The purpose of this thesis is the creation of a virtual computer laboratory, where it will be possible to simulate and analyze the behavior on the biological cell membrane. The membrane and its surroundings are described as a hex-net with other chemicals and components that interact with each other. Depending on this distribution, it is possible to observe well-known membrane phenomena such as the amplification of the action potential. The simulation itself should show, that for the basic membrane-activity modeling, you only need a few basic laws of physics and chemistry.