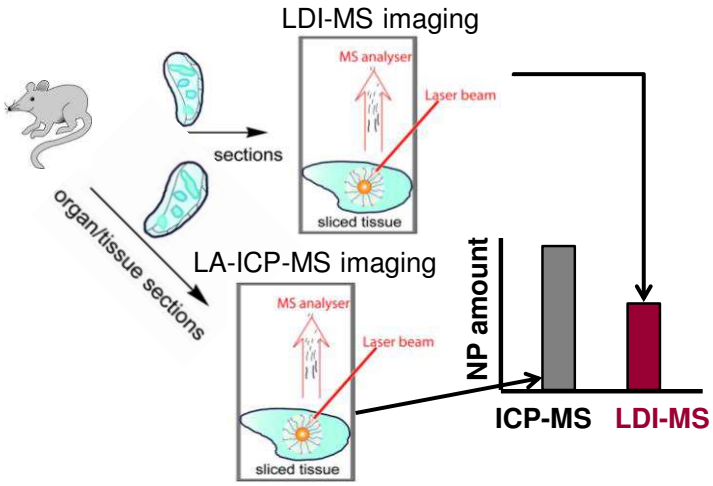
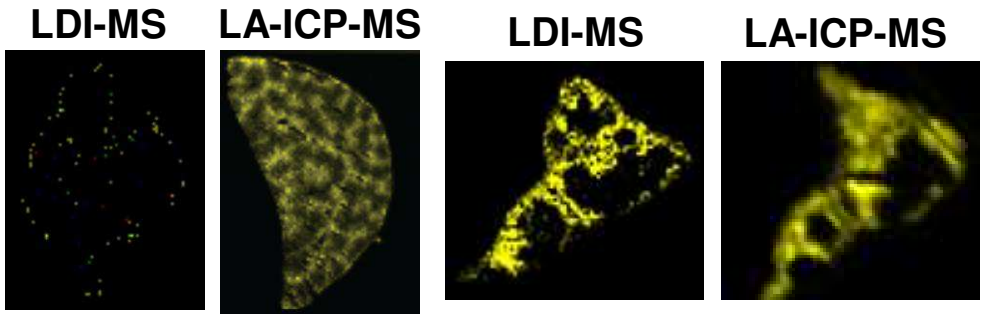
Imaging Nanoparticle Stability in Tissues

To more fully understand the potential toxicity of nanoparticles (NPs) that are exposed to organisms in the environment, it is essential to monitor the site-specific stability of NPs *in vivo*. CHM scientists have developed a combined imaging approach based on laser desorption/ionization mass spectrometry (LDI-MS) and laser ablation (LA) inductively-coupled plasma (ICP) MS to monitor whether core-shell NPs remain intact in tissues. LDI-MS images the shell material, while LA-ICP-MS images the core material. Localized signal from both indicates an intact NP. Results show that NPs remain intact in certain organs, such as the spleen, while are more quickly broken down in other organs, such as the liver.





low NP stability in liver

greater NP stability in spleen

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