Imbio Lung Texture Analysis™

(with CALIPER technology exclusively licensed from Mayo Clinic)

Bibliography of Peer-Reviewed Scientific Literature

Regulatory Clearance Notice: *Lung Texture Analysis (LTA) is CE Mark certified and Health Canada Approved. LTA is not FDA cleared and is for research use only in the U.S. and other regions without regulatory clearance for clinical use.*

Indications for Use: *The Imbio CT LTA Software uses CT density values of pulmonary tissue to provide quantitation and visualization in support of diagnosis. The Imbio CT LTA Software performs three-dimensional segmentation and classifies the lung voxels into typical radiological categories. Automated reports and color overlays of the analysis are provided to support diagnosis when abnormal lung parenchymal densities are present.*

Below is a representative sampling of published scientific and technical peer-reviewed articles that relate to Lung Texture Analysis, and its core embedded technology - known as "CALIPER" - used for classification of the pulmonary tissue. This bibliography is being provided by way of illustration of the scientific discourse on the subject.

General Technology Background

Quantitative computed tomography imaging of interstitial lung diseases.
Bartholmai BJ, Raghunath S, Karwoski RA, Moua T, Rajagopalan S, Maldonado F, Decker PA, Robb RA. J Thorac Imaging 2013;28:298–307. PMID: 23966094 PMCID: 3850512 DOI: 10.1097/RTI.0b013e3182a21969

High resolution multidetector CT-aided tissue analysis and quantification of lung fibrosis. Zavaletta VA, Bartholmai BJ, Robb RA. Acad Radiol. 2007 Jul; 14: (7)772-87. PMID: 17574128 PMCID: 2701291 DOI: 10.1016/j.acra.2007.03.009

Potential Prognostic Value: Correlations to Lung Function & Survival

Predicting outcomes in Idiopathic Pulmonary Fibrosis using automated CT analysis.
Jacob J, Bartholmai BJ, Rajagopalan S, Walsh SL, Wells AU et al. AJRCCM Articles in Press. Published on 23-April-2018 as 10.1164/rccm.201711-2174OC

Short-term Automated Quantification of Radiologic Changes in the Characterization of Idiopathic Pulmonary Fibrosis Versus Nonspecific Interstitial Pneumonia and Prediction of Long-term Survival. De Giacomi F, Raghunath S, Karwoski R, Bartholmai BJ, Moua T. J Thorac Imaging. Epub 2017 Dec 06 PMID: 29219887 DOI: 10.1097/RTI.0000000000000317

Evaluation of visual and computer-based CT analysis for the identification of functional patterns of obstruction and restriction in hypersensitivity pneumonitis.
Jacob J, Bartholmai BJ, Brun AL, Egashira R, Rajagopalan S, Karwoski R, Kouranos V, Kokosi M, Hansell DM, Wells AU. Respirology. 2017 Nov; 22 (8):1585-1591 Epub 2017 July 11 PMID: 28699237 DOI: 10.1111/resp.13122

Serial automated quantitative CT analysis in idiopathic pulmonary fibrosis: functional correlations and comparison with changes in visual CT scores.
Jacob J, Bartholmai BJ, Rajagopalan S, Kokosi M, Egashira R, Brun AL, Nair A, Walsh SLF, Karwoski R, Wells AU. Eur Radiol. 2017 Sep 29 Epub 2017 Sept 29 PMID: 28963678 DOI: 10.1007/s00330-017-5053-z

Automated computer-based CT stratification as a predictor of outcome in hypersensitivity pneumonitis. Jacob J, Bartholmai BJ, Rajagopalan S, Karwoski R, Mak SM, Mok W, Della Casa G, Sugino K, Walsh SLF, Wells AU, Hansell DM. Eur Radiol. 2017 Sep; 27 (9):3635-3646 Epub 2017 Jan 27 PMID: 28130610 DOI: 10.1007/s00330-016-4697-4

Functional and prognostic effects when emphysema complicates idiopathic pulmonary fibrosis. Jacob J, Bartholmai BJ, Rajagopalan S, Kokosi M, Maher TM, Nair A, Karwoski R, Renzoni E, Walsh SLF, Hansell DM, Wells AU. Eur Respir J. 2017 Jul; 50 (1) Epub 2017 July 05 PMID: 28679612 DOI: 10.1183/13993003.00379-2017
(Additional disclosure: B. Bartholmai is a named inventor of CALIPER technology, which is licensed to Imbio, LLC.)

Chronic hypersensitivity pneumonitis: identification of key prognostic determinants using automated CT analysis. Jacob J, Bartholmai BJ, Egashira R, Brun AL, Rajagopalan S, Karwoski R, Kokosi M, Hansell DM, Wells AU. BMC Pulm Med. 2017 May 04; 17: (1)81. PMID: 28472939 PMCID: 5418678 DOI: 10.1186/s12890-017-0418-2

Mortality prediction in idiopathic pulmonary fibrosis: evaluation of computer-based CT analysis with conventional severity measures. Jacob J, Bartholmai BJ, Rajagopalan S, Kokosi M, Nair A, Karwoski R, Walsh SLF, Wells AU, Hansell DM. European Respiratory Journal. 2017 Jan; 49: (1)1601011
(Additional disclosure: B. Bartholmai is a named inventor of CALIPER technology, which is licensed to Imbio, LLC.)

Evaluation of computer-based computer tomography stratification against outcome models in connective tissue disease-related interstitial lung disease: a patient outcome study.
Jacob J, Bartholmai BJ, Rajagopalan S, Brun AL, Egashira R, Karwoski R, Kokosi M, Wells AU, Hansell DM. BMC Med. 2016 Nov 23; 14: (1)190. PMID: 27876024 PMCID: 5120564 DOI: 10.1186/s12916-016-0739-7

Automated quantification of radiological patterns predicts survival in idiopathic pulmonary fibrosis. Maldonado F, Moua T, Rajagopalan S, Karwoski RA, Raghunath S, Decker PA, Hartman TE, Bartholmai BJ, Robb RA, Ryu JH. Eur Respir J. 2014 Jan; 43: (1)204-12. PMID: 23563264 DOI: 10.1183/09031936.00071812
(Additional disclosure: B. Bartholmai is a named inventor of CALIPER technology, which is licensed to Imbio, LLC.)