

SUNRISE SESSION: MRI Applications to Tissue Engineering

ISMRM 17th Scientific Meeting & Exhibition

SMRT 18th Annual Meeting

Honolulu, Hawai'i, USA, 18 - 24 April, 2009

Wednesday, 22 April, 7am-7:30am

Three Decades of MRI and MRS of Bioartificial Liver

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Course Goals

1. Review of NMR-Compatible Bioartificial Liver
 - A. Cell Suspension Bioreactors
 - B. Cell Encapsulation Bioreactor
 - C. Hollow Fiber Bioreactors

2. Multinuclear MRS
 - A. ^{31}P – bioenergetics, intracellular pH, and phospholipid intermediates
 - B. ^{19}F – Xenobiotic metabolism and calcium concentrations
 - C. ^1H – metabolite concentrations
 - D. ^{13}C – Flux measurements

3. MRI
 - A. T_1 and T_2 -weighted ^1H MRI of cell distribution and quality assurance
 - B. Diffusion weighted ^1H MRI of hollow fiber integrity
 - C. Velocity encoded MRI of mass transfer.

4. Concluding remarks.