respectively ($P = 0.0054$), and the respective 5-year disease-free survival rates were 60% and 28% ($P = 0.0053$). For stage I patients, 5-year overall survival was 87% and 38% for low-risk and high-risk patients, respectively ($P = 0.0002$), while disease-free survival was 77% and 35%, respectively ($P = 0.0045$).

This new, four-gene model was shown to be a better predictor of survival than tumor stage or size for patients with early-stage lung adenocarcinoma, and was particularly valuable in assessing those with stage I disease.

Original article Raz DJ *et al.* (2008) A multigene assay is prognostic of survival in patients with early-stage lung adenocarcinoma. *Clin Cancer Res* **14:** 5565–5570

Surgical planes of dissection influence survival in patients treated for colon cancer

Outcomes for patients with colon cancer can be greatly improved by high-quality surgery, especially if the entire mesocolon is removed, because it contains many of the likely routes of metastatic tumor spread. Clinical trials have shown that the identification of surgical planes can predict local recurrence. West *et al.* hypothesized that removal of the mesocolon or colonic mesentery could increase the chance of complete eradication of a colonic cancer, and that grading the plane of surgery predicts the likelihood of local recurrence and death.

The authors of this retrospective, observational study used a prospectively collected series of specimen photographs that depicted resection of primary colonic adenocarcinoma to grade the plane of mesocolic surgical dissection, measure the amount of tissue removed and determine whether these features were associated with survival. A total of 399 excisions were graded, of which 338 were curative and 61 were palliative. Considerable variation was evident in the resections of each plane of surgery; 24% were resected in the muscularis propria plane, 44% in the intramesocolic plane and 32% in the mesocolic plane. Mesocolic-plane surgery was associated with a 15% 5-year overall survival advantage compared with surgery in the muscularis propria plane ($P = 0.006$). On multivariate analysis, however, this association was no longer significant.

The authors conclude that they have shown, for the first time, that quality of surgery for colon cancer is associated with patients' survival; improvements in the plane of dissection could decrease morbidity and mortality.

Original article West NP *et al.* (2008) Pathology grading of colon cancer surgical resection and its association with survival: a retrospective observational study. *Lancet Oncol* **9:** 857–865

RPN2 overexpression confers resistance to docetaxel in breast cancer

Docetaxel has been shown to be beneficial in the treatment of breast cancer; however, almost half of treated patients do not respond to it and many tumors develop resistance. At present no method exists to predict response to docetaxel or to detect resistance. Moreover, target molecules to increase the efficacy of chemotherapy in breast cancer have not yet been identified.

Honma and colleagues used gene-expression profiling of 44 patients with breast cancer (22 of whom had a pathologic response to docetaxel) to determine the regulatory network responsible for docetaxel resistance in breast cancer cells and to identify molecular targets for therapy. The authors used an atelocollagen-based, small-interfering-RNA (siRNA) transfection array to identify the genes responsible for drug resistance.

Of the genes whose expression was elevated in patients who did not respond to docetaxel, inhibition of the ribophorin II (*RPN2*) gene promoted docetaxel-dependent apoptosis and inhibited cell growth in a docetaxel-resistant human breast cancer cell line (MCF7-ADR). Silencing of *RPN2* resulted in decreased glycosylation and membrane localization of the P-glycoprotein efflux pump, which caused increased sensitization of MCF7-ADR cells to docetaxel. In drug-resistant models of mice given docetaxel, *in vivo* delivery of *RPN2*-specific siRNA substantially reduced tumor growth.

The authors conclude that the introduction of *RPN2*-specific siRNA to cancer cells results in a hypersensitive response to docetaxel. *RPN2* could, therefore, have clinical applications as a target for RNA-interference-based therapeutics in drug-resistant tumors.

Original article Honma K *et al.* (2008) RPN2 gene confers docetaxel resistance in breast cancer. *Nat Med* **14:** 939–948