

World Journal of *Gastrointestinal Oncology*

World J Gastrointest Oncol 2024 August 15; 16(8): 3368-3740



EDITORIAL

- 3368 Remazolam combined with transversus abdominis plane block in gastrointestinal tumor surgery: Have we achieved better anesthetic effects?
Cao J, Luo XL, Lin Q
- 3372 Immune-related gene characteristics: A new chapter in precision treatment of gastric cancer
Gao L, Lin Q
- 3376 Navigating the labyrinth of long non-coding RNAs in colorectal cancer: From chemoresistance to autophagy
Yu JM, Sun CQ, Xu HH, Jiang YL, Jiang XY, Ni SQ, Zhao TY, Liu LX
- 3382 Importance of early detection of esophageal cancer before the tumor progresses too much for effective treatment
Ono T
- 3386 Early diagnosis of esophageal cancer: How to put “early detection” into effect?
Pubu S, Zhang JW, Yang J
- 3393 Colon cancer screening: What to choose?
Gomez Zuleta MA

REVIEW

- 3397 Research progress on the development of hepatocyte growth factor/c-Met signaling pathway in gastric cancer: A review
Wei WJ, Hong YL, Deng Y, Wang GL, Qiu JT, Pan F
- 3410 Research progress on the effect of pyroptosis on the occurrence, development, invasion and metastasis of colorectal cancer
Wang X, Yin QH, Wan LL, Sun RL, Wang G, Gu JF, Tang DC

MINIREVIEWS

- 3428 Importance of diet and intestinal microbiota in the prevention of colorectal cancer - colonoscopy early screening diagnosis
Jovandaric MZ

ORIGINAL ARTICLE**Retrospective Cohort Study**

- 3436 Analysis of vascular thrombus and clinicopathological factors in prognosis of gastric cancer: A retrospective cohort study
Chen GY, Ren P, Gao Z, Yang HM, Jiao Y

- 3445 Application of fecal immunochemical test in colorectal cancer screening: A community-based, cross-sectional study in average-risk individuals in Hainan

Zeng F, Zhang DY, Chen SJ, Chen RX, Chen C, Huang SM, Li D, Zhang XD, Chen JJ, Mo CY, Gao L, Zeng JT, Xiong JX, Chen Z, Bai FH

- 3457 Effect of perioperative chemotherapy on resection of isolated pulmonary metastases from colorectal cancer: A single center experience

Gao Z, Jin X, Wu YC, Zhang SJ, Wu SK, Wang X

Retrospective Study

- 3471 Microvascular structural changes in esophageal squamous cell carcinoma pathology according to intrapapillary capillary loop types under magnifying endoscopy

Shu WY, Shi YY, Huang JT, Meng LM, Zhang HJ, Cui RL, Li Y, Ding SG

- 3481 Camrelizumab, apatinib and hepatic artery infusion chemotherapy combined with microwave ablation for advanced hepatocellular carcinoma

Zuo MX, An C, Cao YZ, Pan JY, Xie LP, Yang XJ, Li W, Wu PH

- 3496 Serum ferritin and the risk of early-onset colorectal cancer

Urback AL, Martens K, McMurry HS, Chen EY, Citti C, Sharma A, Kardosh A, Shatzel JJ

- 3507 Combining lymph node ratio to develop prognostic models for postoperative gastric neuroendocrine neoplasm patients

Liu W, Wu HY, Lin JX, Qu ST, Gu YJ, Zhu JZ, Xu CF

Observational Study

- 3521 Efficacy of chemotherapy containing bevacizumab in patients with metastatic colorectal cancer according to programmed cell death ligand 1

Kang SW, Lim SH, Kim MJ, Lee J, Park YS, Lim HY, Kang WK, Kim ST

- 3529 Endoscopic detection and diagnostic strategies for minute gastric cancer: A real-world observational study

Ji XW, Lin J, Wang YT, Ruan JJ, Xu JH, Song K, Mao JS

Clinical and Translational Research

- 3539 Targeting colorectal cancer with Herba Patriniae and Coix seed: Network pharmacology, molecular docking, and *in vitro* validation

Wang CL, Yang BW, Wang XY, Chen X, Li WD, Zhai HY, Wu Y, Cui MY, Wu JH, Meng QH, Zhang N

Basic Study

- 3559 Expression and significant roles of the long non-coding RNA CASC19/miR-491-5p/HMGA2 axis in the development of gastric cancer

Zhang LX, Luo PQ, Wei ZJ, Xu AM, Guo T

- 3585 Insulin-like growth factor 2 targets IGF1R signaling transduction to facilitate metastasis and imatinib resistance in gastrointestinal stromal tumors

Li DG, Jiang JP, Chen FY, Wu W, Fu J, Wang GH, Li YB

- 3600** Dysbiosis promotes recurrence of adenomatous polyps in the distal colorectum
Yin LL, Qi PQ, Hu YF, Fu XJ, He RS, Wang MM, Deng YJ, Xiong SY, Yu QW, Hu JP, Zhou L, Zhou ZB, Xiong Y, Deng H
- 3624** Effect of acacetin on inhibition of apoptosis in *Helicobacter pylori*-infected gastric epithelial cell line
Yao QX, Li ZY, Kang HL, He X, Kang M
- 3635** Curcumin for gastric cancer: Mechanism prediction *via* network pharmacology, docking, and *in vitro* experiments
Yang PH, Wei YN, Xiao BJ, Li SY, Li XL, Yang LJ, Pan HF, Chen GX
- 3651** Lecithin-cholesterol acyltransferase is a potential tumor suppressor and predictive marker for hepatocellular carcinoma metastasis
Li Y, Jiang LN, Zhao BK, Li ML, Jiang YY, Liu YS, Liu SH, Zhu L, Ye X, Zhao JM

META-ANALYSIS

- 3672** Efficacy of hepatic arterial infusion chemotherapy and its combination strategies for advanced hepatocellular carcinoma: A network meta-analysis
Zhou SA, Zhou QM, Wu L, Chen ZH, Wu F, Chen ZR, Xu LQ, Gan BL, Jin HS, Shi N

SCIENTOMETRICS

- 3687** Current trends and hotspots of depressive disorders with colorectal cancer: A bibliometric and visual study
Yan ZW, Liu YN, Xu Q, Yuan Y
- 3705** Research status and hotspots of tight junctions and colorectal cancer: A bibliometric and visualization analysis
Li HM, Liu Y, Hao MD, Liang XQ, Yuan DJ, Huang WB, Li WJ, Ding L

CASE REPORT

- 3716** Aggressive fibromatosis of the sigmoid colon: A case report
Yu PP, Liu XC, Yin L, Yin G
- 3723** Jejunal sarcomatoid carcinoma: A case report and review of literature
Feng Q, Yu W, Feng JH, Huang Q, Xiao GX

LETTER TO THE EDITOR

- 3732** Current and future research directions in cellular metabolism of colorectal cancer: A bibliometric analysis
Jiang BW, Zhang XH, Ma R, Luan WY, Miao YD
- 3738** Risk factors for the prognosis of colon cancer
Wu CY, Ye K

ABOUT COVER

Editorial Board of *World Journal of Gastrointestinal Oncology*, Salem Youssef Mohamed, MD, Professor, Gastroenterology and Hepatology Unit, Department of Internal Medicine, Zagazig University, Zagazig 44516, Egypt. salemyousefmohamed@gmail.com

AIMS AND SCOPE

The primary aim of *World Journal of Gastrointestinal Oncology* (*WJGO*, *World J Gastrointest Oncol*) is to provide scholars and readers from various fields of gastrointestinal oncology with a platform to publish high-quality basic and clinical research articles and communicate their research findings online.

WJGO mainly publishes articles reporting research results and findings obtained in the field of gastrointestinal oncology and covering a wide range of topics including liver cell adenoma, gastric neoplasms, appendiceal neoplasms, biliary tract neoplasms, hepatocellular carcinoma, pancreatic carcinoma, cecal neoplasms, colonic neoplasms, colorectal neoplasms, duodenal neoplasms, esophageal neoplasms, gallbladder neoplasms, *etc.*

INDEXING/ABSTRACTING

The *WJGO* is now abstracted and indexed in PubMed, PubMed Central, Science Citation Index Expanded (SCIE, also known as SciSearch®), Journal Citation Reports/Science Edition, Scopus, Reference Citation Analysis, China Science and Technology Journal Database, and Superstar Journals Database. The 2024 edition of Journal Citation Reports® cites the 2023 journal impact factor (JIF) for *WJGO* as 2.5; JIF without journal self cites: 2.5; 5-year JIF: 2.8; JIF Rank: 71/143 in gastroenterology and hepatology; JIF Quartile: Q2; and 5-year JIF Quartile: Q2. The *WJGO*'s CiteScore for 2023 is 4.2 and Scopus CiteScore rank 2023: Gastroenterology is 80/167; Oncology is 196/404.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: *Si Zhao*; Production Department Director: *Xiang Li*; Cover Editor: *Jia-Ru Fan*.

NAME OF JOURNAL

World Journal of Gastrointestinal Oncology

ISSN

ISSN 1948-5204 (online)

LAUNCH DATE

February 15, 2009

FREQUENCY

Monthly

EDITORS-IN-CHIEF

Monjur Ahmed, Florin Burada

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/1948-5204/editorialboard.htm>

PUBLICATION DATE

August 15, 2024

COPYRIGHT

© 2024 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>



Immune-related gene characteristics: A new chapter in precision treatment of gastric cancer

Lei Gao, Qiang Lin

Specialty type: Oncology

Provenance and peer review:

Invited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's classification

Scientific Quality: Grade B

Novelty: Grade A

Creativity or Innovation: Grade B

Scientific Significance: Grade B

P-Reviewer: Shalaby MN, Egypt

Received: February 13, 2024

Revised: April 25, 2024

Accepted: May 20, 2024

Published online: August 15, 2024

Processing time: 175 Days and 11.3 Hours



Lei Gao, Department of Medical Imaging, North China Petroleum Bureau General Hospital, Hebei Medical University, Renqiu 062552, Hebei Province, China

Qiang Lin, Department of Oncology, North China Petroleum Bureau General Hospital, Hebei Medical University, Renqiu 062552, Hebei Province, China

Corresponding author: Qiang Lin, MD, PhD, Professor, Department of Oncology, North China Petroleum Bureau General Hospital, Hebei Medical University, No. 8 Huizhan Avenue, Renqiu 062552, Hebei Province, China. billhappy001@163.com

Abstract

Gastric cancer ranks as the sixth most prevalent cancer worldwide. In recent research within the realm of gastric cancer treatment, the identification and application of immune-related genetic features have emerged as groundbreaking advancements. The study by Ma *et al*, which developed a prognostic model based on 10 genes, categorizes patients into high and low-risk groups to predict their responsiveness to immune checkpoint inhibitor therapy. This research underscores the potential of immune-related genes as biomarkers for personalized treatment, offering insights into tumor mutation burden and immune phenotype scores. We advocate for further validation, understanding of biological mechanisms, and integration of diverse datasets to enhance the model's predictive accuracy and clinical application, marking a significant step towards personalized and precise treatment for gastric cancer.

Key Words: Gastric cancer; Personalized treatment; Immune-related genes; Immunotherapy; Genomics

©The Author(s) 2024. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: In the study conducted by Ma *et al.*, a prognostic model for gastric cancer was developed, leveraging 10 pivotal immune-related genes to differentiate patients into high and low-risk categories. This model aims to refine immunotherapy strategies, enhancing the personalization and precision of treatments. Such discoveries hold the promise of introducing novel biomarkers for the personalized medical treatment and immunotherapy of gastric cancer, underscoring the critical importance of further research and validation.

Citation: Gao L, Lin Q. Immune-related gene characteristics: A new chapter in precision treatment of gastric cancer. *World J Gastrointest Oncol* 2024; 16(8): 3372-3375

URL: <https://www.wjgnet.com/1948-5204/full/v16/i8/3372.htm>

DOI: <https://dx.doi.org/10.4251/wjgo.v16.i8.3372>

INTRODUCTION

Gastric cancer, which represents a formidable threat to global health, is associated with persistently high incidence and mortality rates[1]. Statistics from the World Health Organization, it ranks as the sixth most common cancer worldwide, with over a million new cases, and ranking fifth in terms of cancer-related deaths[2]. Its geographical distribution exhibits pronounced regional characteristics, with significantly higher incidence rates in East Asia, Eastern Europe, and parts of South America compared with other regions[3]. The high-risk areas for gastric cancer are often associated with dietary habits, environmental factors, and *Helicobacter pylori* infection. The primary therapeutic strategies for gastric cancer include surgical resection, chemotherapy, radiotherapy, targeted therapy, and immunotherapy[4]. Surgical resection offers a potential cure for early-stage gastric cancer and some locally advanced cases, while chemotherapy and radiotherapy are mainstream treatments for late-stage patients. In recent years, targeted and immunotherapies have emerged as research and clinical trial focal points, offering new hope for effective gastric cancer treatment[5]. Nevertheless, the overall five-year survival rate for gastric cancer patients remains low, with persistent challenges in enhancing treatment efficacy and patient quality of life.

IMMUNE-RELATED GENE CHARACTERISTICS IN GASTRIC CANCER

Recent studies in the field of gastric cancer treatment have marked a breakthrough with identification and application of immune-related gene characteristics. Studies have elucidated the characteristics of a series of genes that play crucial roles in the immune response against tumors. Through in-depth analysis of genetic information derived from analysis of in patients' tumor tissues, researchers can now predict the immune microenvironment and response status of gastric cancer, offering customized treatment guidance. For instance, the expression patterns of specific immune-related genes have been shown to indicate patient responsiveness to immune checkpoint inhibitor therapy[6].

Ma *et al*[7] analyzed differentially expressed immune-related genes (DEIRGs) in gastric cancer patients and constructed a novel prognostic model based on 10 genes, of which 9 were risk genes and one was a protective gene. Patients were stratified into high-risk and low-risk groups based on median risk scores. The study found that low-risk group patients had higher tumor mutation burden and immune phenotype scores, potentially indicating better responsiveness to immune checkpoint inhibitor therapy. Further comparison of immune cell infiltration between high-risk and low-risk groups revealed differences in immune response, providing new personalized treatment biomarkers and directions for the treatment of gastric cancer patients. The population was divided into training and testing cohorts for internal validation, with Kaplan Meier survival rate, receiver operating characteristic, and risk curve analyses indicating the risk model's good predictive capability of the risk model. The identified immune-related genes have also been partially confirmed to be associated with tumor occurrence and progression. Increasing evidence suggests the significant role of TMSB15A in tumor progression, with its upregulation in various cancer cell lines linked to cell migration and proliferation. TMSB15A mRNA levels have been identified as a reliable predictor for triple-negative breast cancer[8]. GLP2R has been associated with gastrointestinal tumors, with its knockdown significantly inhibiting gastric cancer (GC) cell proliferation and migration[9,10]. Silencing of LGR6, which is expressed at high levels in GC cell lines and gastric adenocarcinoma tissues, has been shown to suppress cell proliferation and migration, along with the expression of MMP-9, β -catenin, CCNA2, CDK-2, and ERK1/2 when silenced[11].

FUTURE DIRECTIONS IN RESEARCH

In light of these findings, the integration of external independent datasets into the existing model is recommended to enhance its generalizability. Further exploration of the biological mechanisms of DEIRGs in gastric cancer, including their impact on patient immune response and treatment outcomes, is crucial. The inclusion of data from diverse populations and treatment backgrounds will improve the model's diversity and adaptability. Long-term follow-ups and prospective clinical trials could further validate the model's predictive accuracy and test its clinical application value, improving the

comprehensiveness of the research and providing stronger support for the development of personalized treatment for gastric cancer patients.

The discovery of immune-related gene characteristics undoubtedly heralds a new chapter in the treatment of gastric cancer. Personalized medicine, particularly in the field of oncology, is increasingly becoming a key approach to enhancing treatment efficacy and reducing unnecessary drug side effects. By providing information regarding the activity and regulatory patterns of immune cells in the patient's tumor microenvironment, immune-related gene characteristics can help physicians determine patient responsiveness to immunotherapy, achieving precise and individualized treatment. For patients likely to respond well to immunotherapy, the application of these biomarkers can significantly improve treatment outcomes and survival rates[12]. Furthermore, at the drug development level, immune-related gene characteristics provide a basis for identifying new immunotherapy targets, propelling the research and development of a new generation of immunotherapeutic drugs.

Although immunotherapy based on the PD-1/PD-L1 axis has established its place in gastric cancer treatment, not all patients benefit from it. Research on immune-related gene characteristics helps identify patient groups likely to benefit from immunotherapy and may reveal the molecular mechanisms underlying some patients' resistance to treatment[13]. Through such insights, researchers and physicians can design more precise treatment plans, tailoring therapies to individual patients. Thus, the significance of immune-related gene characteristics in gastric cancer treatment extends beyond mere biomarkers; paving the way for true precision medicine and advancing the innovation of gastric cancer immunotherapy.

Ensuring the stability and reproducibility of the application of immune-related gene characteristics in clinical gastric cancer treatment poses a significant challenge. Achieving this goal requires large-scale, multi-center studies to validate these gene characteristics' reliability across different populations and geographical regions[14]. Additionally, the heterogeneity of gene expression may affect the accuracy of characteristics, necessitating further research into effectively capturing and analyzing subtle changes in the tumor's immune microenvironment.

Future research directions should include a deeper investigation into the practical value of immune-related gene characteristics in treatment decisions, such as in guiding personalized treatment plans through predicting treatment response and resistance. Incorporating multi-omics data, such as genomic, proteomic, and metabolomic data, could enhance the accuracy with which gene characteristics can be utilized to predict treatment efficacy and prognosis[15].

CONCLUSION

To validate the clinical application value of gene characteristics, not only should their impact on treatment decisions be assessed through prospective and retrospective studies; furthermore, randomized controlled clinical trials should also be conducted to test whether treatment strategies based on gene characteristics can offer better outcomes than current standard treatments. Considering the economic cost of treatments, health economics assessments are indispensable, helping to determine the feasibility of integrating immune-related gene characteristics into clinical practice. Through such comprehensive analyses, applications based on immune-related gene characteristics can be anticipated to play a key role in gastric cancer treatment in the future. As research on immune-related gene characteristics advances, the field of gastric cancer treatment stands at a new clinical translational threshold. Transforming laboratory research findings into clinical treatment strategies requires close collaboration between the scientific community and clinicians. Such interdisciplinary teamwork not only accelerates the birth of new treatment strategies but also ensures their practicality and effectiveness. Researchers, being well-versed in tumor immunology and gene characteristics, drive the advancement of gastric cancer treatment with their innovative studies. However, clinicians play a crucial role in the actual application of these treatment methods. They are in direct contact with patients, deeply understanding disease characteristics, treatment responses, and clinical needs. Through collaboration, not only can the clinical efficacy of new treatment methods be more accurately assessed, but potential issues in practical application, such as individualized treatment adjustments, side effect management, and cost-effectiveness evaluation, can also be identified and addressed. Therefore, with the common goal of advancing gastric cancer treatment, the scientific community and clinicians need to strengthen communication and establish a more integrated and efficient cooperation mechanism. This includes, but is not limited to, joint involvement in clinical trial design, data sharing, result interpretation, and the promotion and implementation of new treatment strategies. Additionally, collaboration should extend to the education and training domain, ensuring that the latest research findings are disseminated among doctors and applied in clinical practice. In this context, we call on healthcare system managers, relevant scientific project funding agencies, and medical insurance policy makers to support this interdisciplinary cooperation in order to provide the necessary resources and policy backing. Only through such support can the clinical translation of scientific achievements be truly realized, continuously improving the diagnosis and treatment of gastric cancer, ultimately enhancing patient survival rates and quality of life.

FOOTNOTES

Author contributions: Gao L and Lin Q contributed to this paper; Lin Q designed the overall concept and outline of the manuscript; Gao L wrote the draft of the manuscript; Gao L and Lin Q contributed to the writing and editing the manuscript.

Conflict-of-interest statement: All the authors report no relevant conflicts of interest for this article.

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <https://creativecommons.org/licenses/by-nc/4.0/>

Country of origin: China

ORCID number: Lei Gao 0000-0002-3388-4901; Qiang Lin 0000-0001-9599-4121.

S-Editor: Li L

L-Editor: A

P-Editor: Zhao S

REFERENCES

- 1 **Tong QY**, Pang MJ, Hu XH, Huang XZ, Sun JX, Wang XY, Burclaff J, Mills JC, Wang ZN, Miao ZF. Gastric intestinal metaplasia: progress and remaining challenges. *J Gastroenterol* 2024; **59**: 285-301 [PMID: 38242996 DOI: 10.1007/s00535-023-02073-9]
- 2 **Chen ZD**, Zhang PF, Xi HQ, Wei B, Chen L, Tang Y. Recent Advances in the Diagnosis, Staging, Treatment, and Prognosis of Advanced Gastric Cancer: A Literature Review. *Front Med (Lausanne)* 2021; **8**: 744839 [PMID: 34765619 DOI: 10.3389/fmed.2021.744839]
- 3 **Joshi SS**, Badgwell BD. Current treatment and recent progress in gastric cancer. *CA Cancer J Clin* 2021; **71**: 264-279 [PMID: 33592120 DOI: 10.3322/caac.21657]
- 4 **Zhang Z**, Liu N, Sun M. Research Progress of Immunotherapy for Gastric Cancer. *Technol Cancer Res Treat* 2023; **22**: 15330338221150555 [PMID: 37042029 DOI: 10.1177/15330338221150555]
- 5 **Li X**, Xu J, Xie J, Yang W. Research progress in targeted therapy and immunotherapy for gastric cancer. *Chin Med J (Engl)* 2022; **135**: 1299-1313 [PMID: 35830242 DOI: 10.1097/CM9.0000000000002185]
- 6 **Mou P**, Ge QH, Sheng R, Zhu TF, Liu Y, Ding K. Research progress on the immune microenvironment and immunotherapy in gastric cancer. *Front Immunol* 2023; **14**: 1291117 [PMID: 38077373 DOI: 10.3389/fimmu.2023.1291117]
- 7 **Ma XT**, Liu X, Ou K, Yang L. Construction of an immune-related gene signature for overall survival prediction and immune infiltration in gastric cancer. *World J Gastrointest Oncol* 2024; **16**: 919-932 [PMID: 38577455 DOI: 10.4251/wjgo.v16.i3.919]
- 8 **Darb-Esfahani S**, Kronenwett R, von Minckwitz G, Denkert C, Gehrman M, Rody A, Budczies J, Brase JC, Mehta MK, Bojar H, Ataseven B, Kam T, Weiss E, Zahm DM, Khandan F, Dietel M, Loibl S. Thymosin beta 15A (TMSB15A) is a predictor of chemotherapy response in triple-negative breast cancer. *Br J Cancer* 2012; **107**: 1892-1900 [PMID: 23079573 DOI: 10.1038/bjc.2012.475]
- 9 **Lu Y**, Kweon SS, Tanikawa C, Jia WH, Xiang YB, Cai Q, Zeng C, Schmit SL, Shin A, Matsuo K, Jee SH, Kim DH, Kim J, Wen W, Shi J, Guo X, Li B, Wang N, Zhang B, Li X, Shin MH, Li HL, Ren Z, Oh JH, Oze I, Ahn YO, Jung KJ, Conti DV, Schumacher FR, Rennert G, Jenkins MA, Campbell PT, Hoffmeister M, Casey G, Gruber SB, Gao J, Gao YT, Pan ZZ, Kamatani Y, Zeng YX, Shu XO, Long J, Matsuda K, Zheng W. Large-Scale Genome-Wide Association Study of East Asians Identifies Loci Associated With Risk for Colorectal Cancer. *Gastroenterology* 2019; **156**: 1455-1466 [PMID: 30529582 DOI: 10.1053/j.gastro.2018.11.066]
- 10 **Fu M**, Huang Y, Peng X, Li X, Luo N, Zhu W, Yang F, Chen Z, Ma S, Zhang Y, Li Q, Hu G. Development of Tumor Mutation Burden-Related Prognostic Model and Novel Biomarker Identification in Stomach Adenocarcinoma. *Front Cell Dev Biol* 2022; **10**: 790920 [PMID: 35399509 DOI: 10.3389/fcell.2022.790920]
- 11 **Fan M**, Liu S, Zhang L, Gao S, Li R, Xiong X, Han L, Xiao X, Zhao L, Tong D, Yang J. LGR6 Acts as an Oncogene and Induces Proliferation and Migration of Gastric Cancer Cells. *Crit Rev Eukaryot Gene Expr* 2022; **32**: 11-20 [PMID: 35695661 DOI: 10.1615/CritRevEukaryotGeneExpr.2021041271]
- 12 **Jonckheere N**, Van Seuning I. Comment on: Functional MUC4 suppress epithelial-mesenchymal transition in lung adenocarcinoma metastasis. Gao L, Liu J, Zhang B, Zhang H, Wang D, Zhang T, Liu Y, Wang C. *Tumour Biol* 2014; **35**: 3941-3942 [PMID: 24241961 DOI: 10.1007/s13277-013-1390-y]
- 13 **Cristescu R**, Mogg R, Ayers M, Albright A, Murphy E, Yearley J, Sher X, Liu XQ, Lu H, Nebozhyn M, Zhang C, Lunceford JK, Joe A, Cheng J, Webber AL, Ibrahim N, Plimack ER, Ott PA, Seiwert TY, Ribas A, McClanahan TK, Tomassini JE, Loboda A, Kaufman D. Pan-tumor genomic biomarkers for PD-1 checkpoint blockade-based immunotherapy. *Science* 2018; **362**: 30309915 DOI: 10.1126/science.aar3593]
- 14 **Cristoni S**, Bernardi LR, Malvandi AM, Larini M, Longhi E, Sortino F, Conti M, Pantano N, Puccio G. A case of personalized and precision medicine: Pharmacometabolomic applications to rare cancer, microbiological investigation, and therapy. *Rapid Commun Mass Spectrom* 2021; **35**: e8976 [PMID: 33053249 DOI: 10.1002/rcm.8976]
- 15 **Bhinder B**, Gilvary C, Madhukar NS, Elemento O. Artificial Intelligence in Cancer Research and Precision Medicine. *Cancer Discov* 2021; **11**: 900-915 [PMID: 33811123 DOI: 10.1158/2159-8290.CD-21-0090]



Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

Telephone: +1-925-3991568

E-mail: office@baishideng.com

Help Desk: <https://www.f6publishing.com/helpdesk>

<https://www.wjgnet.com>

