Therapeutic Enhancer Design: Generation-by-Generation Optimization Trajectories
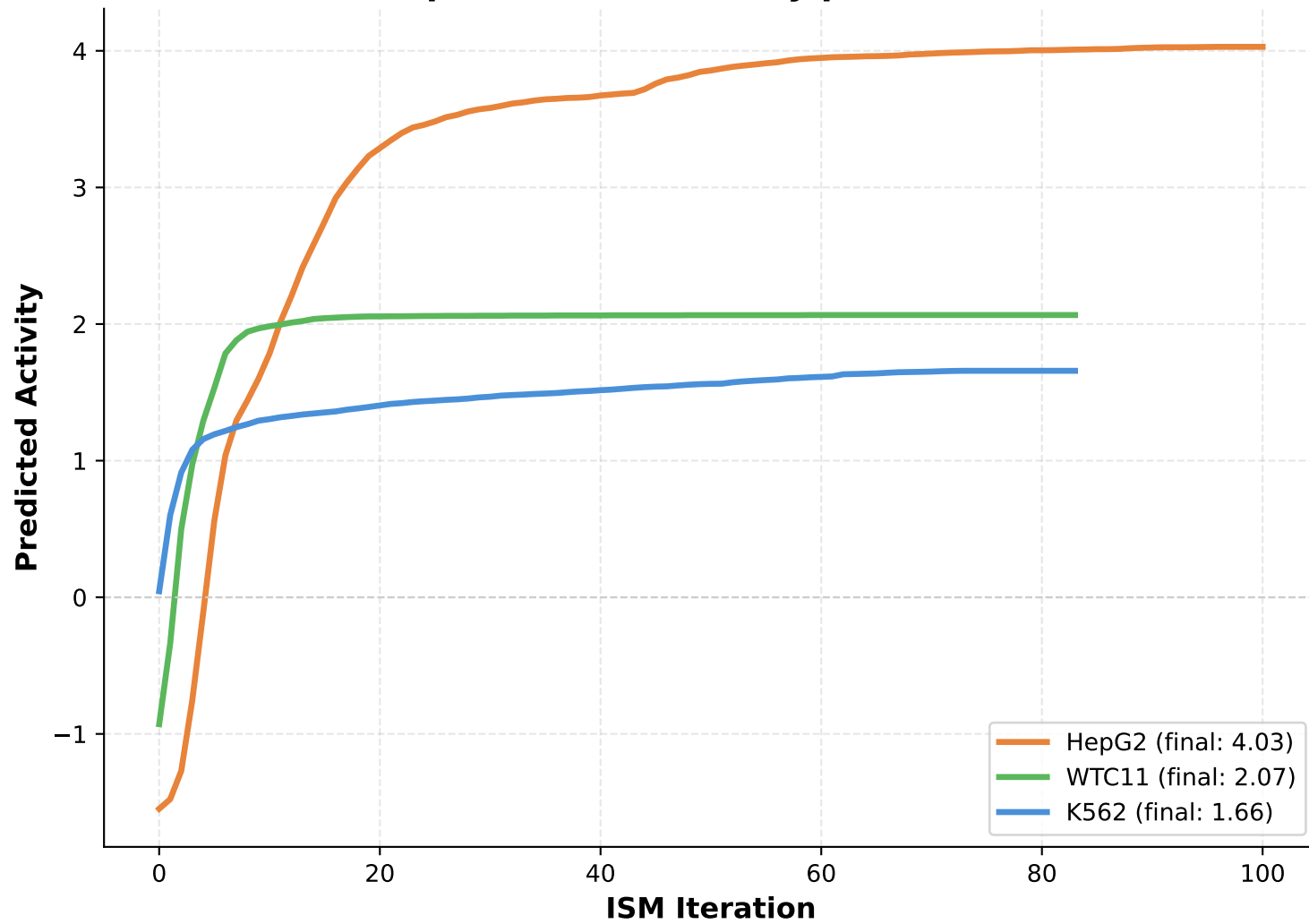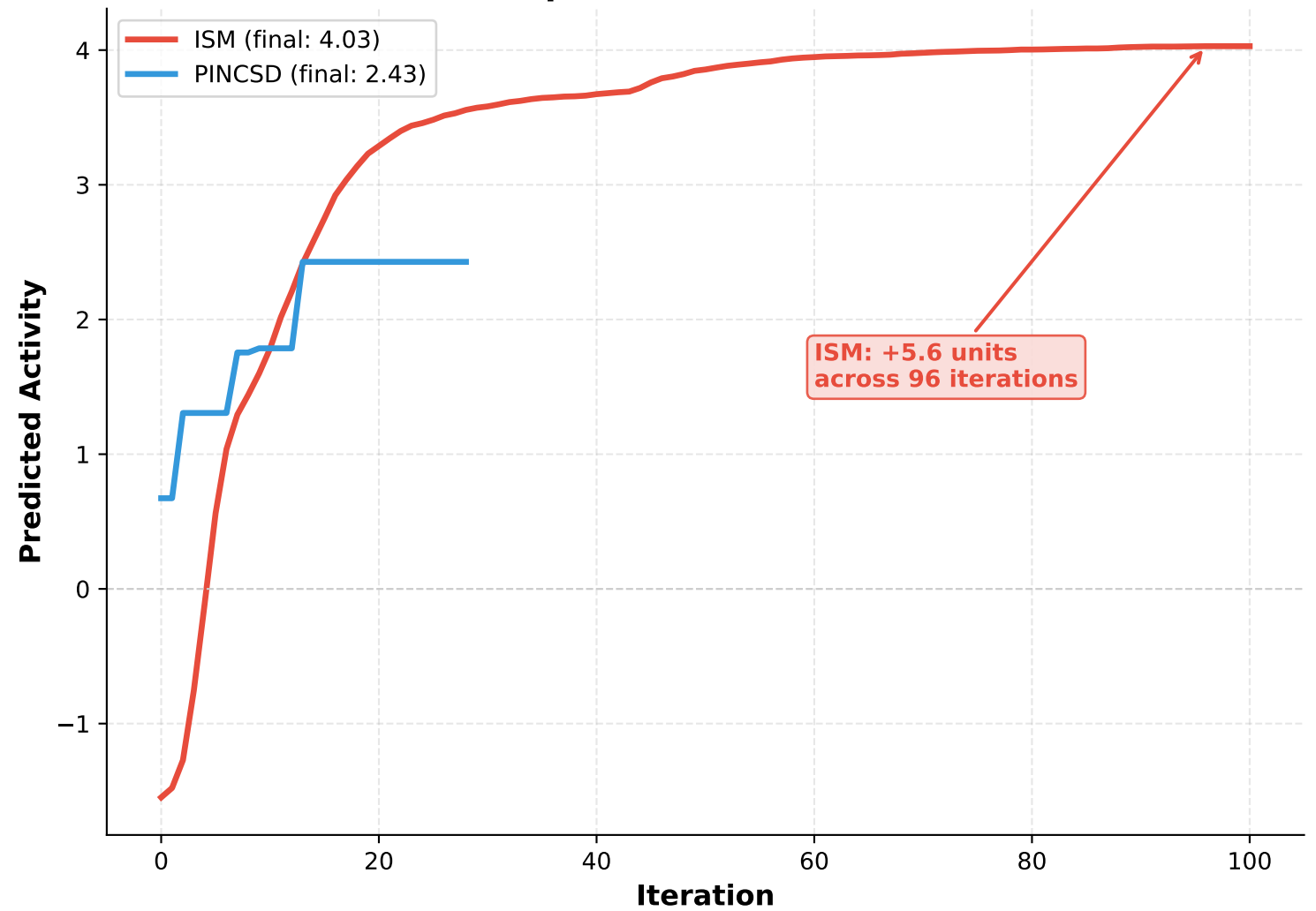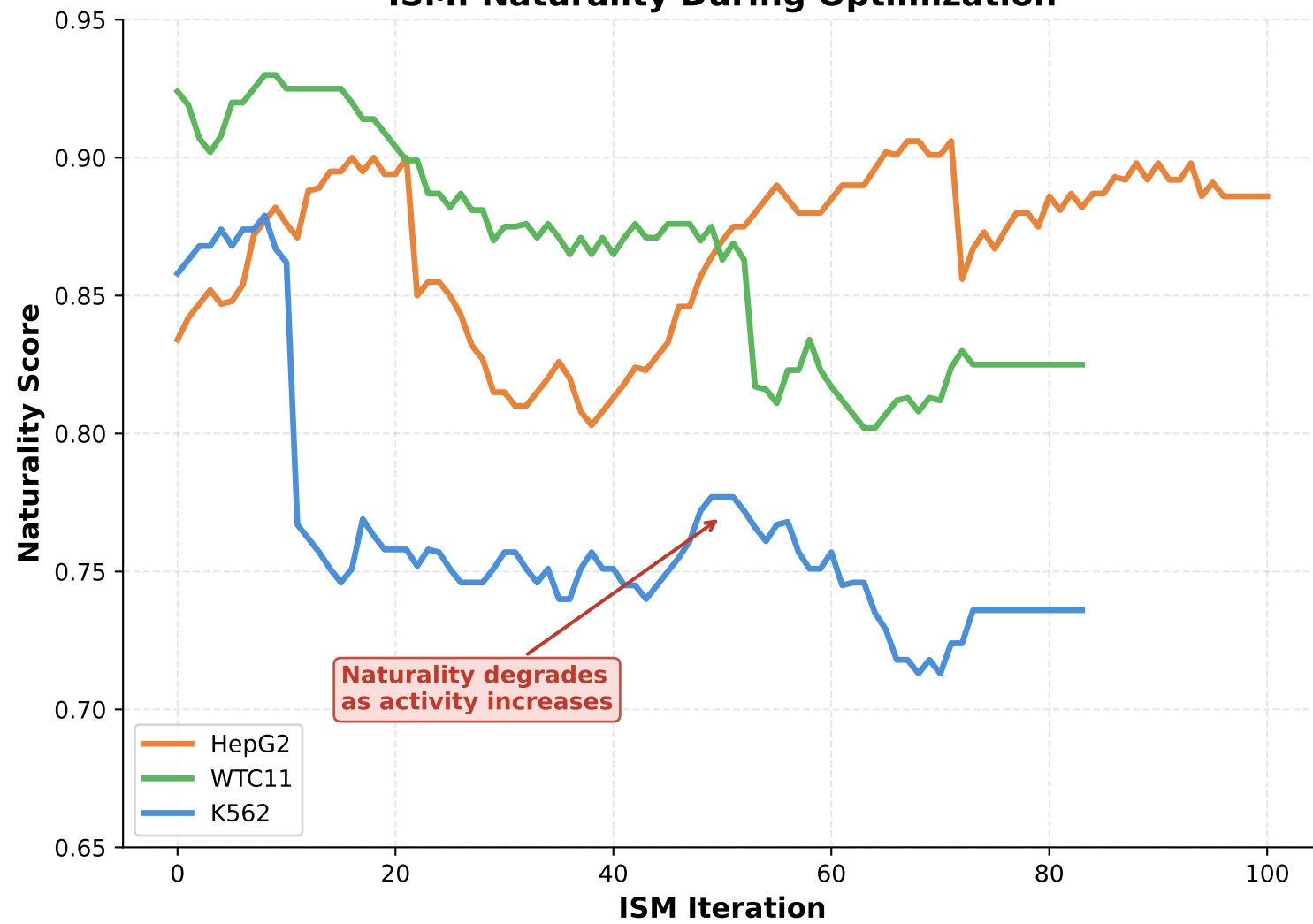
ISM Optimization: Activity per Generation
HepG2 (final: 4.03)
WTC11 (final: 2.07)
K562 (final: 1.66)

HepG2: ISM vs PINCSD
ISM (final: 4.03)
PINCSD (final: 2.43)
ISM: +5.6 units across 96 iterations

ISM: Naturality During Optimization
HepG2
WTC11
K562
Naturality degrades as activity increases

Activity-Naturality Tradeoff
ISM (greedy)
PINCSD (evolutionary)
HepG2 ISM
WTC11 ISM
K562 ISM
HepG2 PINSCD
WTC11 PINSCD
K562 PINSCD