

**P006** Butyrate's effect on cell kinetics and microsatellite instability in colorectal cancer cells with differential *hMLH1* expression  
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Hereditary non-polyposis colorectal cancer (HNPCC) is associated with mismatch repair gene mutations (primarily *hMLH1* and *hMSH2*). The mutator phenotype of HNPCC is microsatellite instability (MSI), observed in >90% HNPCC and also in 15-25% sporadic colorectal cancer (CRC) cases. Butyrate, a short chain fatty acid end product of fermentation in the colon inhibits histone de-acetylation (IHDAC) and is a potential anti-neoplastic agent. This study used HCT116 (*hMLH1* -ve), M2 (*hMLH1* -ve) and HCT116 + chr3 (*hMLH1* + ve) CRC cell lines cultured in McCoy's 5A media to investigate i) short term (48 h) dose response to butyrate (0.5 - 2 mM) on cell proliferation and cell death and ii) longer term (16 d) exposure to 1 mM butyrate or 50 nM trichostatin A (an IHDAC) on MSI. Butyrate inhibited cell proliferation and induced cell death in a dose dependent manner in all three cell lines. Floating dead cells were 1.3, 2.7 and 3.8 times control values for M2, HCT116 + chr3 and HCT116 respectively ( $p < 0.001$ ). MSI analysis on at least 10 clones per cell line for each treatment is currently underway using Promega's MSI analysis system.  
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