

ABSTRACT

The bachelor thesis deals with affinity molecules that are able to specifically bind to the target molecule. The first chapter is devoted to antibodies, i.e., affinity molecules of protein nature. It discusses their structure, development, production, and use. The main focus of the thesis is on aptamers, or short stretches of single-stranded DNA or RNA, which are often referred to as synthetic alternatives to antibodies. They have similar functions to antibodies but differ in structure, development, and production. Because of their similarity to antibodies, aptamers are used in various detection technologies to diagnose diseases. Aptamers are still in the research phase, but the first commercially available aptamer diagnostic kits are slowly starting to appear on the market. The final chapter compares the pros and cons of the two biggest rivals in the field of affinity molecules – antibodies and aptamers.

Key words: aptamers, antibodies, nanoantibodies, affimers, diagnostics, research