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BIOMARKERS FOR COLON CANCER

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Supplement Aims and Scope

This supplement is intended to focus on biomarkers for colon cancer. Biomarkers of survival in colon cancer, detection of new colon cancer biomarkers in tissues and body fluids, and new methods for the detection and elimination of micrometastases in colon cancer are included within the supplement's scope.

Biomarkers in Cancer aims to provide researchers working in this complex, quickly developing field with online, open access to highly relevant scholarly articles by leading international researchers. In a field where the literature is ever-expanding, researchers increasingly need access to up-to-date, high quality scholarly articles on areas of specific contemporary interest. This supplement aims to address this by presenting high-quality articles that allow readers to distinguish the signal from the noise. The editor in chief hopes that through this effort, practitioners and researchers will be aided in finding answers to some of the most complex and pressing issues of our time.

Articles should focus on biomarkers for colon cancer and may include the following topics:

- Biomarkers of survival in colon cancer
  - Good prognosis indicators, micrometastases and their detection, genetic epidemiology.
- Detection of new colon cancer biomarkers—in tissues and body fluids
  - miRNAs, proteomics, antibody arrays.
- New methods for the detection and elimination of micrometastases in colon cancer
  - Histology (sentinel lymph nodes), fluorescence navigation (blood), RT-PCR.

This supplement focuses on biomarkers for colorectal cancer, a common and often deadly cancer in the world.

In an era of personalized medicine, identification as well as use of biomarkers for decision-making is crucial. Biomarkers could be of three different natures: diagnostic, predictive, and prognostic. Diagnostic biomarkers serve to determine the nature of a tumor, which could further help decision-making about the treatment to choose while prognostic biomarkers predict the survival outcomes of patients. Predictive biomarkers, on the other hand, can be used to predict response to specific treatments. An example of successful predictive biomarker is the G12D *KRAS* mutation in CRC.[1] It is now well established that patients with this mutation do not benefit from adjuvant therapy with the anti-EGFR monoclonal antibody named cetuximab.[1] Prognostic and diagnostic biomarkers are potentially predictive markers too, and this link remains to be examined in detail by future studies.

Not surprisingly, research leading to biomarker identification is crucial. Two contributions in this supplement review and discuss the importance of biomarkers in CRC. The group of Dr. Klampfer reviews the prognostic and predictive role of stromal biomarkers, and more generally the importance of the tumor microenvironment in tumoral development. The other study published by Dr. Mousa and colleagues focuses on angiogenesis, which is one of the therapeutic targets in CRC.[2] These authors discuss arising predictive angiogenic biomarkers that may help select subsets of patients who can benefit from angiogenesis inhibition.

Other contributions in this supplement discuss genetic factors as potential biomarkers in CRC. For example, Dr. Barras discusses the importance of the V600E *BRAF* mutation and its prognostic role in CRC. The *BRAF* mutant melanomas are efficiently treated with BRAF inhibitors, while *BRAF* mutant CRCs display resistance to such therapies. This perplexing fact is also discussed by Dr. Barras. Another example is the meta-analysis by Dr. Pabalan and colleagues that focuses on the role of a polymorphism in the methionine synthase reductase (MTRR) as a risk factor for CRC. MTRR plays a crucial role in the folate biosynthesis, which is linked to DNA synthesis. Abnormalities in this process may have cancer-promoting effects. This article shows that the A allele polymorphism which is significantly more present in the Asian population, confers protective effects against tumoral development.

A research article published by Dr. Ghanbari and collaborators complements this CRC biomarker issue. They present their findings that microRNAs detected in feces, let-7a-5p and let-7f-5p, are under-expressed and are biomarkers for early stage CRC. This finding has potential for the detection of early stage CRCs, which allows to treat patient before the tumor becomes advanced.

As the studies compiled in this supplemental issue highlight, biomarker research in colorectal cancer is progressing at different fronts and hold promise for better understanding and management of this disease in the future.

We invite our readers to take a look at these articles for more details.

REFERENCES

1. Lievre A, Bachet JB, Le CD, et al. KRAS mutation status is predictive of response to cetuximab therapy in colorectal cancer. *Cancer Res*. 2006;66(8):3992–3995.
2. Salmon JS, Lockhart AC, Berlin J. Anti-angiogenic treatment of gastrointestinal malignancies. *Cancer Invest*. 2005;23(8):712–726.

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