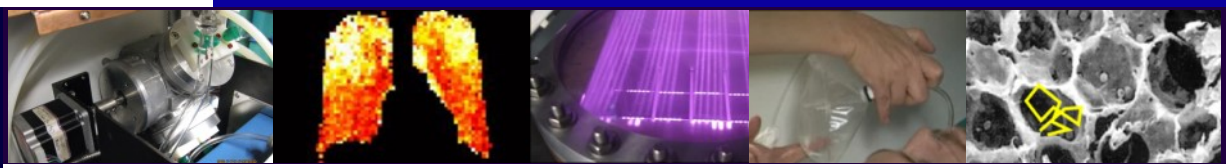
Xēmed

Images... from the air we breathe

What if ... an inhaled contrast agent could map a broad range of relevant lung characteristics without ionizing radiation?



PROJECT STATUS

Completed over 600 examinations of 64 subjects in Phase II studies

Enrolled patients with
- *COPD*
- *asthma*
- *cystic fibrosis*
- *sickle cell disease*

Demonstrated examinations of
- *ventilation*
- *alveolar size*
- *small airway dimension*
- *collateral ventilation*
- *perfusion*
- *surface-to-volume ratio*
- *inflammation*
- *exchange with red blood cells*

INTELLECTUAL PROPERTY

Patents awarded on
- *high-efficiency Xe polarization*
- *Xe polarization apparatus*
- *laser*
- *freeze-out*
- *thermal technologies*

Exclusive rights licensed from University of New Hampshire

Worldwide patent coverage

COMMERCIAL POTENTIAL

Pharmaceutical companies validating new medical therapies in clinical trials use MagniXene® MRI as a Drug Development Tool

MagniXene® MRI can assist in providing personalized clinical care by guiding emerging minimally-invasive interventions

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Markets: Hyperpolarized xenon-129 MRI using Xemed's MagniXene® offers a new imaging modality for quantifying regional pulmonary function and managing lung diseases. Drug companies can learn more information about health status of the lungs of their clinical trial participants, perhaps reducing their costs, improving statistical outcomes, and accelerating drug products to market. Xemed is working with the FDA and Pharma partners to establish MagniXene® as a qualified Drug Development Tool. MagniXene® MRI may become an important element in clinical care by providing image-guided treatment planning for therapies delivered through a bronchoscope. Xemed is working with its clinical partner network to investigate the efficacy of image-guided bronchial thermoplasty for severe asthma.

Regulatory advancement: Xemed filed for Investigational New Drug status for hyperpolarized xenon-129 with the US FDA in 2004, and maintains a dialog with them for its regulatory advancement. Xemed is expanding its network of clinical research partners to further that goal. Because hyperpolarized xenon-129 is not yet approved, clinical research to identify and validate efficacious applications of MagniXene® fall within the allowances of this IND. During 2011 Xemed plans to expand its regulatory filings for MagniXene® to include Canada and Europe.

Production infrastructure: Xemed's XeBox-E10 is compact for locating it in an imaging suite, and automated for operation by non-specialists. Gas bags containing MagniXene® are produced during twenty minutes, and then removed from the polarizer and administered to the subject for inhalation. Scans can be completed during breath holds as short as ten seconds or even less.

Imaging infrastructure: With its academic collaborators, Xemed has commissioned a state-of-the-art xenon-tuned chest coil for use with MagniXene®. This coil offers 32 receive elements for parallel imaging with acceleration factors up to six. An unshielded asymmetric birdcage transmit coil offers high efficiency and uniformity. Elements employ active detuning and proton frequency blocking to allow for proton MRI scans to be acquired concurrently with the xenon scans during the same breath hold.

Safety; Sustainability: Because no ionizing radiation is used, scans can be repeated or different lung parameters can be assessed in separate breaths. Since the xenon-129 supply is purified from natural air, it is unlimited and affordable.

XeBox-E10 delivers cGCP-compliant production of MagniXene® with on-board diagnosis and quality logging.

While lying in an MRI scanner, a subject inhales MagniXene® to map out his lungs' functional microstructure