four cycles, compared with seven patients found to be positive by PET.

The authors conclude that PET conducted early in the course of chemotherapy has a high predictive value for the outcome of patient response to treatment. Such assessment could help in the tailoring of treatment to the individual patient's disease.

Original article Zinzani PL *et al.* (2006) Early positron emission tomography (PET) restaging: a predictive final response in Hodgkin's disease patients. *Ann Oncol* **17:** 1296–1300

The relationship between *H. pylori* infection and gastric cancer

Helicobacter pylori infection is thought to have a role in gastric carcinogenesis, but risk estimates vary widely. Researchers from the Japan Public Health Center Study Group conducted a large nested case–control study within a prospective cohort to evaluate the magnitude of the association and the effect of CagA and pepsinogen status on this relationship.

From a total of 123,576 subjects, 511 cases of gastric cancer were included in the study, and matched to 511 controls. The risk of gastric cancer was raised fivefold in patients with *H. pylori* seropositivity as determined by IgG antibody testing. Among these patients, CagA seropositivity, which is associated with more-extensive inflammation and an increased likelihood of progression to atrophic gastritis, further increased the risk. Furthermore, CagA positivity was associated with a threefold increased risk of gastric cancer in *H. pylori* IgG-negative patients, indicating that a single test for *H. pylori* IgG might not identify all *H. pylori* cases. The risk of gastric cancer was much greater in those with pepsinogen levels indicative of atrophic gastritis than in those with normal mucosa; risk increased with increasing severity of atrophic gastritis.

The authors comment that controlling *H. pylori* infection could decrease the risk of gastric cancer, but screening for *H. pylori* is expensive and can lead to misclassification. Patients with pepsinogen levels indicating severe atrophic gastritis may need to receive regular examination irrespective of *H. pylori* status; *H. pylori*-seropositive patients with lower pepsinogen levels would probably benefit from *H. pylori* eradication therapy.

Original article Sasazuki S *et al.* (2006) Effect of *Helicobacter pylori* infection combined with CagA and pepsinogen status on gastric cancer development among Japanese men and women: a nested case-control study. *Cancer Epidemiol Biomarkers Prev* **15:** 1341–1347

Microarray approach identifies genes potentially involved in prostate cancer progression

Gleason grade is an important parameter guiding therapy for prostate cancer. The Gleason score classifies tumors into categories on the basis of five histological patterns; patterns 3–5 have clinical significance, with pattern 5 representing the poorest cell differentiation. The molecular phenotype characterizing each grade could provide insight into the mechanisms involved in cancer progression. A microarray approach was, therefore, initiated to identify specific molecular 'fingerprints' associated with the different Gleason grades.

Using microdissection, cancer cells corresponding to the Gleason patterns 3, 4 and 5 were obtained from 29 radical prostatectomy samples. Transcript expression profiles for each cancer tissue sample were compared with the expression profile generated from a matched benign tissue sample. Using a supervised-learning approach, an 86-gene model with the ability to distinguish between low-grade (pattern 3) and high-grade (pattern 4/5) tumors was developed (patterns 4 and 5 were effectively indistinguishable at the molecular level). When applied to an independent set of 30 primary prostate carcinomas, the model successfully classified 76% of the samples. Several of the genes associated with prostate cancer grade discrimination possessed characteristics conducive to a role in cancer cell survival and invasion. Immunohistochemical quantification of independent tissue microarrays confirmed grade-associated levels of monoamine oxidase A and defender against cell death 1 proteins, both of which are involved in pathways associated with prostate cancer behavior.

The grade-discriminatory gene set identified in this experiment defines a pool of genes that could be involved in regulating the progression of prostate cancer; as such, these genes should be seen as potential targets for future pharmaceutical intervention.

Original article True L *et al.* (2006) A molecular correlate to the Gleason grading system for prostate adenocarcinoma. *PNAS* **103:** 10991–10996