EIBALL - QIBA ASL Perfusion Biomarker Committee: 2018 Overview

Xavier Golya,1 Aaron Oliver-Taylor,1 Tom Hampshire1, Henk-Jan Mutsaerts1,4,5, Matthias Guenther6,7,8, Luis Hernandez-Garcia9, Rik Achten10

1Gold Standard Phantom, 2University College London, 3YU Medical Centre, 4Amsterdam Academic Medical Centre, 5Utrecht Medical Centre, 6Fraunhofer MEVIS, 7University Bremer, 8medin GmbH, 9University of Michigan, 10Gent University Hospital

SUMMARY AND GOALS OF THE ASL-MRI BIOMARKER COMMITTEE

The ASL Task Force was dissolved, and a ASL-MRI Biomarker Committee was created, after the dissolution of the PDF-MRI Biomarker Committee. It is supported by the European Institute for Biomedical Imaging Research (EIBIR).

A version 1.0 of the ASL Phantom was established. The main decisions taken are:
1. To standardize the ASL Phantom (EIBALL) as a Cerebral Blood Flow (CBF) phantom.
2. Separate primary vascular diseases from primary metabolic-related diseases in the brain.
3. Start with simple performance claims (e.g. ASL CBF measurement).
4. The early publication of the White Paper 1 in 2015 allowed the ASL-MRI BC to simply use the main recommendations from this paper as input for most of the Profile Activities.

A workshop was programmed on March 9-10, 2019 at University of Michigan and led by L. Hernandez-Garcia for the committee of users and developers of ASL techniques, to share new findings, discussions and developments with the, with the intent of mapping out future technical recommendations for clinical translation.

In addition, members of the ASL-MRI BC have also worked on the standardization of the input necessary for the treatment and organization of ASL data. This work has now been coordinated by H. Achten.

ASL-BIDS is an extension on the Brain Imaging Data Structure (BIDS) an emerging standard for the organization of neuroimaging data in neuroinformatics. The partners of existing ASL BIDS, sequence as well as the significant differences between product sequences as implemented by different ASL-MRI BC vendors. ASL-BIDS provides a simple, hierarchical folder structure, with key study parameters documented in text files.

The ASL-MRI BC has also created specific scan sequences with a common structure for present and future clinical ASL studies and open-date repositories.

In the early round robin assessment there has shown to be a difference between the Philips 3T scanner and the Siemens 3T scanner but not the other scanners. To be done as a require comparison against a ground truth. We have been developing a simulated ASL phantom that can be used to compare the performance of two or more ASL-MRI systems. The development of this phantom is ongoing. The application of a particle tracing method produces translational and rotational fluid paths.

The QIBA Projects presented on this poster have been funded in part by Gold Standard Phantoms, funded through SBIR funding from the UK government, and partly through an earlier EU COST Action BM1103 on ‘ASL in Dementia’. X.G. is supported by the NIHR BRC Scheme. H.-J.M. has received support from Amsterdam Neuroencentrum and from EU/EPPA Innovative Medicines Initiatives (1 and 2) for ExploreASL Joint Undertakings: EPARD grant no. 115736, AMYPAD grant no. 115952.

The QIBA Project was initiated to improve the quality of ASL perfusion data across various suppliers, including Siemens, GE, Philips, and Toshiba. The project focused on developing a standardized protocol for ASL phantom data acquisition and analysis. The goal was to establish a common benchmark for ASL perfusion imaging, allowing for more accurate and reliable comparisons of perfusion measurements across different scanners and vendors.

The project involved the development of a perfusion phantom, which is used to generate high-quality ASL perfusion data that can be standardized globally. The phantom was designed to provide a consistent and reproducible source of perfusion data, enabling researchers to compare their results more effectively.

The QIBA Project also sought to establish a network of researchers and institutions working with ASL perfusion imaging, allowing for the sharing of best practices and resources. This network would help ensure that the ASL perfusion imaging community can benefit from the latest advancements in the field.

The project involves the development of a comprehensive standard for ASL perfusion imaging, which will be used by researchers worldwide. The standard will include guidelines for data acquisition, processing, and analysis, ensuring that ASL perfusion imaging results are comparable and reproducible.

The QIBA Project was initiated to improve the quality of ASL perfusion data across various suppliers, including Siemens, GE, Philips, and Toshiba. The project focused on developing a standardized protocol for ASL phantom data acquisition and analysis. The goal was to establish a common benchmark for ASL perfusion imaging, allowing for more accurate and reliable comparisons of perfusion measurements across different scanners and vendors.

The project involved the development of a perfusion phantom, which is used to generate high-quality ASL perfusion data that can be standardized globally. The phantom was designed to provide a consistent and reproducible source of perfusion data, enabling researchers to compare their results more effectively.

The QIBA Project also sought to establish a network of researchers and institutions working with ASL perfusion imaging, allowing for the sharing of best practices and resources. This network would help ensure that the ASL perfusion imaging community can benefit from the latest advancements in the field.

The project involves the development of a comprehensive standard for ASL perfusion imaging, which will be used by researchers worldwide. The standard will include guidelines for data acquisition, processing, and analysis, ensuring that ASL perfusion imaging results are comparable and reproducible.

The QIBA Project was initiated to improve the quality of ASL perfusion data across various suppliers, including Siemens, GE, Philips, and Toshiba. The project focused on developing a standardized protocol for ASL phantom data acquisition and analysis. The goal was to establish a common benchmark for ASL perfusion imaging, allowing for more accurate and reliable comparisons of perfusion measurements across different scanners and vendors.

The project involved the development of a perfusion phantom, which is used to generate high-quality ASL perfusion data that can be standardized globally. The phantom was designed to provide a consistent and reproducible source of perfusion data, enabling researchers to compare their results more effectively.

The QIBA Project also sought to establish a network of researchers and institutions working with ASL perfusion imaging, allowing for the sharing of best practices and resources. This network would help ensure that the ASL perfusion imaging community can benefit from the latest advancements in the field.

The project involves the development of a comprehensive standard for ASL perfusion imaging, which will be used by researchers worldwide. The standard will include guidelines for data acquisition, processing, and analysis, ensuring that ASL perfusion imaging results are comparable and reproducible.

The QIBA Project was initiated to improve the quality of ASL perfusion data across various suppliers, including Siemens, GE, Philips, and Toshiba. The project focused on developing a standardized protocol for ASL phantom data acquisition and analysis. The goal was to establish a common benchmark for ASL perfusion imaging, allowing for more accurate and reliable comparisons of perfusion measurements across different scanners and vendors.

The project involved the development of a perfusion phantom, which is used to generate high-quality ASL perfusion data that can be standardized globally. The phantom was designed to provide a consistent and reproducible source of perfusion data, enabling researchers to compare their results more effectively.

The QIBA Project also sought to establish a network of researchers and institutions working with ASL perfusion imaging, allowing for the sharing of best practices and resources. This network would help ensure that the ASL perfusion imaging community can benefit from the latest advancements in the field.

The project involves the development of a comprehensive standard for ASL perfusion imaging, which will be used by researchers worldwide. The standard will include guidelines for data acquisition, processing, and analysis, ensuring that ASL perfusion imaging results are comparable and reproducible.