We are pleased to introduce this Quarterly Journal of Medicine Cancer Review Series that seeks to highlight not only the extraordinary progress that has been made in cancer research, diagnostics, therapeutics and disease outcomes but also the persistent challenges that lay ahead. We are sincerely honored to feature, for our introductory review article, a clinical perspective on Lynch Syndrome in the twenty-first century authored by its namesake, Dr Henry Lynch, and his colleagues Drs Tiwari and Roy. Lynch Syndrome (LS—hereditary nonpolyposis colorectal cancer) represents ~3% of all colorectal cancers worldwide, typically presents at a significantly younger age than non-syndrome colon cancer patients and exhibits high rates of multiple primary tumors. This featured review article provides an updated and detailed discussion of the genetics, the latest diagnostic strategies and the current treatment guidelines for LS patients.

The second review article of the series provides an excellent synopsis on the state-of-the-art of cancer biomedical imaging by Drs Shaunagh McDermott and Aoife Kilcoyne of Massachusetts General Hospital. The authors describe the tremendous strides that have been made in not only cancer detection by molecular imaging but also in our ability to visualize tumor hypoxia, vascularization and therapeutic apoptosis. This review will detail both the advances as well as the current limitations of cancer biomolecular imaging in the twenty-first century.

Appearing in the March, 2016 edition of QJM will be an intriguing review of the etiology, clinical relevance and diagnostic potential of solid tumor circulating DNA by Dr Frank McCaughan of King’s College, London. Although the presence of circulating tumor DNA (ctDNA) has been known for decades, the advent of dramatically more sensitive and specific techniques for DNA amplification, DNA sequencing and mutational profiling has re-invigorated the quest to identify not only diagnostic but also mutational biomarker assays using only a small sample of peripheral blood. This review describes the clinical potential of using ctDNA as a non-invasive means to diagnose, track and manage malignant diseases.

The last review article of this series will feature an exceptionally timely overview of the state of the art in cancer metabolism written by Drs Jason Chesney and Brian Clem of the JG Brown Cancer Center at the University of Louisville. The past decade has witnessed a dramatic resurgence of basic and clinical research into tumor cell metabolic processes. Aided by newer and much more advanced technologies that are able to track individual metabolites, metabolic pathways, redox potential and oxygen consumption at the cellular level, our knowledge of tumor-specific pathways and enzymatic effectors—and by extension, how we can target them—has grown exponentially. This review will describe the current state of the art of cancer metabolomics research as well as the pre-clinical and clinical developments of rationally designed therapies that target tumor-associated metabolic pathways.

This Cancer Review Series seeks to inform and educate clinicians and scientists on the most relevant and timely topics in the field of oncology.

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