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Potent BRD4 inhibitor suppresses cancer cell-macrophage interaction

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Abstract

Efficient and controlled delivery of nucleic acids by viral and synthetic carriers with low toxicity is one of the most important challenges facing the gene therapy. Non-viral vectors are perfect candidates for this goal because the use of viral vectors has a high risk of inducing unwanted immune responses. For medical applications, a use of nanostructured polymers every year brings more and more possibilities. The creation of new polymers and the study of their biocompatibility is very important to find better and safer vectors for gene therapy. In this work we compared conventional transfection and deposition transfection performed with the use of cationic star polymer. Obtained polyplexes were tested for cytotoxicity and luciferase activity using HT-1080 cells as a model. One of the solutions to increase transfection efficiency seems to be the deposition of the nucleic acid itself or its polyplex on solid support. The support used for the purpose is functioning as a substrate supporting the organization and differentiation of cells, while immobilized DNA or RNA delivers significant genetic information into the cells. The major advantages of the immobilization of nucleic acid/polyplexes include the direct contact of polymer layer loaded with the nucleic acid with the cells during the proliferation. The performed studies demonstrated that we obtained the novel effective system, based upon star polymer architecture, which is potentially useful for gene delivery. This work was supported by the Polish National Science Center contract no. UMO-2015/17/B/ST5/01095

Biography:

Mingzhu Yin has completed his MD at the age of 25 years from Harbin Medical University and postdoctoral studies from Yale University School of Medicine. He is the co-director of Dermatology Department at the Xiangya Hospital. He has published more than 40 papers in reputed journals and has been serving as an editorial board member of repute.

Speaker publications:

1. "Identification of potential biomarkers for ovarian cancer by urinary metabolomic profiling", Journal of proteome research, 2013/1/4, 505-512
2. "Tumor-associated macrophages drive spheroid formation during early transcoelomic metastasis of ovarian cancer", The Journal of clinical investigation 126 (11), 4157-4173
3. "Discrimination between malignant and benign ovarian tumors by plasma metabolomic profiling using ultra performance liquid chromatography/mass spectrometry", Clinica Chimica Acta 413 (9-10), 861-868
4. "The Long-Term Efficacy of Neoadjuvant Chemotherapy Followed by Radical Hysterectomy Compared With Radical Surgery Alone or Concurrent Chemoradiotherapy on Locally Advanced-Stage Cervical Cancer", International Journal of Gynecologic Cancer 21 (1), http://dx.doi.org/10.1111/IGC.0b013e3181fe8b6e

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