Journal of Clinical & Experimental Oncology

Commentary A SCITECHNOL JOURNAL

Procedures Involved in Cancer Immunotherapy

Seong Jin*

Department of Oncology, Shengjing Hospital of China Medical University, Shenyang, China

***Corresponding author:** Seong Jin, Department of Oncology, Shengjing Hospital of China Medical University, Shenyang, China; E-mail: seong11jin@gmail.com

Received date: 14 February, 2023, Manuscript No. JCEOG-23-92204;

Editor assigned date: 16 February, 2023, PreQC No. JCEOG-23-92204 (PQ);

Reviewed date: 03 March, 2023, QC No. JCEOG-23-92204;

Revised date: 10 March, 2023, Manuscript No. JCEOG-23-92204 (R);

Published date: 20 March, 2023 DOI: 10.4172/2324-9110.1000332

Description

Cancer is a genetic disease that is characterised by genomic instability, in which a great number of point mutations build up and structural changes takes place as the tumor progresses. These genetic changes may result in tumor antigens, which the immune system may identify as non-self and which may cause cellular immunological responses. Because immune cells from the adaptive and innate immune systems infiltrate the Tumor Microenvironment (TME) and influence the control of tumor progression, the immune system is crucial to immunosurveillance [1]. Natural killer (NK) cells, eosinophils, basophils, mast cells, neutrophils, monocytes, macrophages, and dendritic cells are innate immune cells that play a role in tumor suppression by either directly destroying tumor cells or by inducing adaptive immune responses. The adaptive immune system functions with lymphocytes, including B cells and T cells, among which B cells play a major role in humoral immune responses, whereas T cells are involved in cell-mediated immune responses [2]. The three main cytokines used in immunotherapy are Interferons, Interleukins, and Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF) the cytokine as a pioneer in immunotherapy. Unlike immune checkpoint inhibitors, cytokines directly boost the activity and growth of immune cells.

Interferons are generally produced by immune cells in response to microbial pathogen infections and thus induce the maturation of various immune cells, such as macrophages, Dendritic Cells (DCs), Natural Killer (NK) cells, and lymphocytes, to exert immune responses. Angiogenesis in the extracellular tumor space can also be suppressed by interferon-activated immune cells [3]. Moreover, interleukins stimulate the activity and growth of T cells. GM-CSF utilizes two mechanisms to achieve the goal of enhancing immune responses. The first is to promote T cell homeostasis, which increases T cell survival, and the second is to promote dendritic cell differentiation, which allows these cells to express tumor-specific antigens [4].

Cytokine therapies

Functioning as messengers to orchestrate cellular connections and communications of the immune system, cytokines are generated by immunological and non-immune cells in response to cellular stressors such as infection, inflammation, and cancer. The immune signalling is rapidly propagated in a complex effective manner by the secreted cytokines, which may lead to powerful and well-coordinated immune responses to target antigens [5]. The discovery of IL-2 has implications for the possible use of cytokines in the treatment of cancer (Interleukin 2). IL-2, also known as T-cell growth factor, has the ability to expand T cells both *in vitro* and *in vivo*, and thus has immune-stimulatory properties. The use of high doses of IL-2 in clinical applications has been shown to cause cancer regressions in patients with metastatic cancer, which is a typical outcome of cytokine therapies. In addition to IL-2, Interferon-Alpha (IFN-α) also serves as a classic therapeutic cytokine in cancer treatment. IFN-, a pleiotropic cytokine of type I IFN, is one of the many cytokines that make up the Large Family of Interferons (IFNs), and it plays a significant role in the effectiveness of antitumor immunity.

Conclusion

A new method of treating cancer is called cancer immunotherapy. Despite the prevalence of immune-related side effects, immune-targeting therapies are more tolerable than conventional chemotherapeutic drugs. For instance, a variety of therapeutic agents that are chosen based on patient-specific targets can be accommodated by a number of delivery systems, such as nanoparticles, scaffolds, mesoporous silica, and hydrogels. The potential for cancer patients to be cured by this personalized treatment.

References

1. Till SJ, Francis JN, Nouri-Aria K, Durham SR (2004) Mechanisms of immunotherapy. J Allergy Clin Immunol. 113(6): 1025-34
2. Waldmann TA (2003) Immunotherapy: past, present and future. Nat Med. 9(3):269-77
3. Chippaux JP, Goyffon M (1998) Venoms, antivenoms and immunotherapy. Toxicon. 36(6):823-46
4. Mellstedt HA, Björkholm M, Johansson B, Ahre A, Holm G, et al., (1979) Interferon therapy in myelomatosis. The Lancet 313(8110):245-7
5. Nathan C, Sporn M (1991) Cytokines in context. J Cell Biol 113(5):981-6

Citation: *Jin S (2023) Procedures Involved in Cancer Immunotherapy. J Clin Exp Oncol 12:1.*

All articles published in Journal of Clinical & Experimental Oncology are the property of SciTechnol and is protected by copyright laws. Copyright © 2023, SciTechnol, All Rights Reserved.