IN BRIEF

VACCINES

A defined tuberculosis vaccine candidate boosts BCG and protects against multidrug-resistant *Mycobacterium tuberculosis*

Bertholet, S. *et al. Sci. Transl. Med.* **2**, 53ra74 (2010)

Bertholet and colleagues describe a new protein subunit vaccine that could be effective in boosting the efficacy of the childhood vaccine against *Mycobacterium tuberculosis* (Mtb): bacillus Calmette-Guérin (BCG). When the vaccine — which contained four Mtb antigens associated with virulence and latency — was given with an adjuvant to mice, guinea pigs and monkeys it induced antigen-specific antibody and/or T cell immune responses. Additionally, in BCG-vaccinated guinea pigs, it reduced pathology and prevented the death of animals challenged with virulent Mtb.

ANTICANCER DRUGS

Selective inhibition of BET bromodomains

Filippakopoulos, P. *et al. Nature* 24 Sep 2010 (doi:10.1038/nature09504)

Proteins containing bromodomains (acetyl-lysine recognition motifs) are determinants of epigenetic regulation. This study describes a small molecule that binds competitively with high potency and specificity towards human bromodomain and extra-terminal family member BRD4. In BRD4-dependent cell lines and patient-derived xenograft models, the inhibitor displaced BRD4 from chromatin, and promoted squamous differentiation and antiproliferative effects. So, these data establish a proof of concept for targeting proteins containing bromodomains.

VIRAL INFECTION

Efficient hepatitis C virus particle formation requires diacylglycerol acyltransferase-1

Herker, E. *et al. Nature Med.* **16**, 1295–1298 (2010)

Hepatitis C virus (HCV) infection is closely linked to the lipid metabolism of liver cells. Herker and colleagues show that the triglyceride-synthesizing enzyme diacylglycerol acyltransferase 1 (DGAT1) is a host factor for HCV infection. DGAT1 interacts with the viral nucleocapsid core and is required for the trafficking of the viral core protein to lipid droplets. Inhibition of DGAT1 with a small molecule or RNA interference-mediated knockdown of DGAT1 in cell models impaired infectious virion production, suggesting that DGAT1 is a new target for antiviral therapy.

CANCER

miR-380-5p represses p53 to control cellular survival and is associated with poor outcome in *MYCN*-amplified neuroblastoma

Swarbrick, A. *et al. Nature Med.* **16**, 1134–1140 (2010)

Inactivation of the p53 tumour suppressor occurs in many cancers, but is surprisingly still expressed in neuroblastoma cells. This paper shows that, in humans, such tumours silence p53 activity with the microRNA miR-380-5p. This microRNA is highly expressed in many primary neuroblastoma cells and functions as a proto-oncogene in a mouse mammary transplant model. Inhibition of miR-380-5p upregulated p53 and resulted in the induction of apoptosis in embryonic stem and neuroblastoma cells, and diminished tumour growth in mice, thereby demonstrating a new approach to reactivating p53 in neuroblastoma cells.

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