Intoduction

Nanobodies are a type of antibodies derived from camels, and are much smaller than traditional antibodies. Standard antibodies are giants by molecular standards, since each one is a conglomerate of two heavy protein chains and two light chains, intricately folded and garnished with elaborate sugars. Nanobodies, however, are relatively simple proteins about a tenth the size of human antibodies and just a few nanometers in length**.(Woolven B.P.,et al., 1999) .**

After the discovery that camelidae (camels and llamas) possess fully functional antibodies that lack light chains, the nanobody technology was developed to exploit these smaller heavy-chain-only constructs. Nanobodies are being researched for multiple pharmaceutical applications and have potential for use in cancer and Alzheimer's Disease treatments**.(Mulydermans S,et al., 1994).**

Many illnesses are thus unreachable by monoclonals, and patients who use MAb therapies must receive them by injection or infusion at a clinic. For certain conditions in which the traditional MAbs do not work well, and even for some in which they currently do, simpler, smaller proteins like nanobodies might perform better, be easier to make, easier to handle, easier to administer, and be more affordable**.(VuK.B.,etal.,1997).**

The creation of new kinds of nanobodies is less difficult--and thus faster and less costly--than it is for antibodies,As By immunizing llamas with the target antigen and then extracting heavy-chain-only antibodies from their blood, scientists claims that we can go from isolated target antigen to high-affinity nanobodies within four months. So nanobodies will be the technology revolution of the future**.(Tanha J. et al., 2002)**