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IN BRIEF

GENETICS

Chromatin organization heavily influences mutation patterns

New research into cell-of-origin chromatin organization suggests that chromatin accesibility and modifications, along with the timing of replication explain up to 86% of the variance in mutation rates amongst eight diverse forms of cancer. The importance of cell-of-origin chromatin organization was demonstrated by comparisons with relevant cancer cell lines; these comparisons revealed that underlying epigenenomic features have substantially greater influence on specific mutation patterns than carcinogenesis. Thus, tumour DNA sequence can indicate the origins of a tumour.

Original article Polak, P. *et al*. Cell-of-origin chromatin organization shapes the mutational landscape of cancer. *Nature* **518**, 360–364 (2015)

LUNG CANCER

Nivolumab is a safe and effective treatment of NSCLC

The results of a recent phase II clinical trial reveal that nivolumab, an IgG4 PD-1 immune checkpoint inhibitor is a safe and effective treatment for patients with non-small cell lung cancer (NSCLC). In a single-arm trial, patients, who were refractory to at least two other treatments, received nivolumab. Amongst patients who responded to nivolumab, the majority of responses were still ongoing at the time of publication, serious adverse events ocurred in 17% of patients. These findings support the assesment of nivolumab in phase III clinical trials in patients with advanced, treatment refractory NSCLC.

Original article Rizvi, N. A. *et al*. Activity and safety of nivolumab, an anti-PD-1 immune checkpoint inhibitor, for patients with advanced, refractory squamous non-small-cell lung cancer (CheckMate 063): a phase 2, single-arm trial. *Lancet Oncol*. doi:10.1016/S1470-2045(15)70054-9

UROLOGICAL CANCER

Urinary methylation signature predicts prostate cancer risk

Risk stratification tools for patients with low-risk prostate cancer are required to enable improved clinical decision making. Now, researchers have combinined analysis of urinary 2-gene methylation with a combination of other clinical factors from a study population of 665 men undergoing prostate needle biopsies. This prognostic tool was validated in an independent study population and a 100% success rate in predicting adverse pathologies in patients with a biopsy Gleason score <7 was achieved.

Original article Jatkoe, T. A. *et al*. A urine-based methylation signature for risk stratification within low-risk prostate cancer. *Br. J. Cancer* doi:10.1038/bjc.2015.7

GENETICS

CEP72 variants underly vincristine-induced neuropathy

A study on chemotherapy-induced toxicity in children with acute lymphoblastic leukaemia has revealed that a single nucleotide polimorphism in the promoter region of *CEP72* is associated with a significantly greater risk of vincristine-induced neuropathy. The *CEP72* risk allele (the T allele of rs924607) had a frequency of 37% in the study cohort. Among patients homozygous for this allele, 56% had at least one episode of grade 2–4 neuropathy compared with 21.4 and 16.2% of homozygous wildtype or heterozygous patients.

Original article Diouf, B. *et al*. Association of an inherited genetic variant with vincristine-related peripheral neuropathy in children with acute lymphoblastic leukemia. *JAMA* doi:10.1001/jama.2015.0894