

Gly m Bd 28K is one of the major allergens in soybeans, but there is limited information on its IgG-binding epitopes. Thirty-four overlapping peptides that covered the entire sequence of Gly m Bd 28K were synthesized, and 3 monoclonal antibodies against Gly m Bd 28K were utilized to identify the IgG-binding regions of Gly m Bd 28K. Three dominant peptides corresponding to ²⁸GDKKSPKSLFLMSNS⁴² (G28-S42), ⁵⁶LKSHGGGRIFYRHMHI⁷⁰ (L56-I70), and ¹⁵⁴ETFQSFYIGGGANSH¹⁶⁸ (E154-H168) were recognized. L56-I70 is the most important epitope, and a competitive ELISA indicated that it could inhibit the binding of monoclonal antibody to Gly m Bd 28K protein. Alanine scanning of L56-I70 documented that F64, Y65, and R66 were the critical amino acids of this epitope. Two bioinformatics tools, ABCpred and BepiPred, were used to predict the epitopes of Gly m Bd 28K, and the predictions were compared with the epitopes that we had located by monoclonal antibodies.

Epitope mapping and identification of amino acids critical for mouse IgG-binding to linear epitopes on Gly m Bd 28K.

