Exacerbation of colon carcinogenesis by *Blastocystis* sp.

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Abstract

Colorectal cancer (CRC) is one of the most commonly diagnosed cancers worldwide, and the number is increasing every year. Despite advances in screening programs, CRC remains as the second leading cause of cancer deaths in the United States. Oxidative stress plays an important role in the molecular mechanisms of colorectal cancer (CRC) and has been shown to be associated with *Blastocystis* sp., a common intestinal microorganism. In the present study, we aimed to identify a role for *Blastocystis* sp. in exacerbating carcinogenesis using in vivo rat model. Methylene blue staining was used to identify colonic aberrant crypt foci (ACF) and adenomas formation in infected rats whilst elevation of oxidative stress biomarker levels in the urine and serum samples were evaluated using biochemical assays. Histological changes of the intestinal mucosa were observed and a significant number of ACF was found in *Blastocystis* sp.-infected AOM-rats compared to the AOM-controls. High levels of urinary oxidative indices, including advanced oxidative protein products (AOPP) and hydrogen peroxide were observed in