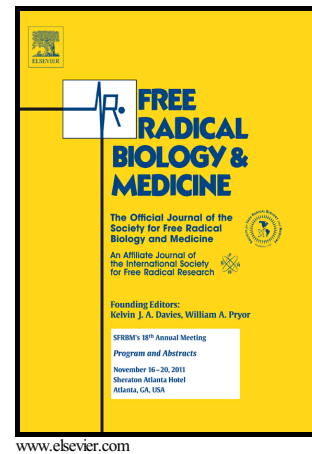


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# Gut microbiota modulate host immune cells in cancer development and growth

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## Abstract

Emerging evidence shows that microbe interactions with the host immune system impact diverse aspects of cancer development and treatment. As a result, exciting new opportunities exist for engineering diets and microbe cocktails to lower cancer risks with fewer adverse clinical effects than traditional strategies. Microbe-based therapies may ultimately be used to reinforce host immune balance and extinguish cancer for generations to come.

Keywords: bacteria; neutrophil; lymphocyte; homeostasis; health; hygiene; thymus

## Introduction

Recent studies reveal that gut bacteria and immune cells exist within a whole host interactive network that dictates good health and disease [1-6]. An emerging paradigm links gut bacteria with whole body health, specifically involving microbial-immune networks influencing risk for many diseases including cancer [5-8]. In a whole body context, microbe-immune interactions constitute part of a vast gut-immune-brain signaling axis [9] that continuously modulates host hypothalamic-pituitary-adrenal hormones and inflammatory tone [3, 6, 10-12] in an optimal balance for sustained good health. In this way, gut microbes directly and indirectly influence immune system proficiency and cancer outcomes. Drilling deeper into the relationships between bacteria and the

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