**SPIROMICS Publications**

1. Greenberg, Jane, Rahul Deshmukh, Lina Huang, Javed Mostafa, Lisa La Vange, Elizabeth Carretta, and Wanda O'Neal. (2010). 'The COPD Ontology and Toward Empowering Clinical Scientists as Ontology Engineers', *Journal of Library Metadata*, 10: 173-87.https://doi.org/10.1080/19386389.2010.520604.
2. Couper, D., L. M. LaVange, M. Han, R. G. Barr, E. Bleecker, E. A. Hoffman, R. Kanner, E. Kleerup, F. J. Martinez, P. G. Woodruff, S. Rennard, and SPIROMICS Research Group. (2014). 'Design of the Subpopulations and Intermediate Outcomes in COPD Study (SPIROMICS)', *Thorax*, 69: 491-4.https://www.ncbi.nlm.nih.gov/pubmed/24029743.
3. O'Neal, W. K., W. Anderson, P. V. Basta, E. E. Carretta, C. M. Doerschuk, R. G. Barr, E. R. Bleecker, S. A. Christenson, J. L. Curtis, M. K. Han, N. N. Hansel, R. E. Kanner, E. C. Kleerup, F. J. Martinez, B. E. Miller, S. P. Peters, S. I. Rennard, M. B. Scholand, R. Tal-Singer, P. G. Woodruff, D. J. Couper, S. M. Davis, and SPIROMICS Investigators. (2014). 'Comparison of serum, EDTA plasma and P100 plasma for luminex-based biomarker multiplex assays in patients with chronic obstructive pulmonary disease in the SPIROMICS study', *J Transl Med*, 12: 9.https://www.ncbi.nlm.nih.gov/pubmed/24397870.
4. Putcha, N., M. A. Puhan, M. B. Drummond, M. K. Han, E. A. Regan, N. A. Hanania, C. H. Martinez, M. Foreman, S. P. Bhatt, B. Make, J. Ramsdell, D. L. DeMeo, R. G. Barr, S. I. Rennard, F. Martinez, E. K. Silverman, J. Crapo, R. A. Wise, and N. N. Hansel. (2014). 'A simplified score to quantify comorbidity in COPD', *PLoS One*, 9: e114438.https://www.ncbi.nlm.nih.gov/pubmed/25514500.
5. Smith, B. M., E. A. Hoffman, D. Rabinowitz, E. Bleecker, S. Christenson, D. Couper, K. M. Donohue, M. K. Han, N. N. Hansel, R. E. Kanner, E. Kleerup, S. Rennard, and R. G. Barr. (2014). 'Comparison of spatially matched airways reveals thinner airway walls in COPD. The Multi-Ethnic Study of Atherosclerosis (MESA) COPD Study and the Subpopulations and Intermediate Outcomes in COPD Study (SPIROMICS)', *Thorax*, 69: 987-96.https://www.ncbi.nlm.nih.gov/pubmed/24928812.
6. Boes, J. L., B. A. Hoff, M. Bule, T. D. Johnson, A. Rehemtulla, R. Chamberlain, E. A. Hoffman, E. A. Kazerooni, F. J. Martinez, M. K. Han, B. D. Ross, and C. J. Galbán. (2015). 'Parametric response mapping monitors temporal changes on lung CT scans in the subpopulations and intermediate outcome measures in COPD Study (SPIROMICS)', *Acad Radiol*, 22: 186-94.https://www.ncbi.nlm.nih.gov/pubmed/25442794.
7. Freeman, C. M., S. Crudgington, V. R. Stolberg, J. P. Brown, J. Sonstein, N. E. Alexis, C. M. Doerschuk, P. V. Basta, E. E. Carretta, D. J. Couper, A. T. Hastie, R. J. Kaner, W. K. O'Neal, R. Paine, S. I. Rennard, D. Shimbo, P. G. Woodruff, M. Zeidler, and J. L. Curtis. (2015). 'Design of a multi-center immunophenotyping analysis of peripheral blood, sputum and bronchoalveolar lavage fluid in the Subpopulations and Intermediate Outcome Measures in COPD Study (SPIROMICS)', *J Transl Med*, 13: 19.https://www.ncbi.nlm.nih.gov/pubmed/25622723.
8. Paulin, L. M., G. B. Diette, P. D. Blanc, N. Putcha, M. D. Eisner, R. E. Kanner, A. J. Belli, S. Christenson, D. P. Tashkin, M. Han, R. G. Barr, N. N. Hansel, and SPIROMICS Research Group. (2015). 'Occupational exposures are associated with worse morbidity in patients with chronic obstructive pulmonary disease', *Am J Respir Crit Care Med*, 191: 557-65.https://www.ncbi.nlm.nih.gov/pubmed/25562375.
9. Guo, J., C. Wang, K. S. Chan, D. Jin, P. K. Saha, J. P. Sieren, R. G. Barr, M. K. Han, E. Kazerooni, C. B. Cooper, D. Couper, J. D. Newell, E. A. Hoffman, and SPIROMICS Research Group. (2016). 'A controlled statistical study to assess measurement variability as a function of test object position and configuration for automated surveillance in a multicenter longitudinal COPD study (SPIROMICS)', *Med Phys*, 43: 2598.https://www.ncbi.nlm.nih.gov/pubmed/27147369.
10. Martinez, C. H., A. A. Diaz, A. D. Parulekar, S. I. Rennard, R. E. Kanner, N. N. Hansel, D. Couper, K. E. Holm, K. F. Hoth, J. L. Curtis, F. J. Martinez, N. A. Hanania, E. A. Regan, R. Paine, C. T. Cigolle, M. K. Han, and COPDGene and SPIROMICS Investigators. (2016). 'Age-Related Differences in Health-Related Quality of Life in COPD: An Analysis of the COPDGene and SPIROMICS Cohorts', *Chest*, 149: 927-35.https://www.ncbi.nlm.nih.gov/pubmed/26836895.
11. Putcha, N., R. G. Barr, M. K. Han, P. G. Woodruff, E. R. Bleecker, R. E. Kanner, F. J. Martinez, B. M. Smith, D. P. Tashkin, R. P. Bowler, M. D. Eisner, S. I. Rennard, R. A. Wise, N. N. Hansel, and SPIROMICS Investigators. (2016). 'Understanding the impact of second-hand smoke exposure on clinical outcomes in participants with COPD in the SPIROMICS cohort', *Thorax*, 71: 411-20.https://www.ncbi.nlm.nih.gov/pubmed/26962015.
12. Sieren, J. P., J. D. Newell, R. G. Barr, E. R. Bleecker, N. Burnette, E. E. Carretta, D. Couper, J. Goldin, J. Guo, M. K. Han, N. N. Hansel, R. E. Kanner, E. A. Kazerooni, F. J. Martinez, S. Rennard, P. G. Woodruff, E. A. Hoffman, and SPIROMICS Research Group. (2016). 'SPIROMICS Protocol for Multicenter Quantitative Computed Tomography to Phenotype the Lungs', *Am J Respir Crit Care Med*, 194: 794-806.https://www.ncbi.nlm.nih.gov/pubmed/27482984.
13. Sun, W., K. Kechris, S. Jacobson, M. B. Drummond, G. A. Hawkins, J. Yang, T. H. Chen, P. M. Quibrera, W. Anderson, R. G. Barr, P. V. Basta, E. R. Bleecker, T. Beaty, R. Casaburi, P. Castaldi, M. H. Cho, A. Comellas, J. D. Crapo, G. Criner, D. Demeo, S. A. Christenson, D. J. Couper, J. L. Curtis, C. M. Doerschuk, C. M. Freeman, N. A. Gouskova, M. K. Han, N. A. Hanania, N. N. Hansel, C. P. Hersh, E. A. Hoffman, R. J. Kaner, R. E. Kanner, E. C. Kleerup, S. Lutz, F. J. Martinez, D. A. Meyers, S. P. Peters, E. A. Regan, S. I. Rennard, M. B. Scholand, E. K. Silverman, P. G. Woodruff, W. K. O'Neal, R. P. Bowler, SPIROMICS Research Group, and COPDGene Investigators. (2016). 'Common Genetic Polymorphisms Influence Blood Biomarker Measurements in COPD', *PLoS Genet*, 12: e1006011.https://www.ncbi.nlm.nih.gov/pubmed/27532455.
14. Woodruff, P. G., R. G. Barr, E. Bleecker, S. A. Christenson, D. Couper, J. L. Curtis, N. A. Gouskova, N. N. Hansel, E. A. Hoffman, R. E. Kanner, E. Kleerup, S. C. Lazarus, F. J. Martinez, R. Paine, S. Rennard, D. P. Tashkin, M. K. Han, and SPIROMICS Research Group. (2016). 'Clinical Significance of Symptoms in Smokers with Preserved Pulmonary Function', *N Engl J Med*, 374: 1811-21.https://www.ncbi.nlm.nih.gov/pubmed/27168432.
15. Anderson, W. H., J. W. Ha, D. J. Couper, W. K. O'Neal, R. G. Barr, E. R. Bleecker, E. E. Carretta, C. B. Cooper, C. M. Doerschuk, M. B. Drummond, M. K. Han, N. N. Hansel, V. Kim, E. C. Kleerup, F. J. Martinez, S. I. Rennard, D. Tashkin, P. G. Woodruff, R. Paine, J. L. Curtis, R. E. Kanner, and SPIROMICS Research Group. (2017). 'Variability in objective and subjective measures affects baseline values in studies of patients with COPD', *PLoS One*, 12: e0184606.https://www.ncbi.nlm.nih.gov/pubmed/28934249.
16. Bowler, R. P., N. N. Hansel, S. Jacobson, R. Graham Barr, B. J. Make, M. K. Han, W. K. O'Neal, E. C. Oelsner, R. Casaburi, I. Barjaktarevic, C. Cooper, M. Foreman, R. A. Wise, D. L. DeMeo, E. K. Silverman, W. Bailey, K. F. Harrington, P. G. Woodruff, M. B. Drummond, and for COPDGene and SPIROMICS Investigators. (2017). 'Electronic Cigarette Use in US Adults at Risk for or with COPD: Analysis from Two Observational Cohorts', *J Gen Intern Med*, 32: 1315-22.https://www.ncbi.nlm.nih.gov/pubmed/28884423.
17. Bradford, E., S. Jacobson, J. Varasteh, A. P. Comellas, P. Woodruff, W. O'Neal, D. L. DeMeo, X. Li, V. Kim, M. Cho, P. J. Castaldi, C. Hersh, E. K. Silverman, J. D. Crapo, K. Kechris, and R. P. Bowler. (2017). 'The value of blood cytokines and chemokines in assessing COPD', *Respir Res*, 18: 180.https://www.ncbi.nlm.nih.gov/pubmed/29065892.
18. Fernández-Baldera, A., C. R. Hatt, S. Murray, E. A. Hoffman, E. A. Kazerooni, F. J. Martinez, M. K. Han, and C. J. Galbán. (2017). 'Correcting Nonpathological Variation in Longitudinal Parametric Response Maps of CT Scans in COPD Subjects: SPIROMICS', *Tomography*, 3: 138-45.https://www.ncbi.nlm.nih.gov/pubmed/29457137.
19. Hammond, E., C. Sloan, J. D. Newell, J. P. Sieren, M. Saylor, C. Vidal, S. Hogue, F. De Stefano, A. Sieren, E. A. Hoffman, and J. C. Sieren. (2017). 'Comparison of low- and ultralow-dose computed tomography protocols for quantitative lung and airway assessment', *Med Phys*, 44: 4747-57.https://www.ncbi.nlm.nih.gov/pubmed/28657201.
20. Han, M. K., P. M. Quibrera, E. E. Carretta, R. G. Barr, E. R. Bleecker, R. P. Bowler, C. B. Cooper, A. Comellas, D. J. Couper, J. L. Curtis, G. Criner, M. T. Dransfield, N. N. Hansel, E. A. Hoffman, R. E. Kanner, J. A. Krishnan, C. H. Martinez, C. B. Pirozzi, W. K. O'Neal, S. Rennard, D. P. Tashkin, J. A. Wedzicha, P. Woodruff, R. Paine, F. J. Martinez, and SPIROMICS investigators. (2017). 'Frequency of exacerbations in patients with chronic obstructive pulmonary disease: an analysis of the SPIROMICS cohort', *Lancet Respir Med*, 5: 619-26.https://www.ncbi.nlm.nih.gov/pubmed/28668356.
21. Hansel, N. N., L. M. Paulin, A. J. Gassett, R. D. Peng, N. Alexis, V. S. Fan, E. Bleecker, R. Bowler, A. P. Comellas, M. Dransfield, M. K. Han, V. Kim, J. A. Krishnan, C. Pirozzi, C. B. Cooper, F. Martinez, P. G. Woodruff, P. J. Breysse, R. G. Barr, and J. D. Kaufman. (2017). 'Design of the Subpopulations and Intermediate Outcome Measures in COPD (SPIROMICS) AIR Study', *BMJ Open Respir Res*, 4: e000186.https://www.ncbi.nlm.nih.gov/pubmed/28948026.
22. Hastie, A. T., F. J. Martinez, J. L. Curtis, C. M. Doerschuk, N. N. Hansel, S. Christenson, N. Putcha, V. E. Ortega, X. Li, R. G. Barr, E. E. Carretta, D. J. Couper, C. B. Cooper, E. A. Hoffman, R. E. Kanner, E. Kleerup, W. K. O'Neal, R. Paine, S. P. Peters, N. E. Alexis, P. G. Woodruff, M. K. Han, D. A. Meyers, E. R. Bleecker, and SPIROMICS investigators. (2017). 'Association of sputum and blood eosinophil concentrations with clinical measures of COPD severity: an analysis of the SPIROMICS cohort', *Lancet Respir Med*, 5: 956-67.https://www.ncbi.nlm.nih.gov/pubmed/29146301.
23. Hobbs, B. D., K. de Jong, M. Lamontagne, Y. Bossé, N. Shrine, M. S. Artigas, L. V. Wain, I. P. Hall, V. E. Jackson, A. B. Wyss, S. J. London, K. E. North, N. Franceschini, D. P. Strachan, T. H. Beaty, J. E. Hokanson, J. D. Crapo, P. J. Castaldi, R. P. Chase, T. M. Bartz, S. R. Heckbert, B. M. Psaty, S. A. Gharib, P. Zanen, J. W. Lammers, M. Oudkerk, H. J. Groen, N. Locantore, R. Tal-Singer, S. I. Rennard, J. Vestbo, W. Timens, P. D. Paré, J. C. Latourelle, J. Dupuis, G. T. O'Connor, J. B. Wilk, W. J. Kim, M. K. Lee, Y. M. Oh, J. M. Vonk, H. J. de Koning, S. Leng, S. A. Belinsky, Y. Tesfaigzi, A. Manichaikul, X. Q. Wang, S. S. Rich, R. G. Barr, D. Sparrow, A. A. Litonjua, P. Bakke, A. Gulsvik, L. Lahousse, G. G. Brusselle, B. H. Stricker, A. G. Uitterlinden, E. J. Ampleford, E. R. Bleecker, P. G. Woodruff, D. A. Meyers, D. Qiao, D. A. Lomas, J. J. Yim, D. K. Kim, I. Hawrylkiewicz, P. Sliwinski, M. Hardin, T. E. Fingerlin, D. A. Schwartz, D. S. Postma, W. MacNee, M. D. Tobin, E. K. Silverman, H. M. Boezen, M. H. Cho, COPDGene Investigators, ECLIPSE Investigators, LifeLines Investigators, SPIROMICS Research Group, International COPD Genetics Network Investigators, UK BiLEVE Investigators, and International COPD Genetics Consortium. (2017). 'Genetic loci associated with chronic obstructive pulmonary disease overlap with loci for lung function and pulmonary fibrosis', *Nat Genet*, 49: 426-32.https://www.ncbi.nlm.nih.gov/pubmed/28166215.
24. Keene, J. D., S. Jacobson, K. Kechris, G. L. Kinney, M. G. Foreman, C. M. Doerschuk, B. J. Make, J. L. Curtis, S. I. Rennard, R. G. Barr, E. R. Bleecker, R. E. Kanner, E. C. Kleerup, N. N. Hansel, P. G. Woodruff, M. K. Han, R. Paine, F. J. Martinez, R. P. Bowler, W. K. O'Neal, and COPDGene and SPIROMICS Investigators ‡. (2017). 'Biomarkers Predictive of Exacerbations in the SPIROMICS and COPDGene Cohorts', *Am J Respir Crit Care Med*, 195: 473-81.https://www.ncbi.nlm.nih.gov/pubmed/27579823.
25. Kesimer, M., A. A. Ford, A. Ceppe, G. Radicioni, R. Cao, C. W. Davis, C. M. Doerschuk, N. E. Alexis, W. H. Anderson, A. G. Henderson, R. G. Barr, E. R. Bleecker, S. A. Christenson, C. B. Cooper, M. K. Han, N. N. Hansel, A. T. Hastie, E. A. Hoffman, R. E. Kanner, F. Martinez, R. Paine, P. G. Woodruff, W. K. O'Neal, and R. C. Boucher. (2017). 'Airway Mucin Concentration as a Marker of Chronic Bronchitis', *N Engl J Med*, 377: 911-22.https://www.ncbi.nlm.nih.gov/pubmed/28877023.
26. Martinez, C. H., A. A. Diaz, C. Meldrum, J. L. Curtis, C. B. Cooper, C. Pirozzi, R. E. Kanner, R. Paine, P. G. Woodruff, E. R. Bleecker, N. N. Hansel, R. G. Barr, N. Marchetti, G. J. Criner, E. A. Kazerooni, E. A. Hoffman, B. D. Ross, C. J. Galban, C. T. Cigolle, F. J. Martinez, M. K. Han, and SPIROMICS Investigators. (2017). 'Age and Small Airway Imaging Abnormalities in Subjects with and without Airflow Obstruction in SPIROMICS', *Am J Respir Crit Care Med*, 195: 464-72.https://www.ncbi.nlm.nih.gov/pubmed/27564413.
27. Martinez, C. H., S. Murray, R. G. Barr, E. Bleecker, R. P. Bowler, S. A. Christenson, Ap Auid-Orcid Comellas, C. B. Cooper, D. Couper, G. J. Criner, J. L. Curtis, M. T. Dransfield, N. N. Hansel, E. A. Hoffman, R. E. Kanner, E. Kleerup, J. A. Krishnan, S. C. Lazarus, N. K. Leidy, W. O'Neal, F. J. Martinez, R. Paine, 3rd, S. I. Rennard, D. P. Tashkin, P. G. Woodruff, and M. K. Han. (2017). 'Respiratory Symptoms Items from the COPD Assessment Test Identify Ever-Smokers with Preserved Lung Function at Higher Risk for Poor Respiratory Outcomes. An Analysis of the Subpopulations and Intermediate Outcome Measures in COPD Study Cohort', *Ann Am Thorac Soc*
28. Nishida, K., K. A. Brune, N. Putcha, P. Mandke, W. K. O'Neal, D. Shade, V. Srivastava, M. Wang, H. Lam, S. S. An, M. B. Drummond, N. N. Hansel, D. N. Robinson, and V. K. Sidhaye. (2017). 'Cigarette smoke disrupts monolayer integrity by altering epithelial cell-cell adhesion and cortical tension', *Am J Physiol*.https://journals.physiology.org/doi/full/10.1152/ajplung.00074.2017.
29. Bhatt, S. P., H. P. Nath, Y. I. Kim, R. Ramachandran, J. R. Watts, N. L. J. Terry, S. Sonavane, S. P. Deshmane, P. G. Woodruff, E. C. Oelsner, S. Bodduluri, M. K. Han, W. W. Labaki, J. Michael Wells, F. J. Martinez, R. G. Barr, M. T. Dransfield, and SPIROMICS investigators. (2018). 'Centrilobular emphysema and coronary artery calcification: mediation analysis in the SPIROMICS cohort', *Respir Res*, 19: 257.https://www.ncbi.nlm.nih.gov/pubmed/30563576.
30. Burkes, R. M., A. J. Gassett, A. S. Ceppe, W. Anderson, W. K. O'Neal, P. G. Woodruff, J. A. Krishnan, R. G. Barr, M. K. Han, F. J. Martinez, A. P. Comellas, A. A. Lambert, J. D. Kaufman, M. T. Dransfield, J. M. Wells, R. E. Kanner, R. Paine, E. R. Bleecker, L. M. Paulin, N. N. Hansel, M. B. Drummond, and Current and former investigators of the SPIROMICS sites and reading centers. (2018). 'Rural Residence and Chronic Obstructive Pulmonary Disease Exacerbations. Analysis of the SPIROMICS Cohort', *Ann Am Thorac Soc*, 15: 808-16.https://www.ncbi.nlm.nih.gov/pubmed/29584453.
31. Fawzy, A., N. Putcha, L. M. Paulin, C. P. Aaron, W. W. Labaki, M. K. Han, R. A. Wise, R. E. Kanner, R. P. Bowler, R. G. Barr, N. N. Hansel, and SPIROMICS and COPDGene Investigators. (2018). 'Association of thrombocytosis with COPD morbidity: the SPIROMICS and COPDGene cohorts', *Respir Res*, 19: 20.https://www.ncbi.nlm.nih.gov/pubmed/29373977.
32. Haghighi, B., S. Choi, J. Choi, E. A. Hoffman, A. P. Comellas, J. D. Newell, R. Graham Barr, E. Bleecker, C. B. Cooper, D. Couper, M. L. Han, N. N. Hansel, R. E. Kanner, E. A. Kazerooni, E. A. C. Kleerup, F. J. Martinez, W. O'Neal, S. I. Rennard, P. G. Woodruff, and C. L. Lin. (2018). 'Imaging-based clusters in current smokers of the COPD cohort associate with clinical characteristics: the SubPopulations and Intermediate Outcome Measures in COPD Study (SPIROMICS)', *Respir Res*, 19: 178.https://www.ncbi.nlm.nih.gov/pubmed/30227877.
33. Han, M. K., N. Tayob, S. Murray, P. G. Woodruff, J. L. Curtis, V. Kim, G. Criner, C. J. Galban, B. D. Ross, E. A. Hoffman, D. A. Lynch, E. Kazerooni, F. J. Martinez, and COPDGene and SPIROMICS Investigators. (2018). 'Association between Emphysema and Chronic Obstructive Pulmonary Disease Outcomes in the COPDGene and SPIROMICS Cohorts: A Post Hoc Analysis of Two Clinical Trials', *Am J Respir Crit Care Med*, 198: 265-67.https://www.ncbi.nlm.nih.gov/pubmed/29485901.
34. Kesimer, M., B. M. Smith, A. Ceppe, A. A. Ford, W. H. Anderson, R. G. Barr, W. K. O'Neal, R. C. Boucher, and SPIROMICS Investigative Group. (2018). 'Mucin Concentrations and Peripheral Airway Obstruction in Chronic Obstructive Pulmonary Disease', *Am J Respir Crit Care Med*, 198: 1453-56.https://www.ncbi.nlm.nih.gov/pubmed/30130124.
35. Labaki, W. W., M. Xia, S. Murray, J. L. Curtis, R. G. Barr, S. P. Bhatt, E. R. Bleecker, N. N. Hansel, C. B. Cooper, M. T. Dransfield, J. M. Wells, E. A. Hoffman, R. E. Kanner, R. Paine, V. E. Ortega, S. P. Peters, J. A. Krishnan, R. P. Bowler, D. J. Couper, P. G. Woodruff, F. J. Martinez, C. H. Martinez, and M. K. Han. (2018). 'NT-proBNP in stable COPD and future exacerbation risk: Analysis of the SPIROMICS cohort', *Respir Med*, 140: 87-93.https://www.ncbi.nlm.nih.gov/pubmed/29957287.
36. Li, X., V. E. Ortega, E. J. Ampleford, R. Graham Barr, S. A. Christenson, C. B. Cooper, D. Couper, M. T. Dransfield, M. L. K. Han, N. N. Hansel, E. A. Hoffman, R. E. Kanner, E. C. Kleerup, F. J. Martinez, R. Paine, P. G. Woodruff, G. A. Hawkins, E. R. Bleecker, D. A. Meyers, and SPIROMICS Research Group. (2018). 'Genome-wide association study of lung function and clinical implication in heavy smokers', *BMC Med Genet*, 19: 134.https://www.ncbi.nlm.nih.gov/pubmed/30068317.
37. Martinez, C. H., S. X. Li, A. J. Hirzel, V. R. Stolberg, N. E. Alexis, R. G. Barr, E. R. Bleecker, E. E. Carretta, S. A. Christenson, C. B. Cooper, D. J. Couper, C. M. Doerschuk, M. K. Han, N. N. Hansel, A. T. Hastie, E. A. Hoffman, R. J. Kaner, F. J. Martinez, D. A. Meyers, W. K. O'Neal, R. Paine, N. Putcha, S. I. Rennard, P. G. Woodruff, M. Zeidler, J. L. Curtis, C. M. Freeman, and SPIROMICS Investigators. (2018). 'Alveolar eosinophilia in current smokers with chronic obstructive pulmonary disease in the SPIROMICS cohort', *J Allergy Clin Immunol*, 141: 429-32.https://www.ncbi.nlm.nih.gov/pubmed/28916185.
38. Morris, M. A., S. R. Jacobson, G. L. Kinney, D. P. Tashkin, P. G. Woodruff, E. A. Hoffman, R. E. Kanner, C. B. Cooper, M. B. Drummond, R. G. Barr, E. C. Oelsner, B. J. Make, M. K. Han, N. N. Hansel, W. K. O'Neal, and R. P. Bowler. (2018). 'Marijuana Use Associations with Pulmonary Symptoms and Function in Tobacco Smokers Enrolled in the Subpopulations and Intermediate Outcome Measures in COPD Study (SPIROMICS)', *Chronic Obstr Pulm Dis*, 5: 46-56.https://www.ncbi.nlm.nih.gov/pubmed/29629404.
39. Paulin, L. M., B. M. Smith, A. Koch, M. Han, E. A. Hoffman, C. Martinez, C. Ejike, P. D. Blanc, J. Rous, R. G. Barr, S. P. Peters, R. Paine, C. Pirozzi, C. B. Cooper, M. T. Dransfield, A. P. Comellas, R. E. Kanner, M. B. Drummond, N. Putcha, and N. N. Hansel. (2018). 'Occupational Exposures and Computed Tomographic Imaging Characteristics in the SPIROMICS Cohort', *Ann Am Thorac Soc*, 15: 1411-19.https://www.ncbi.nlm.nih.gov/pubmed/30339479.
40. Pirozzi, C. S., T. Gu, P. M. Quibrera, E. E. Carretta, M. K. Han, S. Murray, C. B. Cooper, D. P. Tashkin, E. C. Kleerup, I. Barjaktarevic, E. A. Hoffman, C. H. Martinez, S. A. Christenson, N. N. Hansel, R. Graham Barr, E. R. Bleecker, V. E. Ortega, F. J. Martinez, R. E. Kanner, R. Paine, and NHLBI SubPopulations and InteRmediate Outcome Measures In COPD Study (SPIROMICS). (2018). 'Heterogeneous burden of lung disease in smokers with borderline airflow obstruction', *Respir Res*, 19: 223.https://www.ncbi.nlm.nih.gov/pubmed/30454050.
41. Putcha, N., A. Fawzy, G. G. Paul, A. A. Lambert, K. J. Psoter, V. K. Sidhaye, J. Woo, J. M. Wells, W. W. Labaki, C. M. Doerschuk, R. E. Kanner, M. K. Han, C. Martinez, L. M. Paulin, F. J. Martinez, R. A. Wise, W. K. O'Neal, R. G. Barr, N. N. Hansel, and SPIROMICS investigators. (2018). 'Anemia and Adverse Outcomes in a Chronic Obstructive Pulmonary Disease Population with a High Burden of Comorbidities. An Analysis from SPIROMICS', *Ann Am Thorac Soc*, 15: 710-17.https://www.ncbi.nlm.nih.gov/pubmed/30726108.
42. Putcha, N., G. G. Paul, A. Azar, R. A. Wise, W. K. O'Neal, M. T. Dransfield, P. G. Woodruff, J. L. Curtis, A. P. Comellas, M. B. Drummond, A. A. Lambert, L. M. Paulin, A. Fawzy, R. E. Kanner, R. Paine, M. K. Han, F. J. Martinez, R. P. Bowler, R. G. Barr, N. N. Hansel, and SPIROMICS investigators. (2018). 'Lower serum IgA is associated with COPD exacerbation risk in SPIROMICS', *PLoS One*, 13: e0194924.https://www.ncbi.nlm.nih.gov/pubmed/29649230.
43. Smith, B. M., H. Traboulsi, J. H. M. Austin, A. Manichaikul, E. A. Hoffman, E. R. Bleecker, W. V. Cardoso, C. Cooper, D. J. Couper, S. M. Dashnaw, J. Guo, M. K. Han, N. N. Hansel, E. W. Hughes, D. R. Jacobs, R. E. Kanner, J. D. Kaufman, E. Kleerup, C. L. Lin, K. Liu, C. M. Lo Cascio, F. J. Martinez, J. N. Nguyen, M. R. Prince, S. Rennard, S. S. Rich, L. Simon, Y. Sun, K. E. Watson, P. G. Woodruff, C. J. Baglole, R. G. Barr, and MESA Lung and SPIROMICS investigators. (2018). 'Human airway branch variation and chronic obstructive pulmonary disease', *Proc Natl Acad Sci U S A*, 115: E974-E81.https://www.ncbi.nlm.nih.gov/pubmed/29339516.
44. Wells, J. M., M. M. Parker, R. A. Oster, R. P. Bowler, M. T. Dransfield, S. P. Bhatt, M. H. Cho, V. Kim, J. L. Curtis, F. J. Martinez, R. Paine, W. O'Neal, W. W. Labaki, R. J. Kaner, I. Barjaktarevic, M. K. Han, E. K. Silverman, J. D. Crapo, R. G. Barr, P. Woodruff, P. J. Castaldi, A. Gaggar, and SPIROMICS and COPDGene Investigators. (2018). 'Elevated circulating MMP-9 is linked to increased COPD exacerbation risk in SPIROMICS and COPDGene', *JCI Insight*, 3.https://www.ncbi.nlm.nih.gov/pubmed/30429371.
45. Zeidler, M. R., J. L. Martin, E. C. Kleerup, H. Schneider, M. N. Mitchell, N. N. Hansel, K. Sundar, H. Schotland, R. C. Basner, J. M. Wells, J. A. Krishnan, G. J. Criner, S. Cristenson, S. Krachman, M. S. Badr, and SPIROMICS Research Group. (2018). 'Sleep disruption as a predictor of quality of life among patients in the subpopulations and intermediate outcome measures in COPD study (SPIROMICS)', *Sleep*, 41.https://www.ncbi.nlm.nih.gov/pubmed/29534240.
46. Arjomandi, M., S. Zeng, I. Barjaktarevic, R. G. Barr, E. R. Bleecker, R. P. Bowler, R. G. Buhr, G. J. Criner, A. P. Comellas, C. B. Cooper, D. J. Couper, J. L. Curtis, M. T. Dransfield, M. K. Han, N. N. Hansel, E. A. Hoffman, R. J. Kaner, R. E. Kanner, J. A. Krishnan, R. Paine, S. P. Peters, S. I. Rennard, P. G. Woodruff, and SPIROMICS Investigators. (2019). 'Radiographic lung volumes predict progression to COPD in smokers with preserved spirometry in SPIROMICS', *Eur Respir J*, 54.https://www.ncbi.nlm.nih.gov/pubmed/31439683.
47. Barjaktarevic, I. Z., R. G. Buhr, X. Wang, S. Hu, D. Couper, W. Anderson, R. E. Kanner, R. Paine Iii, S. P. Bhatt, N. R. Bhakta, M. Arjomandi, R. J. Kaner, C. S. Pirozzi, J. L. Curtis, W. K. O'Neal, P. G. Woodruff, M. K. Han, F. J. Martinez, N. Hansel, J. M. Wells, V. E. Ortega, E. A. Hoffman, C. M. Doerschuk, V. Kim, M. T. Dransfield, M. B. Drummond, R. Bowler, G. Criner, S. A. Christenson, B. Ronish, S. P. Peters, J. A. Krishnan, D. P. Tashkin, C. B. Cooper, and NHLBI SubPopulations and InteRmediate Outcome Measures In COPD Study (SPIROMICS). (2019). 'Clinical Significance of Bronchodilator Responsiveness Evaluated by Forced Vital Capacity in COPD: SPIROMICS Cohort Analysis', *Int J Chron Obstruct Pulmon Dis*, 14: 2927-38.https://www.ncbi.nlm.nih.gov/pubmed/31908441.
48. Chin, A. T., J. Rylance, S. Makumbirofa, S. Meffert, T. Vu, J. Clayton, P. Mason, P. Woodruff, and J. Metcalfe. (2019). 'Chronic lung disease in adult recurrent tuberculosis survivors in Zimbabwe: a cohort study', *Int J Tuberc Lung Dis*.https://www.ingentaconnect.com/content/iuatld/ijtld/2019/00000023/00000002/art00014.
49. Cho, H. B., K. J. Chae, G. Y. Jin, J. Choi, C. L. Lin, E. A. Hoffman, S. E. Wenzel, M. Castro, S. B. Fain, N. N. Jarjour, M. L. Schiebler, R. G. Barr, N. Hansel, C. B. Cooper, E. C. Kleerup, M. K. Han, P. G. Woodruff, R. E. Kanner, E. R. Bleecker, S. P. Peters, W. C. Moore, C. H. Lee, S. Choi, and L.ng and Blood Institute's SubPopulations and InteRmediate Outcome Measures In COPD Study (SPIROMICS) and Severe Asthma Research Program (SARP) National Heart. (2019). 'Structural and Functional Features on Quantitative Chest Computed Tomography in the Korean Asian versus the White American Healthy Non-Smokers', *Korean J Radiol*, 20: 1236-45.https://www.ncbi.nlm.nih.gov/pubmed/31270987.
50. Christenson, S. A., M. van den Berge, A. Faiz, K. Inkamp, N. Bhakta, L. R. Bonser, L. T. Zlock, I. Z. Barjaktarevic, R. G. Barr, E. R. Bleecker, R. C. Boucher, R. P. Bowler, A. P. Comellas, J. L. Curtis, M. K. Han, N. N. Hansel, P. S. Hiemstra, R. J. Kaner, J. A. Krishnanm, F. J. Martinez, W. K. O'Neal, R. Paine, W. Timens, J. M. Wells, A. Spira, D. J. Erle, and P. G. Woodruff. (2019). 'An airway epithelial IL-17A response signature identifies a steroid-unresponsive COPD patient subgroup', *J Clin Invest*, 129: 169-81.https://www.ncbi.nlm.nih.gov/pubmed/30383540.
51. Fawzy, A., N. Putcha, C. P. Aaron, R. P. Bowler, A. P. Comellas, C. B. Cooper, M. T. Dransfield, M. K. Han, E. A. Hoffman, R. E. Kanner, J. A. Krishnan, W. W. Labaki, R. Paine, L. M. Paulin, S. P. Peters, R. Wise, R. G. Barr, N. N. Hansel, and SPIROMICS Investigators. (2019). 'Aspirin Use and Respiratory Morbidity in COPD: A Propensity Score-Matched Analysis in Subpopulations and Intermediate Outcome Measures in COPD Study', *Chest*, 155: 519-27.https://www.ncbi.nlm.nih.gov/pubmed/30593776.
52. Garudadri, S., P. G. Woodruff, M. K. Han, J. L. Curtis, R. G. Barr, E. R. Bleecker, R. P. Bowler, A. Comellas, C. B. Cooper, G. Criner, M. T. Dransfield, N. N. Hansel, R. Paine, J. A. Krishnan, S. P. Peters, A. T. Hastie, F. J. Martinez, W. K. O'Neal, D. J. Couper, N. E. Alexis, and S. A. Christenson. (2019). 'Systemic Markers of Inflammation in Smokers With Symptoms Despite Preserved Spirometry in SPIROMICS', *Chest*, 155: 908-17.https://www.ncbi.nlm.nih.gov/pubmed/30684474.
53. Ghosh, S., W. H. Anderson, N. Putcha, M. K. Han, J. L. Curtis, G. J. Criner, M. T. Dransfield, R. G. Barr, J. A. Krishnan, S. C. Lazarus, C. B. Cooper, R. Paine, S. P. Peters, N. N. Hansel, F. J. Martinez, M. B. Drummond, and Current and former investigators of the SPIROMICS sites and reading centers. (2019). 'Alignment of Inhaled Chronic Obstructive Pulmonary Disease Therapies with Published Strategies. Analysis of the Global Initiative for Chronic Obstructive Lung Disease Recommendations in SPIROMICS', *Ann Am Thorac Soc*, 16: 200-08.https://www.ncbi.nlm.nih.gov/pubmed/30216731.
54. Gu, B. H., J. C. Choi, Y. H. Shen, L. Z. Song, M. E. Scheurer, A. Luong, A. Rodriguez, P. Woodruff, L. Koth, D. B. Corry, F. Kheradmand, and S. A. LeMaire. (2019). 'Elastin-Specific Autoimmunity in Smokers With Thoracic Aortic Aneurysm and Dissection is Independent of Chronic Obstructive Pulmonary Disease', *J Am Heart Assoc*.https://www.ahajournals.org/doi/full/10.1161/JAHA.118.011671.
55. Haghighi, B., S. Choi, J. Choi, E. A. Hoffman, A. P. Comellas, J. D. Newell, Jr., C. H. Lee, R. G. Barr, E. Bleecker, C. B. Cooper, D. Couper, M. L. Han, N. N. Hansel, R. E. Kanner, E. A. Kazerooni, E. A. C. Kleerup, F. J. Martinez, W. O'Neal, R. Paine, 3rd, S. I. Rennard, B. M. Smith, P. G. Woodruff, and C. L. Lin. (2019). 'Imaging-based clusters in former smokers of the COPD cohort associate with clinical characteristics: the SubPopulations and intermediate outcome measures in COPD study (SPIROMICS)', *Respir Res*
56. Halper-Stromberg, E., L. Gillenwater, C. Cruickshank-Quinn, W. K. O'Neal, N. Reisdorph, I. Petrache, Y. Zhuang, W. W. Labaki, J. L. Curtis, J. Wells, S. Rennard, K. A. Pratte, P. Woodruff, K. A. Stringer, K. Kechris, and R. P. Bowler. (2019). 'Bronchoalveolar Lavage Fluid from COPD Patients Reveals More Compounds Associated with Disease than Matched Plasma', *Metabolites*, 9.https://www.ncbi.nlm.nih.gov/pubmed/31349744.
57. Hobbs, B. D., R. K. Putman, T. Araki, M. Nishino, G. Gudmundsson, V. Gudnason, G. Eiriksdottir, N. R. Zilhao Nogueira, J. Dupuis, H. Xu, G. T. O'Connor, A. Manichaikul, J. Nguyen, A. J. Podolanczuk, P. Madahar, J. I. Rotter, D. J. Lederer, R. G. Barr, S. S. Rich, E. J. Ampleford, V. E. Ortega, S. P. Peters, W. K. O'Neal, J. D. Newell, E. R. Bleecker, D. A. Meyers, R. J. Allen, J. M. Oldham, S. F. Ma, I. Noth, R. G. Jenkins, T. M. Maher, R. B. Hubbard, L. V. Wain, T. E. Fingerlin, D. A. Schwartz, G. R. Washko, I. O. Rosas, E. K. Silverman, H. Hatabu, M. H. Cho, and G. M. Hunninghake. (2019). 'Overlap of Genetic Risk between Interstitial Lung Abnormalities and Idiopathic Pulmonary Fibrosis', *Am J Respir Crit Care Med*, 200: 1402-13.https://www.ncbi.nlm.nih.gov/pubmed/31339356.
58. Labaki, W. W., T. Gu, S. Murray, J. L. Curtis, L. Yeomans, R. P. Bowler, R. G. Barr, A. P. Comellas, N. N. Hansel, C. B. Cooper, I. Barjaktarevic, R. E. Kanner, R. Paine, M. N. McDonald, J. A. Krishnan, S. P. Peters, P. G. Woodruff, W. K. O'Neal, W. Diao, B. He, F. J. Martinez, T. J. Standiford, K. A. Stringer, and M. K. Han. (2019). 'Serum amino acid concentrations and clinical outcomes in smokers: SPIROMICS metabolomics study', *Sci Rep*, 9: 11367.https://www.ncbi.nlm.nih.gov/pubmed/31388056.
59. Oelsner, E. C., V. E. Ortega, B. M. Smith, J. N. Nguyen, A. W. Manichaikul, E. A. Hoffman, X. Guo, K. D. Taylor, P. G. Woodruff, D. J. Couper, N. N. Hansel, F. J. Martinez, R. Paine, M. K. Han, C. Cooper, M. T. Dransfield, G. Criner, J. A. Krishnan, R. Bowler, E. R. Bleecker, S. Peters, S. S. Rich, D. A. Meyers, J. I. Rotter, and R. G. Barr. (2019). 'A Genetic Risk Score Associated with Chronic Obstructive Pulmonary Disease Susceptibility and Lung Structure on Computed Tomography', *Am J Respir Crit Care Med*, 200: 721-31.https://www.ncbi.nlm.nih.gov/pubmed/30925230.
60. Sakornsakolpat, Phuwanat, Dmitry Prokopenko, Maxime Lamontagne, Nicola F. Reeve, Anna L. Guyatt, Victoria E. Jackson, Nick Shrine, Dandi Qiao, Traci M. Bartz, Deog Kyeom Kim, Mi Kyeong Lee, Jeanne C. Latourelle, Xingnan Li, Jarrett D. Morrow, Ma’en Obeidat, Annah B. Wyss, Per Bakke, R. Graham Barr, Terri H. Beaty, Steven A. Belinsky, Guy G. Brusselle, James D. Crapo, Kim de Jong, Dawn L. DeMeo, Tasha E. Fingerlin, Sina A. Gharib, Amund Gulsvik, Ian P. Hall, John E. Hokanson, Woo Jin Kim, David A. Lomas, Stephanie J. London, Deborah A. Meyers, George T. O’Connor, Stephen I. Rennard, David A. Schwartz, Pawel Sliwinski, David Sparrow, David P. Strachan, Ruth Tal-Singer, Yohannes Tesfaigzi, Jørgen Vestbo, Judith M. Vonk, Jae-Joon Yim, Xiaobo Zhou, Yohan Bossé, Ani Manichaikul, Lies Lahousse, Edwin K. Silverman, H. Marike Boezen, Louise V. Wain, Martin D. Tobin, Brian D. Hobbs, Michael H. Cho, Nick Shrine, Anna L. Guyatt, Chiara Batini, Jing Hua Zhao, Matthias Wielscher, Stefan Weiss, Katherine A. Kentistou, James P. Cook, Jennie Hui, Stefan Karrasch, Medea Imboden, Sarah E. Harris, Jonathan Marten, Stefan Enroth, Shona M. Kerr, Ida Surakka, Veronique Vitart, Terho Lehtimäki, Ralf Ewert, Christian Gieger, Georg Homuth, Peter K. Joshi, Claudia Langenberg, Lars Lind, Jian’an Luan, Anubha Mahajan, Alison Murray, David J. Porteous, Rajesh Rawal, Blair H. Smith, Paul R. H. J. Timmers, Olli T. Raitakari, Mika Kähönen, Ozren Polasek, Ulf Gyllensten, Igor Rudan, Ian J. Deary, Nicole M. Probst-Hensch, Holger Schulz, Alan L. James, James F. Wilson, Beate Stubbe, Eleftheria Zeggini, Marjo-Riitta Jarvelin, Nick Wareham, Caroline Hayward, Andrew P. Morris, David P. Strachan, Ian P. Hall, Martin D. Tobin, Louise V. Wain, Alvar Agusti, Wayne Anderson, Nawar Bakerly, Per Bakke, Robert Bals, Kathleen C. Barnes, R. Graham Barr, Terri H. Beaty, Eugene R. Bleecker, H. Marike Boezen, Yohan Bossé, Russell Bowler, Christopher Brightling, Marleen de Bruijne, Peter J. Castaldi, Bartolome Celli, Michael H. Cho, Harvey O. Coxson, James D. Crapo, Ron Crystal, Pim de Jong, Asger Dirksen, Jennifer Dy, Marilyn Foreman, Judith Garcia-Aymerich, Pierre Gevenois, Soumitra Ghosh, Hester Gietema, Amund Gulsvik, Ian P. Hall, Nadia Hansel, Craig P. Hersh, Brian D. Hobbs, Eric Hoffman, Noor Kalsheker, Hans-Ulrich Kauczor, Woo Jin Kim, Deog Kyeom Kim, Tarja Laitinen, Diether Lambrechts, Sang-Do Lee, Augusto A. Litonjua, David A. Lomas, Stephanie J. London, Daan W. Loth, Sharon M. Lutz, David Lynch, William MacNee, Merry-Lynn McDonald, Deborah A. Meyers, John D. Newell, Borge G. Nordestgaard, George T. O’Connor, Ma’en Obeidat, Yeon-Mok Oh, Peter D. Paré, Massimo Pistolesi, Dirkje S. Postma, Milo Puhan, Elizabeth Regan, Stephen S. Rich, Joon Beom Seo, Andrea Short, Edwin K. Silverman, David Sparrow, Berend Stoel, David P. Strachan, Nicola Sverzellati, Ruth Tal-Singer, Gerben ter Riet, Yohannes Tesfaigzi, Martin D. Tobin, Edwin J. R. Van Beek, Bram van Ginneken, Jørgen Vestbo, Claus F. Vogelmeier, Louise V. Wain, Adam Wanner, George Washko, Els Wauters, Emiel F. M. Wouters, Robert P. Young, Loems Zeigler-Heitbrock, Consortium SpiroMeta, Group Understanding Society Scientific, and Copd Genetics Consortium International. (2019). 'Genetic landscape of chronic obstructive pulmonary disease identifies heterogeneous cell-type and phenotype associations', *Nature Genetics*, 51: 494-505.https://doi.org/10.1038/s41588-018-0342-2.
61. Shrine, Nick, Anna L. Guyatt, A. Mesut Erzurumluoglu, Victoria E. Jackson, Brian D. Hobbs, Carl A. Melbourne, Chiara Batini, Katherine A. Fawcett, Kijoung Song, Phuwanat Sakornsakolpat, Xingnan Li, Ruth Boxall, Nicola F. Reeve, Ma’en Obeidat, Jing Hua Zhao, Matthias Wielscher, Stefan Weiss, Katherine A. Kentistou, James P. Cook, Benjamin B. Sun, Jian Zhou, Jennie Hui, Stefan Karrasch, Medea Imboden, Sarah E. Harris, Jonathan Marten, Stefan Enroth, Shona M. Kerr, Ida Surakka, Veronique Vitart, Terho Lehtimäki, Richard J. Allen, Per S. Bakke, Terri H. Beaty, Eugene R. Bleecker, Yohan Bossé, Corry-Anke Brandsma, Zhengming Chen, James D. Crapo, John Danesh, Dawn L. DeMeo, Frank Dudbridge, Ralf Ewert, Christian Gieger, Amund Gulsvik, Anna L. Hansell, Ke Hao, Joshua D. Hoffman, John E. Hokanson, Georg Homuth, Peter K. Joshi, Philippe Joubert, Claudia Langenberg, Xuan Li, Liming Li, Kuang Lin, Lars Lind, Nicholas Locantore, Jian’an Luan, Anubha Mahajan, Joseph C. Maranville, Alison Murray, David C. Nickle, Richard Packer, Margaret M. Parker, Megan L. Paynton, David J. Porteous, Dmitry Prokopenko, Dandi Qiao, Rajesh Rawal, Heiko Runz, Ian Sayers, Don D. Sin, Blair H. Smith, María Soler Artigas, David Sparrow, Ruth Tal-Singer, Paul R. H. J. Timmers, Maarten Van den Berge, John C. Whittaker, Prescott G. Woodruff, Laura M. Yerges-Armstrong, Olga G. Troyanskaya, Olli T. Raitakari, Mika Kähönen, Ozren Polašek, Ulf Gyllensten, Igor Rudan, Ian J. Deary, Nicole M. Probst-Hensch, Holger Schulz, Alan L. James, James F. Wilson, Beate Stubbe, Eleftheria Zeggini, Marjo-Riitta Jarvelin, Nick Wareham, Edwin K. Silverman, Caroline Hayward, Andrew P. Morris, Adam S. Butterworth, Robert A. Scott, Robin G. Walters, Deborah A. Meyers, Michael H. Cho, David P. Strachan, Ian P. Hall, Martin D. Tobin, Louise V. Wain, and Group Understanding Society Scientific. (2019). 'New genetic signals for lung function highlight pathways and chronic obstructive pulmonary disease associations across multiple ancestries', *Nature Genetics*, 51: 481-93.https://doi.org/10.1038/s41588-018-0321-7.
62. Wells, J. M., D. A. Arenberg, I. Barjaktarevic, S. P. Bhatt, R. P. Bowler, S. A. Christenson, D. J. Couper, M. T. Dransfield, M. K. Han, E. A. Hoffman, R. J. Kaner, V. Kim, E. Kleerup, F. J. Martinez, W. C. Moore, S. L. O'Beirne, R. Paine, N. Putcha, S. M. Raman, R. G. Barr, S. I. Rennard, P. G. Woodruff, and J. L. Curtis. (2019). 'Safety and Tolerability of Comprehensive Research Bronchoscopy in Chronic Obstructive Pulmonary Disease. Results from the SPIROMICS Bronchoscopy Substudy', *Ann Am Thorac Soc*, 16: 439-46.https://www.ncbi.nlm.nih.gov/pubmed/30653926.
63. Wells, J. M., D. Xing, L. Viera, R. M. Burkes, Y. Wu, S. P. Bhatt, M. T. Dransfield, D. J. Couper, W. O'Neal, E. A. Hoffman, A. Gaggar, I. Barjaktarevic, J. L. Curtis, W. W. Labaki, M. L. K. Han, C. M. Freeman, N. Putcha, T. Schlange, J. E. Blalock, and SPIROMICS Investigators. (2019). 'The matrikine acetyl-proline-glycine-proline and clinical features of COPD: findings from SPIROMICS', *Respir Res*, 20: 254.https://www.ncbi.nlm.nih.gov/pubmed/31718676.
64. Allen, Rj Auid-Orcid, B. Guillen-Guio, J. M. Oldham, S. F. Ma, A. Dressen, Ml Auid-Orcid Paynton, L. M. Kraven, M. Obeidat, X. Li, M. Ng, R. Braybrooke, M. Molina-Molina, Bd Auid-Orcid Hobbs, R. K. Putman, P. Auid-Orcid Sakornsakolpat, H. L. Booth, W. A. Fahy, S. P. Hart, M. R. Hill, N. Hirani, R. B. Hubbard, R. J. McAnulty, A. B. Millar, V. Auid-Orcid Navaratnam, E. Oballa, H. Parfrey, G. Auid-Orcid X. Saini, M. K. B. Whyte, Y. Zhang, N. Kaminski, A. Adegunsoye, M. E. Strek, M. Neighbors, X. R. Sheng, G. Gudmundsson, V. Gudnason, H. Hatabu, Dj Auid-Orcid Lederer, A. Manichaikul, J. D. Newell, Jr., G. T. O'Connor, V. E. Ortega, H. Xu, T. E. Fingerlin, Y. Auid-Orcid Bossé, K. Hao, P. Joubert, D. C. Nickle, D. D. Sin, W. Auid-Orcid Timens, D. Furniss, A. P. Morris, K. T. Zondervan, Ip Auid-Orcid Hall, I. Sayers, M. D. Tobin, T. M. Maher, M. H. Cho, G. M. Hunninghake, D. A. Schwartz, B. L. Yaspan, P. L. Molyneaux, C. Auid-Orcid X. Flores, I. Noth, R. G. Jenkins, and Lv Auid-Orcid Wain. (2020). 'Genome-Wide Association Study of Susceptibility to Idiopathic Pulmonary Fibrosis', *Am J Respir Crit Care Med*.https://pubmed.ncbi.nlm.nih.gov/31710517/.
65. Burkes, R. M., A. S. Ceppe, D. J. Couper, A. P. Comellas, J. M. Wells, S. P. Peters, G. J. Criner, R. E. Kanner, R. Paine, S. A. Christenson, C. B. Cooper, I. Z. Barjaktarevic, J. A. Krishnan, W. W. Labaki, M. K. Han, J. L. Curtis, N. N. Hansel, R. A. Wise, M. B. Drummond, and SPIROMICS collaborators. (2020). 'Plasma Cathelicidin is Independently Associated with Reduced Lung Function in COPD: Analysis of the Subpopulations and Intermediate Outcome Measures in COPD Study Cohort', *Chronic Obstr Pulm Dis*, 7: 370-81.https://www.ncbi.nlm.nih.gov/pubmed/33108110.
66. Burkes, R. M., A. S. Ceppe, C. M. Doerschuk, D. Couper, E. A. Hoffman, A. P. Comellas, R. G. Barr, J. A. Krishnan, C. Cooper, W. W. Labaki, V. E. Ortega, J. M. Wells, G. J. Criner, P. G. Woodruff, R. P. Bowler, C. S. Pirozzi, N. N. Hansel, R. A. Wise, T. T. Brown, M. B. Drummond, and SPIROMICS Investigators. (2020). 'Associations Among 25-Hydroxyvitamin D Levels, Lung Function, and Exacerbation Outcomes in COPD: An Analysis of the SPIROMICS Cohort', *Chest*, 157: 856-65.https://www.ncbi.nlm.nih.gov/pubmed/31958447.
67. Cooper, C. B., R. Paine, J. L. Curtis, R. E. Kanner, C. H. Martinez, C. A. Meldrum, R. Bowler, W. O'Neal, E. A. Hoffman, D. Couper, M. Quibrera, G. Criner, M. T. Dransfield, M. K. Han, N. N. Hansel, J. A. Krishnan, S. C. Lazarus, S. P. Peters, R. G. Barr, F. J. Martinez, P. G. Woodruff, and SPIROMICS investigators. (2020). 'Novel Respiratory Disability Score Predicts COPD Exacerbations and Mortality in the SPIROMICS Cohort', *Int J Chron Obstruct Pulmon Dis*, 15: 1887-98.https://www.ncbi.nlm.nih.gov/pubmed/32821092.
68. Galiatsatos, P., H. Woo, L. M. Paulin, A. Kind, N. Putcha, A. J. Gassett, C. B. Cooper, M. T. Dransfield, T. M. Parekh, G. R. Oates, R. G. Barr, A. P. Comellas, M. K. Han, S. P. Peters, J. A. Krishnan, W. W. Labaki, M. C. McCormack, J. D. Kaufman, and N. N. Hansel. (2020). 'The Association Between Neighborhood Socioeconomic Disadvantage and Chronic Obstructive Pulmonary Disease', *Int J Chron Obstruct Pulmon Dis*, 15: 981-93.https://www.ncbi.nlm.nih.gov/pubmed/32440110.
69. Gillenwater, L. A., K. A. Pratte, B. D. Hobbs, M. H. Cho, Y. Zhuang, E. Halper-Stromberg, C. Cruickshank-Quinn, N. Reisdorph, I. Petrache, W. W. Labaki, W. K. O'Neal, V. E. Ortega, D. P. Jones, K. Uppal, S. Jacobson, G. Michelotti, C. H. Wendt, K. J. Kechris, and R. P. Bowler. (2020). 'Plasma Metabolomic Signatures of Chronic Obstructive Pulmonary Disease and the Impact of Genetic Variants on Phenotype-Driven Modules', *Netw Syst Med*.https://www.liebertpub.com/doi/full/10.1089/nsm.2020.0009.
70. Kim, Victor, Stephanie Jeong, Huaqing Zhao, Mehmet Kesimer, Richard C. Boucher, J. Michael Wells, Stephanie A. Christenson, MeiLan K. Han, Mark Dransfield, Robert Paine, Christopher B. Cooper, Igor Barjaktarevic, Russell Bowler, Jeffrey L. Curtis, Robert J. Kaner, Sarah L. O’Beirne, Wanda K. O’Neal, Stephen I. Rennard, Fernando J. Martinez, and Prescott G. Woodruff. (2020). 'Current smoking with or without chronic bronchitis is independently associated with goblet cell hyperplasia in healthy smokers and COPD subjects', *Scientific Reports*, 10: 20133.https://doi.org/10.1038/s41598-020-77229-1.
71. Moll, Matthew, Phuwanat Sakornsakolpat, Nick Shrine, Brian D. Hobbs, Dawn L. DeMeo, Catherine John, Anna L. Guyatt, Michael J. McGeachie, Sina A. Gharib, Ma'en Obeidat, Lies Lahousse, Sara R. A. Wijnant, Guy Brusselle, Deborah A. Meyers, Eugene R. Bleecker, Xingnan Li, Ruth Tal-Singer, Ani Manichaikul, Stephen S. Rich, Sungho Won, Woo Jin Kim, Ah Ra Do, George R. Washko, R. Graham Barr, Bruce M. Psaty, Traci M. Bartz, Nadia N. Hansel, Kathleen Barnes, John E. Hokanson, James D. Crapo, David Lynch, Per Bakke, Amund Gulsvik, Ian P. Hall, Louise Wain, María Soler Artigas, Victoria E. Jackson, David P. Strachan, Jennie Hui, Alan L. James, Shona M. Kerr, Ozren Polasek, Veronique Vitart, Jonathan Marten, Igor Rudan, Mika Kähönen, Ida Surakka, Christian Gieger, Stefan Karrasch, Rajesh Rawal, Holger Schulz, Ian J. Deary, Sarah E. Harris, Stefan Enroth, Ulf Gyllensten, Medea Imboden, Nicole M. Probst-Hensch, Terho Lehtimäki, Olli T. Raitakari, Claudia Langenberg, Jian'an Luan, Nick Wareham, Jing Hua Zhao, Caroline Hayward, Alison Murray, David J. Porteous, Blair H. Smith, Marjo-Riitta Jarvelin, Matthias Wielscher, Peter K. Joshi, Katherine A. Kentistou, Paul R. H. J. Timmers, James F. Wilson, James P. Cook, Lars Lind, Anubha Mahajan, Andrew P. Morris, Ralf Ewert, Georg Homuth, Beate Stubbe, Stefan Weiss, Eleftheria Zeggini, Scott T. Weiss, Edwin K. Silverman, Frank Dudbridge, Martin D. Tobin, and Michael H. Cho. (2020). 'Chronic obstructive pulmonary disease and related phenotypes: polygenic risk scores in population-based and case-control cohorts', *The Lancet Respiratory Medicine*, 8: 696-708.https://doi.org/10.1016/S2213-2600(20)30101-6.
72. Ortega, V. E., X. Li, W. K. O'Neal, L. Lackey, E. Ampleford, G. A. Hawkins, P. J. Grayeski, A. Laederach, I. Barjaktarevic, R. G. Barr, C. Cooper, D. Couper, M. K. Han, R. E. Kanner, E. C. Kleerup, F. J. Martinez, R. Paine, S. P. Peters, C. Pirozzi, S. I. Rennard, P. G. Woodruff, E. A. Hoffman, D. A. Meyers, E. R. Bleecker, and NHLBI Subpopulations and Intermediate Outcomes Measures in COPD Study (SPIROMICS). (2020). 'The Effects of Rare SERPINA1 Variants on Lung Function and Emphysema in SPIROMICS', *Am J Respir Crit Care Med*, 201: 540-54.https://www.ncbi.nlm.nih.gov/pubmed/31661293.
73. Paulin, L. M., A. J. Gassett, N. E. Alexis, K. Kirwa, R. E. Kanner, S. Peters, J. A. Krishnan, R. Paine, M. Dransfield, P. G. Woodruff, C. B. Cooper, R. G. Barr, A. P. Comellas, C. S. Pirozzi, M. Han, E. A. Hoffman, F. J. Martinez, H. Woo, R. D. Peng, A. Fawzy, N. Putcha, P. N. Breysse, J. D. Kaufman, N. N. Hansel, and for SPIROMICS investigators. (2020). 'Association of Long-term Ambient Ozone Exposure With Respiratory Morbidity in Smokers', *JAMA Intern Med*, 180: 106-15.https://www.ncbi.nlm.nih.gov/pubmed/31816012.
74. Putcha, N., A. Fawzy, E. C. Matsui, M. C. Liu, R. P. Bowler, P. G. Woodruff, W. K. O'Neal, A. P. Comellas, M. K. Han, M. T. Dransfield, J. M. Wells, N. Lugogo, L. Gao, C. C. Talbot, E. A. Hoffman, C. B. Cooper, L. M. Paulin, R. E. Kanner, G. Criner, V. E. Ortega, R. G. Barr, J. A. Krishnan, F. J. Martinez, M. B. Drummond, R. A. Wise, G. B. Diette, C. P. Hersh, and N. N. Hansel. (2020). 'Clinical Phenotypes of Atopy and Asthma in COPD: A Meta-analysis of SPIROMICS and COPDGene', *Chest*, 158: 2333-45.https://www.ncbi.nlm.nih.gov/pubmed/32450244.
75. Raffield, L. M., H. Dang, K. A. Pratte, S. Jacobson, L. A. Gillenwater, E. Ampleford, I. Barjaktarevic, P. Basta, C. B. Clish, A. P. Comellas, E. Cornell, J. L. Curtis, C. Doerschuk, P. Durda, C. Emson, C. M. Freeman, X. Guo, A. T. Hastie, G. A. Hawkins, J. Herrera, W. C. Johnson, W. W. Labaki, Y. Liu, B. Masters, M. Miller, V. E. Ortega, G. Papanicolaou, S. Peters, K. D. Taylor, S. S. Rich, J. I. Rotter, P. Auer, A. P. Reiner, R. P. Tracy, D. Ngo, R. E. Gerszten, W. K. O'Neal, R. P. Bowler, and NHLBI Trans-Omics for Precision Medicine (TOPMed) Consortium. (2020). 'Comparison of Proteomic Assessment Methods in Multiple Cohort Studies', *Proteomics*, 20: e1900278.https://www.ncbi.nlm.nih.gov/pubmed/32386347.
76. Smith, B. M., M. Kirby, E. A. Hoffman, R. A. Kronmal, S. D. Aaron, N. B. Allen, A. Bertoni, H. O. Coxson, C. Cooper, D. J. Couper, G. Criner, M. T. Dransfield, M. K. Han, N. N. Hansel, D. R. Jacobs, J. D. Kaufman, C. L. Lin, A. Manichaikul, F. J. Martinez, E. D. Michos, E. C. Oelsner, R. Paine, K. E. Watson, A. Benedetti, W. C. Tan, J. Bourbeau, P. G. Woodruff, R. G. Barr, and C.nCOLD MESA Lung, and SPIROMICS Investigators. (2020). 'Association of Dysanapsis With Chronic Obstructive Pulmonary Disease Among Older Adults', *JAMA*, 323: 2268-80.https://www.ncbi.nlm.nih.gov/pubmed/32515814.
77. Stott-Miller, M., H. Müllerová, B. Miller, M. Tabberer, C. El Baou, T. Keeley, F. J. Martinez, M. Han, M. Dransfield, N. N. Hansel, C. B. Cooper, P. Woodruff, V. E. Ortega, A. P. Comellas, R. Paine Iii, R. E. Kanner, W. Anderson, M. B. Drummond, V. Kim, R. Tal-Singer, and A. L. Lazaar. (2020). 'Defining Chronic Mucus Hypersecretion Using the CAT in the SPIROMICS Cohort', *Int J Chron Obstruct Pulmon Dis*, 15: 2467-76.https://www.ncbi.nlm.nih.gov/pubmed/33116463.
78. Strand, M., E. Austin, M. Moll, K. A. Pratte, E. A. Regan, L. P. Hayden, S. P. Bhatt, A. M. Boriek, R. Casaburi, E. K. Silverman, S. Fortis, I. Ruczinski, H. Koegler, H. B. Rossiter, M. Occhipinti, N. A. Hanania, H. T. Gebrekristos, D. A. Lynch, K. M. Kunisaki, K. A. Young, J. C. Sieren, M. Ragland, J. E. Hokanson, S. M. Lutz, B. J. Make, G. L. Kinney, M. H. Cho, M. Pistolesi, D. L. DeMeo, F. C. Sciurba, A. P. Comellas, A. A. Diaz, I. Barjaktarevic, R. P. Bowler, R. E. Kanner, S. P. Peters, V. E. Ortega, M. T. Dransfield, and J. D. Crapo. (2020). 'A Risk Prediction Model for Mortality Among Smokers in the COPDGene® Study', *Chronic Obstr Pulm Dis*, 7: 346-61.https://www.ncbi.nlm.nih.gov/pubmed/32877963.
79. Zhang, W. Z., C. Oromendia, S. A. Kikkers, J. J. Butler, S. O'Beirne, K. Kim, W. K. O'Neal, C. M. Freeman, S. A. Christenson, S. P. Peters, J. M. Wells, C. Doerschuk, N. Putcha, I. Barjaktarevic, P. G. Woodruff, C. B. Cooper, R. P. Bowler, A. P. Comellas, G. J. Criner, R. Paine, N. N. Hansel, M. K. Han, R. G. Crystal, R. J. Kaner, K. V. Ballman, J. L. Curtis, F. J. Martinez, and S. M. Cloonan. (2020). 'Increased airway iron parameters and risk for exacerbation in COPD: an analysis from SPIROMICS', *Sci Rep*, 10: 10562.https://www.ncbi.nlm.nih.gov/pubmed/32601308.
80. Zhang, W. Z., M. C. Rice, K. L. Hoffman, C. Oromendia, I. Z. Barjaktarevic, J. M. Wells, A. T. Hastie, W. W. Labaki, C. B. Cooper, A. P. Comellas, G. J. Criner, J. A. Krishnan, R. Paine, N. N. Hansel, R. P. Bowler, R. G. Barr, S. P. Peters, P. G. Woodruff, J. L. Curtis, M. K. Han, K. V. Ballman, F. J. Martinez, A. M. Choi, K. Nakahira, S. M. Cloonan, M. E. Choi, and SPIROMICS Investigators. (2020). 'Association of urine mitochondrial DNA with clinical measures of COPD in the SPIROMICS cohort', *JCI Insight*, 5.https://www.ncbi.nlm.nih.gov/pubmed/31895696.
81. Baugh, Aaron D., Stephen Shiboski, Nadia N. Hansel, Victor Ortega, Igor Barjaktarevic, R. Graham Barr, Russell Bowler, Alejandro P. Comellas, Christopher B. Cooper, David Couper, Gerard Criner, Jeffrey L. Curtis, Mark Dransfield, Chinedu Ejike, MeiLan K. Han, Eric Hoffman, Jamuna Krishnan, Jerry A. Krishnan, David Mannino, Robert Paine, Trisha Parekh, Stephen Peters, Nirupama Putcha, Stephen Rennard, Neeta Thakur, and Prescott G. Woodruff. (2021). 'Reconsidering the Utility of Race-Specific Lung Function Prediction Equations', *American Journal of Respiratory and Critical Care Medicine*, 205: 819-29.https://doi.org/10.1164/rccm.202105-1246OC.
82. Burkes, R. M., D. J. Couper, I. Z. Barjaktarevic, C. B. Cooper, W. W. Labaki, M. K. Han, P. G. Woodruff, S. C. Lazarus, T. M. Parekh, R. Paine, A. P. Comellas, R. P. Bowler, L. R. Loehr, N. Putcha, R. A. Wise, T. T. Brown, and M. B. Drummond. (2021). 'Age-Dependent Associations Between 25-Hydroxy Vitamin D Levels and COPD Symptoms: Analysis of SPIROMICS', *Chronic Obstr Pulm Dis*, 8: 277-91.https://www.ncbi.nlm.nih.gov/pubmed/33829714.
83. Ejike, C. O., H. Woo, P. Galiatsatos, L. M. Paulin, J. A. Krishnan, C. B. Cooper, D. J. Couper, R. E. Kanner, R. P. Bowler, E. A. Hoffman, A. P. Comellas, G. J. Criner, R. G. Barr, F. J. Martinez, M. K. Han, C. H. Martinez, V. E. Ortega, T. M. Parekh, S. A. Christenson, N. Thakur, A. Baugh, D. C. Belz, S. Raju, A. J. Gassett, J. D. Kaufman, N. Putcha, and N. N. Hansel. (2021). 'Contribution of Individual and Neighborhood Factors to Racial Disparities in Respiratory Outcomes', *Am J Respir Crit Care Med*, 203: 987-97.https://www.ncbi.nlm.nih.gov/pubmed/33007162.
84. Fawzy, A., H. Woo, A. Balasubramanian, I. Barjaktarevic, R. G. Barr, R. P. Bowler, A. P. Comellas, C. B. Cooper, D. Couper, G. J. Criner, M. T. Dransfield, M. K. Han, E. A. Hoffman, R. E. Kanner, J. A. Krishnan, F. J. Martinez, M. McCormack, R. Paine Iii, S. Peters, R. Wise, P. G. Woodruff, N. N. Hansel, and N. Putcha. (2021). 'Polycythemia is Associated with Lower Incidence of Severe COPD Exacerbations in the SPIROMICS Study', *Chronic Obstr Pulm Dis*, 8: 326-35.https://www.ncbi.nlm.nih.gov/pubmed/34197703.
85. Fortis, S., A. P. Comellas, S. P. Bhatt, E. A. Hoffman, M. K. Han, N. R. Bhakta, R. Paine, 3rd, B. Ronish, R. E. Kanner, M. Dransfield, D. Hoesterey, R. G. Buhr, R. G. Barr, B. Dolezal, V. E. Ortega, M. B. Drummond, M. Arjomandi, R. J. Kaner, V. Kim, J. L. Curtis, R. P. Bowler, F. Martinez, W. W. Labaki, C. B. Cooper, W. K. O'Neal, G. Criner, N. N. Hansel, J. A. Krishnan, P. Woodruff, D. Couper, D. Tashkin, and I. Barjaktarevic. (2021). 'Ratio of FEV(1)/Slow Vital Capacity of < 0.7 Is Associated With Clinical, Functional, and Radiologic Features of Obstructive Lung Disease in Smokers With Preserved Lung Function', *Chest*.https://www.sciencedirect.com/science/article/pii/S0012369221002294.
86. Gillenwater, L. A., K. J. Kechris, K. A. Pratte, N. Reisdorph, I. Petrache, W. W. Labaki, W. O'Neal, J. A. Krishnan, V. E. Ortega, D. L. DeMeo, and R. P. Bowler. (2021). 'Metabolomic Profiling Reveals Sex Specific Associations with Chronic Obstructive Pulmonary Disease and Emphysema', *Metabolites*, 11.https://www.ncbi.nlm.nih.gov/pubmed/33799786.
87. Kasela, S., V. E. Ortega, M. Martorella, S. Garudadri, J. Nguyen, E. Ampleford, A. Pasanen, S. Nerella, K. L. Buschur, I. Z. Barjaktarevic, R. G. Barr, E. R. Bleecker, R. P. Bowler, A. P. Comellas, C. B. Cooper, D. J. Couper, G. J. Criner, J. L. Curtis, M. K. Han, N. N. Hansel, E. A. Hoffman, R. J. Kaner, J. A. Krishnan, F. J. Martinez, M. N. McDonald, D. A. Meyers, R. Paine, S. P. Peters, M. Castro, L. C. Denlinger, S. C. Erzurum, J. V. Fahy, E. Israel, N. N. Jarjour, B. D. Levy, X. Li, W. C. Moore, S. E. Wenzel, J. Zein, C. Langelier, P. G. Woodruff, T. Lappalainen, S. A. Christenson, NHLBI SubPopulations and InteRmediate Outcome Measures In COPD Study (SPIROMICS), and NHLBI Trans-Omics for Precision Medicine (TOPMed) Consortium. (2021). 'Genetic and non-genetic factors affecting the expression of COVID-19-relevant genes in the large airway epithelium', *Genome Med*, 13: 66.https://www.ncbi.nlm.nih.gov/pubmed/33883027.
88. Lakshman Kumar, P., A. C. Wilson, A. Rocco, M. H. Cho, E. Wan, B. D. Hobbs, G. R. Washko, V. E. Ortega, S. A. Christenson, X. Li, J. M. Wells, S. P. Bhatt, D. L. DeMeo, S. M. Lutz, H. Rossiter, R. Casaburi, S. I. Rennard, D. A. Lomas, W. W. Labaki, R. Tal-Singer, R. P. Bowler, C. P. Hersh, H. K. Tiwari, M. Dransfield, A. Thalacker-Mercer, D. A. Meyers, E. K. Silverman, M. N. McDonald, and E. C. L.IPSE and SPIROMICS investigators COPDGene. (2021). 'Genetic variation in genes regulating skeletal muscle regeneration and tissue remodelling associated with weight loss in chronic obstructive pulmonary disease', *J Cachexia Sarcopenia Muscle*, 12: 1803-17.https://www.ncbi.nlm.nih.gov/pubmed/34523824.
89. Li, F., J. Choi, C. Zou, J. D. Newell, A. P. Comellas, C. H. Lee, H. Ko, R. G. Barr, E. R. Bleecker, C. B. Cooper, F. Abtin, I. Barjaktarevic, D. Couper, M. Han, N. N. Hansel, R. E. Kanner, R. Paine, E. A. Kazerooni, F. J. Martinez, W. O'Neal, S. I. Rennard, B. M. Smith, P. G. Woodruff, E. A. Hoffman, and C. L. Lin. (2021). 'Latent traits of lung tissue patterns in former smokers derived by dual channel deep learning in computed tomography images', *Sci Rep*, 11: 4916.https://www.ncbi.nlm.nih.gov/pubmed/33649381.
90. Moughames, E., H. Woo, P. Galiatsatos, K. Romero-Rivero, S. Raju, V. Tejwani, E. A. Hoffman, A. P. Comellas, V. E. Ortega, T. Parekh, J. A. Krishnan, M. B. Drummond, D. Couper, R. G. Buhr, R. Paine, J. D. Kaufman, L. M. Paulin, N. Putcha, and N. N. Hansel. (2021). 'Disparities in access to food and chronic obstructive pulmonary disease (COPD)-related outcomes: a cross-sectional analysis', *BMC Pulm Med*, 21: 139.https://www.ncbi.nlm.nih.gov/pubmed/33906617.
91. Oh, A. L., R. A. Mularski, I. Barjaktarevic, R. G. Barr, R. P. Bowler, A. P. Comellas, C. B. Cooper, G. J. Criner, M. K. Han, N. N. Hansel, E. A. Hoffman, R. E. Kanner, J. A. Krishnan, R. Paine, T. M. Parekh, S. P. Peters, S. A. Christenson, P. G. Woodruff, and SPIROMICS Smoking Resilience Group. (2021). 'Defining Resilience to Smoking-related Lung Disease: A Modified Delphi Approach from SPIROMICS', *Ann Am Thorac Soc*, 18: 1822-31.https://www.ncbi.nlm.nih.gov/pubmed/33631079.
92. Opron, K., L. A. Begley, J. R. Erb-Downward, C. Freeman, S. Madapoosi, N. E. Alexis, I. Barjaktarevic, R. Graham Barr, E. R. Bleecker, R. P. Bowler, S. A. Christenson, A. P. Comellas, C. B. Cooper, D. J. Couper, C. M. Doerschuk, M. T. Dransfield, M. K. Han, N. N. Hansel, A. T. Hastie, E. A. Hoffman, R. J. Kaner, J. Krishnan, W. K. O'Neal, V. E. Ortega, R. Paine, S. P. Peters, J. Michael Wells, P. G. Woodruff, F. J. Martinez, J. L. Curtis, G. B. Huffnagle, and Y. J. Huang. (2021). 'Lung microbiota associations with clinical features of COPD in the SPIROMICS cohort', *NPJ Biofilms Microbiomes*, 7: 14.https://www.ncbi.nlm.nih.gov/pubmed/33547327.
93. Pratte, K. A., J. L. Curtis, K. Kechris, D. Couper, M. H. Cho, E. K. Silverman, D. L. DeMeo, F. C. Sciurba, Y. Zhang, V. E. Ortega, W. K. O'Neal, L. A. Gillenwater, D. A. Lynch, E. A. Hoffman, J. D. Newell, A. P. Comellas, P. J. Castaldi, B. E. Miller, S. D. Pouwels, N. H. T.T Hacken, R. Bischoff, F. Klont, P. G. Woodruff, R. Paine, R. G. Barr, J. Hoidal, C. M. Doerschuk, J. P. Charbonnier, R. Sung, N. Locantore, J. G. Yonchuk, S. Jacobson, R. Tal-Singer, D. Merrill, and R. P. Bowler. (2021). 'Soluble receptor for advanced glycation end products (sRAGE) as a biomarker of COPD', *Respir Res*, 22: 127.https://www.ncbi.nlm.nih.gov/pubmed/33906653.
94. Radicioni, G., A. Ceppe, A. A. Ford, N. E. Alexis, R. G. Barr, E. R. Bleecker, S. A. Christenson, C. B. Cooper, M. K. Han, N. N. Hansel, A. T. Hastie, E. A. Hoffman, R. E. Kanner, F. J. Martinez, E. Ozkan, R. Paine, P. G. Woodruff, W. K. O'Neal, R. C. Boucher, and M. Kesimer. (2021). 'Airway mucin MUC5AC and MUC5B concentrations and the initiation and progression of chronic obstructive pulmonary disease: an analysis of the SPIROMICS cohort', *Lancet Respir Med*, 9: 1241-54.https://www.ncbi.nlm.nih.gov/pubmed/34058148.
95. Turnier, L., M. Eakin, H. Woo, M. Dransfield, T. Parekh, J. A. Krishnan, R. Kanner, C. B. Cooper, P. G. Woodruff, R. Wise, M. K. Han, K. Romero, L. M. Paulin, S. Peters, B. Drummond, E. R. Bleecker, R. Bowler, A. P. Comellas, D. Couper, R. Paine, F. Martinez, G. Barr, N. Putcha, and N. N. Hansel. (2021). 'The influence of social support on COPD outcomes mediated by depression', *PLoS One*, 16: e0245478.https://www.ncbi.nlm.nih.gov/pubmed/33730034.
96. Woo, H., E. P. Brigham, K. Allbright, C. Ejike, P. Galiatsatos, M. R. Jones, G. R. Oates, J. A. Krishnan, C. B. Cooper, R. E. Kanner, R. P. Bowler, E. A. Hoffman, A. P. Comellas, G. Criner, R. G. Barr, F. J. Martinez, M. Han, V. E. Ortega, T. M. Parekh, S. Christenson, D. Belz, S. Raju, A. Gassett, L. M. Paulin, N. Putcha, J. D. Kaufman, and N. N. Hansel. (2021). 'Racial Segregation and Respiratory Outcomes among Urban Black Residents with and at Risk of Chronic Obstructive Pulmonary Disease', *Am J Respir Crit Care Med*, 204: 536-45.https://www.ncbi.nlm.nih.gov/pubmed/33971109.
97. Zhang, W. Z., K. L. Hoffman, K. T. Schiffer, C. Oromendia, M. C. Rice, I. Barjaktarevic, S. P. Peters, N. Putcha, R. P. Bowler, J. M. Wells, D. J. Couper, W. W. Labaki, J. L. Curtis, M. K. Han, R. Paine, P. G. Woodruff, G. J. Criner, N. N. Hansel, I. Diaz, K. V. Ballman, K. Nakahira, M. E. Choi, F. J. Martinez, A. M. K. Choi, and S. M. Cloonan. (2021). 'Association of plasma mitochondrial DNA with COPD severity and progression in the SPIROMICS cohort', *Respir Res*, 22: 126.https://www.ncbi.nlm.nih.gov/pubmed/33902556.
98. Zou, C., F. Li, J. Choi, B. Haghighi, S. Choi, P. K. Rajaraman, A. P. Comellas, J. D. Newell, C. H. Lee, R. G. Barr, E. Bleecker, C. B. Cooper, D. Couper, M. Han, N. N. Hansel, R. E. Kanner, E. A. Kazerooni, E. C. Kleerup, F. J. Martinez, W. O'Neal, R. Paine, S. I. Rennard, B. M. Smith, P. G. Woodruff, E. A. Hoffman, and C. L. Lin. (2021). 'Longitudinal Imaging-Based Clusters in Former Smokers of the COPD Cohort Associate with Clinical Characteristics: The SubPopulations and Intermediate Outcome Measures in COPD Study (SPIROMICS)', *Int J Chron Obstruct Pulmon Dis*, 16: 1477-96.https://www.ncbi.nlm.nih.gov/pubmed/34103907.
99. Zusman, M., A. J. Gassett, K. Kirwa, R. G. Barr, C. B. Cooper, M. K. Han, R. E. Kanner, K. Koehler, V. E. Ortega, R. Paine Rd, L. Paulin, C. Pirozzi, A. Rule, N. N. Hansel, and J. D. Kaufman. (2021). 'Modeling residential indoor concentrations of PM2.5, NO2, NOx, and secondhand smoke in the Subpopulations and Intermediate Outcome Measures in COPD (SPIROMICS) Air study', *Indoor Air*, 31: 702-16.https://www.ncbi.nlm.nih.gov/pubmed/33037695.
100. Barjaktarevic, Igor, Christopher B. Cooper, Tracie Shing, Russell G. Buhr, Eric A. Hoffman, Prescott G. Woodruff, M. Bradley Drummond, Richard E. Kanner, MeiLan K. Han, Nadia N. Hansel, Russell P. Bowler, Gregory L. Kinney, Sean Jacobson, Madeline A. Morris, Fernando J. Martinez, Jill Ohar, David Couper, and Donald P. Tashkin. (2022). 'Effect of marijuana smoking on lung function change in older ever tobacco smokers', *European Respiratory Journal*, 60: 2201133.http://erj.ersjournals.com/content/60/3/2201133.abstract.
101. Baugh, A., R. G. Buhr, P. Quibrera, I. Barjaktarevic, R. G. Barr, R. Bowler, M. K. Han, J. D. Kaufman, A. L. Koch, J. Krishnan, W. Labaki, F. J. Martinez, T. Mkorombindo, A. Namen, V. Ortega, R. Paine, S. P. Peters, H. Schotland, K. Sundar, M. R. Zeidler, N. N. Hansel, P. G. Woodruff, and N. Thakur. (2022). 'Risk of COPD exacerbation is increased by poor sleep quality and modified by social adversity', *Sleep*, 45.https://www.ncbi.nlm.nih.gov/pubmed/35665826.
102. Belz, D. C., H. Woo, N. Putcha, L. M. Paulin, K. Koehler, A. Fawzy, N. E. Alexis, R. G. Barr, A. P. Comellas, C. B. Cooper, D. Couper, M. Dransfield, A. J. Gassett, M. Han, E. A. Hoffman, R. E. Kanner, J. A. Krishnan, F. J. Martinez, R. Paine, R. D. Peng, S. Peters, C. S. Pirozzi, P. G. Woodruff, J. D. Kaufman, N. N. Hansel, and SPIROMICS Investigators. (2022). 'Ambient ozone effects on respiratory outcomes among smokers modified by neighborhood poverty: An analysis of SPIROMICS AIR', *Sci Total Environ*, 829: 154694.https://www.ncbi.nlm.nih.gov/pubmed/35318050.
103. Buhr, R. G., I. Z. Barjaktarevic, P. M. Quibrera, L. A. Bateman, E. R. Bleecker, D. J. Couper, J. L. Curtis, B. A. Dolezal, M. K. Han, N. N. Hansel, J. A. Krishnan, F. J. Martinez, W. McKleroy, R. Paine Iii, S. I. Rennard, D. P. Tashkin, P. G. Woodruff, R. E. Kanner, C. B. Cooper, and SPIROMICS investigators. (2022). 'Reversible Airflow Obstruction Predicts Future COPD Development in the SPIROMICS Cohort', *Am J Respir Crit Care Med*.https://www.ncbi.nlm.nih.gov/pubmed/35549640.
104. Esther, Charles R., Wanda K. O’Neal, Wayne H. Anderson, Mehmet Kesimer, Agathe Ceppe, Claire M. Doerschuk, Neil E. Alexis, Annette T. Hastie, R. Graham Barr, Russell P. Bowler, J. Michael Wells, Elizabeth C. Oelsner, Alejandro P. Comellas, Yohannes Tesfaigzi, Victor Kim, Laura M. Paulin, Christopher B. Cooper, MeiLan K. Han, Yvonne J. Huang, Wassim W. Labaki, Jeffrey L. Curtis, Richard C. Boucher, Neil E. Alexis, Wayne H. Anderson, Mehrdad Arjomandi, Igor Barjaktarevic, R. Graham Barr, Lori A. Bateman, Surya P. Bhatt, Eugene R. Bleecker, Richard C. Boucher, Russell P. Bowler, Stephanie A. Christenson, Alejandro P. Comellas, Christopher B. Cooper, David J. Couper, Gerard J. Criner, Ronald G. Crystal, Jeffrey L. Curtis, Claire M. Doerschuk, Mark T. Dransfield, Brad Drummond, Christine M. Freeman, Craig Galban, MeiLan K. Han, Nadia N. Hansel, Annette T. Hastie, Eric A. Hoffman, Yvonne Huang, Robert J. Kaner, Richard E. Kanner, Eric C. Kleerup, Jerry A. Krishnan, Lisa M. LaVange, Stephen C. Lazarus, Fernando J. Martinez, Deborah A. Meyers, Wendy C. Moore, John D. Newell, Robert Paine, Laura Paulin, Stephen P. Peters, Cheryl Pirozzi, Nirupama Putcha, Elizabeth C. Oelsner, Wanda K. O’Neal, Victor E. Ortega, Sanjeev Raman, Stephen I. Rennard, Donald P. Tashkin, J. Michael Wells, Robert A. Wise, and Prescott G. Woodruff. (2022). 'Identification of Sputum Biomarkers Predictive of Pulmonary Exacerbations in COPD', *Chest*, 161: 1239-49.https://www.sciencedirect.com/science/article/pii/S0012369221043774.
105. Godbole, S., W. W. Labaki, K. A. Pratte, A. Hill, M. Moll, A. T. Hastie, S. P. Peters, A. Gregory, V. E. Ortega, D. DeMeo, M. H. Cho, S. P. Bhatt, J. M. Wells, I. Barjaktarevic, K. A. Stringer, A. Comellas, W. O'Neal, K. Kechris, and R. P. Bowler. (2022). 'A Metabolomic Severity Score for Airflow Obstruction and Emphysema', *Metabolites*, 12.https://www.ncbi.nlm.nih.gov/pubmed/35629872.
106. Iyer, A. S., T. M. Parekh, J. O'Toole, S. P. Bhatt, M. N. Eakin, J. A. Krishnan, A. M. Yohannes, P. G. Woodruff, C. B. Cooper, R. E. Kanner, N. A. Hanania, M. T. Dransfield, E. A. Regan, K. F. Hoth, V. Kim, and COPDGene and SPIROMICS Investigators. (2022). 'Clinically Significant and Comorbid Anxiety and Depression Symptoms Predict Severe Respiratory Exacerbations in Smokers: A', *Ann Am Thorac Soc*, 19: 143-46.https://www.ncbi.nlm.nih.gov/pubmed/34343034.
107. Krishnan, J. K., K. M. Ancy, C. Oromendia, K. L. Hoffman, I. Easthausen, N. K. Leidy, M. K. Han, R. P. Bowler, S. A. Christenson, D. J. Couper, G. J. Criner, J. L. Curtis, M. T. Dransfield, N. N. Hansel, A. S. Iyer, R. Paine Iii, S. P. Peters, J. A. Wedzicha, P. G. Woodruff, K. V. Ballman, F. J. Martinez, and SPIROMICS Investigators. (2022). 'Characterizing COPD Symptom Variability in the Stable State Utilizing the Evaluating Respiratory Symptoms in COPD Instrument', *Chronic Obstr Pulm Dis*, 9: 195-208.https://www.ncbi.nlm.nih.gov/pubmed/35403414.
108. Madapoosi, S. S., C. Cruickshank-Quinn, K. Opron, J. R. Erb-Downward, L. A. Begley, G. Li, I. Barjaktarevic, R. G. Barr, A. P. Comellas, D. J. Couper, C. B. Cooper, C. M. Freeman, M. K. Han, R. J. Kaner, W. Labaki, F. J. Martinez, V. E. Ortega, S. P. Peters, R. Paine, P. Woodruff, J. L. Curtis, G. B. Huffnagle, K. A. Stringer, R. P. Bowler, C. R. Esther, N. Reisdorph, Y. J. Huang, and SPIROMICS Research Group. (2022). 'Lung Microbiota and Metabolites Collectively Associate with Clinical Outcomes in Milder Stage Chronic Obstructive Pulmonary Disease', *Am J Respir Crit Care Med*, 206: 427-39.https://www.ncbi.nlm.nih.gov/pubmed/35536732.
109. O'Toole, J., H. Woo, N. Putcha, C. B. Cooper, P. Woodruff, R. E. Kanner, R. Paine, R. P. Bowler, A. Comellas, K. F. Hoth, J. A. Krishnan, M. Han, M. Dransfield, A. S. Iyer, D. Couper, S. P. Peters, G. Criner, V. Kim, R. G. Barr, F. J. Martinez, N. N. Hansel, M. N. Eakin, and SPIROMICS Investigators. (2022). 'Comparative Impact of Depressive Symptoms and FEV', *Ann Am Thorac Soc*, 19: 171-78.https://www.ncbi.nlm.nih.gov/pubmed/34410883.
110. Pan, Yue, Di Wang, Muhammad F. A. Chaudhary, Wei Shao, Sarah E. Gerard, Oguz C. Durumeric, Surya P. Bhatt, R. G. Barr, Eric A. Hoffman, Joseph M. Reinhardt, and Gary E. Christensen. (2022). "Robust Measures of Image-Registration-Derived Lung Biomechanics in SPIROMICS." In *Journal of Imaging*. https://www.mdpi.com/2313-433X/8/11/309.
111. Ronish, B. E., D. J. Couper, I. Z. Barjaktarevic, C. B. Cooper, R. E. Kanner, C. S. Pirozzi, V. Kim, J. M. Wells, M. K. Han, P. G. Woodruff, V. E. Ortega, S. P. Peters, E. A. Hoffman, R. G. Buhr, B. A. Dolezal, D. P. Tashkin, T. G. Liou, L. A. Bateman, J. D. Schroeder, F. J. Martinez, R. G. Barr, N. N. Hansel, A. P. Comellas, S. I. Rennard, M. Arjomandi, and R. Paine Iii. (2022). 'Forced Expiratory Flow at 25%-75% Links COPD Physiology to Emphysema and Disease Severity in the SPIROMICS Cohort', *Chronic Obstr Pulm Dis*, 9: 111-21.https://www.ncbi.nlm.nih.gov/pubmed/35114743.
112. Tejwani, Vickram, Han Woo, Chen Liu, Anna K. Tillery, Amanda J. Gassett, Richard E. Kanner, Eric A. Hoffman, Fernando J. Martinez, Prescott G. Woodruff, R. Graham Barr, Ashraf Fawzy, Kirsten Koehler, Jeffrey L. Curtis, Christine M. Freeman, Christopher B. Cooper, Alejandro P. Comellas, Cheryl Pirozzi, Robert Paine, Donald Tashkin, Jerry A. Krishnan, Coralynn Sack, Nirupama Putcha, Laura M. Paulin, Marina Zusman, Joel D. Kaufman, Neil E. Alexis, and Nadia N. Hansel. (2022). 'Black carbon content in airway macrophages is associated with increased severe exacerbations and worse COPD morbidity in SPIROMICS', *Respiratory Research*, 23: 310.https://doi.org/10.1186/s12931-022-02225-0.
113. Wang, D., Y. Pan, O. C. Durumeric, J. M. Reinhardt, E. A. Hoffman, J. D. Schroeder, and G. E. Christensen. (2022). 'PLOSL: Population learning followed by one shot learning pulmonary image registration using tissue volume preserving and vesselness constraints', *Med Image Anal*, 79: 102434.https://www.ncbi.nlm.nih.gov/pubmed/35430476.
114. Yee, N., D. Markovic, R. G. Buhr, S. Fortis, M. Arjomandi, D. Couper, W. H. Anderson, R. Paine, P. G. Woodruff, M. K. Han, F. J. Martinez, R. G. Barr, J. M. Wells, V. E. Ortega, E. A. Hoffman, V. Kim, M. B. Drummond, R. P. Bowler, J. L. Curtis, C. B. Cooper, D. P. Tashkin, and I. Z. Barjaktarevic. (2022). 'Significance of FEV3/FEV6 in Recognition of Early Airway Disease in Smokers at Risk of Development of COPD: Analysis of the SPIROMICS Cohort', *Chest*, 161: 949-59.https://www.ncbi.nlm.nih.gov/pubmed/34767825.
115. Aaron D. Baugh, MD, Megan Acho, MD, Abraham Arhin, MD, Igor Barjaktarevic, MD, David Couper, PhD, Gerard Criner, MD, Meilan Han, MD, Nadia Hansel, MD MPH, Jerry Krishnan, MD, PhD, Katherine Malcolm, MD, Andrew Namen, MD, Stephen Peters, MD, Helena Schotland, MD, Mudiaga Sowho, MD, Michelle Zeidler, MD, Prescott Woodruff, MD, MPH, Neeta Thakur, MD, MPH. (2023). 'African American race is associated with worse sleep quality in heavy smokers', *Journal of Clinical Sleep Medicine*.https://jcsm.aasm.org/doi/abs/10.5664/jcsm.10624.
116. Althof, Zachary W., Sarah E. Gerard, Ali Eskandari, Mauricio S. Galizia, Eric A. Hoffman, and Joseph M. Reinhardt. (2023). 'Attention U-net for automated pulmonary fissure integrity analysis in lung computed tomography images', *Scientific Reports*, 13: 14135.https://doi.org/10.1038/s41598-023-41322-y.
117. Angelini, E. D., J. Yang, P. P. Balte, E. A. Hoffman, Aw Auid-Orcid X. Manichaikul, Y. Sun, W. Shen, J. H. M. Austin, N. B. Allen, E. R. Bleecker, R. Bowler, Mh Auid-Orcid Cho, C. S. Cooper, D. Couper, M. T. Dransfield, Ck Auid-Orcid Garcia, M. K. Han, N. N. Hansel, E. Hughes, D. R. Jacobs, S. Kasela, Jd Auid-Orcid Kaufman, Js Auid-Orcid X. Kim, T. Lappalainen, J. Lima, D. Malinsky, F. J. Martinez, E. C. Oelsner, V. E. Ortega, R. Paine, W. Post, T. D. Pottinger, M. R. Prince, S. S. Rich, E. K. Silverman, B. M. Smith, A. J. Swift, K. E. Watson, P. G. Woodruff, A. F. Laine, and R. G. Barr. (2023). 'Pulmonary emphysema subtypes defined by unsupervised machine learning on CT scans. LID - thoraxjnl-2022-219158 [pii] LID - 10.1136/thorax-2022-219158 [doi]', *Thorax*.https://pubmed.ncbi.nlm.nih.gov/37268414/.
118. Arjomandi, M., S. Zeng, J. Chen, S. P. Bhatt, F. Abtin, I. Barjaktarevic, R. G. Barr, E. R. Bleecker, R. G. Buhr, G. J. Criner, A. P. Comellas, D. J. Couper, J. L. Curtis, M. T. Dransfield, S. Fortis, M. K. Han, N. N. Hansel, E. A. Hoffman, J. E. Hokanson, R. J. Kaner, R. E. Kanner, J. A. Krishnan, W. W. Labaki, D. A. Lynch, V. E. Ortega, S. P. Peters, P. G. Woodruff, C. B. Cooper, R. P. Bowler, R. Paine, 3rd, S. I. Rennard, and D. P. Tashkin. (2023). 'Changes in Lung Volumes with Spirometric Disease Progression in COPD', *Chronic Obstr Pulm Dis*.https://pubmed.ncbi.nlm.nih.gov/37199719/.
119. Barjaktarevic, I., C. B. Cooper, T. Shing, R. G. Buhr, E. A. Hoffman, P. G. Woodruff, M. B. Drummond, R. E. Kanner, M. K. Han, N. N. Hansel, R. P. Bowler, G. L. Kinney, S. Jacobson, M. A. Morris, F. J. Martinez, J. Ohar, D. Couper, and D. P. Tashkin. (2023). 'Impact of Marijuana Smoking on COPD Progression in a Cohort of Middle-Aged and Older Persons. ', *Chronic Obstr Pulm Dis*.https://pubmed.ncbi.nlm.nih.gov/37199732/.
120. Chaudhary, Muhammad F. A., Eric A. Hoffman, Junfeng Guo, Alejandro P. Comellas, John D. Newell, Jr., Prashant Nagpal, Spyridon Fortis, Gary E. Christensen, Sarah E. Gerard, Yue Pan, Di Wang, Fereidoun Abtin, Igor Z. Barjaktarevic, R. Graham Barr, Surya P. Bhatt, Sandeep Bodduluri, Christopher B. Cooper, Lisa Gravens-Mueller, MeiLan K. Han, Ella A. Kazerooni, Fernando J. Martinez, Martha G. Menchaca, Victor E. Ortega, Robert Paine Iii, Joyce D. Schroeder, Prescott G. Woodruff, and Joseph M. Reinhardt. (2023). 'Predicting severe chronic obstructive pulmonary disease exacerbations using quantitative CT: a retrospective model development and external validation study', *The Lancet Digital Health*, 5: e83-e92.https://doi.org/10.1016/S2589-7500(22)00232-1.
121. DiLillo, Katarina M., Katy C. Norman, Christine M. Freeman, Stephanie A. Christenson, Neil E. Alexis, Wayne H. Anderson, Igor Z. Barjaktarevic, R. Graham Barr, Alejandro P. Comellas, Eugene R. Bleecker, Richard C. Boucher, David J. Couper, Gerard J. Criner, Claire M. Doerschuk, J. Michael Wells, MeiLan K. Han, Eric A. Hoffman, Nadia N. Hansel, Annette T. Hastie, Robert J. Kaner, Jerry A. Krishnan, Wassim W. Labaki, Fernando J. Martinez, Deborah A. Meyers, Wanda K. O’Neal, Victor E. Ortega, Robert Paine, Stephen P. Peters, Prescott G. Woodruff, Christopher B. Cooper, Russell P. Bowler, Jeffrey L. Curtis, Kelly B. Arnold, and Spiromics investigators. (2023). 'A blood and bronchoalveolar lavage protein signature of rapid FEV1 decline in smoking-associated COPD', *Scientific Reports*, 13: 8228.https://doi.org/10.1038/s41598-023-32216-0.
122. Esther, Charles R., Wanda K. O'Neal, Neil E. Alexis, Abigail L. Koch, Christopher B. Cooper, Igor Barjaktarevic, Laura M. Raffield, Russell P. Bowler, Alejandro P. Comellas, Stephen P. Peters, Annette T. Hastie, Jeffrey L. Curtis, Bonnie Ronish, Victor E. Ortega, J. Michael Wells, Eitan Halper-Stromberg, Stephen I. Rennard, and Richard C. Boucher. (2023). 'Prolonged, Physiologically Relevant Nicotine Concentrations in the Airways of Smokers', *American Journal of Physiology-Lung Cellular and Molecular Physiology*.https://doi.org/10.1152/ajplung.00038.2022.
123. Fortis, Spyridon, Pedro M. Quibrera, Alejandro P. Comellas, Surya P. Bhatt, Donald P. Tashkin, Eric A. Hoffman, Gerard J. Criner, MeiLan K. Han, R. Graham Barr, Mehrdad Arjomandi, Mark B. Dransfield, Stephen P. Peters, Brett A. Dolezal, Victor Kim, Nirupama Putcha, Stephen I. Rennard, Robert Paine, Richard E. Kanner, Jeffrey L. Curtis, Russell P. Bowler, Fernando J. Martinez, Nadia N. Hansel, Jerry A. Krishnan, Prescott G. Woodruff, Igor Z. Barjaktarevic, David Couper, Wayne H. Anderson, and Christopher B. Cooper. (2023). 'Bronchodilator Responsiveness in Tobacco-Exposed Persons with or without COPD', *Chest*.https://www.sciencedirect.com/science/article/pii/S0012369222040776.
124. Hill, Andrew C., Claire Guo, Elizabeth M. Litkowski, Ani W. Manichaikul, Bing Yu, Iain R. Konigsberg, Betty A. Gorbet, Leslie A. Lange, Katherine A. Pratte, Katerina J. Kechris, Matthew DeCamp, Marilyn Coors, Victor E. Ortega, Stephen S. Rich, Jerome I. Rotter, Robert E. Gerzsten, Clary B. Clish, Jeffrey L. Curtis, Xiaowei Hu, Ma-en Obeidat, Melody Morris, Joseph Loureiro, Debby Ngo, Wanda K. O’Neal, Deborah A. Meyers, Eugene R. Bleecker, Brian D. Hobbs, Michael H. Cho, Farnoush Banaei-Kashani, and Russell P. Bowler. (2023). 'Large scale proteomic studies create novel privacy considerations', *Scientific Reports*, 13: 9254.https://doi.org/10.1038/s41598-023-34866-6.
125. Izquierdo, M., C. R. Marion, F. Genese, J. D. Newell, W. K. O'Neal, X. Li, G. A. Hawkins, I. Barjaktarevic, R. G. Barr, S. Christenson, C. B. Cooper, D. Couper, J. Curtis, M. K. Han, N. N. Hansel, R. E. Kanner, F. J. Martinez, R. Paine, 3rd, V. Tejwani, P. G. Woodruff, J. G. Zein, E. A. Hoffman, S. P. Peters, D. A. Meyers, E. R. Bleecker, and V. E. Ortega. (2023). 'Impact of Bronchiectasis on COPD Severity and Alpha-1 Antitrypsin Deficiency as a Risk Factor in Individuals with a Heavy Smoking History. LID - 10.15326/jcopdf.2022.0388 [doi]', *Chronic Obstr Pulm Dis*.https://pubmed.ncbi.nlm.nih.gov/37199731/.
126. LaFon, David C., Han Woo, Neal Fedarko, Antoine Azar, Harry Hill, Anne E. Tebo, Thomas B. Martins, MeiLan K. Han, Jerry A. Krishnan, Victor E. Ortega, Igor Barjaktarevic, Robert J. Kaner, Annette Hastie, Wanda K. O'Neal, David Couper, Prescott G. Woodruff, Jeffrey L. Curtis, Nadia N. Hansel, Moon H. Nahm, Mark T. Dransfield, and Nirupama Putcha. (2023). 'Reduced quantity and function of pneumococcal antibodies are associated with exacerbations of COPD in SPIROMICS', *Clinical Immunology*: 109324.https://www.sciencedirect.com/science/article/pii/S1521661623001031.
127. LeMaster, W. Blake, P. Miguel Quibrera, David Couper, Donald P. Tashkin, Eugene R. Bleecker, Claire M. Doerschuk, Victor E. Ortega, Christopher Cooper, MeiLan K. Han, Prescott G. Woodruff, Wanda K. O’Neal, Wayne H. Anderson, Neil E. Alexis, Russell P. Bowler, R. Graham Barr, Robert J. Kaner, Mark T. Dransfield, Robert Paine, Victor Kim, Jeffrey L. Curtis, Fernando J. Martinez, Annette T. Hastie, and Igor Barjaktarevic. (2023). 'Clinical Implications of Low Absolute Blood Eosinophil Count in the SPIROMICS COPD Cohort', *Chest*, 163: 515-28.https://www.sciencedirect.com/science/article/pii/S0012369222040442.
128. McKleroy, William, Tracie Shing, Wayne H. Anderson, Mehrdad Arjomandi, Hira Anees Awan, Igor Barjaktarevic, R. Graham Barr, Eugene R. Bleecker, John Boscardin, Russell P. Bowler, Russell G. Buhr, Gerard J. Criner, Alejandro P. Comellas, Jeffrey L. Curtis, Mark Dransfield, Claire M. Doerschuk, Brett A. Dolezal, M. Bradley Drummond, MeiLan K. Han, Nadia N. Hansel, Kinsey Helton, Eric A. Hoffman, Robert J. Kaner, Richard E. Kanner, Jerry A. Krishnan, Stephen C. Lazarus, Fernando J. Martinez, Jill Ohar, Victor E. Ortega, Robert Paine, III, Stephen P. Peters, Joseph M. Reinhardt, Stephen Rennard, Benjamin M. Smith, Donald P. Tashkin, David Couper, Christopher B. Cooper, and Prescott G. Woodruff. (2023). 'Longitudinal Follow-Up of Participants With Tobacco Exposure and Preserved Spirometry', *JAMA*, 330: 442-53.https://doi.org/10.1001/jama.2023.11676.
129. Motahari, A., R. G. Barr, M. K. Han, W. H. Anderson, I. Barjaktarevic, E. R. Bleecker, Ap Auid-Orcid Comellas, C. B. Cooper, D. J. Couper, N. N. Hansel, R. E. Kanner, E. A. Kazerooni, D. A. Lynch, F. J. Martinez, J. D. Newell, Jr., J. D. Schroeder, B. M. Smith, P. G. Woodruff, and Ea Auid-Orcid Hoffman. (2023). 'Repeatability of Pulmonary Quantitative CT Measurements in COPD. LID - 10.1164/rccm.202209-1698PP [doi] FAU - Motahari, Amin', *Am J Respir Crit Care Med*.https://pubmed.ncbi.nlm.nih.gov/37490608/.
130. Rous Js Fau - Lees, Peter S. J., P. S. J. Lees, K. Koehler, J. P. Buckley, L. Quirós-Alcalá, M. K. Han, E. A. Hoffman, W. Labaki, R. G. Barr, S. P. Peters, R. Paine, 3rd, C. Pirozzi, C. B. Cooper, M. T. Dransfield, A. P. Comellas, R. E. Kanner, M. B. Drummond, N. Putcha, N. N. Hansel, and L. M. Paulin. (2023). 'Association of occupational exposures and chronic obstructive pulmonary disease morbidity. LID - 10.1097/JOM.0000000000002850 [doi]', *J Occup Environ Med*.https://pubmed.ncbi.nlm.nih.gov/36977360/.
131. Sowho, Mudiaga O., Abigail L. Koch, Nirupama Putcha, Han Woo, Amanda Gassett, Laura M. Paulin, Kirsten Koehler, R. Graham Barr, Alejandro P. Comellas, Christopher B. Cooper, Igor Barjaktarevic, Michelle R. Zeidler, Martha E. Billings, Russell P. Bowler, MeiLan K. Han, Victor Kim, Robert Paine Iii, Trisha M. Parekh, Jerry A. Krishnan, Stephen P. Peters, Prescott G. Woodruff, Aaron M. Baugh, Joel D. Kaufman, David Couper, and Nadia N. Hansel. (2023). 'Ambient Air Pollution Exposure and Sleep Quality in COPD', *Chronic obstructive pulmonary diseases (Miami, Fla.)*, 10: 102-11.http://europepmc.org/abstract/MED/36599095 https://doi.org/10.15326/jcopdf.2022.0350.
132. Van Buren, Eric, Giorgia Radicioni, Sarah Lester, Wanda K. O’Neal, Hong Dang, Silva Kasela, Suresh Garudadri, Jeffrey L. Curtis, MeiLan K. Han, Jerry A. Krishnan, Emily S. Wan, Edwin K. Silverman, Annette Hastie, Victor E. Ortega, Tuuli Lappalainen, Martijn C. Nawijn, Maarten van den Berge, Stephanie A. Christenson, Yun Li, Michael H. Cho, Mehmet Kesimer, and Samir N. P. Kelada. (2023). 'Genetic regulators of sputum mucin concentration and their associations with COPD phenotypes', *PLOS Genetics*, 19: e1010445.https://doi.org/10.1371/journal.pgen.1010445.
133. Wang, Jennifer M., Wassim W. Labaki, Susan Murray, Fernando J. Martinez, Jeffrey L. Curtis, Eric A. Hoffman, Sundaresh Ram, Alexander J. Bell, Craig J. Galban, MeiLan K. Han, and Charles Hatt. (2023). 'Machine learning for screening of at-risk, mild and moderate COPD patients at risk of FEV1 decline: results from COPDGene and SPIROMICS', *Frontiers in Physiology*, 14.https://www.frontiersin.org/articles/10.3389/fphys.2023.1144192.
134. Weiss, J. R., R. Serdenes, U. Madtha, H. Zhao, V. Kim, J. Lopez-Pastrana, M. N. Eakin, J. O'Toole, C. B. Cooper, P. Woodruff, R. E. Kanner, J. A. Krishnan, A. S. Iyer, D. Couper, and M. F. Morrison. (2023). 'Association Between COPD Severity, Exacerbation Risk, and Anxiety and Depression Symptoms in the SPIROMICS Cohort', *J Acad Consult Liaison Psychiatry*.https://www.ncbi.nlm.nih.gov/pubmed/35948252.
135. Wendt, Chris H., Russell P. Bowler, Connor Demorest, Annette Hastie, Wassim W. Labaki, Menglan Chen, Steven G. Carmella, and Stephen S. Hecht. (2023). 'Levels of Urinary Mercapturic Acids of Acrolein, Methacrolein, Crotonaldehyde, and Methyl Vinyl Ketone in Relationship to Chronic Obstructive Pulmonary Disease in Cigarette Smokers of the Subpopulations and Intermediate Outcome Measures in COPD Study (SPIROMICS)', *Chemical Research in Toxicology*.https://doi.org/10.1021/acs.chemrestox.3c00197.

**Other SPIROMICS-Related Publications:**

1. Hoffman, E. A., F. S. Ahmed, H. Baumhauer, M. Budoff, J. J. Carr, R. Kronmal, S. Reddy, and R. G. Barr. (2014). 'Variation in the percent of emphysema-like lung in a healthy, nonsmoking multiethnic sample. The MESA lung study', *Ann Am Thorac Soc*, 11: 898-907.https://www.ncbi.nlm.nih.gov/pubmed/24983825.
2. Chen, X., Q. Wang, Y. Hu, L. Zhang, W. Xiong, Y. Xu, J. Yu, and Y. Wang. (2020). 'A Nomogram for Predicting Severe Exacerbations in Stable COPD Patients', *Int J Chron Obstruct Pulmon Dis*, 15: 379-88.https://www.ncbi.nlm.nih.gov/pubmed/32110006.
3. Sadatsafavi, M., J. McCormack, J. Petkau, L. D. Lynd, T. Y. Lee, and D. D. Sin. (2021). 'Should the number of acute exacerbations in the previous year be used to guide treatments in COPD?', *Eur Respir J*, 57.https://www.ncbi.nlm.nih.gov/pubmed/32855228.
4. Han, MeiLan K., Wen Ye, Di Wang, Emily White, Mehrdad Arjomandi, Igor Z. Barjaktarevic, Stacey-Ann Brown, Russell G. Buhr, Alejandro P. Comellas, Christopher B. Cooper, Gerard J. Criner, Mark T. Dransfield, Frank Drescher, Rodney J. Folz, Nadia N. Hansel, Ravi Kalhan, Robert J. Kaner, Richard E. Kanner, Jerry A. Krishnan, Stephen C. Lazarus, Veeranna Maddipati, Fernando J. Martinez, Anne Mathews, Catherine Meldrum, Charlene McEvoy, Toru Nyunoya, Linda Rogers, William W. Stringer, Christine H. Wendt, Robert A. Wise, Stephen R. Wisniewski, Frank C. Sciurba, and Prescott G. Woodruff. (2022). 'Bronchodilators in Tobacco-Exposed Persons with Symptoms and Preserved Lung Function', *New England Journal of Medicine*, 387: 1173-84.https://doi.org/10.1056/NEJMoa2204752.
5. Chen, Dian, Jeffrey L. Curtis, and Yahong Chen. (2023). 'Twenty years of changes in the definition of early chronic obstructive pulmonary disease', *Chinese Medical Journal Pulmonary and Critical Care Medicine*, 1: 84-93.https://www.sciencedirect.com/science/article/pii/S2772558823000117.
6. Fortis, Spyridon, Yubo Gao, Arianne K. Baldomero, Mary Vaughan Sarrazin, and Peter J. Kaboli. (2023). 'Association of rural living with COPD-related hospitalizations and deaths in US veterans', *Scientific Reports*, 13: 7887.https://doi.org/10.1038/s41598-023-34865-7.
7. Jeffrey, L. Curtis. (2023). 'Understanding COPD Etiology, Pathophysiology, and Definition', *Respiratory Care*, 68: 859.http://rc.rcjournal.com/content/68/7/859.abstract.
8. Makimoto, Kalysta, and Miranda Kirby. (2023). 'Are CT-based exacerbation prediction models ready for use in chronic obstructive pulmonary disease?', *The Lancet Digital Health*, 5: e54-e55.https://doi.org/10.1016/S2589-7500(22)00237-0.
9. Shrine, Nick, Abril G. Izquierdo, Jing Chen, Richard Packer, Robert J. Hall, Anna L. Guyatt, Chiara Batini, Rebecca J. Thompson, Chandan Pavuluri, Vidhi Malik, Brian D. Hobbs, Matthew Moll, Wonji Kim, Ruth Tal-Singer, Per Bakke, Katherine A. Fawcett, Catherine John, Kayesha Coley, Noemi Nicole Piga, Alfred Pozarickij, Kuang Lin, Iona Y. Millwood, Zhengming Chen, Liming Li, Sara R. A. Wijnant, Lies Lahousse, Guy Brusselle, Andre G. Uitterlinden, Ani Manichaikul, Elizabeth C. Oelsner, Stephen S. Rich, R. Graham Barr, Shona M. Kerr, Veronique Vitart, Michael R. Brown, Matthias Wielscher, Medea Imboden, Ayoung Jeong, Traci M. Bartz, Sina A. Gharib, Claudia Flexeder, Stefan Karrasch, Christian Gieger, Annette Peters, Beate Stubbe, Xiaowei Hu, Victor E. Ortega, Deborah A. Meyers, Eugene R. Bleecker, Stacey B. Gabriel, Namrata Gupta, Albert Vernon Smith, Jian’an Luan, Jing-Hua Zhao, Ailin F. Hansen, Arnulf Langhammer, Cristen Willer, Laxmi Bhatta, David Porteous, Blair H. Smith, Archie Campbell, Tamar Sofer, Jiwon Lee, Martha L. Daviglus, Bing Yu, Elise Lim, Hanfei Xu, George T. O’Connor, Gaurav Thareja, Omar M. E. Albagha, Said I. Ismail, Wadha Al-Muftah, Radja Badji, Hamdi Mbarek, Dima Darwish, Tasnim Fadl, Heba Yasin, Maryem Ennaifar, Rania Abdellatif, Fatima Alkuwari, Muhammad Alvi, Yasser Al-Sarraj, Chadi Saad, Asmaa Althani, Eleni Fethnou, Fatima Qafoud, Eiman Alkhayat, Nahla Afifi, Sara Tomei, Wei Liu, Stephan Lorenz, Najeeb Syed, Hakeem Almabrazi, Fazulur Rehaman Vempalli, Ramzi Temanni, Tariq Abu Saqri, Mohammedhusen Khatib, Mehshad Hamza, Tariq Abu Zaid, Ahmed El Khouly, Tushar Pathare, Shafeeq Poolat, Rashid Al-Ali, Souhaila Al-Khodor, Mashael Alshafai, Ramin Badii, Lotfi Chouchane, Xavier Estivill, Khalid Fakhro, Younes Mokrab, Jithesh V. Puthen, Zohreh Tatari, Karsten Suhre, Raquel Granell, Tariq O. Faquih, Pieter S. Hiemstra, Annelies M. Slats, Benjamin H. Mullin, Jennie Hui, Alan James, John Beilby, Karina Patasova, Pirro Hysi, Jukka T. Koskela, Annah B. Wyss, Jianping Jin, Sinjini Sikdar, Mikyeong Lee, Sebastian May-Wilson, Nicola Pirastu, Katherine A. Kentistou, Peter K. Joshi, Paul R. H. J. Timmers, Alexander T. Williams, Robert C. Free, Xueyang Wang, John L. Morrison, Frank D. Gilliland, Zhanghua Chen, Carol A. Wang, Rachel E. Foong, Sarah E. Harris, Adele Taylor, Paul Redmond, James P. Cook, Anubha Mahajan, Lars Lind, Teemu Palviainen, Terho Lehtimäki, Olli T. Raitakari, Jaakko Kaprio, Taina Rantanen, Kirsi H. Pietiläinen, Simon R. Cox, Craig E. Pennell, Graham L. Hall, W. James Gauderman, Chris Brightling, James F. Wilson, Tuula Vasankari, Tarja Laitinen, Veikko Salomaa, Dennis O. Mook-Kanamori, Nicholas J. Timpson, Eleftheria Zeggini, Josée Dupuis, Caroline Hayward, Ben Brumpton, Claudia Langenberg, Stefan Weiss, Georg Homuth, Carsten Oliver Schmidt, Nicole Probst-Hensch, Marjo-Riitta Jarvelin, Alanna C. Morrison, Ozren Polasek, Igor Rudan, Joo-Hyeon Lee, Ian Sayers, Emma L. Rawlins, Frank Dudbridge, Edwin K. Silverman, David P. Strachan, Robin G. Walters, Andrew P. Morris, Stephanie J. London, Michael H. Cho, Louise V. Wain, Ian P. Hall, Martin D. Tobin, Group China Kadoorie Biobank Collaborative, Consortium The Qatar Genome Program Research, Biobank, Preparation Sample, Sequencing, group Genotyping, Core Applied Bioinformatics, Management Data, group Computing Infrastructure, and Investigators Consortium Lead Principal. (2023). 'Multi-ancestry genome-wide association analyses improve resolution of genes and pathways influencing lung function and chronic obstructive pulmonary disease risk', *Nature Genetics*, 55: 410-22.https://doi.org/10.1038/s41588-023-01314-0.