

CURRICULUM VITAE  
David G. Mummy, Ph.D.

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EDUCATION	<b>University of Wisconsin</b> , Madison, WI Ph.D., Biomedical Engineering (2018) M.S., Biomedical Engineering (2015) <b>Seattle University</b> , Seattle, WA M.B.A. (2011) <b>Whitman College</b> , Walla Walla, WA B.A., Mathematics, Physics (2006)	
RESEARCH EXPERIENCE	<b>Post-Doctoral Research Associate, Duke University</b> Department of Radiology and Center for In Vivo Microscopy Supervisor: Bastiaan Driehuys, Ph.D. <b>Research Assistant, University of Wisconsin-Madison</b> Department of Medical Physics Supervisor: Sean B. Fain, Ph.D.	Feb 2019 - Present    Sep 2013 - Jan 2019
INDUSTRY EXPERIENCE	<b>Scientific Consultant</b> Polarean Imaging plc, Durham, NC <b>Statistical Analyst Programmer</b> Fred Hutchinson Cancer Research Center, Seattle, WA <b>Flight Test Software Analyst</b> The Boeing Company, Seattle, WA	Jan 2020 - Present   2011 - 2013 2008 - 2011
ACTIVITIES AND SERVICE	<ul style="list-style-type: none"><li>• ISMRM Hyperpolarized Media Study Group: Trainee Representative, 2020-Present</li><li>• ATS Respiratory Structure and Function (RSF) Assembly Web Committee, 2019-present</li><li>• Peer Reviewer: <i>Magnetic Resonance in Medicine</i>, <i>Radiology</i>, <i>Radiology: Artificial Intelligence</i>, and <i>Radiology: Cardiothoracic Imaging</i></li></ul>	
PUBLICATIONS	<ol style="list-style-type: none"><li>1. <b>David G. Mummy</b>, Eleanor M. Dunican, Katherine J. Carey, Michael D. Evans, Brett M. Elicker, John D. Newell, David S. Gierada, Scott K. Nagle, Mark L. Schiebler, Ronald L. Sorkness, Nizar N. Jarjour, Loren C. Denlinger, John V. Fahy, Sean B. Fain. "Airway Mucus Plugs in Asthma Are Associated with Regional Ventilation Heterogeneity on Helium-3 MRI." [In Revision, <i>Radiology</i>]</li><li>2. <b>David G. Mummy</b>, Erika M. Coleman, Ziyi Wang, Elianna Bier, Junlan Lu, Bastiaan Driehuys, Yuh-Chin Huang. "Regional Gas Exchange Measured by 129Xe MRI Before and After Bronchodilator Treatment in Chronic Obstructive Pulmonary Disease." [In Press, <i>JMRI</i>]</li><li>3. <b>David G. Mummy</b>, Elianna A. Bier, Ziyi Wang, Jennifer Korzekwinski, Lake Morrison, Christina Barkauskas, Robert Tighe, Bastiaan Driehuys, Joseph Mammarappallil. "Quantitative MR Imaging and Spectroscopy of Gas Exchange Abnormalities in Non-Specific Interstitial Pneumonia Using Hyperpolarized 129Xe." [In Press, <i>Radiology</i>]</li><li>4. Wang, Ziyi, Leith Rankine, Elianna A. Bier, <b>David Mummy</b>, Junlan Lu, Alex Church, Robert M. Tighe et al. "Using Hyperpolarized 129Xe Gas Exchange MRI to Model the Regional Airspace, Membrane and Capillary Contributions to Diffusing Capacity." <i>Journal of Applied Physiology</i> (2021).</li></ol>	

5. **David G. Mummy**, Katherine J. Carey, Michael D. Evans, Loren C. Denlinger, Mark L. Schiebler, Ronald L. Sorkness, Nizar N. Jarjour, and Sean B. Fain. "Ventilation Defects on Hyperpolarized Helium-3 MRI in Asthma are Predictive of 2-Year Exacerbation Frequency." *Journal of Allergy and Clinical Immunology* 164.4 (2020): 831-839, doi: 10.1016/j.jaci.2020.02.029.
6. Jeff Kammerman, Andrew D. Hahn, Robert V. Cadman, Annelise Malkus, **David Mummy**, Sean B. Fain. "Transverse relaxation rates of pulmonary dissolved-phase Hyperpolarized  $^{129}\text{Xe}$  as a biomarker of lung injury in idiopathic pulmonary fibrosis." *Magnetic Resonance in Medicine* 84.4 (2020): 1857-1867.
7. **David Mummy**, Bastiaan Driehuys. "Illuminating Lung Inflammation at the Alveolar Capillary Interface." (Editorial). *Journal of Magnetic Resonance Imaging (JMRI)*: 11 Feb 2020, 51(6):1677-1678. doi: 10.1002/jmri.27086
8. Kamran Poorbahrami, **David G. Mummy**, Sean B. Fain, and Jessica M. Oakes. "Patient-specific Modeling of Aerosol Delivery in Healthy and Asthmatic Adults." *Journal of Applied Physiology* 127.6 (2019): 1720-1732.
9. Jessica M. Oakes, **David Mummy**, Kamran Poorbahrami, Wei Zha, and Sean B. Fain. "Patient-Specific Computational Simulations of Hyperpolarized  $^3\text{He}$  MRI Ventilation Defects in Healthy and Asthmatic Subjects". *IEEE Transactions in Biomedical Engineering*, 66.5 (2018): 1318-1327.
10. Zha, Wei, Stanley J. Kruger, Robert V. Cadman, **David G. Mummy**, Michael D. Evans, Scott K. Nagle, Loren C. Denlinger, Nizar N. Jarjour, Ronald L. Sorkness, and Sean B. Fain. "Regional Heterogeneity of Lobar Ventilation in Asthma Using Hyperpolarized Helium-3 MRI." *Academic Radiology* 25, no. 2 (2018): 169-178.
11. **David G. Mummy**, Stanley J. Kruger, Wei Zha, Ronald L. Sorkness, Nizar N. Jarjour, Mark L. Scheibler, Loren C. Denlinger, Michael D. Evans, Sean B. Fain. "Ventilation defect percent in helium-3 magnetic resonance imaging as a biomarker of severe outcomes in asthma." *Journal of Allergy and Clinical Immunology* 141.3 (2018).
12. E. Adamson, K. Ludwig, **D. Mummy**, S.B. Fain. "Magnetic resonance imaging with hyper-polarized agents: methods and applications". *Physics in Medicine and Biology* (2017). doi: 10.1088/1361-6560/aa6be8.
13. Wei Zha, David J. Niles, Stanley J. Kruger, Bernard J. Dardzinski, Robert V. Cadman, **David G. Mummy**, Scott K. Nagle, and Sean B. Fain. "Semiautomated Ventilation Defect Quantification in Exercise-induced Bronchoconstriction Using Hyperpolarized Helium-3 Magnetic Resonance Imaging: A Repeatability Study". *Academic Radiology* (2016).
14. V. Shankaran, **D. Mummy**, L. Koepl, A. Bansal, D. Mirick, E. Yu, R. Morlock, S. Ogale, and S. Ramsey. "Survival and lifetime costs associated with first-line bevacizumab use in older patients with metastatic colorectal cancer". *Oncologist* 19:892-899, 2014
15. V. Shankaran, **D. Mummy**, L. Koepl, D. Blough, Y. M. Yim, E. Yu, S. Ramsey. "Adverse events associated with Bevacizumab and chemotherapy in older patients with metastatic colorectal cancer". *Clin Colorectal Cancer* 2013; 12(3): 204-213
16. B. Goulart, C. Reyes, C. Fedorenko, **D. Mummy**, S. Satram-Hoang, L. Koepl, D. Blough, S. Ramsey. "Referral and treatment patterns among patients with stages III and IV non-small cell lung cancer". *Journal of Oncology Practice*, 9, 42-50. doi:10.1200/JOP.2012.000640
17. B. Goulart, M. Bensink, **D. Mummy**, S. Ramsey. "Lung cancer screening with low-dose computed tomography: costs, national expenditures, and cost-effectiveness". *Journal of the National Comprehensive Cancer Network: JNCCN*. 01/2012; 10(2): 267-275.

BOOK CHAPTERS	<ul style="list-style-type: none"> <li>• “Asthma.” <b>David G. Mummy</b>, Wei Zha, Ronald L. Sorkness, Sean B. Fain. <i>MRI of the Lung</i>, Hans-Ulrich Kauczor and Mark Oliver Wielpütz, Eds. Springer, 2018.</li> <li>• “Hyperpolarized Gas MRI of the Lung in Asthma.” Sean B. Fain, <b>David G. Mummy</b>, Ronald L. Sorkness. <i>Hyperpolarized and Inert Gas MRI: From Technology to Application in Research and Medicine</i>, Mitchell S. Albert and Francis T. Hane, Eds. Academic Press, 2016.</li> </ul>	
CURRENT GRANT SUPPORT	<p><b>Co-Investigator.</b> Genentech (PI: R. Tighe, MD) <sup>129</sup>Xe Imaging Biomarkers for Idiopathic Pulmonary Fibrosis</p> <p><b>Co-Principal Investigator.</b> Genentech Assessment of Hyperpolarized Xenon MRI to Evaluate the Efficacy of Azithromycin Treatment to Prevent Acute Exacerbations in Patients with COPD with and without Chronic Bronchitis</p> <p><b>Co-Investigator.</b> NIH/NHLBI R01 HL153641-01 (PI: L. Que, MD) Oxidative Stress and Regional Airway Remodeling and Fibrosis in Obese Asthma</p>	<p>2019-2022</p> <p>2020-2022</p> <p>2020-2024</p>
COMPLETED GRANT SUPPORT	<p><b>Co-Investigator.</b> Kaganov Initiative (PI: J. Mammarappallil, MD, PhD) Utilization of Hyperpolarized <sup>129</sup>Xe MRI with Machine Learning to Diagnose Idiopathic Pulmonary Fibrosis</p> <p><b>Co-Investigator.</b> United Therapeutics (PI: S. Rajagopal, MD, PhD) Assessing Response to Inhaled Prostacyclin with Hyperpolarized <sup>129</sup>Xe MRI</p>	<p>2019-2020</p> <p>2018-2020</p>
PRESENTATIONS	<ul style="list-style-type: none"> <li>• International Workshop on Pulmonary Functional Imaging (Virtual)</li> <li>• American Thoracic Society International Conference (Virtual)</li> <li>• International Workshop on Pulmonary Functional Imaging, New Orleans, LA</li> <li>• American Thoracic Society International Conference, San Diego, CA</li> <li>• International Society for Magnetic Resonance Imaging, Honolulu, HI</li> <li>• American Thoracic Society International Conference, San Francisco, CA</li> <li>• Intl. Workshop on Pulmonary Functional Imaging, Edinburgh, Scotland</li> </ul>	<p>May 2021</p> <p>May 2021</p> <p>Oct 2019</p> <p>May 2018</p> <p>May 2017</p> <p>May 2016</p> <p>Sep 2015</p>
AWARDS	<p>Abstract Awards</p> <ul style="list-style-type: none"> <li>• Magna cum Laude abstract, ISMRM (Virtual)</li> <li>• Abstract scholarship, ATS (Virtual)</li> <li>• Summa cum laude abstract, ISMRM Honolulu</li> <li>• Student Prize (North America)</li> <li>• Intl. Workshop on Pulmonary Functional Imaging, Edinburgh</li> <li>• Abstract Scholarship, ATS Denver</li> </ul>	<p>May 2021</p> <p>May 2021</p> <p>April 2017</p> <p>Sep 2015</p> <p>Oct 2014</p>