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Bacterial Based Cancer Therapy (BBCT): Scope Requirement and Application in Veterinary Medicine

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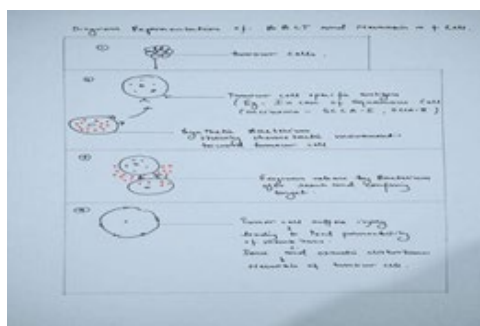
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Approximately one out of 4 dog will develop cancer at some stage of their life according to American veterinary medical association. Squamous cell carcinoma is well known problem in Zebu cattle. Often veterinary patients suffering from cancer meets fatal end due to metastasis. We are already using Radio-therapy, Chemotherapy and Immuno therapy in treating cancer but these therapies have not been able to provide security of successful treatment of tumour. Bacterial cell therapy as targeted therapy is already being experimentally used in treating tumours in Homo sapiens. But as it is well evident that different species respond differently to different pathologies and different treatments. It is unknown what and how species other than Homo sapiens will respond to bacterial therapy of cancer.

Though first bacterial therapy of tumour has already been performed on lab animals and with found success now further possibilities are seen in human medical science. About 6 million dogs and 6 million cats are suspected to be diagnosed with tumour this year in America alone and current statics shows that 50% of them will meet fatal end.

So it's get very important to establish new therapeutical technique and solution for the problem veterinary medicine is facing. Bacterial based cancer therapy (BBCT) has already been established as promising solution for tumour due to its properties of bacteria being accumulated in tumour micro environment and producing /creating anti tumour environment. BBCT can also be used along with other therapies for better response.

The greatest benefit of BBCT and immunotherapy is against the metastatic phenomena of tumour due to their chemo tactical capability. Though immunological approaches has its own limitation but due to synthetic or gene editing technique for bacterial modification BBCT provides immense possibilities which can be achieved easily with modern knowledge..



References:

1. Coley, W.B. Malignant tumors treatment by repeated inoculations of erysipelas. With ten original cases reports. Clin. Orthop. Relat Res. 1893, 262, 487. [Google Scholar]
2. Forbes, N.S. Engineering the perfect (bacterial) cancer therapy. Nat. Rev. Cancer 2010, 10, 785–794. [Google Scholar] [CrossRef] [PubMed][Green Version]
3. Antonelli, A.C.; Binyamin, A.; Hohl, T.M.; Glickman, M.S.; Redelman-Sidi, G. Bacterial immunotherapy for cancer induces CD4-dependent tumor-specific immunity through tumor-intrinsic interferon- γ signaling. Proc. Natl. Acad. Sci. USA 2020, 117, 18627–18637. [Google Scholar] [CrossRef]
4. Toso, J.F.; Gill, V.J.; Hwu, P.; Marincola, F.M.; Restifo, N.P.; Schwartzentruber, D.J.; Sherry, R.M.; Topalian, S.L.; Yang, J.C.; Stock, F.; et al. Phase I study of the intravenous administration of attenuated Salmonella typhimurium to patients with metastatic melanoma. J. Clin. Oncol. 2002, 20, 142–152. [Google Scholar] [CrossRef]
5. Heimann, D.M.; Rosenberg, S.A. Continuous intravenous administration of live genetically modified salmonella typhimurium in patients with metastatic melanoma. J. Immunother. 2003, 26, 179–180. [Google Scholar] [CrossRef] [PubMed][Green Version].

Biography

Shukla was born in a small town named Sawai Madhopur Rajasthan, India on January 23, 1997. His brother, Kartikeya, is a medical student, and his sister Sakshi is also following in our footsteps, was brought up by his parents, Dr. Santosh Kr. Shukla (Veterinarian) and Dr. Kanchan Mala Shukla (Homeopathic Doctor). His interest in scientific research began from the very beginning, like his father. He joined the veterinary field because he knew the most promising way to enter the research gate was veterinary. He completed his academics from Meerut in January 2023 in Veterinary. Currently, he is working as an assistant field veterinarian and working on the current involvement of homeopathy in veterinary practice and research.

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