


**Probiotic Research in Therapeutics** pp 69–94

## Probiotics as Next Generation Strategy for Cancer Therapy

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### Abstract

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Probiotics are the substances used for improving health status by improving the fitness of the intestine and overall host health. Research investigations confirm that correlation exists between intestinal microbiota and carcinogenesis. It has been found that normal homeostasis could be maintained by the consumption of probiotics. Further, probiotic administration can maintain sustainable physicochemical conditions by reducing the number of harmful bacteria and in turn decreasing the level of enzymes like glucuronidase and nitroreductase. Recent research confirms the probiotic's significant role in the reduction of carcinogenic or mutagenic

effects of consumed foods. Therefore, it indirectly improves or reduces the risk of cancer and other infectious disorders by boosting host immunity. It has been concluded that probiotics are not only useful in cancer prevention and inhibition of its progression but also possess therapeutic potential while screened against cancer cell lines. So, this chapter will focus its discussion on applications of probiotics as future drug therapy against broad array of cancers like colon, stomach, breast, cervix, and myeloid leukemia cells. Prospective use of this novel therapy could be next generation approach to offensive treatment techniques like chemotherapy or radiotherapy

#### Keywords

**Probiotics    Microbiota    Generation**

**Carcinogenesis    Chemotherapy**

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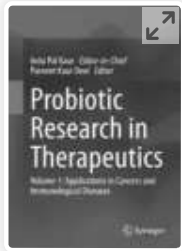
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## About this book

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The volume sheds new light on role of gut dysbiosis in cancer and immunological diseases and their clinical manifestations. Contributions in the volume discuss about the gut microbiota as a therapeutic target and the role of probiotics in its management. The volume explores application of probiotics in the treatment of various cancers viz. colorectal, gastric, lung, and breast cancer and immunological diseases.

The volume comprises of chapters from expert contributors organized into various important themes which include, introduction, relationship between gut microbiota and disease condition, mechanisms involved, clinical and in vivo status, conclusion and future directions. This is a highly informative and carefully presented book, providing recent and innovative insight for scholars and researchers with an interest in probiotics and its applications in cancer and immunological diseases.

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## Keywords

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**Pharmabiotics**      **Microtherapeutics**

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## About the editors

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Dr Indu Pal Kaur is presently the Professor and Chairperson, at the University Institute of Pharmaceutical Sciences (UIPS), Panjab University, Chandigarh, India. She has more than 25 years of teaching and research experience to her credit. She was Director Sophisticated Analytical Instrumentation Facility, Panjab University, from 2012 to 2015 and Dean - Faculty of Pharmaceutical Sciences, for session 2017-18. Her research forte is enhancing bioperformance of drugs, plant extracts/phytochemicals and small/large biomolecules viz. siRNA and probiotics using active-tailored delivery systems. She has been granted four Indian and one US patents and has filed 22 patents in the past 10 years. She has produced 23 PhDs and 55 postgraduates. She received funding to the tune of 72.3 million INR from Government agencies and has a couple of Industrial consultancies amounting to 15.3 million INR. Her research work was funded twice (2017 and 2020) by DST and Science and Techno<sup>130</sup> high impact International publications, and her group has received 31 Best Paper awards at National and International Conferences. She is a US-Fulbright fellow (2017-18) and was awarded Women Scientist Award -2018 by Organisation of Pharmaceutical Producers of India (OPPI). She has also been graced with BRIC Technology Exposition Award, consecutively for 2019

and 2020, Tynor Innovation Award- 2019 and Researcher of the Year award 2019, by Sunpure Research Incubation Center. Emphasis of her work lies on Industrial and clinical translation and is reflected through her three technology transfers to two Indian industries.

Dr Parneet Kaur Deol, is presently working as Assistant Professor at G.H.G. Khalsa College of Pharmacy Gurusar Sadhar Ludhiana, Punjab, India. She has more than 10 years of experience in probiotic research and has published her work in highly reputed peer reviewed international journals. She has 21 international publications to her credit with cumulative impact<sup>^</sup>50. She has co-edited a special issue for 'Current Pharmaceutical Design' with Prof. Indu Pal Kaur in the year 2019. Dr Deol has presented her work at various national and international platforms. She was awarded with the 'Dr. Harpal Singh Buttar and Mrs. Harinder Kaur Buttar Award of Excellence in Pharmaceutical Sciences' in the year 2016 and Mekaster Young Scientist Award in 2018 for her research work. Recently she fetched two research projects from Department of Science and Technology-Science and Engineering Research Board (DST-SERB), New Delhi worth 65 lakh.

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## Bibliographic Information

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