



Contrast Mechanisms

MS03-1

## **Developing New Methods for Quantitative Imaging of Cellular Metabolism**

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MRI with hyperpolarized carbon-13 agents has created a new type of noninvasive, in vivo metabolic imaging that can be applied in cell, animal, and human studies. The use of <sup>13</sup>C-labeled agents, primarily [1-<sup>13</sup>C]pyruvate, enables monitoring of key metabolic pathways with the ability to image substrate and products based on their chemical shift,

providing unique insight into metabolism that can aid in disease staging and assessing treatment response.

This talk will present recent successes in overcoming the challenges inherent in developing and translating methods for imaging cellular metabolism using hyperpolarized carbon-13 agents, and touch on future technology developments to acquire and analyze metabolic information to address currently unmet clinical needs.

*Keywords: Hyperpolarization, Metabolism, Metabolic imaging*