All cells and tissues of one human individual have essentially the same set of genes. But different genes are turned “on” in different tissues. In a manner of speaking, genes which are turned “on” in a given tissue make this tissue what it is. The region of a gene which controls whether a gene is turned “on” or “off” is called a promoter. We will model this process of turning genes “on” with a computer. Such a computer model is a toy idea put into the lines of mathematical notation and computer code. The idea may be a toy, but it can help us to understand how real cells work! What will make this computer model possible is that a lot of information on genes, their promoters and their expression patterns is already put into public databases around the world. These public databases are free for everybody to access anywhere in the world. We can now analyze these databases on computers on the premises of our scientific institutions and no work has to be done in an experimental lab! This project will not only help us to understand how real genes work, but it will also facilitate the design of new artificial genes whose promoters will be pre-programmed to turn “on” in specific tissues or under specific conditions. Such a technology is highly desirable in the areas such as gene therapy, or the construction of transgenic animals either for farming or as research tools.