Molecular Cancer Therapeutics

Highlights

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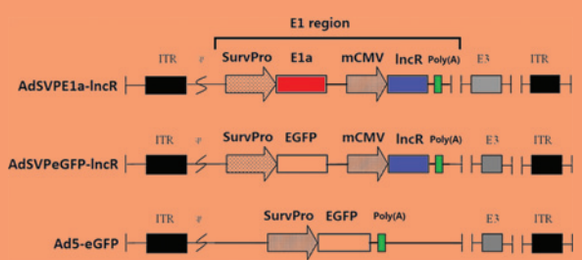
Selected Articles from This Issue



Artificially Designed lncRNAi with Anti-HCC Efficacy Targeting OncomiRs

Li and Su *et al.*_____Page 1436

Endogenous oncogenic microRNAs (OncomiR) endow cancer cells with malignant biologic behaviors. Li, Su, and colleagues generated an artificially designed interfering long noncoding RNA (lncRNAi) containing the binding sequences for multiple OncomiRs, and that is expressed by a cancer-selectively replicating adenovirus. With the targeting replication of adenovirus in hepatocellular carcinoma (HCC) cells, highly expressed lncRNAi competes with OncomiR target genes to bind to and competitively consume OncomiRs, thereby achieving the optimal anti-HCC efficacy. This strategy has established a technology platform with a reliable therapeutic effect for HCC therapy.

Plk1 Inhibitors in Cancer Therapy

Gutteridge *et al.*_____Page 1427

Polo-like kinase 1 (Plk1) is overexpressed in a variety of cancers, and possesses prognostic significance in certain cancers. This serine/threonine kinase is integral in cell-cycle progression and has been implicated in several drug resistance pathways, making it a 'druggable target' for development of anticancer drugs. Gutteridge and colleagues have discussed these mechanisms and outlined successful Plk1 inhibitors being used at various stages in preclinical and clinical development. It appears that Plk1 inhibitors in combination with other targeted therapies could be very useful in cancer therapy, as well as in avoiding drug resistance associated with monotherapy.

Synergistic Dual Drug Liposomes in Multiple Myeloma

Ashley *et al.*_____Page 1452

Nanoparticular drug delivery formulations typically provide a significant advantage over the free drug alternatives. To investigate the advantages of a dual drug–loaded combination nanoparticular delivery system in multiple myeloma, Ashley and colleagues designed, synthesized, and evaluated carfilzomib and doxorubicin dual-loaded combination nanoparticles at their synergistic ratio. The dual drug–loaded nanoparticles exhibited synergy *in vitro* and delivered considerably higher efficacy in inhibiting tumor growth *in vivo* compared with the free drug combination, while simultaneously reducing systemic toxicity. These results indicate utilizing nanoparticles as drug delivery vehicles for combinatorial therapeutics can have a significant impact on patient outcomes.

ATF3: A Biomarker for HDACi Treatment in Bladder Cancer

Sooraj *et al.*_____Page 1726

Improved therapies are needed for advanced bladder cancer, together with biomarkers to predict treatment outcomes. Expression of activating transcription factor 3 (ATF3) decreases as bladder cancer progresses, and is correlated with poor survival. Here, Sooraj and colleagues identify ATF3 as a biomarker to predict response to pracinostat, a histone deacetylase inhibitor (HDACi). The authors show that reactivation of ATF3 by pracinostat alters the malignant properties of cells and identify that ATF3 re-expression is integral to determining sensitivity to HDACi treatment. This is the first preclinical report of a potential biomarker to predict the outcome of HDACi-mediated therapy in a solid tumor system.

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