In this issue

Looking up with CEA

Development of non-small cell lung cancer (NSCLC) is correlated to high serum levels of the tumour-associated carcinoembryonic antigen (CEA). CEA is normally only expressed during embryonic development or aberrantly in adult neoplastic tissues and consists of several related cell-surface glycoproteins. Increased serum CEA levels in NSCLC patients are associated with high tumour recurrence and low survival rates. Recently a tyrosine kinase inhibitor of epidermal growth factor receptor (EGFR), gefitinib (Iressa), was found to have anticancer activity against NSCLC. Favourable clinical response to gefitinib in NSCLC has been linked to female gender, adenocarcinoma, lack of smoking and certain EGFR gene mutations. In this issue of EJC, Okamoto and colleagues have investigated other potential clinical markers for gefitinib response and perhaps surprisingly, they report that patients with high serum CEA concentrations were more sensitive to gefitinib treatment. The authors speculate that CEA could play an important role in EGFR signalling in cancer cells and that it could have a changing role in NSCLC prognosis.

New hopes for colon cancer immunotherapy

Despite discoveries of new chemotherapy agents, colon cancer is one of the most common tumours worldwide where prognosis for advanced stage disease is poor. As colon cancer cells can be identified by expression of several tumour-associated antigens (TAA), new treatment modalities such as immunotherapy is an active area of research. It is known that cytotoxic T cells (CTL) target cancer cells that present TAA on the cell surface by the highly polymorphic human leukocyte antigen (HLA) molecules. In this issue of EJC, a study by Shichijo and colleagues has identified a novel gene coding for a new TAA. The new gene (SW#108) is homologous to the kinesin family member 18A, which is a microtubule-based motor protein involved in intracellular organelle transport. SW#108 is expressed in most types of tumours tested but not in any normal tissue except for lung and testis. Importantly, the researchers have shown that peptides derived from SW#108 can induce Class I HLA-A2-restricted cancer-reactive CTLs from peripheral blood mononuclear cells of colon cancer patients. The induced CTLs also showed significant cytotoxicity against colon tumour cells.

Predicting Mitomycin C activity

Mitomycin C (MMC) is a quinone based bioreductive drug that is used to treat malignancies including head and neck cancers and bladder carcinomas. Bioreductive drugs are compounds that are activated by specific reductases (under aerobic and/or hypoxic conditions) and the ability to predict tumour response, by enzyme activity assays, has been a key objective in bioreductive drug development. However in MMC treated patients, past attempts to predict clinical response based on enzyme activities have proven unsatisfactory. MMC drug response is heterogeneous with a broad spectrum of clinical outcome even in patients with histologically identical tumours. In an effort to find a clinical marker for MMC activity other than those based on tumour enzymology, Volpato and colleagues have discovered good correlation between levels of MMC-induced DNA interstrand cross-links and *in vitro* cellular response. The authors conclude that whilst predicting response to MMC therapy based on single enzyme activity remains an attractive goal, procedures such as the cell comet assay, which is an inexpensive and rapid test for DNA damage requiring only small biopsy samples, represents a potential way forward.

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