Development and optimization of an agar-plate assay for the interaction of the HIV-NC and Psi in E.coli

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The packaging of HIV genomic RNA is mediated by a specific interaction between the HIV-Nucleocapsid(NC) Protein and Psi RNA sequence. In other word, the interaction of NC protein and Psi RNA sequence is thus the major determinants for virion assembly of HIV-1. The purpose of this study is to develop and optimize an easy and fast agar-plate assay for the interaction of the HIV-NC Protein and Psi RNA sequence using E.coli. we employed a number of LacZ Reporter vectors that our lab had established previously for probing the specific interaction between the HIV-Nucleocapsid(NC) protein and Psi RNA sequence. By optimizing of X-gal and IPTG concentrations as well as cell growth times on plates, we are able to distinguish activity of the specific interaction strength between the NC protein and Psi RNA sequence and the results will be presented in the meeting. The work is supported by KISTEP research fund (M10500000148-05J0000-14810)bioche.

DNA vaccines as candidates for tumor vaccine to inhibit tumor metastasis and growth

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DNA vaccines, genes encoding an tumor-associated antigens, are one of promising new approaches to suppress cancers. In this study, we tried to develop T cell proliferation assay, macrophage-mediated tumoricidal activity assay, CTL assay, and in vivo tumoricidal and antimetastatic methods for pharmacological evaluation of cancer DNA vaccines. We have cloned cDNA of murine vascular endothelial growth factor receptor 2 (VEGFR2), also known as FLK-1) from mouse embryo cells and cDNA of HER-2/NEU from human breast cancer cell line MDA-MB-435 through variation of several RT-PCR condition. We, here, examined these DNA vaccines to inhibit lung metastasis, tumor-induced angiogenesis and tumor growth. We found that the DNA vaccines significantly enhanced antigen-specific CTL activity, DTH reaction and cytokine production from T lymphocytes. In this study, we demonstrated the availability of the DNA vaccines for cancer immunotherapy, and suggested the experimental systems needed for evaluation of their efficacy.