

Amino Acid Molecular Units: Building Primary and Secondary Protein Structures

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In order to guarantee the learning quality and suitable knowledge use about structural biology, it is fundamental to exist, since the beginning of students' formation, the possibility of clear visualization of biomolecule structures. Nevertheless, the didactic books can only bring schematic drawings; even more elaborated figures and graphic computation do not permit the necessary interaction. The representation of three-dimensional molecular structures with ludic models, built with representative units, have supplied to the students and teachers a successfully experience to visualize such structures and correlate them to the real molecules. The design and applicability of the representative units were discussed with researchers and teachers before mould implementation. In this stage it will be presented the developed kit containing the representative plastic parts of the main amino acids. The kit can demonstrate the interaction among the amino acids functional groups (represented by colors, shapes, sizes) and the peptidic bonds between them facilitating the assembly and visualization of the primary and secondary protein structure. The models were designed for C α , amino, carboxyl groups and hydrogen. The lateral chains have well defined models that represent their geometrical shape. The completed kit set will be presented in this meeting (patent requested). In the last phase of the project will be realized an effective evaluation of the kit as a facilitative didactic tool of the teaching/learning process in the Structural Molecular Biology area.

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