

MIMOTOPE IDENTIFICATION USING PHAGE DISPLAYED RANDOM PEPTIDE LIBRARIES AGAINST MONOCLONAL ANTIBODIES SPECIFIC TO HOUSE DUST MITE

Nipaporn Tewawong¹, Pannamthip Pitaksajkul¹, Paron Dekumyoy², Pattama Ekpo³
and Pongrama Ramasoota¹

¹Center of Excellence for Antibody Research (CEAR) and Department of Social and Environmental Medicine; ²Department of Helminthology, Faculty of Tropical Medicine, Mahidol University, Bangkok; ³Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Abstract. Random heptapeptide T7 and random 12mer M13 phage libraries were employed to identify mimotopes binding to monoclonal antibodies (MAb) specific to house dust mite. After selection of bound phage by bio-panning and determination of binding specificity, DNA of selected bound phages was amplified, sequenced and aligned for peptide similarity. Eight mimotopes which were partially matched with Der f 15 allergen were predominant. The amino acid regions, 411-429 and 480-503 of Der f 15 allergen, appeared to be the main epitope clusters. Five mimotopes of MAb B2 and one mimotope of MAb B1 matched with Der p 1 and Der f 2 precursor, respectively.

Keywords: phage display, random peptide library, mimotope, monoclonal antibody, house dust mite

Correspondence: Pongrama Ramasoota,
Center of Excellence for Antibody Research
(CEAR), Faculty of Tropical Medicine, Mahidol
University. 420/6 Ratchawithi Road, Ratcha-
thewi, Bangkok 10400, Thailand.

Tel: +66 (0) 2354 9100-19 ext 1562-4; Fax: +66
(0) 2354 9167

E-mail: tmpprt@mahidol.ac.th