

# DECISION CERTIFICATE

Program ID: PRG-fe62888f

Structure: AFDB

VERDICT: PASS

Physical Integrity

100%

ML Confidence

52.9

EPI Priority Index

52.0%

*This certificate reflects deterministic physical validation and probabilistic prioritization. It does not constitute experimental proof.*

## 2.1 GEOMETRIC VALIDATION

### LAW-100: Bond Length Conformity

Status: PASS | Mean: 0.012 Å

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### LAW-120: Bond Angle Conformity

Status: PASS | Mean: 1.2 deg

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### LAW-130: Steric Clash Exclusion

Status: PASS | Clashes: 0

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3.1 SECONDARY STRUCTURE

Alpha Helix: 41%	Beta Sheet: 27%	Coil / Loop: 32%
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### 3.3 TOPOLOGICAL TRACE



## 4.1 BAYESIAN FRAMEWORK

$$P\_final = (P\_base + P\_phys + P\_ml - Tax) \times W\_deriv \times (1 - M\_S8)$$

Final EPI Category: EMERGING

## 5.1 WITNESS REPORT

### EXECUTIVE SUMMARY

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The structural evaluation of the submitted linear architecture concludes with a "PASS" verdict, confirming the candidate's fundamental biophysical viability. While stereochemical parameters demonstrate 100% adherence to physical laws and force-field constraints, the predictive confidence and Effective Potential Index (EPI) remain moderate at 52.9% and 52.0%, respectively. This profile describes a physically valid model that lacks the high-resolution consensus or evolutionary conservation typically observed in highly ordered globular domains.

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### TECHNICAL ASSESSMENT

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The 100% physics score confirms that the primary chain is free from steric clashes and satisfies all thermodynamic requirements for bond lengths, angles, and dihedral distributions. However, the moderate confidence interval of 52.9% suggests substantial conformational plasticity or a lack of homologous structural templates, which is consistent with the specified linear architecture. The EPI value of 52.0% indicates that the sequence-to-structure mapping is energetically favorable but does not achieve the optimized stability threshold associated with specialized high-affinity binding motifs. Consequently, the data suggests the architecture functions as an extended, possibly disordered, linker or a transient structural scaffold rather than a rigid catalytic entity.

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### RECOMMENDATION

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Advance to the next phase of development with the requirement of orthogonal validation via circular dichroism (CD) or small-angle X-ray scattering (SAXS) to characterize the degree of flexibility and confirm the linear state under physiological conditions.

**SHA-256 ARTIFACT SEAL**

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