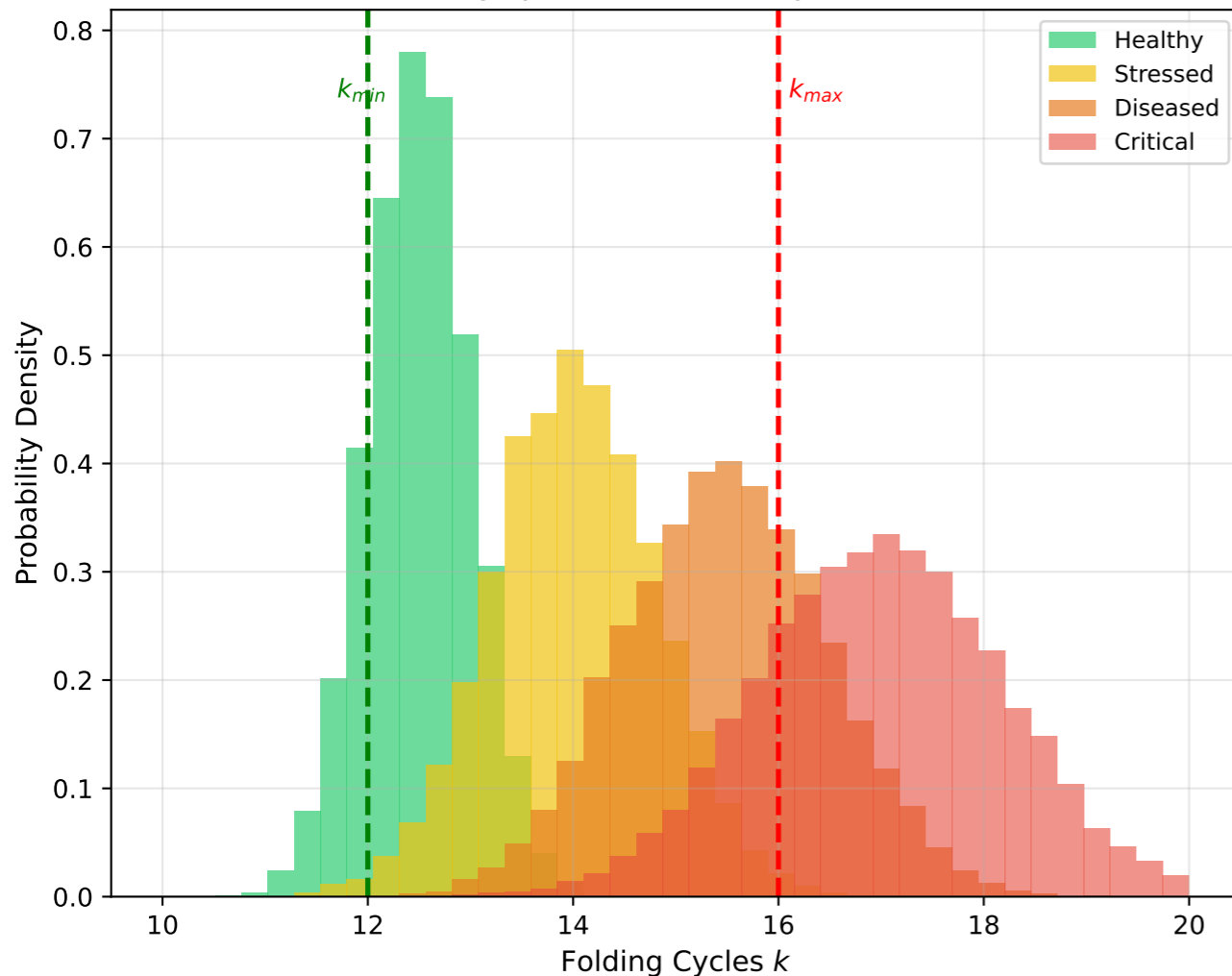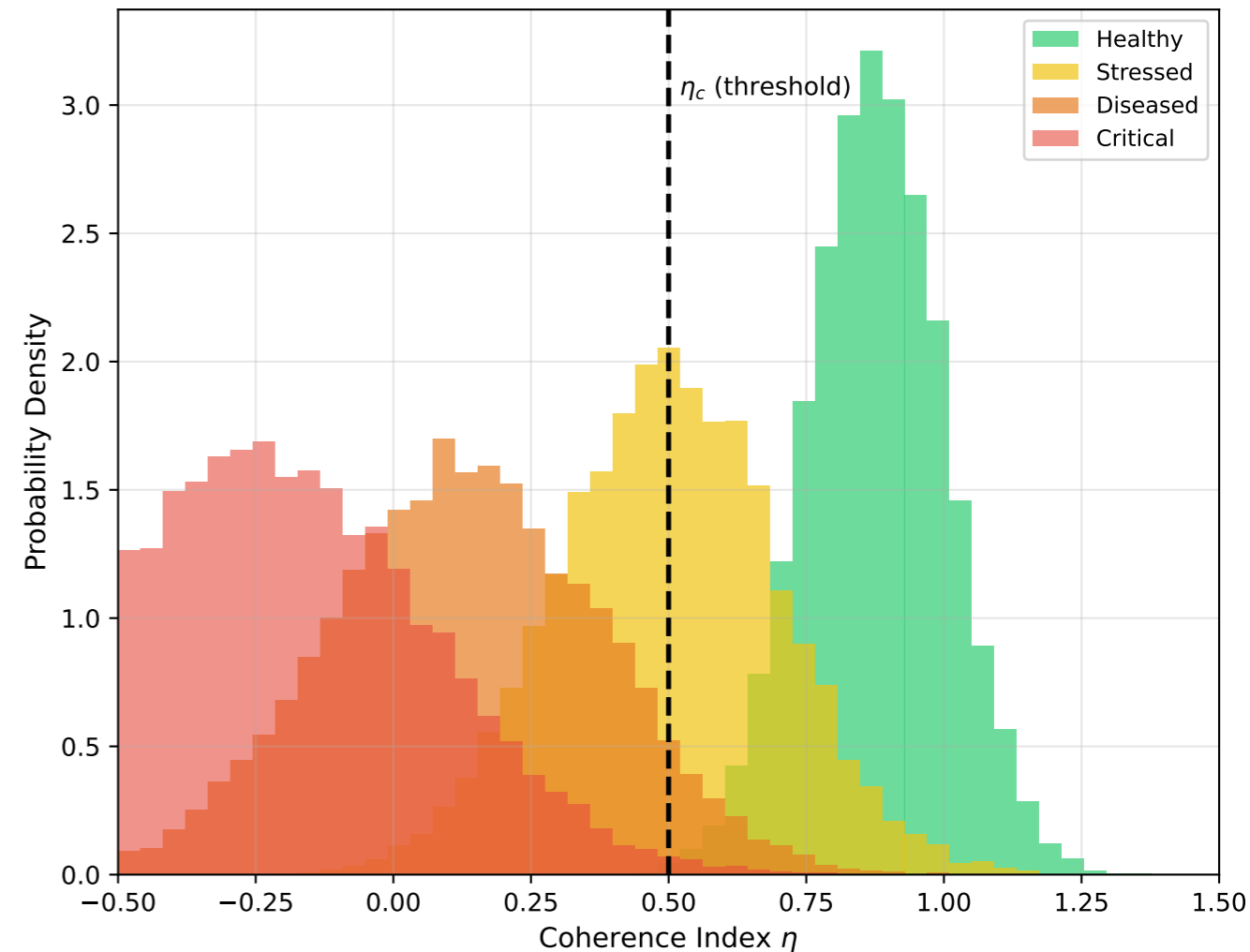**Protein Folding as Cellular Diagnostic Readout**
$$\eta = (k_{max} - k_{obs})/(k_{max} - k_{min})$$

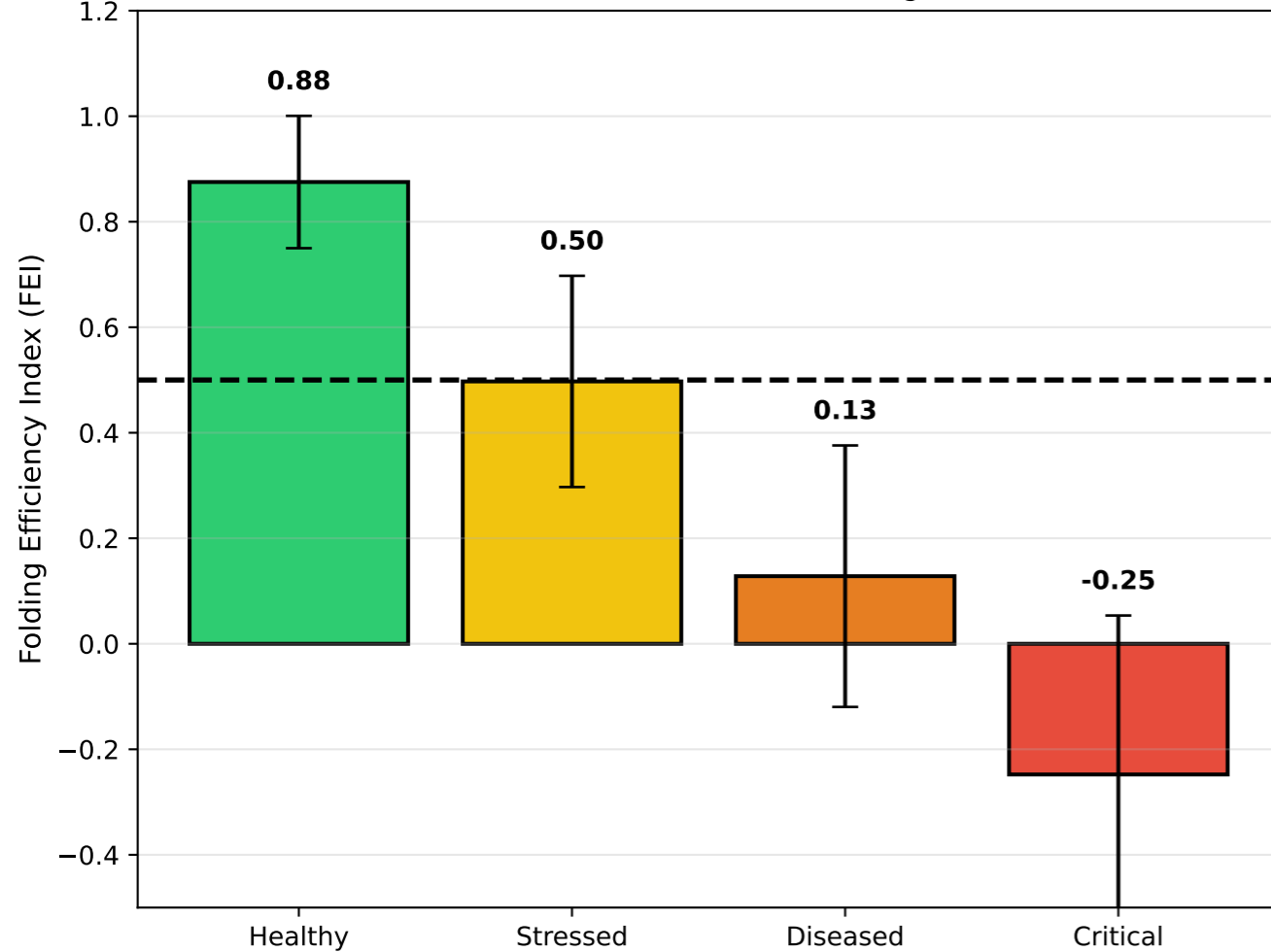**(A) Folding Cycle Distributions by Cellular State**

Legend: Healthy, Stressed, Diseased, Critical

k_{min}, k_{max}

x-axis: Folding Cycles k
y-axis: Probability Density

(B) Coherence Distributions (Transformed)

Legend: Healthy, Stressed, Diseased, Critical

η_c (threshold)

x-axis: Coherence Index η
y-axis: Probability Density

(C) FEI = Mean Coherence from Folding Statistics

0.88 0.50 0.13 -0.25

x-axis: Healthy, Stressed, Diseased, Critical
y-axis: Folding Efficiency Index (FEI)

(D) Diagnostic Performance (ROC Curves)

AUC (Stressed): 0.788

AUC (Diseased): 0.838

AUC (Critical): 0.

Legend: Stressed vs Healthy, Diseased vs Healthy, Critical vs Healthy, Random

x-axis: False Positive Rate (1 - Specificity)
y-axis: True Positive Rate (Sensitivity)