The Hyperpolarized MRI Technology Resource Center (HMTRC) is a Biomedical Resource Technology Center whose mission is to develop new advances in dissolution DNP techniques & instrumentation, specialized data acquisition methodology, and analysis software for preclinical and clinical research.

http://www.radiology.ucsf.edu/research/labs/hyperpolarized-mri-tech

The March 2016 Hyperpolarized Carbon-13 MRI Technology Development Workshop includes hands-on training, lectures, and discussions on dissolution DNP methodology, polarizer instrumentation, MR Sequence and Acquisitions, Bioreactors, Animal Preps, Chemistry & sterile Pharmacy Preps, Clinical Translation, and Software.
Workshop Schedule

Day 1

Tuesday, March 29th

8:00am  Breakfast/Registration   Genentech Hall Auditorium
8:20     Introductions: HMTRC Director, Dr. Dan Vigneron
8:30     Dissolution DNP Methodology & HP $^{13}$C MR Acquisition Developments: Dr. Peder Larson, UCSF
8:45     Development of HP MR Molecular Imaging Probes and Cell & Tissue Culture Models: Dr. John Kurhanewicz & Marcus Ferrone PharmD, UCSF
9:00     Open Source Tools and Methods for Processing Hyperpolarized $^{13}$C MR Data: Dr. Sarah Nelson, UCSF
9:15-9:45  Coffee Break
9:45-12:30pm  Hands-on Breakout Sessions
12:30-2:00  Lunch & Poster Session
2:00-5:30  Hands-on Breakout Sessions (Continued)

Dinner Reception & Keynote Lectures
Sponsored by Sigma-Aldrich

KEYNOTE LECTURES – Welcome by Dr. Sharmila Majumdar PhD, Vice Chair of Research, Radiology & Biomedical Imaging, UCSF

This workshop includes keynote lectures focused on Hyperpolarized MR technology development and clinical translation given by:

- Dr. Pamela Munster MD from the University of California San Francisco
- Dr. James A. Bankson PhD from the University of Texas MD Anderson Cancer Center
Workshop Schedule
Day 2

Wednesday, March 30th

8:30am  Breakfast/Registration  Genentech Hall Auditorium

9:00-11:30  Hands-on Breakout Sessions

11:30 – 2:30 pm  Poster Sessions

12:00-2:30pm  Lunch Reception

2:30pm-4:30pm  Hands-on Breakout Sessions including talks by industry and pharmacy colleague related to hyperpolarized carbon-13 MRI

4:30-5:00  Discussion and Wrap-up
Daniel B. Vigneron Ph.D. is a Professor in the Departments of Radiology & Biomedical Imaging and Bioengineering & Therapeutic Sciences at UCSF and is a member of the UCSF Cancer Center and the UCSF/UCB Bioengineering Graduate Group. He is the director of the NIH-funded Hyperpolarized MRI Technology Resource Center (HMTRC) and the project leader for the development of specialized dissolution Dynamic Nuclear Polarization (DNP) methodology & HP $^{13}$C MR acquisition techniques. His research focuses on the development and translation of new MR techniques for morphologic, metabolic and functional imaging and has extensive expertise in hyperpolarized carbon-13 MR overseeing the polarizer instrumentation and MR technique development at UCSF for preclinical research and translation for patient clinical trials of carbon-13 pyruvate.

John Kurhanewicz Ph.D. is a Professor in the Departments of Radiology & Biomedical Imaging and Pharmaceutical Chemistry at UCSF, and is a member of the California Institute for Quantitative Biology, the UCSF Cancer Center, and the UCSF/UCB Bioengineering Graduate Group. He is the director of the UCSF Biomedical NMR lab that contains the 14T micro-imaging spectrometer, 11.7 HMR spectrometer and two adjacent DNP polarizers with extensive experience in NMR and MRI research for prostate cancer and other applications. He leads the HMTRC development of novel NMR-compatible cell & tissue culture bioreactors, new & optimized hyperpolarized molecular probes, and correlative pathological & molecular biomarker assays for preclinical hyperpolarized MR research.

Sarah J. Nelson Ph.D. is a Professor in the Departments of Radiology & Biomedical Imaging and Bioengineering & Therapeutic Sciences at UCSF. She has extensive experience in mathematical modeling, computation and MRSI data analysis. She has led the development of novel algorithms and techniques for the processing and display of MR spectroscopy and imaging data with a focus on brain tumor research. Dr. Nelson has worked closely with Drs. Vigneron and Kurhanewicz on the analysis of hyperpolarized $^{13}$C MR data for a wide variety of research projects. Dr. Nelson leads the HMTRC development of new analysis procedures and free open-source software specialized for hyperpolarized $^{13}$C metabolic imaging.

Robert Bok M.D., Ph.D. is a certified Urologic Oncologist and Assistant Professor in the Department of Radiology & Biomedical Imaging working in the UCSF Cancer Imaging Program. He received a Ph.D. in Biochemistry as well as an M.D. with specialized training in Internal Medicine and Hematology/Oncology. He has extensive experience in preclinical and clinical MR imaging research and oversees the animal facilities in the Surbeck Laboratory for Advanced Imaging and Biomedical NMR lab. Dr. Bok led the animal model aspects for numerous prior preclinical hyperpolarized MR studies and oversees the biological and animal care aspects for HMTRC preclinical research projects.

Peder Larson Ph.D. is an Assistant Professor in the Department of Radiology & Biomedical Imaging at UCSF. Dr. Larson’s graduate work in the Department of Electrical Engineering at Stanford University provided extensive training in technical MRI pulse sequence development. During his post-graduate research at UCSF, he continued to pursue technical MRI improvements, with a focus on hyperpolarized $^{13}$C applications and prostate $^1$H MRSI. He is the PI of an NIH R00 grant titled Hyperpolarized C-13 MR Pulse Sequence Developments for Novel Contrast and an expert in HP $^{13}$C MR sequences.

David Wilson M.D., Ph.D. is an Assistant Professor in the Department of Radiology & Biomedical Imaging. He received his Ph.D. in Chemistry and is currently faculty in the UCSF Neuroradiology section. Dr. Wilson’s research is focused on the development of new agents for molecular imaging using hyperpolarized $^{13}$C MR and positron emission tomography combining both his strong chemistry background and medical training. He has been highly successful in developing new hyperpolarized molecular probes and with Prof. Kurhanewicz is working on HMTRC projects in optimizing hyperpolarized probe preparations and probe polarization procedures.
Marcus Ferrone Pharm.D. is an Associate Professor in the Department of Clinical Pharmacy at UCSF. He served as the Director of the Drug Products Services Laboratory (DPSL), a clinical service, teaching, and research facility operated within the Department of Clinical Pharmacy. Under his direction, the DPSL maintained state and federal licenses to operate as both a pharmacy and a manufacturing center that prepared sterile products as well as oral and topical dosage forms under cBMP conditions. Thus, he has extensive expertise in the area of pharmaceutical formulation design and development strategy to ensure the delivery of a stable, high quality drug product in addition to navigating the investigational medicinal product through the rigorous regulatory process. After transitioning from Director of DPSL, he now leads the research pharmacy program at UCSF developing hyperpolarized molecular imaging agents for clinical research studies. His current research focus is to develop and formulate hyperpolarized drug products for administration to patients undergoing MR imaging studies.

Jason Crane Ph.D. is the Software Manager in the Surbeck Laboratory at UCSF. Under the direction of Prof. Sarah Nelson, he leads key aspects of the development of the free open-source analysis tools for hyperpolarized carbon-13 MR. He is the primary author and designer of the SIVIC package and has extensive experience in integrating the software developed by the research staff with the MR scanner and other third party packages. For the HMTRC, he is expanding the capabilities of the SIVIC package for Hyperpolarized MR, implementing the algorithms needed for reconstructing and interpreting the data and designing modules to address the needs of the HP research projects. Dr. Crane also trains students and both intra- and extra-mural investigators in the use of these specialized HP MR analysis tools.

Mark Van Criekinge M.S. is a highly experienced Engineer with outstanding expertise in DNP (dynamic nuclear polarization) process engineering, high field magnet systems, low-temperature cryo-inserts, polarizer electronics and dissolution fluid path design and construction. He has extensive industrial experience having worked as a lead systems engineer with Varian Inc. for 20 years and with the DNP polarizer, having worked with Oxford instruments on the development of the commercial HyperSense DNP polarizer product. He leads HMTRC polarizer instrumentation developments.

Lucas Carvajal M.S. is a highly experienced Mechanical and RF Engineer at UCSF. He has extensive experience in coil construction, computer modeling of coil reception profiles, and MRI/MRSI data analysis. He has been very involved in the construction of specialized coils for a wide variety of applications.

Cornelius von Morze Ph.D. is a Senior Bioengineer scientist in the Department of Radiology & Biomedical Imaging at UCSF with extensive experience in preclinical applications for imaging hyperpolarized carbon-13 contrast agents for investigations of metabolism, perfusion, and transport. He is also developing a new research program focused on renal HP MRI studies.

Subramaniam Sukumar Ph.D. has extensive experience in MR sequence development having formerly worked at GE and Varian and oversees the MR technique development on the 14T imaging-spectrometer in the Biochemical NMR Lab. He has, under the direction of Drs. Kurhanewicz and Vigneron, developed high resolution MR and novel hyperpolarized 13C sequences for high field 14 T MR animal studies. For HMTRC projects, Dr. Sukumar develops new MR sequences optimized for the needs of collaborative projects.

Lynn Delos Santos is a highly experienced staff research scientist specializing in pathology, immunohistochemistry and biochemical arrays. She oversees Dr. Kurhanewicz’s pathology and molecular biology lab in which tissue pathologic and biochemical analysis is done for HMTRC studies.
Registration Information and Fees

HMTRC Workshop Registration Fee

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<thead>
<tr>
<th>Category</th>
<th>Fee</th>
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<tbody>
<tr>
<td>Academic Participant</td>
<td>$250</td>
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<tr>
<td>Industry Participant</td>
<td>$750</td>
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</tbody>
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University of California personnel please email hmtrc@ucsf.edu before registering to follow UC policies.

Location: The HMTRC Workshop will be held on Tuesday, March 29 from 8am to 8pm and Wednesday, March 30, 2016 from 8:30am to 5pm on the UCSF Mission Bay Campus in the Genentech Hall Auditorium, 600 16th Street, San Francisco, CA 94158. Your name badge and workshop program will be available for pick up at the registration counter located outside the Genentech Hall Auditorium.

Registration: Online registration for the HMTRC Workshop is available at https://www.123signup.com/register?id=pshty. VISA, Mastercard, and Discovercard are accepted. The HMTRC Workshop Registration Fee includes hands-on training/demo costs, and related MR scanner, DNP supplies, bioreactor, animal and chemistry costs. Register Early, Enrollment is Limited. No registration at the door.

Posters: We welcome poster presentations by any participants. If you would like to present a poster at the workshop, please email us at hmtrc@ucsf.edu. Please send title and author list by March 22, 2016, if you would like it to be included in the printed materials.

Hotel Accommodation: UCSF special rates are offered at the King George Hotel and Hotel Griffon. Participants can reserve their hotel stay by contacting the hotel directly. Please request for the UCSF Preferred Rate. These rates are subject to change and availability.

- King George Hotel located on 334 Mason Street, San Francisco, CA 94102 offers a nightly rate of $169 plus tax for 1 queen or 1 king bed. For reservation, call 415-781-5050.

- Hotel Griffon located on 155 Steuart Street, San Francisco, CA 94105 offers a nightly rate of $252 plus tax for 1 queen bed or $262 plus tax for 1 king bed. For reservation, call 415-495-2100.

Other Hotels within the vicinity (No Special Rates apply):
- Marriott Courtyard San Francisco – 299 2nd St, SF, CA 94105; (800) 321-2211
- San Francisco Marriott Marquis – 780 Mission St, SF, CA 94103; (415) 896-1600
- InterContinental San Francisco – 888 Howard St, SF, CA 94103; (415) 616-6500
- Harbor Court – 165 Steuart St, SF, CA 94105; (415) 882-1300

Refund Policy: If you enroll and cannot attend, a refund of the registration fee less $55 will be granted by March 14, 2016. After this date, a total of $110 will be deducted from your refund. Refunds will not be granted to registrants who fail to cancel prior to the opening of the course. If you are unable to attend, you may send another person in your place. Send refund requests to hmtrc@ucsf.edu and please include a reason for the cancellation. Refunds will be processed within 60 days after the workshop.
Location: The HMTRC Workshop will be held on Tuesday, March 29 & Wednesday, March 30, 2016 on the UCSF Mission Bay Campus starting in the Genentech Hall Auditorium. Your name badge and workshop program will be available for pick up at the registration counter located outside the Genentech Hall Auditorium.

Registration desk is located in the East Corridor of Genentech Hall entrance, outside the Auditorium on the 1st Floor.