Antibody CDR

What are Antibodies?

Antibodies are constructed by pairing heavy and light polypeptide chains. When conducting the antibody search you must be aware of whether your input is classified as a heavy chain or light chain. Within the polypeptide sequences, there are complementarity-determining regions (CDR). To perform an antibody search you must know if your query is a CDR chain on the heavy chain region on the antibody.

What is a CDR?

CDR's are complementary determining regions. The CDR sequence is a region of the polypeptide chain that is more easily recognizable within the genetic code. They allocate where the antibody will bind to the receptor protein. They can be highly variable, allowing antibodies to detect many antigens.

Why use a CDR?

The variability of CDR's allows the detection of large numbers of antigens. These antigens may be markers for antiviral, antimicrobial, or antitumor activities which if harnessed could lead to a medical and pharmaceutical revolution in drug development. With the emergence of readily available DNA sequencing methods, antibodies can be defined by reference to amino acid/nucleic acid sequences of one or more CDRs. Variants of CDRs can also be claimed to avoid limited patent claims to the precise CDR sequence.

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Light Chain Sequence vs Heavy Chain Sequence

An antibody binding site is formed by 2 chains of proteins. The outside of the binding edge is formed by a protein with a lighter mass than the inner edge, those composing the heavy chain and light chain of the receptor. Antibodies can also be defined by their heavy and light chain sequences in patents (patent claims based on VH and VL chain sequences are often of a narrow scope).

Light Chain vs. Heavy Chain CDR

When doing a CDR search the user must specify if the input is a heavy chain or light chain to specify where on the receptor the protein/nucleotide chain being searched falls.