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Title: Glycolytic phenotype mapping in lung cancer cell lines

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Body: Background: It is well established that cancer cell can activate their glycolysis pathway in order to survive in hypoxia micro-environment. Tumors cells show a stinking rate of glycolysis and lactate production, even in the presence of oxygen. Importantly, some cancer cells demonstrate impaired mitochondria respiration and high glycolysis, namely Warburg effect. It is known that most types of cancers fit the "Warburg hypothesis" because a decreased expression of mitochondrial ATP synthase, which is a bottleneck of mitochondrial oxidative phosphorylation. Objective: Our overall goal is to profile the lactic acid production in lung cancer cell lines (NSCLC vs SCLC) in order to prototype the glycolytic phenotype that might be used as a diagnostic tool for the early detection of lung cancer. Study Design and Preliminary data: Our main steps are: (1) quantify lactic acid production of representatives of NSCLC and SCLC cell lines in order to select lung cancer cell lines which demonstrate the highest glycolytic phenotype; we choose to study representative of adenocarcinoma (e.g. H2030, A549, H1563, H1650), squamous carcinoma (e.g. H226) and SCLC cell line (e.g. SHP77) (2) measure the glycolysis (e.g.GAPDH and pyruvate kinase) and oxidative phosphorylation enzymes (e.g. ATP synthase) level in order to study the glycolytic phenotype of lung cancer cell lines. Our preliminary results indicate that the adenocarcinoma cell lines, namely A549 and H2030 secreted lactic acid to the medium in concentration of 9.5nmol/ul and 11nmol/ul, respectively. Impact: Our study could serve as a basis for understanding the glycolytic phenotype mechanism in vitro and therefore for developing diagnosis test for early detection of lung cancer.