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EDITORIAL

In this issue: Role of immune cells, immune modulating factors and immunotoxins in cancer immunotherapy

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The host immunity is not only critical for defense againt infections but it also plays a pivotal role in early removal of transformed or neoplastic cells induced by dysregulation of proto-oncogenes. Immune cells such as macrophages, dendritic cells, natural killer (NK) cells, cytotoxic T cells, etc. can recognize a wide range of neoplastic cells and induce cell death via triggering anti-tumor cytokines or effector molecules; conversely, dysregulation of some immune cells and factors can also promote oncogenesis. This issue of the *International Reviews of Immunology* showcases the interaction of transformed cells with immunity, and the potential of immune cells or associated factors in the development of anti-cancer immunotheraputics. Additionally, this issue discusses the impact of maternal hormones on immunity of developing offspring (Fig. 1).

NK cells induce cell death of virally infected and transformed cells by a process known as antibody-dependent cell-mediated cytotoxicity (ADCC). In the first review of this issue, Preethy et al highlighted the potential of NK cells in development of novel therapeutics against solid and blood tumors. The article discusses extensively protocols for expansion of autologous and allogenic NK cells and benefits of cell-based thearapy in combination with radio- and/or chemotheraphy. This article, increasing the current knowledge of cell-based therapies, may be of interest to both oncologists, immunologists and clinicians(Fig. 1).

Transforming growth factor-beta (TGF-β) is one of the most important cytokines produced by a broad range of immune cells such as macrophages, activating various responses such as inflammation, cell growth and differentiation, and apoptosis. In the second review article, Amarante et al. describe the essential role of TGF-β in tumor suppressor during malignant growth. The review details the cross-talk between TGF-β and one of the more common pediatric cancers known as Wilms tumor. As TGF-β has been widely described as immune suppressive cytokine, this review enriches the fundamaental understanding of TGF-β in cancer by bringing a complementary perspective with translational applicability (Fig. 1).

Targated therapy is a cornerstone of modern oncology. Antibody drug conjugates (ADC) or immunotoxins are targeted therapeutics. In addition to antibodies, receptor ligands could also be utilized to target the payloads. The third review article by Akbari et al., focuses on advantages and disadvantages of specific toxins of bacterial and plant origin, as payloads for ADCs. Furthermore, this review provides a perspective on clinical development of such therapies (Fig. 1).

The fourth review article in this issue, by Opazo et al., discusses the effects of maternal thyroid hormone on the B and T cell immunity of offspring. The article explains how suboptimal production of maternal thyroid hormone

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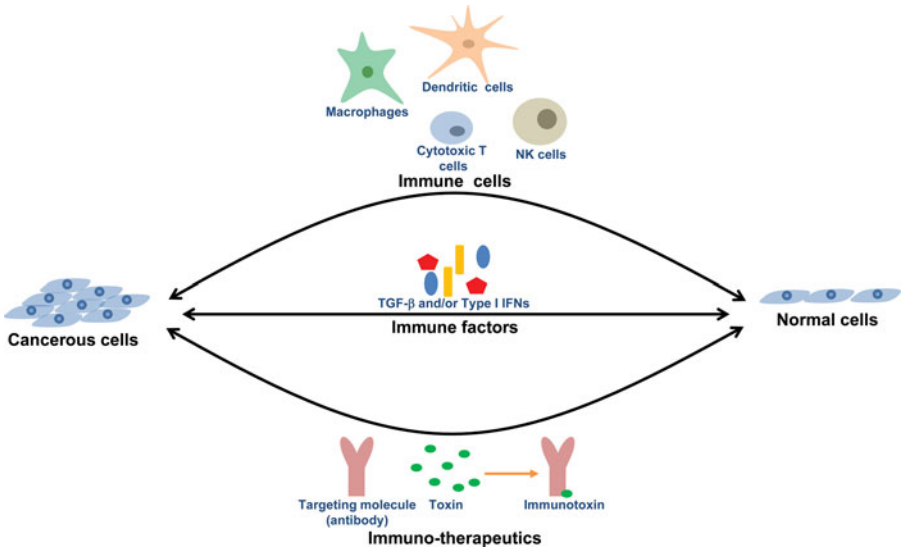

Figure 1. Role of immune cells, immune factors and immunotoxins in cancer therapy. NK, Natural killer cells; TGF-β, Transforming growth factor-beta and Type I IFN, Type I interferons.

may lead to autoimmune encephalomyelitis in female offsprings. The article also suggests possible mechanisms leading to development of novel interventions applicable to such complex disorders.

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References

[1] Preethy S, Depeediya VD, Senthiklumar R, Rajmohan M, Karthick R, Terunuma H, and Abraham SJK. Natural killer cells as a promising tool to tackle cancer–A review of sources, methodologies and potentials. Int Rev Immunol 2017;36(4):xxx–xxx.

[2] Amarante MK, Coral de Oliveira CE, Ariza DB, Sakaguchi AY, Ishibashi CM, and Watanabe MAE. The predictive value of transforming growth factor-β; in Wilms tumor immunopathogenesis. Int Rev Immunol 2017;36(4):xxx–xxx.

[3] Akbari B, Farajnia S, Khosroshahi SA, Safari F, Yousefi M, Dariushnejad H, and Rahbarnia L. Immunotoxins in Cancer Therapy: review and update. Int Rev Immunol 2017;36(4):xxx–xxx.

[4] Opazo MC, Haengsen H, Bohmwald K, Venegas LF, Boudin H, Elorza AA, Simon F, Fardella C, Bueno SM, Kalergis AM, and Riedel CA. Imprinting of maternal thyroid hormones in the offspring. Int Rev Immunol 2017;36(4):xxx–xxx.