IN BRIEF

ANTICANCER DRUGS

A new target for melanoma

This study showed that MER proto-oncogene tyrosine kinase (MERTK) — which is often overexpressed or activated in several malignancies — is a new potential therapeutic target for melanoma. MERTK was overexpressed in >50% of melanoma cell lines and its expression correlated with disease progression. In a mouse xenograft model of melanoma, RNA-based MERTK inhibition reduced tumour volume by 60%. Moreover, treatment of melanoma cells with a novel MERTK-selective inhibitor (UNC1062) reduced activation of MERTK-mediated downstream signalling, induced apoptosis and also reduced migration and invasion of melanoma cells.

ORIGINAL RESEARCH PAPER Schlegel, J. *et al.* MERTK receptor tyrosine kinase is a therapeutic target in melanoma. *J. Clin. Invest.* **123**, 2257–2267 (2013)

ANIMAL MODELS

Capturing AD features in a novel rat model

Current mouse models of Alzheimer's disease (AD) that are engineered to overproduce amyloid-β do not recapitulate all the features of familial AD. Cohen *et al.* developed a new transgenic rat model of AD that expressed two mutant human genes known to cause familial AD — the genes encoding amyloid precursor protein and presenilin 1. The rat model showed many features of familial AD, such as progressive neurodegeneration, cerebral amyloidosis and tauopathy, as well as apoptotic neuronal loss in the brain and cognitive decline, and so it could be a useful model for translational AD research.

ORIGINAL RESEARCH PAPER Cohen, R. M. *et al.* A transgenic Alzheimer rat with plaques, tau pathology, behavioral impairment, oligomeric Aβ, and frank neuronal loss. *J. Neurosci.* **33**, 6245–6256 (2013)

MALARIA

In a class of their own

This paper presented a new class of antimalarial drugs that were identified through structure–activity relationships of previously known — albeit non-optimal — antimalarial drugs. Two compounds (ELQ-300 and P4Q-391, both quinolone-3-diarylethers) were highly active against *Plasmodium falciparum* and *Plasmodium vivax* and inhibited the parasite's mitochondrial cytochrome *bc1* complex. Importantly, the compounds targeted the liver and blood stages of the parasite as well as the forms that are crucial for disease transmission. Further studies of ELQ-300 showed that it was orally bioavailable, metabolically stable and highly efficacious in blocking transmission of malaria to the mosquito vector in a rodent model of malaria.

ORIGINAL RESEARCH PAPER Nilsen, A. *et al.* Quinolone-3-diarylethers: a new class of antimalarial drug. *Sci. Transl. Med.* **5**, 177ra37 (2013)

NANOTECHNOLOGY

Going for gold alone

Therapeutic nanoparticles are often functionalized so that they can be targeted to a specific biological site. This study showed that unmodified gold nanoparticles could inhibit the proliferation of ovarian cancer cells by preventing mitogen-activated protein kinase signalling and reversing epithelial to mesenchymal transition. Furthermore, the gold nanoparticles inhibited tumour growth and metastasis in two mouse models of ovarian cancer, suggesting that unmodified gold nanoparticles — which are known to bind cysteine- and lysine-rich biological proteins — could have potential as an anticancer agent.

ORIGINAL RESEARCH PAPER Arvizo, R. R. *et al.* Inhibition of tumor growth and metastasis by a self-therapeutic nanoparticle. *Proc. Natl Acad. Sci. USA* **110**, 6700–6705 (2013)