Title:	Generation of genetically-linked bispecific nanobody neutralizing russell viper venom and identification and characterization of cobra venom-neutralizing nanobodies
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Abstract:	In this thesis, the main focus is on snake envenoming and the development of potential therapeutic agents against venom toxins. The first chapter presents a comprehensive review of the literature on the topic. The second chapter describes the design and generation of a bispecific domain nanobody (MYF) against two toxic components of Russell Viper Venom (RVV). Using a PCR-based strategy, two nanobodies were genetically linked with the help of linker to generate this bispecific constructs. The in-vivo neutralization assay on zebrafish suggested that the bispecific domain nanobody neutralised RVV more effectively than the single domain nanobody, making it a potentially effective therapeutic treatment against RVV envenoming. In the third chapter of this study, the aim was to develop a safer, more specific, and potent anti-venom therapeutic. The study identified a nanobody against one of the components of Cobra venom (CV) from the previously constructed phage display library of camelid VHH. This innovative therapeutic agent offers a promising alternative to conventional anti-venom therapies, which are associated with severe adverse reactions such as serum sickness and anaphylaxis. Given the high incidence of snakebite cases around the world, the development of such therapeutics ought to be a top priority in saving the lives of those affected by snake envenoming.
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