

Abstract Submitted
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Tracking the Glutamine and Ammonia Metabolism in Renal Cell Carcinoma Using NMR Spectroscopy ASIYE ASAADZADE, FATEMEH KHASHAMI, LLOYD LUMATA, University of Texas at Dallas — Glutamine is the most abundant amino acid in the body and is a major source of carbon and nitrogen (in the form of ammonia) in cellular metabolism. Renal cell carcinoma (RCC) or kidney cancer has a particular addiction to high consumption of glutamine to sustain its rapid proliferation. In this study, we have investigated the metabolic fate of glutamine in clear cell renal cell carcinoma (ccRCC) or kidney cancer using carbon-13 and nitrogen-15 nuclear magnetic resonance (NMR). Due to overexpression of specific glutamine metabolic enzymes, there is an overproduction of glutamine metabolites such as glutamate and ammonia which can be detected by ^{13}C and ^{15}N NMR spectroscopy. The details of ^{13}C , ^{15}N glutamine as a metabolic biomarker for RCC will be discussed. This study is supported by the Welch Foundation grant AT-1877-03242018, DOD grants W18XWH-17-1-0303 and W81XWH-19-1-0741, Cancer Prevention and Research Institute of Texas (CPRIT) grant RP180716, and the UTD Collaborative Biomedical Research Award (CoBRA).

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