

Programme - CEST 2014 Workshop

8-9 May 2014 - Bioindustry Park, Colletterto Giacosa, Italy

Thursday May 8

8.30 Opening

Session 1: Towards clinical applications I

Chair: D. Sherry

8.45-9.15 X. Golay (University College London): Imaging Glucose metabolism by Chemical Exchange Saturation Transfer: promises and issues

9.15-9.45 G. Navon (Tel Aviv University): GlucoCEST - beyond glucose

9.45-10.05 J. Xu (Johns Hopkins University): NOE-CEST and amine-proton exchange imaging of mouse brain with suppression of MTC effects

10.05-10.25 M. Yanez Lopez (University of Nottingham): Monitoring neuroinflammation in vivo with CEST imaging

10.25-10.45 W. Ling (University of Pittsburgh): Selective Detection of Chemical-Exchange-Specific R1 ρ from Proteoglycan by qGagCESL

10.45-11.15 Coffee Break

Session 2: Towards clinical applications II

Chair: X. Golay

11.15-11.45 J. Zhou (Johns Hopkins University): Clinical APT Imaging: Contrast Mechanism, Technical Issue, and Potential Applications

11.45-12.15 R. Reddy (University of Pennsylvania): Amine CEST: methodology and emerging biomedical applications

12.15-12.35 J. Flament (CRC MIRCen, France): Monitoring of astrocytes reactivity using gluCEST imaging

12.35-12.55 Y. K. Tee (University of Oxford): Moving towards quantitative amide proton transfer (APT) imaging for stroke diagnosis

12.55-13.15 J. Keupp (Philips Research Europe): 3D fast Spin-Echo APT-MRI for Clinical Applications in Neuro-Oncology

13.15-14.15: Buffet Lunch

Session 3: Poster Session

14.15-15.45

(In order to have maximum of communication exchange the Posters will be exposed for the whole period of the Workshop).

15.45-16.15 Coffee Break

Session 4: Probe Development I

Chair: M. Pagel

16.15-16.45 M. McMahon (Johns Hopkins University): Developing diaCEST MRI Contrast Agents based on IntraMolecular bond-shifted Hydrogens

16.45-17.05 A. A. Gilad (Johns Hopkins University): Developing a CEST based biosensor for visualization signalling pathways

17.05-17.25 M. Vandsburger (University of Kentucky): MT/CEST Encoded Steady State Cardiac Cine MRI of Fibrosis and ParaCEST Agents

17.25-17.45 J. R. Morrow (University of Buffalo): Transition Metal paraCEST Agents in Serum and Tissue Mimics

17.45-18.05 G. Ferrauto (University of Torino): From paraCEST to cellCEST: Routes to multiplex MRI detection

18.05-18.25 E. Toth (CNRS, France): Enzyme-responsive probes based on a self-immolative approach

Friday May 9

Session 5: Measuring pH by CEST

Chair: P. van Zijl

8.30-9.00 M. Pagel (University of Arizona): Measuring Tumor Acidosis with acidoCEST MRI

9.00-9.30 P. Z. Sun (Harvard Medical School): Quantitative CEST imaging of pH

9.30-9.50 D. Longo (University of Torino): Exogenous diaCEST agents

9.50-10.10 N. Mc Vicar (Western University, Ontario): Amine/amide concentration-independent detection (AACID) and amide proton transfer (APT) effects following tumor-selective acidification using Ionidamine

10.10-10.30 K. M. Jones (University of Arizona): Simultaneous evaluation of pH and vascular perfusion by CEST MRI evaluates an orthotopic model of ovarian cancer

10.30-11.00 Coffee Break

Session 6: Probe development II

Chair: M. Mc Mahon

11.00-11.30 C. Witte (Leibniz Institut, Berlin): Recent advances in Hyper-CEST xenon biosensor development

11.30-11.50 I. J. Dmochowski (University of Pennsylvania): New bioanalytical investigations with Hyper-CEST NMR

11.50-12.10 A. Bar-Shir (Johns Hopkins University): The iCEST (ion CEST) approach: combining ^{19}F MRI with CEST for monitoring metal ions

12.10-12.30 I. Daryaei (University of Arizona): A new type of responsive MRI contrast agent that modulates $T_{2\text{ex}}$ relaxation: detection of nitric oxide

12.30-12.50 G. Liu (Johns Hopkins University): CEST MRI assessment of vascular permeability using non-labeled dextran

12.50-13.50: Buffet Lunch

Session 7: Technical and methodological advances I

Chair: P. Z. Sun

13.50-14.20 R. R. Regatte (NYU Langone Medical Center): Uniform MT-Saturation Transfer Technique and Applications

14.20-14.40 N. N. Yadav (John Hopkins University): Hybrid frequency encoding/water relaxation method for detecting CEST agents with increased sensitivity and specificity

14.40-15.00 G. Rancan (Technische Universität München): Gradient ascent pulse engineering for fast exchange saturation transfer

15.00-15.20 J. Fairney (University College London): Challenges of B_0 correction for CEST Clinical Settings

15.20-15.50 Coffee Break

Session 8: Technical and methodological advances II

Chair: S. Aime

15.50-16.20 D. F. Gochberg (Vanderbilt University): Alternative approaches and specific sensitivities

16.20-16.40 P. Berthault (CEA Saclay, France): Ultrafast Z-spectroscopy for detection of ^{129}Xe NMR-based Sensors

16.40-17.00 J. Kim (University of Iowa): Accelerated CEST MRI using parallel imaging with undersampled radial acquisition

17.00-17.20 R. E. Lenkinski (University of Texas Southwestern): Ultrafast Localized CEST Spectroscopy for High-resolution Z-spectrum Acquisition

17.20 Closing remarks

Posters List - CEST 2014 Workshop

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1. **M. Takahashi (University of Texas Southwestern):** Why is the glycoCEST signal from liver glycogen so difficult to detect *in vivo*?
2. **A. D. Sherry (University of Texas Southwestern):** The Quest for Slow Water Exchange PARACEST Sensors
3. **B. F. Moon (University of Arizona):** A comparison of iopromide and iopamidol, two acidoCEST MRI contrast agents that measure tumor extracellular pH
4. **K. M. Jones (University of Arizona):** Evaluation of pH in a lung fibrosis mouse model using respiration gated acidoCEST MRI
5. **K. W. Y. Chang (John Hopkins University):** Metabolite CEST for detecting breast cancer cell aggressiveness
6. **P. J. Akhenblit (University of Arizona):** Monitoring Early Therapeutic Response by Measuring Extracellular pH in a Tumor Model with acidoCEST MRI
7. **T. Jin (University of Pittsburgh):** Advantages of chemical exchange spin-lock (CESL) over saturation transfer (CEST) for intermediate exchange (IMEX) studies
8. **X. Xu (John Hopkins University):** Ultrafast CEST Screening of Contrast Agents and Ultrafast QUEST
9. **M. Kunth (Leibniz Institut, Berlin):** Xenon Exchange Rate Determination for Cryptophane-A in Water Using Hyper-CEST
10. **Z. Zu (Vanderbilt University):** MR Imaging of Membrane Choline Phospholipids
11. **M. Rega (University College London):** APT as a Measure of pH. Validation by ³¹P in a Piglet Model of Hypoxia Ischemia Encephalopathy
12. **X. Song (John Hopkins University):** DiaCEST liposomes featuring intramolecular-bond shifted hydrogens (IM-SHY)
13. **W. Ling (University of Pittsburgh):** Optimization of Detection Parameters for Eu-HPDA3A in Agarose Gel
14. **H. Zeng (John Hopkins University):** The exchange pathways of NOE-CEST as revealed by NMR spectroscopy
15. **Y. Cheng (John Hopkins University):** Using CEST to Detect Glycogen-depleting Exercise-Induced Changes in Vivo
16. **J. Zhou (John Hopkins University):** Molecular MRI detection of hyperacute intracerebral hemorrhage (ICH) with APT imaging
17. **G. Xiao (Hanshan Normal University, China):** The RF irradiation time dependence of CEST imaging
18. **F. Torrealdea (John Hopkins University):** Bicarbonate as a theragnostic CEST agent for glioma models
19. **D. Delli Castelli (University of Torino):** YbHPDO3A derivatives. How to modulate the -OH proton exchange rate
20. **G. Ferrauto (University of Torino):** Use of MTC for the detection of T₁ agents