

# 肿瘤相关巨噬细胞研究进展

《现代肿瘤医学》[ISSN:1672-4992/CN:61-1415/R] 期数: 2020年03期 页码: 508-512 栏目: 综述 出版日期: 2019-12-26

**Title:** Research progression of tumor-associated macrophage

**作者:** 吴从严<sup>1</sup>; 楼美清<sup>2</sup>; 贾玉<sup>1</sup>; 赵耀东<sup>2</sup>

1.南京医科大学附属上海市第一人民医院神经外科, 上海 200080;2.上海交通大学附属第一人民医院神经外科, 上海 200080

**Author(s):** Wu Congyan<sup>1</sup>; Lou Meiqing<sup>2</sup>; Jia Yu<sup>1</sup>; Zhao Yaodong<sup>2</sup>

1.Department of Neurosurgery, Shanghai General Hospital of Nanjing Medical University, Shanghai 200080, China; 2.Department of Neurosurgery, Shanghai General Hospital of Shanghai Jiaotong University, Shanghai 200080, China.

**关键词:** 肿瘤; 巨噬细胞; 肿瘤相关巨噬细胞

**Keywords:** tumor; macrophage; tumor-associated macrophage

**分类号:** R730.2

**DOI:** 10.3969/j.issn.1672-4992.2020.03.038

**文献标识码:** A

**摘要:** 巨噬细胞起源于骨髓造血干细胞和胚胎时期卵黄囊组织, 根据其活化的状态、发挥的功能以及分泌因子的不同, 将其分为经典活化的M1型巨噬细胞和选择性活化的M2型巨噬细胞。它们具有很强的可塑性, 当局部微环境改变时, M1和M2之间可以发生相互转化。其中极化的M2型巨噬细胞被认为是肿瘤相关巨噬细胞(TAM), 在肿瘤发生发展中起到重要作用, 它通常由血液中单核祖细胞趋化至肿瘤组织, 然后在肿瘤微环境的作用下诱导产生。而转录因子、细胞表面标记、分泌的细胞因子等标志物常被用来对其进行鉴定。近年来, TAM作为肿瘤研究中的热点, 已经被证明在促进肿瘤生长、血管生成、肿瘤侵袭、抑制抗肿瘤免疫反应、耐药/耐放疗中发挥重要作用。

**Abstract:** Macrophages originate from bone marrow hematopoietic stem cells and embryonic yolk sac tissues, which are divided into classical activated M1 macrophages and selectively activated M2 macrophages according to their activation state, function and secretion factors. They have strong plasticity, and when the local microenvironment changes, the M1 and M2 can be transformed into each other. Among them, polarized M2 macrophages are believed to be tumor-associated macrophages (TAM), which play an important role in the development of tumors. It is usually chemotactic from mononuclear progenitor cells in the blood to tumor tissue and then induced by the tumor microenvironment. Transcription factors, cell surface markers, secreted cytokines and other markers are often used to identify them. In recent years, TAM as a hot spot in tumor research, has been proved to play an important role in promoting tumor growth, angiogenesis, tumor invasion, inhibiting anti-tumor immune response and drug/radiation resistance.

## 参考文献/REFERENCES

- [1] Williams CB, Yeh ES, Soloff AC. Tumor-associated macrophages: Unwitting accomplices in breast cancer malignancy [J]. *Npj Breast Cancer*, 2016(2):15025.
- [2] Chanmee T, Ontong P, Konno K, et al. Tumor-associated macrophages as major players in the tumor microenvironment [J]. *Cancers*, 2014, 6(3): 1670.
- [3] Davis MJ, Tsang TM, Qiu Y, et al. Macrophage M1/M2 polarization dynamically adapts to changes in cytokine microenvironments in *Cryptococcus neoformans* infection [J]. *mBio*, 2013, 4(3): e00264-00213.
- [4] Lin YW, Lee B, Liu PS, et al. Receptor-interacting protein 140 orchestrates the dynamics of macrophage M1/M2 polarization [J]. *Journal of Innate Immunity*, 2016, 8(1): 97-107.
- [5] Roszer T. Understanding the mysterious M2 macrophage through activation markers and effector mechanisms [J]. *Mediators of Inflammation*, 2015(2015):816460.
- [6] Lu G, Zhang R, Geng S, et al. Myeloid cell-derived inducible nitric oxide synthase suppresses M1 macrophage polarization [J]. *Nature Communications*, 2015(6):6676.
- [7] Mitchell RE, Hassan M, Burton BR, et al. IL-4 enhances IL-10 production in Th1 cells: implications for Th1 and Th2 regulation [J]. *Scientific Reports*, 2017, 7(1): 11315.



[35] Xu J, Escamilla J, Mok S, et al. CSF1R signaling blockade stanches tumor-infiltrating myeloid cells and improves the efficacy of radiotherapy [J]. *Cancer Research*, 2013, 73(9): 2782-2794.

---

备注/Memo: -

---

更新日期/Last Update: 1900-01-01