Abstract:

Almost until the end of the last century, antibodies (aka immunoglobulins) were considered the only class of specific binding proteins. The discovery of hybridoma technology in 1975 had enabled the production of monoclonal antibodies and after twenty years some of them have entered clinical practice. Meanwhile, the first non-immunoglobulin protein scaffold, in which new specific binding sites could be introduced was discovered. To date, many different alternative scaffolds have been described, but only a few of them are being further developed for diagnostics, therapeutics or tools in basic research. Since these structures are overcoming the drawbacks of immunoglobulin structure, which are big size, expensive production and difficult rational design, they have potential to replace and exceed them. In this bachelor's thesis all the alternative scaffolds in development are summarized. Moreover, their advancements in clinical trials are described and compared with approved therapeutics based on immunoglobulin structure.