QIBA and QI/ Imaging Biomarkers in the Literature

Articles are divided into two categories:
1. Articles that are generated by Quantitative Imaging Biomarkers Alliance (QIBA) research teams
2. Articles that reference QIBA

If available, links are provided to PubMed or journal landing pages.

I. QIBA-GENERATED ARTICLES

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2017


2016


Carson P. **TH-A-207B-00: Shear-Wave Imaging and a QIBA US Biomarker Update.** Medical Physics. 2016; 43(6):3866-3867. doi: 10.1118/1.4958104; PubMed Citation

Chen S. **TH-A-207B-01: Basics and Current Implementations of Ultrasound Imaging of Shear Wave Speed and Elasticity.** Medical Physics. 2016; 43(6):3866-3867. doi: 10.1118/1.4958105; PubMed Citation


2015


Buckler AJ. **Inter-method performance study of tumor volumetry assessment on computed tomography test-retest data.** *Academic Radiology.* 2015; 22(11):1393-1408. http://dx.doi.org/10.1016/j.acra.2015.08.007


Quak E, Le Roux PY, Hofman MS, et al. **Harmonizing FDG PET quantification while maintaining optimal lesion detection: prospective multicentre validation in 517 oncology patients.** *Eur J Nucl Med Mol Imaging.* 2015; 42(13):2072-2082. PubMed Citation

**QIBA Metrology Papers**


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2014


2013


Sullivan DC, Schwartz LH, Zhao B. **The Imaging Viewpoint: How Imaging Affects Determination of Progression-Free Survival.** *Clin Cancer Res.* 2013; 19(10); 2621–8. doi: 10.1158/1078-0432.CCR-12-2936; PubMed Citation


**2012**


**2011**

Buckler AJ, et al. **Quantitative Imaging Test Approval and Biomarker Qualification: Interrelated but Distinct Activities.** *Radiology.* 2011; 259(3):875-84. doi: 10.1148/radiol.10100800; PubMed Citation


Buckler AJ, Boellaard R. **Standardization of Quantitative Imaging: The Time is Right, and 18F-FDG PET/CT is a Good Place to Start.** *J Nucl Med.* 2011; 52(2):171-2. doi: 10.2967/jnumed.110.81224; PubMed Citation


**2010**


Buckler AJ, Mulshine JL, Gottlieb R, Zhao B, Mozley PD, Schwartz L. **The Use of Volumetric CT as an Imaging Biomarker in Lung Cancer.** *Acad Radiol.* 2010; 17(1):100-6. doi: 10.1016/j.acra.2009.07.030; PubMed Citation


2009


2008


II. ARTICLES THAT REFERENCE QIBA

2017

Amador Carrascal C, Chen S, Manduca A, Greenleaf JF, Urban M. Improved shear wave group velocity estimation method based on spatiotemporal peak and thresholding motion search. IEEE Trans Ultrason Ferroelectr Freq Control. epub ahead of print Jan 2017. doi: 10.1109/TUFFC.2017.2652143; PubMed Citation


2016


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Last updated: 3/7/2017
Investigation of estimation uncertainties in a phantom study treated with bevacizumab

Lassau N, Coiffier B, Kind M, Vilgrain V, Lacroix J, Cuinet M.


Multisite, Multivendor Validation of the Accuracy and Reproducibility of Proton-Density Fat-Fraction Quantification at 1.5T and 3T Using a Fat-Water Phantom.

Magnetic Resonance in Medicine. Epub Apr 2016. doi: 10.1002/mrm.26228; PubMed Citation


Magnetic Resonance Imaging. 2016; 34(5):638-44. doi: 10.1016/j.mri.2015.11.011; PubMed Citation

Development of matching digital and physical brain phantoms for testing quantitative amyloid PET neuroimaging.


Accrual Patterns for Clinical Studies Involving Quantitative Imaging: Results of an NCI Quantitative Imaging Network (QIN) Survey.


Generating harmonized SUV within the EANM EARL accreditation program: software approach versus EARL-compliant reconstruction.

Annals of Nuclear Medicine. Epub Nov 2016. doi: 10.1007/s12149-016-1135-2; PubMed Citation

Selection of an early biomarker for vascular normalization using dynamic contrast-enhanced ultrasonography to predict outcomes of metastatic patients treated with bevacizumab.


Effect of 18F-fluorodeoxyglucose extravasation on time taken for tumoral uptake to reach a plateau: animal and clinical PET analyses.


Volumetry of low-contrast liver lesions with CT: Investigation of estimation uncertainties in a phantom study.

Medical Physics. 2016; 43(12):6608. doi: 10.1118/1.4967776; PubMed Citation

Repeatability of Quantitative 18F-NaF PET: A Multicenter Study.

Journal of Nuclear Medicine. 2016; 57(12):1872-1879. doi: 10.2967/jnumed.116.177295; PubMed Citation

Effect of 18F-fluorodeoxyglucose extravasation on time taken for tumoral uptake to reach a plateau: animal and clinical PET analyses.


Volumetry of low-contrast liver lesions with CT: Investigation of estimation uncertainties in a phantom study.

Medical Physics. 2016; 43(12):6608. doi: 10.1118/1.4967776; PubMed Citation

Repeatability of Quantitative 18F-NaF PET: A Multicenter Study.

Journal of Nuclear Medicine. 2016; 57(12):1872-1879. doi: 10.2967/jnumed.116.177295; PubMed Citation

Last updated: 3/7/2017


Ma X, Siegelman J, Paik D, et al. **Volumes learned: it takes more than size to “size up” pulmonary lesions.** *Academic Radiology.* 2016; 23(9):1190-1198. doi: 10.1016/j.acra.2016.04.003; PubMed Citation

MacDonald LR, Perkins AE, Tung C. **Longitudinal monitoring of reconstructed activity concentration on a clinical time-of-flight PET/CT scanner.** *Journal of Medical Imaging.* 2016; 4(1):011004. doi: 10.1117/1.JMI.4.1.011004; PubMed Citation


Otesteanu CF, Sanabria SJ, Goksel O. **Analysis of excitation frequency in elasticity reconstruction using the FEM inverse-problem.** 2016 IEEE 13th *International Symposium on Biomedical Imaging (ISBI).* Apr 2016. doi: 10.1109/ISBI.2016.7493313

Pak K, Kim SJ. **What Do We Measure in Oncology PET?** *Nuclear Medicine and Molecular Imaging,* review - epub ahead of print, Apr 2016. doi: 10.1007/s13139-016-0416-y


Trattnig S. The shift in paradigm to precision medicine in imaging: international initiatives for the promotion of imaging biomarkers. *Imaging Biomarkers*. Nov 2016; pp 1-7. doi: 10.1007/978-3-319-43504-6_1


Vajuvalli NN, Chikkemenahally DKK, Nayak KN, Bhosale MG, Geethanath S. The Tofts model in frequency domain: fast and robust determination of pharmacokinetic maps for dynamic contrast enhancement MRI. *Physics in Medicine and Biology.* 2016; 61(24):8462-8475. doi: 10.1088/0031-9155/61/24/8462; PubMed Citation

Van Beek EJ. Imaging biomarkers in the clinic. *Biomarkers in Medicine.* 2016; 10(10):1073-1079. doi: 10.2217/bmm-2016-0151; PubMed Citation

van Es S, Venema C, Glaudemans A, et al. Translation of New Molecular Imaging Approaches to the Clinical Setting: Bridging the Gap to Implementation. *Journal of Nuclear Medicine,* 2016; 57(S1). doi: 10.2967/jnumed.115.157974; PubMed Citation


2015

Abramson RG, et al. Methods and Challenges in Quantitative Imaging Biomarker Development. *Acad Radiol.* 2015; 22(1), 25-32. doi: 10.1016/j.acra.2014.09.001; PubMed Citation


*Last updated: 3/7/2017*
Fananapazir G, Bashir MR, Marin D, Boll DT. **Computer-Aided Liver Volumetry: Performance of a Fully-Automated, Prototype Post-Processing Solution for Whole-Organ and Lobar Segmentation Based on MDCT Imaging.** *Abdom Imaging.* 2015; 40(5):1203-12. doi: 10.1007/s00261-014-0276-9; PubMed Citation


Garra B. **Elastography: History, Principles, and Technique Comparison.** *Abdominal Imaging.* 2015; 40(4):680-697. doi: 10.1007/s00261-014-0305-8; PubMed Citation

Gensheimer M, Hawkins D, Ermoian R, Trister A. **Assessing the Scale of Tumor Heterogeneity by Complete Hierarchical Segmentation of MRI.** *Physics in Medicine & Biology.* 2015; (60):977-993. doi:10.1088/0031-9155/60/3/977; PubMed Citation


Kanazawa, Y, Hayashi H, Harada M. **Clinical Approach of T1 Mapping for Hemodynamic Analysis.** *Medical Imaging and Information Sciences.* 2015; 32(4):26-29. doi: 10.11318/mii.32.xxvi

Kim SY, Park SH. **Reply to What is the Role of Diffusion-Weighted Imaging in Ileocolonic Crohn’s Disease?** *Inflammatory Bowel Diseases.* 2015; 21(6):E9-E10. doi: 10.1097/MIB.0000000000000414; PubMed Citation


Li Q, Gavrielides MA, Sahiner B, Myers KJ, Zeng R, Petrick N. **Statistical Analysis of Lung Nodule Volume Measurements with CT in a Large-Scale Phantom Study.** *Med. Phys.* 2015; 42(7):3932-3947. doi: 10.1118/1.4921734; PubMed Citation


Mankoff DA, et al. **How Imaging Can Impact Clinical Trial Design: Molecular Imaging as a Biomarker for Targeted Cancer Therapy.** *Cancer.* 2015; 21(3):218-24. doi: 10.1097/PPO.0000000000000116; PubMed Citation


McNitt-Gray MF, Kim GH, Zhao B, et al. **Determining the Variability of Lesion Size Measurements from CT Patient Data Sets Acquired under “No Change” Conditions.** *Translational Oncology.* 2015; 8(1):55-64. doi: 10.1016/j.tranon.2015.01.001; PubMed Citation

Last updated: 3/7/2017


2014


Ellingson BM, Bendszus M, Sorensen AG, & Pope WB. Emerging Techniques and Technologies in Brain Tumor Imaging. Neuro-Oncology. 2014; 16(suppl 7): vii12–vii23. doi: 10.1093/neo/nou221; PubMed Citation


Yankeelov TE, Abramson RG, Quarles CC. *Quantitative Multimodality Imaging in Cancer Research and Therapy.* Nat Rev Clin Oncol. Nov; (11):670-80. doi: 10.1038/nrclonc.2014.134; PubMed Citation


2013


Coxson HO. *Sources of Variation in Quantitative Computed Tomography of the Lung.* J Thorac Imaging. 2013; 28(5):272-9. doi: 10.1097/RTI.0b013e31829efbe9; PubMed Citation


Newell JD, Sieren J, Hoffman EA. *Development of Quantitative CT Lung Protocols.* Journal of Thoracic Imaging. 2013; 28(5) doi:10.1097/RTI.0b013e31829f6796; PubMed Citation

Last updated: 3/7/2017

**2012**


**2011**


**2010**


Doot RK, Scheuermann JS, Christian PE, Karp JS, Kinahan PE. Instrumentation Factors Affecting Variance and Bias of Quantifying Tracer Uptake with PET/CT. *Med. Phys*. 2010; 37(11):6035. doi: 10.1118/1.3499298; PubMed Citation


**2009**