

# PHAGE DISPLAY FOR THE PRODUCTION OF HUMAN MONOCLONAL ANTIBODIES AGAINST HUMAN PATHOGENS

N. Mancini, S. Carletti, M. Perotti, F. Canducci, M. Mammarella, M. Sampaolo, R. Burioni

Università "Vita-Salute San Raffaele", IRCCS Istituto Scientifico San Raffaele, Laboratorio di Microbiologia, Diagnostica e Ricerca San Raffaele, Milan, Italy

## SUMMARY

*In the last decade an increasing number of antibodies have made their way from the research benchtops into the clinics and many more are currently under clinical trial. Among monoclonal antibody-producing techniques, phage-display is undoubtedly the most effective and versatile. Cloning of the entire humoral repertoire derived from an infected patient into a phage display vector allows not only the simple generation of monoclonal antibodies of desired specificity, but also the molecular dissection of the antibody response itself. Generation of large panels of human monoclonal antibodies against human pathogens could open new perspectives in understanding the interplay between the infectious agent and the infected host providing tools for the prevention and the therapy of human communicable diseases. In this paper the basic principles of the phage-display approach as well as its most recent applications are reviewed.*

**KEY WORDS:** human monoclonal antibodies; phage display; monovalent Fab; single-chain Fv fragment (scFv); host-pathogen interplay

Received October 2, 2004

Accepted October 4, 2004