MEDWIN PUBLISHERS
Committed to create value for Researchers

Vaccines & Vaccination Open Access

The Functional Epitope Mapping of Vaccine

Ibrahim Mohammad Saeed Shnawa*

University of Qasim, Iraq

Letter to Editor

Volume 1 Issue 1

Received Date: April 19, 2016

Published Date: May 04, 2016

***Corresponding author:** Ibrahim Mohammad Saeed Shnawa, College of Biotechnology, University of Qasim, Qasim, Babylon, Iraq, Tel: 07800188929; Email: ishnawa@yahoo.com

Letter to Editor

Epitopes are either surface or internal located within the continuum of the antigen. They are made up of eight to ten amino acids in peptide epitope, eight to ten sugar units in polysaccharide epitope or a structural equavilants in lipoidal epitopes. Epitpes determine; specificity, valence, immune dominance, and reactivity [1]. The types of the epitopes can be; linear, conformational, topographic and/ or immune dominant. The microbial vaccine epitope mapping can be structural that imply detailed immunochemical analysis to the subunit macromolecules or amino acid sequencing in order to determine the peptidome for a peptide epitope of microbial vaccine origin. Or sugar chain forming the polysaccharide epitope. The structural shared vaccine epitope lead to either unilateral or bilateral in-vitro shared immune reactivity and/or cross-immune protection *invivo* [1,2]. While, the functional epitope mapping [3] aims at deducing the epitope nature from their own functional patter [1-3]. Let us taking three bacterial vaccine epitopes in common in our community and may be common all-over the world as BCG, typhoid and Brucella vaccines. BCG vaccine functional epitope mapping covers; Specific normoglobulin, specific cryoglobulin activating epitopes allergenic epitope, granulomatogenic epitope, molecular mimicry epitope, lymphocyte mitogenic and blastogenic epitopes as well as tumor reducing epitopes in the host reactive immune system. Though in compromised host immune system has shown lower levels of functions for the epitopes [4-7]. Typhoid vaccine functional epitope mapping showed specific normoglobulin, specific cryoglobulin inducing epitopes, allergenic, immunoprotective as well as lym phocyte mitogenic and blastogenic epitopes in the host reactive immune system. Though in compromised host immune system the host has shown quantitative decrease of epitope functions [8,9]. Brucella vaccine functional epitope mapping has shown specific cryoglobulin and specific normoglobulin inducing epitopes, allergenic epitopes, and granulomatogenic epitopes in reactive immune system. While the compromised host immune system has shown quantitative reduction in various epitope functions [10,11]. Cold stay for rather long time period, chronicity and working infection cycle for tuberculosis, typhoid and brucella as well as the habits of intracellular parasitism are the pre-request of cryoglobulin responses [12].

Reduce function of the epitope in immune compromised host can be a reflection to an acquired secondary or primary defects [1,2]. The functions of replicating epitopes [live vaccine, epitope spreading] as compared to non-replicating epitopes [attenuated or dead vaccine], the replicating type has shown higher limits of immune functions. Though, higher immune function may be features to several immune biological functions like intracellular persistence, cross-talk between the replicating eiptope and the cells forming the immune system [13]. Herd immunity plots are relative attributes of preimmunity, post-vaccination, and major histocompatibility complex encodements. Three herd fractions are evident within herd as; low, moderate and high responders. The plot shape is mostly of Gaussian distribution or skewed distribution types [14]. Vaccine immune protectivity with in the primed host[s] immune system can be practically explained via; morbidity, mortality and survival records as well as immune conversion rates among vaccinated [13]. At the molecular levels, however, immune protection may a function of epitope-paratope neutralization and / or interaction in-vivo or cellular activity of memory T lymphocyte on second recall of the specific invading pathogen or for a function of cytotoxic T lymphocyte activity [1,2]. Thus it seems that this trend of functional epitope mapping is a qualitative rather than quantitative approach. Though quantitation in some is Possible.

References

1. Abbas AK, Litchman AH, Pillali S (2015) Cellular and Molecular Immunology. (8th edn), Elsevier, Saunder, Philadephia.

2. Delves PJ, Roitt IM (1998) Encyclopedia of Immunology. Academi Press, New York, USA, pp. 214-218.

3. Lipsky PE, et al. (1993) Structure, Function and Regulation of Molecules involved in leukocyte Adhesion, Springer-Verlag, New York, USA, pp. 167-177.

4. Shnawa IM, JassimYA (2011) BCG and tuberculin induced experimental lapin cryoglobulinemia. Qadis Med J 7(12): 203-209.

5. Shnawa IMS, AL gebori NRR (2012) Secretory and circulatory cryoglobulinemia in pulmonary tuberculus patients. Baby Uni J 20(5): 1419-1422.

6. ALSadi MAK, Shnawa IMS, AL Mukhtar S (2007) An evaluation study of cellular immunological functions in anergic tuberculosis patients. Baby Med J 4(3): 198-204.

7. Shnawa IMS, Albyatee LAA (2009) An in-vivo skin test and T cell mitogenicity. ALQadis J Vet Med Sci 8(1): 1-7.

8. AL Amar MAH (2006) some aspects of Specific immunity For Salmonella typhi in patients and Rabbits, Ph.D. Thesis, department of Biology College of Science, University of Babylon/Iraq.

9. Shnawa IM S, AL Sarhan AJ (2014) Mixed IgG-IgM-IgA cryoglobulin responses in human typhoid patients. IOSRPBS 9(2): 26-29.

10. Hassen AM (2003) Humoral Immune responses In Chronic viral hepatitis, Brucellosis and Diabets mellitus, Ph.D. Thesis, Department of Biology, College of Science, University of Babylon/ Iraq.

11. Shnawa IMS, Jassim YA (2014) Mixed two variant types of cryoglobulin associated with brucellosis human patients. WJPR 3(4): 1883-1889.

12. Shnawa IMS (2015) Immunology of Natural and Induced Cryglobulinemia. IISTE, USA.

13. Kauffman SHE (2004) Novel Vaccination Strategies. WileyVCH, Germany.

14. Shnawa IMS (2014) Individual variation and human herd immunity. J Nat Sci Res 4(8): 31-38.