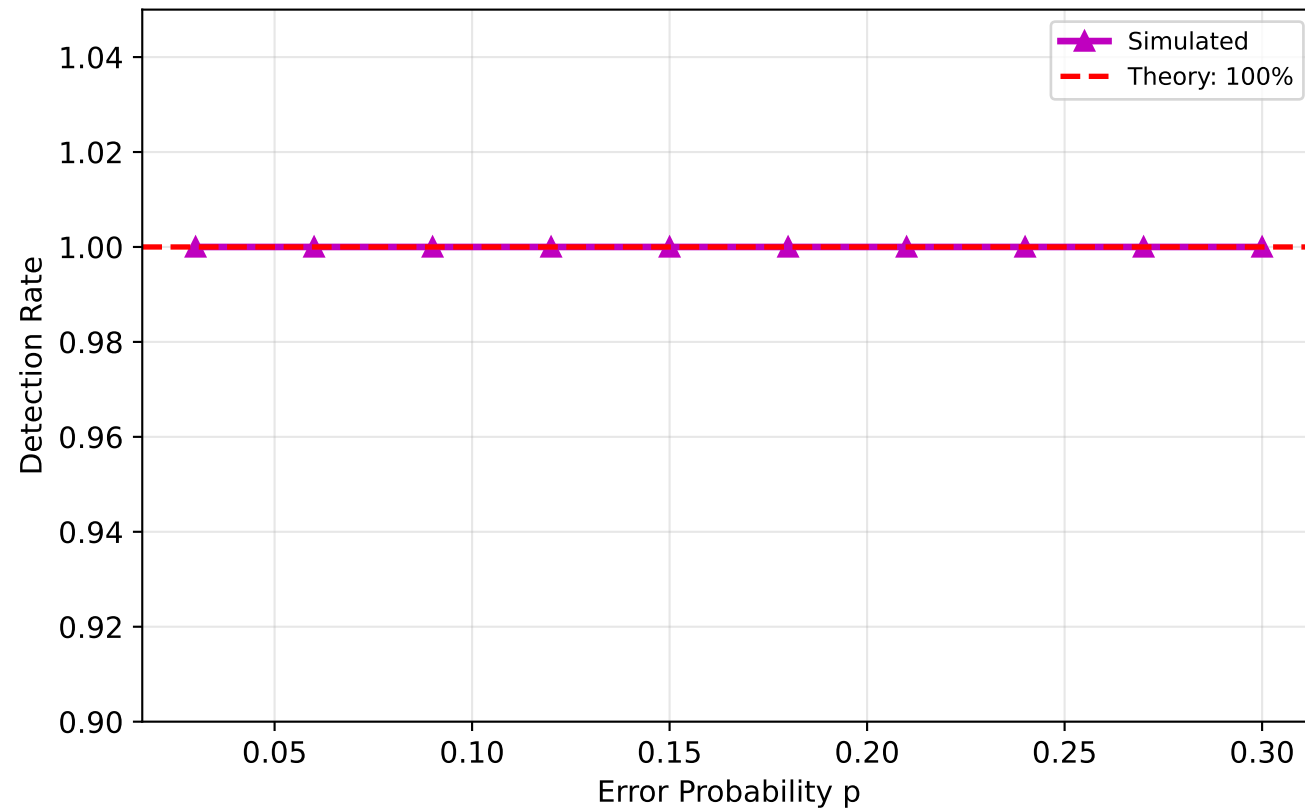
(a) X-Error Detection
(Watson-Crick Complementarity)

(b) Y-Error Detection
(Purine/Pyrimidine Classification)

(c) Z-Error Detection
(Hydrogen Bonding)

(d) Uncorrected Error Rate