

Small GTPases are important proteins that affect many cellular processes. In my work I compare the five most important protein families of small GTPases – Arf, Rab, Ran, Ras and Rho to identify amino acids responsible for major functional differences between different protein families. To compare them, I have used the structural data from the PDB database and sequences from the UniProt database. I have discovered previously undescribed groups of amino acids specific for each protein family of small GTPases with the help of programs ConSurf and Sca5. I also carried out a pilot study of the applicability of B-factors as indicators of bond strength in the protein structure on the example of small GTPases. The first results are not entirely conclusive, but they do not exclude the applicability of B-factors as indicators of bond strength either.