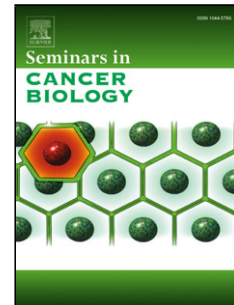


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Bacterial infection increases risk of carcinogenesis by targeting mitochondria**Jesper A. B. Strickertsson, Claus Desler, and Lene Juel Rasmussen**

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Abstract

As up to a fifth of all cancers worldwide, have now been linked to microbial infections, it is essential to understand the carcinogenic nature of the bacterial / host interaction. This paper reviews the bacterial targeting of mediators of mitochondrial genomic fidelity and of mitochondrial apoptotic pathways, and compares the impact of the bacterial alteration of mitochondrial function to that of cancer. Bacterial virulence factors have been demonstrated to induce mutations of mitochondrial DNA (mtDNA) and to modulate DNA repair pathways of the mitochondria. Furthermore, virulence factors can induce or impair the intrinsic apoptotic pathway. The effect of bacterial targeting of mitochondria is analogous to behavior of mitochondria in a wide array of tumors, and this strongly suggests that mitochondrial targeting of bacteria is a risk factor for carcinogenesis.

Keywords: Mitochondrial function; Bacterial infection; Cancer; DNA repair; Mutations; Microbiome; Mitochondrial targeting

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