Dear editor,

Definitely, gene therapy is considered as a great and fundamental change and evolution in the treatment of many genetic diseases (1). In cancer gene therapy, especially in breast cancer, have had a tremendous and increasing growth and development and has seriously shifted from the theoretical range of works to the practical and clinical field (2). Some of the methods that are currently used to treat breast cancer, including chemotherapy (3), radiation therapy (4), surgery, hormone therapy (5), and laser therapy; however, these methods have some side effects for the patients. But there are some modern molecular methods, which are used in gene therapy (6). These methods are including oncolytic viruses, suicide gene, anti-angiogenesis (7), tumor suppressor genes, immunotherapy (8), and antisense targeting that are considered to be utilized for the treatment of breast cancer, which is the most common cancer type observed among women (9,10).

Utilizing suitable viral and non-viral carriers, by selection and design of suitable carriers, the target gene can be selectively introduced into the cells or a specific gene can be made off of the cells; the work which has a very effective role in the treatment process. Results gene therapy is very useful not only in the field of complete treatment for cancer, but also in the exact and early diagnosis, and moreover in the prognosis of cancer diseases.

Gene therapy has made a great evolution to the future of treatment process, and especially of cancer treatment and is an important step towards personalized medicine. However, many questions have been remained unanswered in this context (10).

References