

This project is to generate a collection of virtual molecules for the Molecular Biology course aiming to help students understand the three-dimensional structures and the molecular interactions of some important biomolecules. While the traditional classroom uses diagrams and models to represent the biomolecules, student engagement in learning molecular biology can be enhanced by application of virtual-reality technologies such that students can manipulate molecules, see the molecular structures in three-dimensional space interactively. This serves to increase their motivation and engagement of learning.

22 virtual biomolecules are generated. The molecules are labeled for important atoms and dimensions on bond length and atom. There is a brief description for each molecule, followed by revision MC questions for the biomolecules. A mobile app (named VR Biomolecules) has been developed which allows students to get access to the molecules through Mobile device, in both Android or iOS, and VR head-mounted display sets.

A focus group was formed to evaluate the virtual molecules and accompanied exercises. Most of the students agreed that VR biomolecules increase their motivation and engagement of learning and VR biomolecules provide them a fast and flexible way to understand biomolecules. Students showed that the materials can be used for courses in other teaching programmes that cover the same topic.

The finished mobile app (VR Biomolecules) is uploaded to Apps Store and Google Play for download and install. Information of these virtual molecules will be announced in the centralized e-learning website of the Biochemistry Programme ([www.bch.cuhk.edu.hk/learnbiochem](http://www.bch.cuhk.edu.hk/learnbiochem))

In 2018/19, CUHK Students taking Molecular Biology course (BCHE3050) and Molecular Biology and Recombinant DNA Laboratory (BCHE3650) will be asked to use the app to supplement their studies.