Antibody engineering /

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Laboratory Manual | Laboratory manuals. | Laboratory manuals. | Manuels de laboratoire.

Monografía

Interest in recombinant antibody technologies has rapidly increased because of the wide range of possible applications in therapy and diagnosis, especially in cancer treatment. The possibility of generating human antibodies that are not accessible by conventional polyclonal or monoclonal approaches has forced the development of antibody engineering technologies even more. This manual presents a comprehensive collection of detailed, step-by-step protocols provided by experts in the field. All basic methods needed in antibody engineering - not only methods to generate recombinant antibodies, but also protocols for analysis and their use - and recently developed and emerging technologies are covered. In particular, protocols on the following topics are provided: Hybridoma immortalisation Generation and screening of antibody gene libraries from human donors, mice and rabbits Antibody selection on immunotubes, cells, tissues; proximity and step-back selections Creation of human monoclonal antibodies to toxic or highly pathogenic agents without immunisation Improvment of antibody binding Antibody humanisation Genetic fusions for the production of multifunctional antibody derivatives Radiolabelled recombinant antibodies Bispecific antibodies Antibody - enzyme fusions Intracellular antibodies Determination of affinity and specificity Computer analysis of antibody sequence and structure Epitope analysis by various phage display systems and peptide spot membranes Eukaryotic (plant, baculovirus, yeast, mammalian cells) and prokaryotic production systems for recombinant antibodies Purification systems Xenograft mice Emerging technologies

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Contenido: 50 chapters describing protocols in the following areas (Part titles): Introduction -- Generation of recombinant antibodies from hybridoma -- Generation of antibody libraries -- Isolation of antibody fragments from combinatorial libraries -- Expression and purification of antibody fragments in bacteria -- Expression and purification of antibody fragments in eukaryotic cells -- Determination of affinities -- Sequence and structure

analysis and modelling epitope mapping -- In vivo experiments -- Affinity maturation of antibody fragments -- Humanisation of antibody fragments -- Antibody engineering to improve stability -- Bivalent and bispecific antibody fragments -- Recombinant antibody-fusion proteins -- Intracellular targeting of antibody fragments. The complete table of contents can be found on the Internet: http://www.springer.de

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