IN BRIEF

TUMORIGENESIS

Olig2-regulated lineage-restricted pathway controls replication competence in neural stem cells and malignant glioma

Ligon, K. L. *et al. Neuron* **53**, 503–517 (2007)

Ligon and colleagues have identified a mechanism regulating the growth of normal and cancer stem cells in the brain. The brain-specific transcriptional repressor OLIG2 represses the cell-cycle inhibitor p21 in both neural progenitors and gliomas. Its function is required for tumour formation in a mouse model of glioma. As the OLIG2 pathway is lineage-restricted, targeting OLIG2 could be a promising brain-specific therapeutic approach.

THERAPEUTICS

A prostate-specific antigen-activated channel forming toxin as therapy for prostatic disease

Williams, S. A. *et al. J. Natl Cancer Inst.* **99**, 376–385 (2007)

Prostate cancer is often associated with high levels of the prostate-specific antigen (PSA). Williams and colleagues engineered a bacterial toxin to produce a PSA-activated prototoxin (PRX302) which, when cleaved by PSA, generates stable pores in the plasma membrane and causes rapid cell death. Intratumoral injection of PRX302 reduced the growth of PSA-secreting tumours in mouse xenografts, and complete regression was achieved in 23% of cases. PRX302 specificity and toxicity were assessed in different animal models, including monkeys, and gave encouraging results. A phase I clinical trial is now underway to test intraprostatic treatment with PRX302 in patients with recurring prostate cancer.

DNA REPAIR

DNA repair and transcriptional deficiencies caused by mutations in the *Drosophila* p52 subunit of TFIIH generate developmental defects and chromosome fragility

Fregoso, M. *et al. Mol. Cell. Biol.* 5 March 2007 (doi: 10.1128/MCB.00030-07)

Mutations in some subunits of the transcription factor IIH (TFIIH) complex are associated with cancer, the cancer-prone disorder xeroderma pigmentosum (XP) and other hereditary syndromes. Fregoso and colleagues show that mutations in the *Drosophila melanogaster* homologue of the p52 subunit of TFIIH results in UV sensitivity, chromosomal instability and increased tumour incidence. It is possible that p52 mutations might account for a new complementation group of XP.

TUMOUR SUPPRESSION

p38α MAP kinase as a sensor of reactive oxygen species in tumorigenesis

Dolado, I. *et al. Cancer Cell* **11**, 191–205 (2007)

Activation of the stress-activated kinase p38α inhibits malignant transformation and is therefore prevented in many cancer cells. Dolado and colleagues now show that p38α is activated in response to oncogenes, such as *HRAS*, that induce the production of reactive oxygen species. This indicates that targeting mechanisms that sense oxidative stress could be important for anticancer drug development.