The Nanobodies and the IPA (Invertebrate Primitive Antibodies)

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In 1986, we have isolated an antibody-like factor composed of 4 subunits of 30 KDA each: It was an anti-TNP (TNP=Trinitrophényl) antibody-like substance [1].

Later in 2011, by the help of Genomics, we discovered anti-HRP Kappa genes (HRP=Horse-radish peroxydase) in the genome of the sea star Asterias rubens from animals immunized to HRP [2].

In 2014, a new gene: a sea star IGKappa gene, showing 2 IG sites, was obtained; always from the Asterias rubens genome it was called IPA (Invertebrate Primitive Antibody) [3].

Then, we found a recombinant protein issued from the cloning of sea star IGKappa gene through HeK cells [4].

The corresponding protein, in SDS Page had a molecular weight of 14 KDA. In conclusion, at least 2 sorts of IPA (Invertebrate Primitive Antibodies) coexist in the sea star immune system and we think they may constitute Nanobodies we want to explore later. The first IPA (anti-TNP) has a M.W of 30KDA, the second one of 14 KDA. The second one belongs to Kappa genes (light chain of IG) the first one remains enigmatic when compared to heavy or to light chains of Vertebrate Immunoglobulins.

References

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