



Allotrope Foundation Quarterly Update 2023/12

Dear Allotrope Community,

We have continued our progress this quarter and improved or expanded the AFO, ADM, ASM, and ADF further in the following areas with updates to share. Please note that access to links may require access to GitLab or other Allotrope Community resources. More details for access [here](#).

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Welcoming New Community Members

ScienceOS

We would like to welcome a new member to the APN – ScienceOS <https://scienceos.tech/>.

ScienceOS is a scientific data platform that provides an end-to-end experience with instrumental scientific data. The system provides full automation for instrumental data aggregation at an organization scale. Currently, ScienceOS provides a user interface for users (i.e. scientists) to label, explore/search, process, visualize and report scientific data.

ScienceOS is planning on using the Allotrope's data format as an intermediate data capturing vehicle to transfer data from instrument PC to our backend system.

Ganymede

We would like to welcome a new member to the APN – Ganymede <https://www.ganymede.bio/>.

Ganymede's mission is to provide a "Whole-lab automation and data integration platform" and "Connect any lab instrument with any app or pipeline, all in one simple low-code platform."

Ganymede provides a modern cloud data platform for the life sciences and manufacturing. Its Lab-as-Code technology allows users to quickly integrate and harmonize lab instruments and app data, automate analysis, visualize all data in dashboards built over a powerful data lake, and ultimately speed up the operations to accelerate science or production.

Allotrope Foundation Ontology & Data Models (AFO/ADM/ASM)



Modeling teams have continued working to align on proposals to expand the domain coverage of the AFO, ADM and ASM. Easily access files located on Client Connect [here](#) and more granular technical details available on GitLab, <https://gitlab.com/allotrope>.

See www.allotrope.org/product-releases for a full and updated list of available models.

AFO Updates

Following the updated set of ADMs released this quarter, a new AFO release is published. Please note that QUDT 1.0 is no longer merged into the Allotrope Merged Ontology Suite.

The Allotrope Merged Ontology Suite release is available on:

- BioPortal, the repository of biomedical ontologies published by the National Center for Biomedical Ontology at Stanford University: <https://bioportal.bioontology.org/ontologies/AFO>
- OLS4, the Ontology Lookup Service repository for biomedical ontologies published by the European Bioinformatics Institute: <https://www.ebi.ac.uk/ols4/ontologies/afo>
- Ontobee, Ontologies data server published by the University of Michigan Medical School: <https://ontobee.org/ontology/AFO> (Ontobee generates the AFO list of terms in an Excel spreadsheet as well as Tab Separated Values file)
- Client Connect: [here](#)
- Gitlab: <https://gitlab.com/allotrope/afo/-/tree/master/afo>
- Allotrope PURL sever: <http://purl.allotrope.org/> (listed under AFO>MERGED)
- JFrog Artifactory: <https://allotrope.jfrog.io/ui/repos/tree/General/AFO-release-public>
- Allotrope website: <https://www.allotrope.org/ontologies>

AFO Tools (Term Dictionary and New Term Submission)

Allotrope Term Dictionary: The tool is available in both .xlsx (Excel) and .csv (Comma Separated Values) format and can be downloaded from the

- Allotrope website at: <https://www.allotrope.org/ontologies>
- Client Connect: [here](#)
- JFrog Artifactory: <https://allotrope.jfrog.io/ui/repos/tree/General/AFO-dictionary-release-public>

AFO New Terms Submission Tool: This project provides the tools to enable simple (and friendly) new AFO term(s) submissions for governance independent of developing data models. To get started with the AFO New Term Submission, please refer to: <https://gitlab.com/allotrope/afo-new-term-submission>.

Allotrope Foundation Data Models (ADM/ASM)

ASM is Public

This year, the foundation announced the public release of the Allotrope Simple Models. By making ASM available to the public, Allotrope Foundation seeks to enable wide-spread data standardization throughout the scientific community through adoption of this technology. To accommodate the public



availability of the ASM artifacts and the training material, a new Allotrope public group was opened on Gitlab (<https://gitlab.com/allotrope-public>) and some of the related ASM projects were moved. For more information on how to access the ASM and licensing terms, please visit the Allotrope Foundation website at <https://www.allotrope.org/asm>.

ASM Directory

ASM Directory for the applicable sample JSON and JSON Schema files per technique is available for convenient viewing of file content using a browser. The directory contains links to the latest sample files and embedded (i.e., standalone) schema for all ASMs in REC (Recommended) status. Please refer to the new location of the directory on the public repository: <https://gitlab.com/allotrope-public/asm/-/blob/main/README.md#allotrope-simple-model-directory>

Modularization

JSON Schemas allow for modularization and factoring out commonly used rules by utilizing references to other JSON schema files. The simple model schemas make use of this modular approach. The ASM Schema is defined using:

- Technique specific schema: a JSON Schema that contains the domain specific rules. It references the core declarations instead of each technique defining its own.
- Core schema: a JSON Schema that contains reusable, domain independent rules. The core schema defines value types for all possible values that may be used in tabular models.
- Other reusable schemas: Cube, Hierarchy, Manifest, Units, other future extensions

Having the basic rules factored out in a core and other schemas, allows for later extensions without changing each technique specific schema. It ensures consistent writing and querying regardless of whether it's a single contained instrument or a modular stack with multiple detectors, pumps, or anything else. Motivation of the modular pattern is to drive consistent data structures across techniques, enabling data from different models to work seamlessly together.

ADM/ASM Updates

The Allotrope Data Models and Allotrope Simple Model suite release is available on:

- Client Connect: [here](#)
- GitLab: <https://gitlab.com/allotrope/adm/-/tree/master/>
- JFrog Artifactory: <https://allotrope.jfrog.io/ui/repos/tree/General/ADM-release-public>

The latest Tabular Model Template in Excel is available for download on GitLab: <https://gitlab.com/allotrope/adm/-/tree/develop/purl/template> or Client Connect: [here](#)

ASM and ADM Model Updates

Here is the list of the new set of ADMs and ASMs released this quarter.*

ASM/ADM Model	Type	Maturity	Path
dPCR (Digital PCR)	Tabular	REC	REC
Solution Analyzer	Tabular	REC	REC

* To find out how to access the related model's artifacts on GitLab:

<https://gitlab.com/allotrope/adm/-/wikis/Summary-Table-of-the-Governed-ADM-and-ASM-Techniques-Artifacts>

Here is the list of the updated set of ADMs (SHACL) released this quarter. (The update of the related set of ASMs was released during the third quarter)*

ADM (SHACL) Model	Type	Maturity	Path
Cell Counting	Tabular	REC	REC (Update)
qPCR	Tabular	REC	REC (Update)
Walkup LC/MS	Tabular	REC	CR to REC
Liquid Chromatography	Tabular	REC	REC (Update)
Gas Chromatography	Tabular	REC	REC (Update)
FPLC	Tabular	REC	REC (Update)
Fluorescence	Tabular	REC	REC (Update)
Luminescence	Tabular	REC	REC (Update)
UV Absorbance	Tabular	REC	REC (Update)
Hot Seal (Hot Tack)	Tabular	REC	REC (Update)
Gloss	Tabular	REC	REC (Update)
Tensile	Tabular	REC	REC (Update)
Foam Height	Tabular	REC	REC (Update)
Foam Qualification	Tabular	REC	REC (Update)

* To find out how to access the related model's artifacts on GitLab:

<https://gitlab.com/allotrope/adm/-/wikis/Summary-Table-of-the-Governed-ADM-and-ASM-Techniques-Artifacts>

ASM Training Materials and Working with the ASM

ASM training material is available on Allotrope public repository at the following locations:

- Brief introduction to ASM: <https://www.allotrope.org/allotrope-simple-model>
- ASM Primer: <https://gitlab.com/allotrope-public/asm-primer/-/wikis/home>
- ASM Jupyter Notebook Demo: <https://gitlab.com/allotrope-public/asm-jupyter-demo> It is a step-by-step example file for working with ASM files in a Jupyter Notebook. It was also tested with Google Colab.

ASM Licensing

The ASM is collectively licensed under three licenses, depending on intended usage and membership status:

- a) If your use is non-commercial (e.g., academic research), the ASM is licensed under the [Creative Commons Attribution-NonCommercial 4.0 International](https://creativecommons.org/licenses/by-nc/4.0/) License (CC-BY-NC 4.0). This license does not permit commercial use but enables modification* of the ASM.



b) If your use is commercial (e.g., to incorporate into or to support a commercial product or service), the ASM is licensed under the [Creative Commons Attribution-NoDerivatives 4.0 International](#) License (CC-BY-ND 4.0). This license permits commercial use, but restricts modifications to maintain the Allotrope standards.

c) Alternatively, if you are a member of the Allotrope Foundation or the Allotrope Foundation Partner Network, the ASM is licensed under the Allotrope Commercial License available to members**. This license allows for commercial use and modification* of the ASM.

*Validation of modifications by Allotrope required to utilize ASM or Allotrope designation.

**<https://www.allotrope.org/membership-and-access-to-framework>

ASM Modeling and Support

ASM related support tickets can be opened at the ADM project (<https://gitlab.com/allotrope/adm/-/issues>).

The latest updated set of ASM models is available on Gitlab. New and updated models will be released in conjunction with the release of new tabular models. Adopters can generate example results of tabularized data based on the JSON ASM format.

In cases where there is no tabular model for a chosen instrumentation type or technique, the product team is available to support the drafting of a new tabular model and the Modeling Working Group is ready to review and govern drafted models.

Allotrope Data Format (ADF):

ADF Library Version 1.5.6

As a further commitment to supporting and maintaining the ADF Library, the Product Team together with the HDF Group support team is working on library improvements toward the next ADF Library release version 1.5.6.

The ADF Library version 1.5.6 is targeted to be released next quarter. The planned improvements, progress, and resolutions for version 1.5.6 release can be viewed at the project milestone: <https://gitlab.com/allotrope/adf/-/milestones/14#tab-issues>

The HDF Group is evaluating the effort of upgrading the ADF Library with the latest maintenance release of the HDF5 library 1.14.3 (<https://www.hdfgroup.org/2023/10/release-of-hdf5-1-14-3-library-and-tools-newsletter-199/>)

We would like to thank Aleksandar Jelenak from the HDF Group engineering team for his dedication and support of the ADF Library.

General ADF Library Information

Latest ADF Library version 1.5.5RF is available for download via:



- Client Connect: [here](#)
- JFrog Artifactory:
 - Java Library: <https://allotrope.jfrog.io/ui/repos/tree/Properties/libs-release-internal>
 - C# Library: <https://allotrope.jfrog.io/ui/repos/tree/Properties/libs-release-internal-net>

Support tickets:

Support tickets can be viewed and opened at the ADF repo ([here](#)). Please select the “new bug” template to describe the issue and attach any supporting artifact.

Tooling, Testing, QA and Automation Pipeline

New PURL Server

Due to an end-of-life cycle, a new production PURL Server (<http://purl.allotrope.org>) was set up on the AWS cloud. It is running on an updated version of Amazon Linux. A PURL server smoke testing procedure was added and is available under the AFO wiki page at: <https://gitlab.com/allotrope/afo/-/wikis/Server-smoke-test>. To enhance PURL stability, a setting script for Log file retention limits through the logrotate Linux function was added.

Updates to the AFO and ADM Pipeline and Tools

Further enhancement on the ASM QA automation by validating the structure of the JSON manifest files against the manifest schema located in the core ADM directory as well as validating the “shapes” entries against the file system. <https://gitlab.com/allotrope-open-source/allotrope-devops/-/issues/236>

Automatic generation of the AFO Dictionary and deployment to JFrog

Further enhancement to the AFO CI pipeline with an auto generation of the AFO Dictionary in both .CSV and .XLSX file format, as well as auto deployment to JFrog artifactory. Access to the AFO Dictionary is public. <https://gitlab.com/allotrope/afo/-/issues/994>

Update to the AFO Pipeline with the Newest Version of Fuseki Tools

We are working on further enhancement to the AFO CI pipeline with newest version of Fuseki tools v3.0.0. It makes it future-proof and speeds it up. It permanently solves problems with failing calls to *libcurl* on some systems. <https://gitlab.com/allotrope-open-source/allotrope-devops/-/issues/241>

We would like to thank Karin Colman from the OSTHUS engineering team for her dedication and commitment to improve the overall tooling, testing, QA and automation pipeline.

Working Group Updates



Please note that the working groups meetings are recorded to improve access and transparency for those unable to attend or for the folks that are just interested in what's going on. To sign up for any working group, go to: www.allotrope.org/working-groups

Modeling: (Notes: [here](#))

The working group developed models that allow multimode detection in a single run, in particular the use of Plate Readers instrument type and Solution Analyzer instrument type.

- New dPCR - Digital PCR model was released (initiated by Benchling)
- New Solution Analyzer model was released: It is a model that allows multimode detection in a single run for several instrument types such as: Blood Gas Analyzer, pH, Metabolite Analyzer, Osmolality, Cell Counter, and Absorbance
- Some of the future models expected to be developed include:
 - Capillary Electrophoresis (initiated by Merck)
 - Multi-angle light scattering – MALS (initiated by Merck)
 - Liquid handlers (initiated by Benchling)
 - NMR
 - Imaging/Microscopy

Plate Reader:

The Plate Reader WG that was formed early in the 3rd quarter and meets weekly.

- The Plate Reader tabular models were updated to align with a modular structure across techniques. It allows multimode detection in a single run for several Plate Reader techniques such as: Absorbance, Luminescence, and Fluorescence.
- The team vetted the design of Calculated Data Document along with Modeling Working Group. It was introduced in the Hierarchy Schema during Q3 release.
- A Well Plate Identifier to enable associating data with specific plate was established as well as alignment on Sample Group Identifier, Acquisition Mode and Plate Definition
- Additional detection and acquisition modes and set backlog for inclusion were discussed.
- Planned for next quarter the work on Kinetic Data Cube (sample data is available on Client Connect [here](#))

Chromatography: (Notes: [here](#))

- The Chromatography Working Group is working on the development of a new Chromatography Column model. The work extends the current Chromatography Column model in the general LC model.
- The team is reviewing an existing third-party Column database.
- The group discussed the accommodation of UV detectors information.
- GC, LC, and FPLC tabular models were updated in the 3rd quarter to align with a modular structure across techniques.

MS: (Notes: [here](#))

We would like to thank Graham McGibbon (ACD/Labs) for stepping forward and continuing to lead the MS working group.

- Quantitation MS tabular model in progress. It is the quantitation of compounds (with generic reusable structure where possible) using MS.
- Future work may include the development of a new Tubular model (ASM/ADM) for Purity.
- The team is looking for getting more MS data and reports to further develop related models of interest (MS quantitation, Proteomics (e.g., peptide mapping), and other MS analyses)

Allotrope in the News

For the latest list of “Allotrope in the News”, please visit our website at:

<https://www.allotrope.org/allotrope-in-the-news>

5 changes underway for R&D IT shifting to biologics

[Lab Manager](#) an online publication focused on aspects of running a lab, posted on November 2023 an article that discusses the elements necessary for integrations lab systems. It mentions focused on all aspects of running a lab. It mentions the Allotrope Foundation as pharmaceutical companies' initiative that may provide some direction.

- The article is available at: <https://www.labmanager.com/five-necessary-elements-for-integrating-lab-systems-where-we-are-vs-where-we-need-to-be-15941>

Five Necessary Elements for Integrating Lab Systems

[Benchling](#) posted a blog on December 2023, that discusses how bringing biologics from the lab to patients requires more complex data, and greater need for collaboration across specializations. It requires R&D IT to evolve the systems and processes of the lab.

The blog mentions the publicly available data standards for lab instruments using the Allotrope Simple Model (ASM), as well as the recent Benchling launched of Connect, which automates instrument data capture and management using a unique open-source approach, mapping all instrument output to the ASM, and making the converter codes open source and freely available on [GitHub](#).

- The blog is available at: <https://www.benchling.com/blog/changes-underway-it-shifting-to-biologics>

Industrial internet of things: What does it mean for the bioprocess industries?

[Biochemical Engineering Journal](#) published on October 2023 a paper that analyzes the role and status of Industrial Internet of Things (IIoT) in the bioprocess industries. The paper mentions the Allotrope Foundation as a platform that offers a standardized framework to obtain uniform data and minimize data loss, as well as facilitate connectivity.

- The paper is available at: <https://www.sciencedirect.com/science/article/pii/S1369703X23003170>

Lab AI: Instrument Integration

Published on [Medium](#) on October 2023, the article investigates a way to capture serial lab device data directly into a browser web page. It also suggests converting the data to a standard Allotrope ASM JSON format for easy digital lab exchange of information. Part 2 of the article describes one possible end-to-end solution to create an Allotrope ASM JSON data object for a simple lab weighing task.

- The article is available at: <https://medium.com/@colin.rebello/lab-ai-instrument-integration-78c0b4047ff4>
- Part 2 of the article is available at: <https://medium.com/@colin.rebello/lab-ai-instrument-integration-2-ee62fae5fa98>
- Part 2 of the article is also available on [LinkedIn](#).

Benchling Connect: Tackling Lab Instrument Connectivity and Data Management with New Open Standards

SAN FRANCISCO, Sept. 19, 2023 /PRNewswire/. Benchling unveiled its new platform for lab instrument connectivity and data management, Benchling Connect. With Connect, Benchling confronts industry-wide challenges with proliferation of proprietary instrument data models and vendor lock-in by mapping all instrument output to the Allotrope Simple Model (ASM), and making the converter codes open source and freely available on GitHub.

- The press release is available at: <https://www.prnewswire.com/news-releases/introducing-benchling-connect-tackling-lab-instrument-connectivity-and-data-management-with-new-open-standards-and-a-flexible-platform-301931715.html>
- Benchling's blog: <https://www.benchling.com/blog/benchling-connect>
- "allotropy", open source, Python library repository on GitHub: <https://github.com/Benchling-Open-Source/allotropy>
- LinkedIn post: https://www.linkedin.com/posts/benchling_benchlingconnect-github-benchlingconnect-activity-7109907679673790468-bGoC
- Product Brief on the data conversion to ASM: [here](#)

GSK and Pistoia Alliance announce laboratory tech to improve reproducibility

Manufacturing Chemist (<https://www.manufacturingchemist.com>) an online publication platform published on September 2023 an article that describes the Pistoia Alliance collaborative Methods Hub project, a digital tool that enables the instant transfer and overlaying of analytical methods. The alliance collaborated with Allotrope Foundation, using the Allotrope Framework technology stack to ensure interoperability.

The article is available at:

https://www.manufacturingchemist.com/news/article_page/GSK_and_Pistoia_Alliance_announce_laboratory_tech_to_improve_reproducibility/211308



Allotrope Foundation Releases a Vendor Agnostic and an Industry Interoperable Data Model for Laboratory Walk-up Liquid Chromatography/Mass Spectrometry Instrumentation

WASHINGTON (PRNewswire-PRWeb) Sept. 07, 2023. Developed by members of the Allotrope scientific community, the Walk-up Liquid Chromatography/Mass Spectrometry model leverages Allotrope's Simple Model technology to enable easy integration with downstream analytical applications as well as the collection and conversion of scientific information from a broad range of laboratory instruments into a unified human-readable FAIR data format.

The press release is available at: <https://www.prweb.com/releases/allotrope-foundation-releases-a-vendor-agnostic-and-an-industry-interoperable-data-model-for-laboratory-walk-up-liquid-chromatographymass-spectrometry-instrumentation-301921447.html>

Introduction to Pharmaceutical Data Items and Their Structure

Astrix (<https://astrixinc.com/>), a company dedicated digital transformation, published on September 2023, an article that discusses the structuring of data used in pharmaceutical reporting and the motivation in reduction of errors in Chemistry, Manufacturing, and Controls (CMC) reporting. It mentions the Allotrope Foundation work to standardize ontologies.

The article is available at: <https://astrixinc.com/introduction-to-pharmaceutical-data-items-and-their-structure/>

Agilent's Environmental, Social, and Governance (ESG) Report: Pursuing ESG objectives while advancing sustainability for our customers

Agilent (<https://www.agilent.com/>) published on July 2023 its 2022 Environmental, Social, and Governance (ESG) Report: Pursuing ESG objectives while advancing sustainability for our customers. It names Allotrope Foundation as one of the industry groups it collaborates to advance innovation

The report can be downloaded at: <https://www.agilent.com/about/esg/en/2022-agilent-esg-report.pdf>

Creating Data in Allotrope® Simple Model (ASM) at scale

TetraScience, a member of the Allotrope Partner Network (APN) has published a [fact sheet](#) describing how their JSON-based Intermediate Data Schema (IDS) can be used to transform your data into the ASM.

6 Key Areas for the Laboratory of the Future - The Evolution of Laboratories

LABOR PRAXIS (Laboratory Practice <https://www.laborpraxis.vogel.de/>) an online German specialist medium for laboratories and analytics, published on July 2023, a guest article that points to six key areas for the laboratory of the future. It mentions Allotrope Foundation as one of the digital standards to improve communication by exchanging homogenized data.

The article can be translated by the web browser and is available at:

<https://www.laborpraxis.vogel.de/labor-der-zukunft-6-schluesselbereiche-a-5defc484bba04df74fdc93bc0d9efcd8/>

Ontology extension with NLP-based concept extraction for domain experts in catalytic sciences

SpringerLink (<https://link.springer.com/>) an online publication of Springer Nature, published on July 2023 an article that presents a processing workflow for automatic ontology extension with NLP-based concept extraction for domain experts in catalytic sciences. The method was exercised using the Allotrope Foundation Ontology (AFO). It was developed at the Laboratory of Equipment Design, Faculty of Biochemical and Chemical Engineering, TU-Dortmund University, in Germany. (<https://www.ad.bci.tu-dortmund.de/cms/en/laboratory/>)

The article is available at: <https://link.springer.com/article/10.1007/s10115-023-01919-1>

Improving protein therapeutic development through cloud-based data integration

SLAS Technology (<https://slas-technology.org/>), an online journal covering topics that reveal how scientists adapt technological advancements for life sciences exploration and experimentation in biomedical research and development, published on July 2023 an article that presents how automated cloud-based data capture and processing are key for pharmaceutical digital evolution. The article presents an implementation with qPCR methods. It mentions the Allotrope Foundation ontologies and format as an optional standard for the instrument data.

The article is available at: [https://slas-technology.org/article/S2472-6303\(23\)00046-8/fulltext](https://slas-technology.org/article/S2472-6303(23)00046-8/fulltext)

Don't hold back lab digital transformation

Pharmaphorum (<https://pharmaphorum.com/>), an online healthcare and pharmaceutical industry news site, published on July 2023 a discussion with Mike Tarselli, the chief scientific and knowledge officer at TetraScience, that analyzes why so many labs are behind the times, and what can be done to bring them up to speed. The discussion mentions the work toward data interoperability done by Allotrope.

The article is available at: <https://pharmaphorum.com/digital/dont-hold-back-lab-digital-transformation>

Projects within the Allotrope Community

Instrument Data Converters to ASM (Open Source)

- [Benchling](#) unveiled its new platform for lab instrument connectivity and data management, Benchling Connect. With Connect, Benchling confronts industry-wide challenges with proliferation of proprietary instrument data models and vendor lock-in by mapping all instrument output to

the Allotrope Simple Model (ASM), and making the converter codes open source and freely available on GitHub.

- Benchling's blog: <https://www.benchling.com/blog/benchling-connect>
- "allotropy", open source, Python library repository on GitHub: <https://github.com/Benchling-Open-Source/allotropy>
- [IFP Energies Nouvelles](#) (IFPEN), a French public research, innovation and training organization in the fields of energy, transport and the environment is developing a set of open-source converters to several ASM models and several instrument. The project is managed and developed by Maxime Visconte, Industrial and lab IT manager at IFPEN.
 - More information can be found on IFPEN's GitHub repository: <https://github.com/ifpen>
 - A set of utilities, shared between all the ASM converters were pushed to the Maven central repository: <https://central.sonatype.com/artifact/fr.ifpen.allotropeconverters/ASMUtils/1.0>
 - A presentation of this project is available on our YouTube channel: [here](#)

Allotrope Publications

We have published 2-page summaries:

- **Allotrope Models & Domains:** can be downloaded from [here](#)
- **Allotrope Data Strategies:** can be downloaded from [here](#)

A step-by-step guide to a Tabular Model creation using Excel was written by the Product Team:

- **Tabular Model Creation with Excel:** is available for download from Client Connect within the Modeling WG folder: [here](#)

AF Community and Events

Fall 2023 Allotrope Connect

This quarter we had a very informative and productive three days of meetings at the 2023 Fall Allotrope Connect Workshop in San Francisco. During the event we had many presentations and discussions covering the following subjects:

- Welcome and short introduction (Corey Bakalarski, Allotrope Foundation)
- Benchling welcoming address: "State of Tech in Biopharma", 2023 Report (Ashu Singhal, Benchling)



- ASM at Scale Implementation – A Merck Update (Wes Schafer, Merck)
- Facilitating ASM transformation, search, access, and usage via the Tetra Data Platform (Trevor Kent, TetraScience)
- Bio-Rad roundtable discussion: "Modern Laboratory Workflow: Instrument Connectivity and Data Management in the Cloud" (Kashef Qaadri, Bio-Rad)
- Building digital documentary standards with Allotrope methodology (Jeff Shick, USP)
- Empowering Mass Spectrometry Through ZONTAL: Harnessing Allotrope Technologies for Vendor Agnostic Data Visualization and Drill Downs (Dr. Dennis Della Corte and Spencer Gardiner, Zontal)
- Utilizing Allotrope models as an instrument data capture standard for data liquidity (Benson Lee, Ganymede)
- The power of an open source approach to data standardization and lab connectivity (Chris Severs and Joe Negri, Benchling)
- Modeling Working Group Readout (Wes Schafer, Modeling WG)
- Plate Reader Working Group Readout (Joe Negri, Plate Reader WG)
- Chromatography Working Group Readout (Tim Leer, Chromatography WG)
- Mass Spectrometry Working Group Readout (Sarah Robinson, Mass Spectrometry WG)
- Allotrope Business Model 3.0 (Allotrope Foundation)
- Allotrope Marketing Communications Strategy (Allotrope Foundation)
- "ASM for Flow Cytometry" Discussion/Workshop (Benson Lee, Ganymede. Additional SME: Shivani Ludwig, TetraScience)
- ASM converter development - Lessons Learned so far (Wes Schafer, Merck)
- USP discussion session: "Building a digital documentary standards with Allotrope methodology, process and tools" (Jeff Shick, USP)
- Benchling discussion session: "ASM for Method" (Joe Negri, Benchling)

The presentation playlist of the public day of the 2023 Fall Allotrope Connect Workshop is available on the Allotrope YouTube channel: [here](#)

A copy of the final agenda including the presentation abstract and the speaker's bio is available: [here](#)

Allotrope Data Framework Onboarding Guide

The Allotrope Onboarding Guide wiki page was updated. Please refer to the following link: [Allotrope Data Framework Onboarding Guide](#)

Allotrope YouTube Channel

Our YouTube channel has new a handle: <https://www.youtube.com/@allotropefoundation>. The Allotrope YouTube Channel hosts a technical playlist as well as the Allotrope Connect public presentations from 2017 and 2020 to the latest 2023 Fall Connect event. The YouTube Channel videos are organized by playlists at: <https://www.youtube.com/@allotropefoundation/playlists>.



Community Website

A reminder that the Allotrope Foundation Community website is an effort to improve and centralize the non-public knowledge and communication with the community. The GitLab-hosted website can be accessed <http://community.allotrope.org>. Note this requires GitLab access.

Some of the pages to look for:

- Allotrope Foundation Data Models (ADMs):
https://community.allotrope.org/resources/reference/semantic/allotrope_data_models/
The page includes information about the structure of ADM repository under the section “ADMs artifacts repository”
- ADF Application Programming Interface (API):
<https://community.allotrope.org/resources/reference/adf/api/>
- [ADF Specification: https://docs.allotrope.org/](https://docs.allotrope.org/)
- Allotrope Framework Semantic Style Guide:
https://community.allotrope.org/resources/reference/semantic/style_guide/afo_style_guide/
- Allotrope Foundation Data Model and Ontology Governance Process:
https://community.allotrope.org/resources/reference/semantic/governance/afo_adm_governance_process/

If you would like access to GitLab, please fill out our onboarding questionnaire, [here](#) – It’s a Google Form. If your firewall denies access to Google drive links, please contact amnon.ptashek@allotrope.org.

Looking Forward

The Allotrope Product Team is looking forward to another productive year of 2024. We are looking to develop additional improvements to meet the evolving needs of our community.

Please contact us for any questions at product_team@allotrope.org.

Sincerely,

Allotrope Product Team