Early prediction of response to anti-cancer therapy using molecular Imaging PET/CT

The prognosis of relapsed or refractory aggressive lymphoma is poor. The huge variety of currently evolving targeted treatment approaches would benefit from tools for early prediction of response or resistance. Molecular imaging is recently recognized as a tool that can improve every facet of cancer care. PET images biochemical or physiologic phenomena in comparison with computed tomography (CT) or magnetic resonance imaging (MRI), which show anatomic details. PET imaging would predict areas of abnormal metabolic behaviour of cancers in vivo, and the addition of CT imaging underlines the site of malignancy. More accurate and precise interpretation of cancer lesions can therefore be performed by PET/CT imaging than PET or CT imaging alone. We used various lymphoma cell lines (ALCL, DLBCL, MCL, Myc-induced murine lymphoma etc.) to evaluate therapeutic effect of different anti-cancer drugs in vitro by molecular biological and biochemical methods. Micro-FDG- and/or FLT-positron emission tomography (PET) or PET/CT imaging studies were carried out with the suitable xenograft or transgenic mouse models to assess early treatment response to anti-cancer therapy in vivo. Interestingly, we detected a significant reduction of FLT-uptake in ALCL bearing animals using targeted drug therapy compared with baseline as early as 2 days after initiation of targeted therapy. Immunostaining showed a decrease in Ki-67 and an increase in cleaved caspase-3 staining. Additionally, the detection of therapeutic response of other aggressive cancer was proved to be highly correlated with other in vitro and in vivo data, suggests that PET/CT is a suitable method for detection of therapeutic response on cancer.

Biography
Zhoulei Li has completed her PhD in 2013 from Ludwig-Maximilians-University of Munich and postdoctoral studies from technical university Munich. She has published more than 10 papers in reputed journals. She is a research leader, managing a pharmaceutical project from Helmholtz Center Munich. Before that, She was a postdoc researcher, managed the clinical research lab at nuclear medicine of technical university Munich, supervised research staff and graduate students. She has extensive hands on experience on molecular imaging. Her research focuses on monitoring progress of cancer therapy and developing biomarker for cancer therapy.

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