IN BRIEF

BIOTECHNOLOGY

Enhanced antibody half-life improves *in vivo* activity

Zalevsky, J. *et al. Nature Biotech.* **28**, 157–159 (2010)

Increasing antibody affinity for the neonatal Fc receptor (FcRn) extends antibody half-life, but the effect of this on *in vivo* efficacy is unclear. Zalevsky and colleagues constructed a series of Fc variants of the vascular endothelial growth factor immunoglobulin G1 antibody bevacizumab that had greater affinity for FcRn. In mice and monkeys, use of the Fc-engineered antibodies led to prolonged drug exposure, and in mice led to improved antitumour activity. These results show that efficacy can be maintained using extended dosing intervals enabled by pharmacokinetic engineering.

CANCER

Cooperative nanomaterial system to sensitize, target, and treat tumors

Park, J.-H. *et al. Proc. Natl Acad. Sci. USA* **107**, 981–986 (2010)

With the aim of improving the efficacy of therapeutic anticancer nanoparticles, this study investigated a cooperative system consisting of two discrete nanomaterials. Gold nanorods that populated the porous tumour vessels acted as tags for tumour-specific photothermia, which then accelerated the recruitment of targeted nanoparticles loaded with the anticancer drug doxorubicin. In a mouse xenograft model, the combined system reduced tumour volume compared with individual nanoparticles or the untargeted cooperative system.

LEAD DISCOVERY

Resveratrol is not a direct activator of SIRT1 enzyme activity

Beher, D. *et al. Chem. Biol. Drug Des.* **74**, 619–624 (2009)

SRT1720, SRT2183, SRT1460, and resveratrol are not direct activators of SIRT1

Pacholec, M. *et al. J. Biol. Chem.* 8 Jan 2010 (doi:10.1074/jbc.M109.088682)

The plant polyphenol resveratrol and other small molecules purported to activate SIRT1 — which catalyses NAD^+-dependent protein deacetylation — have been shown to have beneficial effects in rodent models of type 2 diabetes. However, these two papers suggest that such molecules might not be direct activators of SIRT1. Both studies showed that when a native peptide substrate lacking a fluorophore was used in biochemical assays, resveratrol did not activate SIRT1. The second study also found similar effects with three other compounds: SRT1720, SRT2183 and SRT1460. These are structurally unrelated to resveratrol that were first identified through high-throughput screening, and it was shown that they directly interacted with the fluorophore-containing peptide substrates. Furthermore, in mice fed a high-fat diet, SRT1720 did not lower plasma glucose or improve mitochondrial capacity, and all four compounds exhibited multiple off-target activities against receptors, enzymes, transporters and ion channels.