According to the 2012 National Health Interview Survey (NHIS), approximately 33.2 percent of adults reported using some form of complementary health approach in the previous 12 months and of particular note was that Americans spent $30.2 billion out-of-pocket on complementary health approaches, of which $12.8 billion was on natural product supplements. Complementary and alternative medicine (CAM) use is especially popular among cancer patients. Carcinogenesis has been shown to be caused by genetic and epigenetic influences, and phytochemicals are found to be effective in treatment and prevention for both possible causes. Additionally, a close correlation between gut microbiota and the prevention and management of cancers has been noticed, and it has been reported that gut microbiota may also affect the efficacy of cancer chemotherapy and immunotherapy. Diets, especially dietary phytochemicals, are the most influential and modifiable factors on gut microbiota and their functions in cancer therapy. These research data generated from genomics, epigenomics, other "omics" and epidemiology studies are usually too huge to be analyzed by conventional methods. Exploring new insights from these big datasets requires the development of novel methods in information technologies and machine learning, such as artificial intelligence (AI).

This special issue aims to investigate active phytochemicals with cancer prevention and treatment capabilities and evaluate their preclinical and clinical effects. Articles dealing with the mechanisms of action, chemical characterizations, formulation/delivery design, AI analysis, and pharmacological activities of anticancer phytochemicals are all welcome. We accept review articles as well as highly original research papers on these topics (either basic sciences or applied research studies), showing both technical advances and practical utilizations.

Potential topics include but are not limited to the following:

- Investigations on mechanisms of action and novel therapy targets of phytochemicals in cancer therapy for genetic or epigenetic causes
- Characterization of novel active ingredients derived from CAM with cancer therapy effects
- Evaluation of novel delivery methods for enhancing phytochemical efficacy in cancer therapy
- PK/PD analysis of phytochemicals in cancer therapy
- Phytochemicals’ cancer therapy effects via modulation of gut microbiota
- Applying machine learning AI techniques to large omics and epidemiological datasets for integration, analysis, and interpretation

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Papers are published upon acceptance, regardless of the Special Issue publication date.