POSTER PRESENTATION

Open Access

CD4 T cells transduced with CD80 and 4-1BBL mRNA induce long-term CD8 T cell responses resulting in potent antitumor effects

Hyun-Il Cho^{1*}, Hye-Mi Park², Hyun-Jung Shon¹, Tai-Gyu Kim²

From Society for Immunotherapy of Cancer 29th Annual Meeting
National Harbor, MD, USA. 6-9 November 2014

Therapeutic cancer vaccines are an attractive alternative to conventional therapies to treat malignant tumors, and more importantly, to prevent recurrence after primary therapy. However, the availability of professional antigen-presenting cells (APCs) has been restricted by difficulties encountered in obtaining sufficient professional APCs for clinical use. We have prepared an alternative cellular vaccine with CD4 T cells that can be expanded easily to yield a pure and homogeneous population *in vitro*. To enhance their potency as a therapeutic vaccine, *in vitro* expanded CD4 T cells were transfected with RNAs encoding the costimulatory ligands CD80, 4-1BBL, or both (CD80-T, 4-1BBL-T, and CD80/4-1BBL-T cells, respectively). We observed augmented cell vitality in CD80/4-1BBL-T cells *in vitro* and *in vivo*. Significant CD8 T cell responses eliciting *in vivo* proliferation and cytotoxicity were obtained with CD80/4-1BBL-T cell vaccination compared to CD80-T and 4-1BBL-T cell vaccinations. Furthermore, CD80/4-1BBL-T cell immunization resulted in curing established EG7 tumors, resulting in the generation of memory CD8 T cell responses, and elicited therapeutic antitumor responses against B16 melanoma. These results suggest that CD4 T cells endowed with costimulatory ligands allow the design of effective vaccination strategies against cancer.

Acknowledgements

This study was supported by a grant of the Korean Health Technology R&D Project, Ministry of Health & Welfare, Republic of Korea (H12C0759).

Authors' details

¹Catholic Hematopoietic Stem Cell Bank, Cancer Research Institute, College of Medicine, The Catholic University of Korea, Korea, Republic Of. ²Dept. of

Microbiology, Catholic Hematopoietic Stem Cell Bank, College of Medicine, The Catholic University of Korea, Korea, Republic Of.

Published: 6 November 2014

doi:10.1186/2051-1426-2-S3-P264

Cite this article as: Cho et al.: CD4 T cells transduced with CD80 and 4-1BBL mRNA induce long-term CD8 T cell responses resulting in potent antitumor effects. *Journal for ImmunoTherapy of Cancer* 2014 **2** (Suppl 3):P264.

**Submit your next manuscript to BioMed Central
and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit