

# **A Review on Immunostimulant**

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**Abstract:** *Humans and other vertebrates reside in a world that is occupied by a huge range of pathogenic microbes and toxic substances that menace normal homeostasis; and immunity is a specialized form of host defense mechanism that works particularly in relation to the causes and prevention of diseases. Manifestation of disease due to the pathogen depends on its virulence and capability of the immune system; and to achieve resistance against disease, the most important is strengthening the immune system. If the immune system fails become under or over active, or hits the wrong target it can vent a variety of adverse consequences. Under-activity of the immune system. The proper functioning of human immune system is essential for organism survival against infectious, toxic and oncogenic agents. The concept of immuno modulation was proposed by Edward Jenner, while working on polio vaccine in 1796. A brawny, fine-functioning immune system is the keystone of excellent health*

**Keywords:** Immunomodulators, Immunostimulants, Mechanism, Immune system

## **REFERENCES**

- [1]. Carter D, Reed SG. Role of adjuvants in modelling the immune response. *Cur Opin HIV AIDS*. 2010; 5 (5): 409-13.
- [2]. Galeotti M. Some aspects of the application of Immunostimulants and a critical review of methods for their evaluation. *J Appl Ichthyol*. 1998; 14 (3-4): 189-99.
- [3]. Chaplin DD. Overview of the Immune Response. *J Allergy Clin Immunol*. 2015; 125:1-41
- [4]. Meagher MW. Immune system structure and function. *Encyclopedia of Health Psychology*. 2014; 1-9.
- [5]. Galeotti M. Some aspects of the application of immunostimulants and a critical review of methods for their evaluation. *J Appl Ichthyol*. 1998; 14 (3-4): 189-99. <https://doi.org/10.1111/j.1439-0426.1998.tb00641.x>.
- [6]. <https://en.wikipedia.org/wiki/Immunostimulants>
- [7]. Schultz KT, Grieder F. Structure and Function of the Immune System. *Toxicol Paolo*. 1987; 15(3):262-264. <https://doi.org/10.1177/019262338701500301>
- [8]. Marshall JS, Warrington R, Watson W, Kim HL. An introduction to immunology and immunopathology. *Allergy, Asthma Clin Immunol*. 2018; 14:49-59. <https://doi.org/10.1186/s13223-018-0278-1>
- [9]. Cruvinel WDM, Júnior DM, Antônio J, Araújo P, Tiekko T, Catelan. Fundamentals of innate immunity with emphasis on molecular and cellular mechanisms of inflammatory response. *Bras JRheumatol*. 2010; 50(4):434-461. <https://doi.org/10.1590/S0482-50042010000400008>
- [10]. Marshall JS, Warrington R, Watson W, Kim HL. An introduction to immunology and immunopathology. *Allergy, Asthma Clin Immunol*. 2011; 7:1-8. <https://doi.org/10.1186/1710-1492-7-S1-S1>
- [11]. Nielsen HG. Exercise and Immunity. In: *Current Issues in Sports and Exercise Medicine*. 2016. p. 121-42. Available from: <https://www.intechopen.com/books/advanced-biometric-technologies/liveness-detection-in-biometrics>.
- [12]. Advances in Exercise Immunology - UQ eSpace. Available from: <https://espace.library.uq.edu.au/view/UQ:145869>.
- [13]. Turvey SE, Broide DH. Innate Immunity. *J Allergy Clin Immunol*. 2010; 125:24-32. <https://doi.org/10.1016/j.jaci.2009.07.016>
- [14]. Sattler S. The Role of the Immune System beyond the Fight against Infection. 1003rd ed. London: Springer International Publishing; 2017. p. 3-14. [https://doi.org/10.1007/978-3-319-57613-8\\_1](https://doi.org/10.1007/978-3-319-57613-8_1)
- [15]. John H Humphrey SSP. Evolution of the immune system. *Encycl Br*. 2020; 1-3.

- [16]. Travis J. On the Origin of the Immune System. *Science*. 2009;324(5927):580-582. [https://doi.org/10.1126/science.324\\_580](https://doi.org/10.1126/science.324_580)
- [17]. Janeway CA JR, Travers P WM. *Immuno biology: The ImmuneSystem in Health and Disease*. 5th Ed. New York: Garland Science; 2001. 1-884 pp.
- [18]. Labh SN, Shakya SR. Application of Immunostimulants as an alternative to vaccines for health management in aquaculture. *Int J Fish Aquat St*. 2014; 2 (1): 153-6.
- [19]. Petrunov B, Nenkov P, Shekerdjiisky R. The role of Immunostimulants in immunotherapy and immunoprophylaxis. *Biotechnol & Biotechnol Eq*. 2007; 21(4): 454-63.
- [20]. Patil US, Jaydeokar AV, Banda wane DD. Immunomodulators: A pharmacological review. *Int J Pharm Pharm Sci*. 2012; 4 (1): 30-6.
- [21]. Biswajit D, Surakarta D, Chandra CR, Jashabir C. An overview of levamisole hydrochloride with Immunostimulants activity. *Am J Pharm Health Res*. 2014; 2 (4): 1-9.
- [22]. Tsuruo T, Naganuma K, Iida H, Yamori T, Tsukagoshi S, Sakurai Y. Inhibition of lymph node metastasis of P388 leukemia by bestatin in mice. *J Antiriot (Tokyo)*. 1981; 34 (9): 1206-9.
- [23]. Dhama K, Sami Nathan M, Jacob SS, Singh M, Karthik K, Amarpal, Tiwari R, Sunkara LT, Malik YS, Singh RK. Effect of immunomodulation and immunomodulatory agents on health with some bioactive principles, modes of action and potent biomedical applications. *Int J Pharmacol*. 2015; 11 (4): 253-90.
- [24]. Frech SA, Kenney RT, Spyr CA, Lazar H, Viret JF, Herzog C, Glück R, Glenn GM. Improved immune responses to influenza vaccination in the elderly using an Immunostimulants patch. *Vaccine*. 2005; 23 (7): 946-50.
- [25]. Davtyan H, Ghochikyan A, Hovakimyan A, Petrushina I, Yu J, Flyer D, Madsen PJ, Pedersen LO, Cribbs DH, Agadjanyan MG. Immunostimulants patches containing *Escherichia coli* LT enhance immune responses to DNA- and recombinant protein-based Alzheimer's disease vaccines. *J Neuroimmunology*. 2014; 268 (1-2): 50-7.
- [26]. Mkrtichyan M, Ghochikyan A, Movsesyan N, Karapetyan A, Begoyan G, Yu J, Glenn GM, Ross TM, Agadjanyan MG, Cribbs DH. Immunostimulant adjuvant patch enhances humoral and cellular immune responses to DNA immunization. *DNA Cell Biol*. 2008; 27 (1): 19-24.
- [27]. Garçon N, Leroux-Roels G, Cheng WF. *Understanding modern vaccines: Perspectives in Volcanology*. Elsevier BV. 2011; 1: 89-113.
- [28]. Pasquale AD, Preiss S, Da Silva FT, Garçon N. Vaccine adjuvants: from 1920 to 2015 and Beyond. *Vaccines (Basel)*. 2015; 3 (2): 320-43.
- [29]. Mizumoto N, Gao J, Matsushima H, Ogawa Y, Tanaka H, Takashima A. Discovery of novel Immunostimulants by dendritic-cell based functional screening. *Blood*. 2005; 106 (9): 3082-9.