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IN BRIEF

CANCER

Blocking metastasis

Neutrophil extracellular traps (NETs), made of processed chromatin bound to cytotoxic enzymes, are released by neutrophils into the extracellular space to control microbial infections. However, NETs have also been implicated in cancer metastasis. Here, Park *et al.* observe NET formation in a mouse model of metastatic breast cancer and in clinical samples of primary tumour and metastatic lung lesions from individuals with breast cancer. In *in vitro* models, NET formation promoted cancer cell migration and invasion; in a mouse breast cancer model, daily intraperitoneal treatment with NET-digesting DNase I-coated nanoparticles inhibited lung metastasis.

ORIGINAL ARTICLE Park, J. *et al.* Cancer cells induce metastasis-supporting neutrophil extracellular DNA traps. *Sci. Transl. Med.* **8**, 361ra138 (2016)

ANTIBACTERIAL AGENTS

Microbiome-derived antibiotic identified

New antibiotics are urgently needed to tackle the growing problem of drug resistance. To identify potential novel antimicrobials, Chu *et al.* have deployed bioinformatic modelling and chemical synthesis to generate natural product structures from gene clusters that are predicted to encode non-ribosomal peptides (complex secondary metabolites produced by bacteria) from the human microbiota. This led to the identification of humimycins, which were particularly active against *Staphylococcus* and *Streptococcus* bacteria *in vitro*. In a mouse model of methicillin-resistant *S. aureus* peritonitis, the humimycins potentiated β-lactam antibiotic activity and increased survival.

ORIGINAL ARTICLE Chu, J. *et al.* Discovery of MRSA active antibiotics using primary sequence from the human microbiome. *Nat. Chem. Biol.* http://dx.doi.org/10.1038/nchembio.2207 (2016)

HIV

Achieving sustained remission

Antiretroviral therapy (ART) effectively suppresses HIV replication; however, lifelong treatment is associated with toxicity and, once ART is withdrawn, the virus rebounds. Persistent viral reservoirs form rapidly during acute HIV infection owing to high levels of viral replication in gastrointestinal tissues (GITs) and severe depletion of local $CD4^+$ T cells. Here, Byrareddy *et al.* develop a recombinant monoclonal antibody against the α4β7 integrin, which is expressed on $CD4^+$ T cells and is involved in their trafficking to GITs. Infusion of the antibody into SIV-infected macaques that had been treated with ART for 90 days led to persistent undetectable viral loads and normal $CD4^+$ T cell counts.

ORIGINAL ARTICLE Byrareddy, S. N. *et al.* Sustained virologic control in SIV^+ macaques after antiretroviral and α4β7 antibody therapy. *Science* **354**, 197–202 (2016)

DRUG DESIGN

Cannabinoid receptor structure revealed

Cannabinoid receptor 1 (CB1) represents a promising therapeutic target for a wide range of disorders. However, the molecular details that define the binding modes of both endogenous and pharmacological ligands have remained poorly understood. Now, Hua *et al.* have solved the crystal structure of CB1 in complex with their novel tight binding antagonist AM6538 at 2.8 Å. In conjunction with molecular docking studies, the structure was used to elucidate the binding modes of a diverse set of antagonists, inverse agonists and agonists of CB1, providing a path for rational next-generation CB1 drug design.

ORIGINAL ARTICLE Hua, T. *et al.* Crystal structure of the human cannabinoid receptor CB1. *Cell* **167**, 750–762 (2016)