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Recombinant bacillus calmette-guerin vaccines: A novel strategy forcancer immunotherapy

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Cancer immunotherapy is aimed at activating the patient's own immune system via the administration of a therapeutic vaccine. With the development of modern sophisticated engineering technology, it is possible to accelerate the development of novel and safe cancer vaccines. The challenge in cancer vaccine development is to find the best combination of antigen, adjuvant and delivery system to produce a strong and long-lasting immune response. Regarding the design of therapeutic cancer vaccine, seeking a new vaccines vehicle is very important to improving vaccines. Bacillus Calmette-Guérin (BCG) is used widely in human vaccines. It can potentially offer unique advantages for developing a safe and effective multi-vaccine vehicle. BCG is a new vaccines vehicle. Recent studies have confirmed that rBCG vaccines are indeed functional stable, the live rBCG vaccines are as safe as the parental BCG strain. Due to these properties, the development of tumor-associated antigen-secreting recombinant BCG (rBCG) vaccines for cancer immunotherapy has gained great momentum in recent years. Compared to conventional protein vaccines and viral vectors, the rBCG vaccines for cancer immunotherapy has potential advantages. Several promising rBCG vaccines secreting tumor-associated antigen have been shown to induce antigen-specific antitumor immune responses in pre-clinical studies. These results suggest that these rBCG strains coexpressing tumor-associated antigen and cytokines are promising candidates as cancer vaccines, and thus deserve further investigation. This strategy has the main advantage that can elicit long-lasting immunological memory that can protect against minimal residual disease and tumor recurrence. Although the detailed mechanisms for this antitumor effect following rBCG vaccines immunization remains to be illustrated, we believe that this strategy will provide impetus for future research into the development of better and safer rBCG vaccines against cancer.

Biography

Shifang Yuan completed his M.D in 1987 and Ph.D in 2002 from Fourth Military Medical University. He is currently the Director, Professor and Chief surgeon of Department of Vascular and Endocrine Surgery, Xijing Hospital, Fourth Military Medical University. As an visiting professor, he used to worked in Royal Victoria Hospitals, McGill University for one year. He is the member of China Medical Association. He is a specialist of Shaanxi Province anticancer association, China. He has obtained two research grants from the National Natural Science Foundation of China (No. 81072180, No30571802). He has published more than 50 papers in reputed journals and serving as an editorial board member of repute.

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