**Potv2, a program to plot the electrostatic potential of the minor groove of duplex DNA**

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Electrostatic interactions play a central role in a variety of biological processes such as protein-protein interactions, protein stability, binding ligands and substrates, as well as in the ability that some proteins possess to recognize specific DNA sequences. Recent studies have highlighted the existing correlation between minor-groove width and electrostatic potential.

In this study we developed Potv2 an application in C++ that displays 2D and calculate the electrostatic potential of DNA molecules attached to proteins, in addition to plotting the electrostatic potential of the minor groove. Potv2 requires the electrostatic potential map calculated by the DelPhi program and the atomic coordinates of the DNA molecule attached to a protein to calculate using the method trilinear interpolation, the electrostatic potential of the atoms in the DNA molecule. Moreover, this application uses the program Gnuplot to generate the graph of the electrostatic potential of the DNA minor groove using as reference the geometric midpoint between the O4’ atoms of nucleotide i+1 in the 5’-3’ strand, and nucleotide i-1 in the 3’-5’ strand. Finally, this application uses the PostScript language to generate a matrix 2D with colors that represent the electrostatic potential of the atoms of the strands 5’-3’ and 3’-5’ in the analyzed DNA molecule, according to the scale defined by the user.
Figure 1. Schematic representation of the potv2 program.