Probing treatment response of glutaminolytic prostate cancer cells to natural drugs with hyperpolarized [5-13C]glutamine

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Resveratrol and sulforaphane have been shown to act by means of the PI3K signaling pathway. Treatment response to resveratrol is shown in Fig. E and F using hyperpolarization and RP-HPLC measurements respectively.

Glutamine metabolism is decreased after drug treatment as determined by both assays. Hyperpolarized [5-13C]glutamine metabolism thus is a promising biomarker for the non-invasive detection of tumor response to treatment, as it directly monitors one of the hallmarks in cancer metabolism - glutaminolysis - in living cells.