

液体活检与肿瘤

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Title: Liquid biopsy and tumors

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摘要: 目前液体活检技术可用于各种肿瘤的诊断、复发及药物治疗效果的评估, 主要包括循环肿瘤细胞 (circulating tumor cells, CTCs)、血浆游离肿瘤DNA (cell-free circulating tumor DNA, ctDNA) 及外泌体, 本文主要概述了液体活检技术在肺癌、乳腺癌、前列腺癌、头颈部鳞癌及结直肠癌中的应用, 为其在肿瘤疾病的诊断中提供了更多的理论基础。

Abstract: Liquid biopsy can be used in the diagnosis, recurrence of tumors and evaluation of drug treatment effects, which mainly includes circulating tumor cells (CTCs), cell-free circulating tumor DNA (ctDNA) and exocrine. This article mainly summarizes the application of liquid biopsy technology in lung cancer, breast cancer, prostate cancer, head and neck squamous cell carcinoma and colorectal cancer, and provides more theoretical basis for the liquid biopsy technique in the diagnosis of tumor diseases.

参考文献/REFERENCES

- [1]Ma YH, Huang YC.Detection of resistance mutations of EGFR gene T90M in peripheral blood of patients with lung adenocarcinoma by different detection methods [D] .Kunming:Kunming Medical University,2014: 1-59. [马煜辉, 黄云超.不同检测方法在肺腺癌患者外周血ctDNA样本中EGFR基因T90M的耐药突变的研究 [D] .昆明:昆明医科大学, 2014: 1-59.]
- [2]Matthew G.Krebs J, Tim H, et al.Circulating tumour cells: Their utility in cancer management and predicting outcomes [J] .Therapeutic Advances in Medical Oncology, 2010, 2(6): 351-365.
- [3]Zhao YP, Zhu RR.The application of circulating tumor cells to analyze the whole process of epithelial-mesenchymal transition of adenocarcinoma and its clinical significance [D] .Beijing:Union Medical College,2016: 1-101. [赵玉沛, 朱融融.应用循环肿瘤细胞解析膜腺癌上皮-间质转化全程及其临床意义探究 [D] .北京:协和医学院, 2016: 1-101.]
- [4]Koeppel F, Blanchard S, Jovelet C, et al.Whole exome sequencing for determination of tumor mutation load in liquid biopsy from advanced cancer patients [J] .PLoS One, 2017, 12(11): e0188174.
- [5]Yang SJ, Wang DD, Li J, et al.Predictive role of GSTP1-containing exosomes in chemotherapy-resistant breast cancer [J] .Gene, 2017, 623: 5-14.
- [6]Guo H, Chitiprolu M, Roncevic L, et al.Atg5 Disassociates the V1V0-ATPase to promote exosome production and tumor metastasis independent of canonical macroautophagy [J] .Dev Cell, 2017, 43(6): 716-730.
- [7]Chudasama D, Burnside N, Beeson J, et al.Perioperative detection of circulating tumour cells in patients with lung cancer [J] .Oncol Lett, 2017, 14(2): 1281-1286.
- [8]Nel I, Jehn U, Gauler T, et al.Individual profiling of circulating tumor cell composition in patients with non-small cell lung cancer receiving platinum based treatment [J] .Transl Lung Cancer Res, 2014, 3(2): 100-106.
- [9]Shinsaku Togo, Nobuyoshi Katagiri, Yukiko Namba, et al.Sensitive detection of viable circulating tumor cells using a novel conditionally telomerase-selective replicating adenovirus in non-small cell lung cancer patients [J] .Oncotarget, 2017, 8(21): 34884-34895.
- [10]Pecuchet N, Zonta E, Didelot A, et al.Base-position error rate analysis of next-generation sequencing applied to circulating tumor DNA in non-small cell lung cancer: A prospective study [J] .PLoS Med, 2016,

13(12): e1002199.

[11] Yao Yu, Liu Jinghao, Li Lei, et al. Detection of circulating tumor DNA in patients with advanced non-small cell lung cancer [J]. *Oncotarget*, 2017, 8(2): 11.

[12] Zhang R, Xia Y, Wang Z, et al. Serum long non coding RNA MALAT-1 protected by exosomes is up-regulated and promotes cell proliferation and migration in non-small cell lung cancer [J]. *Biochem Biophys Res Commun*, 2017, 490(2): 406-414.

[13] Schneck H, Gierke B, Uppenkamp F, et al. EpCAM-independent enrichment of circulating tumor cells in metastatic breast cancer [J]. *PLoS One*, 2015, 10(12): e0144535.

[14] Lustberg MB, Balasubramanian P, Miller B, et al. Heterogeneous atypical cell populations are present in blood of metastatic breast cancer patients [J]. *Breast Cancer Res*, 2014, 16(2): R23.

[15] Higgins MJ, Jelovac D, Barnathan E, et al. Detection of tumor PIK3CA status in metastatic breast cancer using peripheral blood [J]. *Clin Cancer Res*, 2012, 18(12): 3462-3469.

[16] Oshiro C, Kagara N, Naoi Y, et al. PIK3CA mutations in serum DNA are predictive of recurrence in primary breast cancer patients [J]. *Breast Cancer Res Treat*, 2015, 150(2): 299-307.

[17] Chae YK, Davis AA, Jain S, et al. Concordance of genomic alterations by next-generation sequencing in tumor tissue versus circulating tumor DNA in breast cancer [J]. *Mol Cancer Ther*, 2017, 16(7): 1412-1420.

[18] Zhao S, Yang H, Zhang M, et al. Circulating tumor cells (CTCs) detected by triple-marker EpCAM, CK19, and hMAM RT-PCR and their relation to clinical outcome in metastatic breast cancer patients [J]. *Cell Biochem Biophys*, 2013, 65(2): 263-273.

[19] Liu Z, Fusi A, Klopocki E, et al. Negative enrichment by immunomagnetic nanobeads for unbiased characterization of circulating tumor cells from peripheral blood of cancer patients [J]. *J Transl Med*, 2011, 9: 70.

[20] Chen Y, Zeng C, Zhan Y, et al. Aberrant low expression of p85alpha in stromal fibroblasts promotes breast cancer cell metastasis through exosome-mediated paracrine Wnt10b [J]. *Oncogene*, 2017, 36(33): 4692-4705.

[21] Ning K, Wang T, Sun X, et al. UCH-L1-containing exosomes mediate chemotherapeutic resistance transfer in breast cancer [J]. *J Surg Oncol*, 2017, 115(8): 932-940.

[22] Wyatt AW, Annala M, Aggarwal R, et al. Concordance of circulating tumor DNA and matched metastatic tissue biopsy in prostate cancer [J]. *J Natl Cancer Inst*, 2017, 109(12): 1-9.

[23] Wyatt AW, Azad AA, Volik SV, et al. Genomic alterations in cell-free DNA and enzalutamide resistance in castration-resistant prostate cancer [J]. *JAMA Oncol*, 2016, 2(12): 1598-1606.

[24] Antonarakis ES, Lu C, Luber B, et al. Androgen receptor splice variant 7 and efficacy of taxane chemotherapy in patients with metastatic castration-resistant prostate cancer [J]. *JAMA Oncol*, 2015, 1(5): 582-591.

[25] Conteduca V, Scarpi E, Caroli P, et al. Circulating androgen receptor combined with 18F-fluorocholine PET/CT metabolic activity and outcome to androgen receptor signalling-directed therapies in castration-resistant prostate cancer [J]. *Sci Rep*, 2017, 7(1): 15541.

[26] Weller P, Nel I, Hassenkamp P, et al. Detection of circulating tumor cell subpopulations in patients with head and neck squamous cell carcinoma (HNSCC) [J]. *PLoS One*, 2014, 9(12): e113706.

[27] Muhanna N, Di MA, Grappa H, et al. Cell-Free DNA kinetics in a pre-clinical model of head and neck cancer [J]. *Sci Rep*, 2017, 7(1): 16723.

[28] Deng G, Herrler M, Burgess D, et al. Enrichment with anti-cytokeratin alone or combined with anti-EpCAM antibodies significantly increases the sensitivity for circulating tumor cell detection in metastatic breast cancer patients [J]. *Breast Cancer Res*, 2008, 10(4): R69.

[29] El-Gayar D, El-Abd N, Hassan N, et al. Increased free circulating DNA integrity index as a serum biomarker in patients with colorectal carcinoma [J]. *Asian Pacific Journal of Cancer Prevention*, 2016, 17(3): 939-944.

[30] Umetani N, Kim J, Hiramatsu S, et al. Increased integrity of free circulating DNA in sera of patients with colorectal or periampullary cancer: Direct quantitative PCR for ALU repeats [J]. *Clin Chem*, 2006, 52(6): 1062-1069.

[31] Hao, TB, Shi W, Shen XJ, et al. Circulating cell-free DNA in serum as a biomarker for diagnosis and prognostic prediction of colorectal cancer [J]. *Br J Cancer*, 2014, 111(8): 1482-1489.

备注/Memo: -

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