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Discovery of human antibodies against black cobra toxins

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Recombinant antivenom – a new hope!
Snakebite envenoming represents a major health threat in tropical parts of the developing world¹. Animal-derived antivenoms currently constitute the only effective treatment option, but are associated with severe side effects due to incompatibility with the human immune system². We aim at discovering human antibodies that target the medically most important toxins from N. melanoleuca venom using phage display technology.

Antibody-mixtures may protect against envenoming by targeting several toxins

Toxin composition of N. melanoleuca venom

Selection of high-affinity antibodies using scFv displaying phages

Expression of soluble scFvs in E. coli

IgGs against black cobra neurotoxins
We hope to discover human scFvs against medically important neurotoxins from N. melanoleuca. These may be converted to human IgGs for prolonged protection against systemic neurotoxicity in human snakebite victims. This may help bring recombinant antivenoms with higher efficacy and fewer side effects to the market!

References

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