

# RMSF Analysis Report

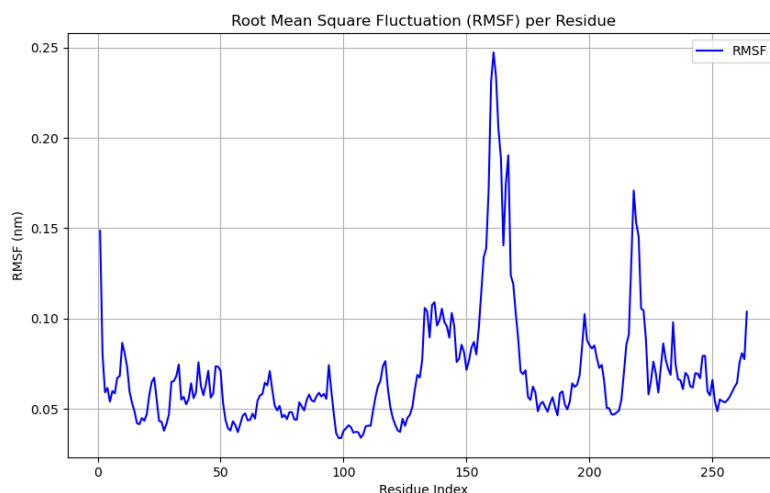
## Overview

Root Mean Square Fluctuation (RMSF) analysis provides valuable insights into the fluctuations and flexibility of residues in a protein structure over a molecular dynamics simulation. The RMSF plot visualizes these fluctuations, highlighting stable and flexible regions within the structure.

## RMSF Analysis

- **RMSF Range:** The values range from approximately 0.0339 nm to 0.2473 nm, indicating varying flexibility across the protein.
- **Stable Regions:** Many residues have low RMSF values between 0.04 and 0.07 nm, suggesting these regions are structurally rigid, likely forming parts of helices or sheets.
- **Flexible Regions:** Notable peaks occur at residues 160 to 164, with values around 0.23 nm, marking highly flexible areas, possibly corresponding to loops or functional regions.
- **Functional Insights:** These regions may play key roles in ligand interactions or conformational shifts necessary for biological activity.

## Visualization



- The attached plot file provides a visual representation of the RMSF throughout the protein sequence.

## **Conclusion**

Understanding the flexibility and stability of protein regions through RMSF analysis can inform further experimental validation and guide hypothesis generation for functional roles of specific residues.