PROTEIN METRICS

by Dotmatics

Unearth the real value of your complex biopharma analytical data

through a powerful enterprise software platform

Overview

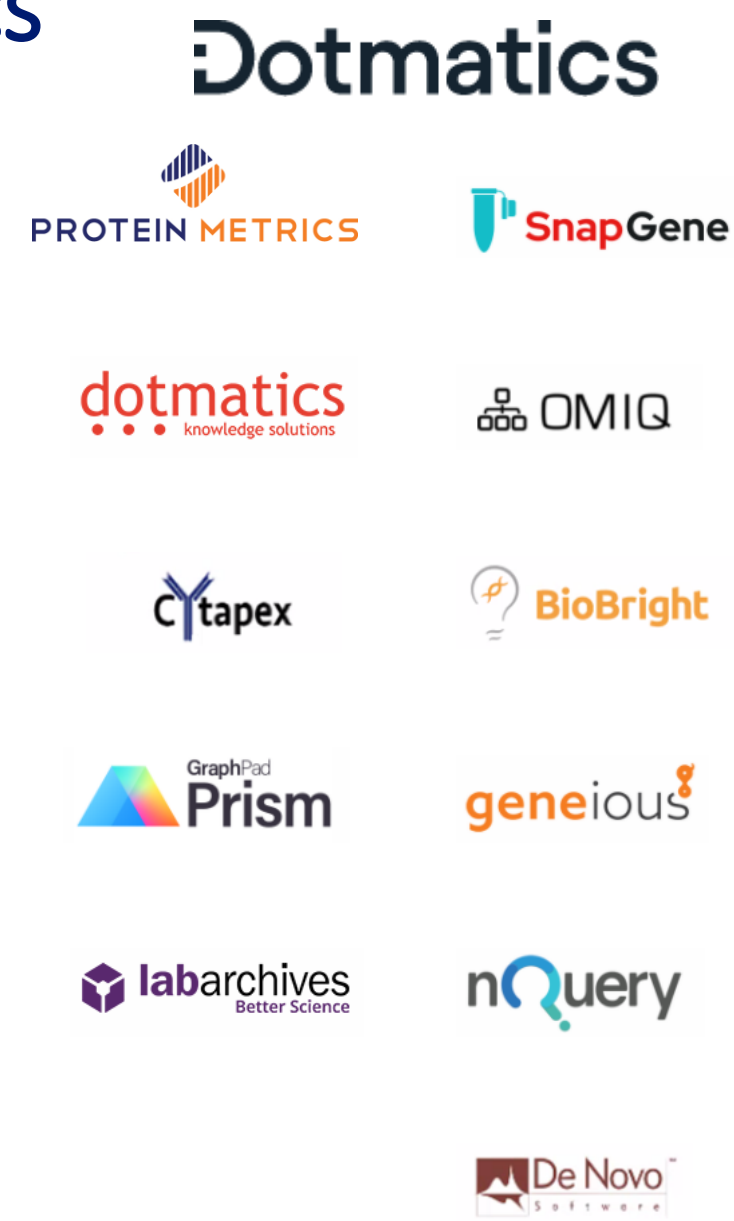
- Protein Metrics - Who we are?
- Byos® and Byosphere®
- Dashboards powered by Deep Query 

- Intact Web Analysis 

- Biophysical Data in Byosphere

Protein Metrics is part of Dotmatics

- Protein Metrics is part of the Dotmatics group
- Other organizations Graphpad, Cytapex, SnapGene, Geneious and multiple others.
- Protein Metrics and the other groups will work towards integrations for common customers



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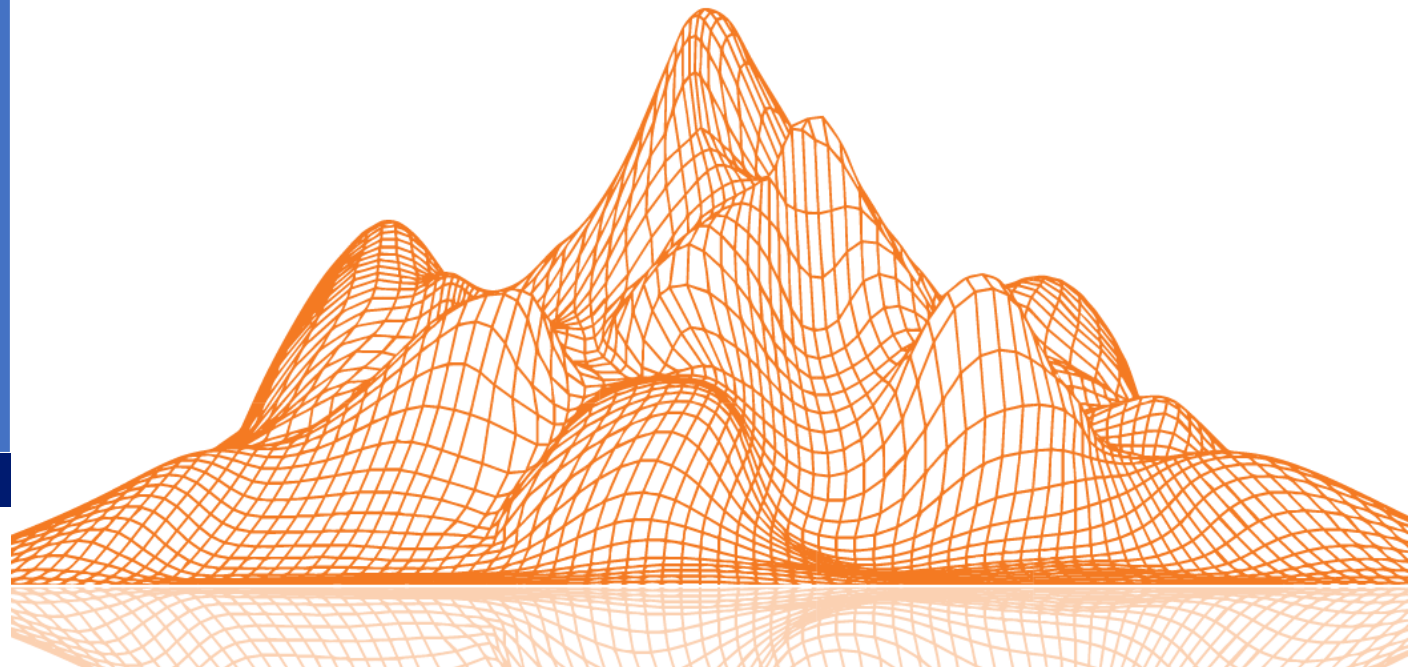
Protein Metrics Software for Protein Characterization

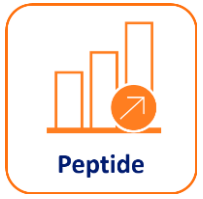
Intuitive user experience with superior reporting	Vendor neutral (takes raw data from all vendors)	Push-button analysis workflow execution	Supporting characterization across development	Used globally in over 200 biopharma companies



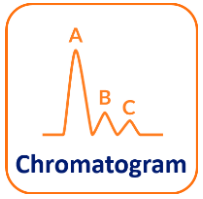
Protein Metrics products are covered by one or more U.S. patents and pending patents. Visit www.proteinmetrics.com/patents/ for more information.

Byos and Byosphere Workflow Categories

- Ligand binding
- Protein-protein interaction
- Protein and subunit ID
- Glyco-profiling
- ADC and DAR analysis
- Charge Variants by iCIEF-MS & CE-MS



- Hotspot analysis
- Peptide mapping
- PTM analysis
- HCP analysis
- Sequence variant analysis
- Epitope mapping
- HDX workflows



- MAM workflows
- CE-UV data; SEC-UV, LC-UV & other chromatographic workflows
- Import of 2D trace data

- Oligonucleotide workflows
- Impurities and clips
- Sequence confirmation for known oligos

- Hands-free, automated sequencing of purified mAbs

- O-linked & N-linked Released glycans – +ve & -ve modes
- Automated processing of fluorescently tagged glycans
- pre-prepared libraries

- HDX and FPOP workflows
- Epitope mapping, paratope mapping, other higher order structure work
- representation in .pdb format

- Workflows for Mobie
- Released Glycan, Intact and Peptide mapping workflows

- Intabio icIEF workflows
- Representation on a pI axis with deconvolution

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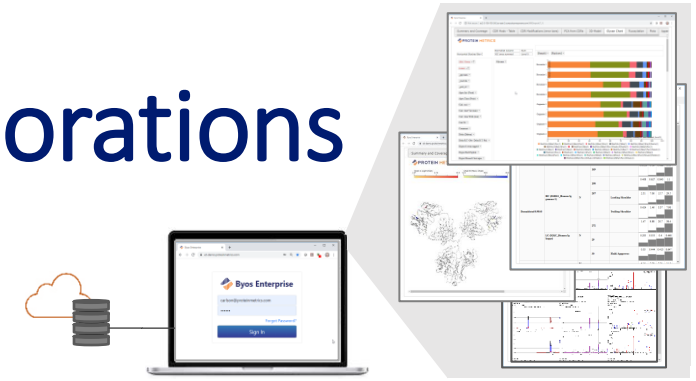
Building knowledge and supporting collaborations



BYOSPHERE

Enterprise Platform

Raw Data

Analysis & Inspection

Enterprise Reporting

Deep Querying & Analytics

0010
1100
0111

BYOS

Desktop product

AVAILABLE NOW

New Release –

Byosphere 5.0

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How Byosphere enables Digital Transformation

Knowledge

Data

- Innovate. Deliver. Collaborate. Scale.
- Collaborate across teams to leverage data and results
- Scalability with Globally Connected Cloud-deployment
- Connect other data/metadata – convert to insights
- Increase instrument and data ROI
- Software to adapt to complex discovery pathways and QC scenarios
- Automate data processing

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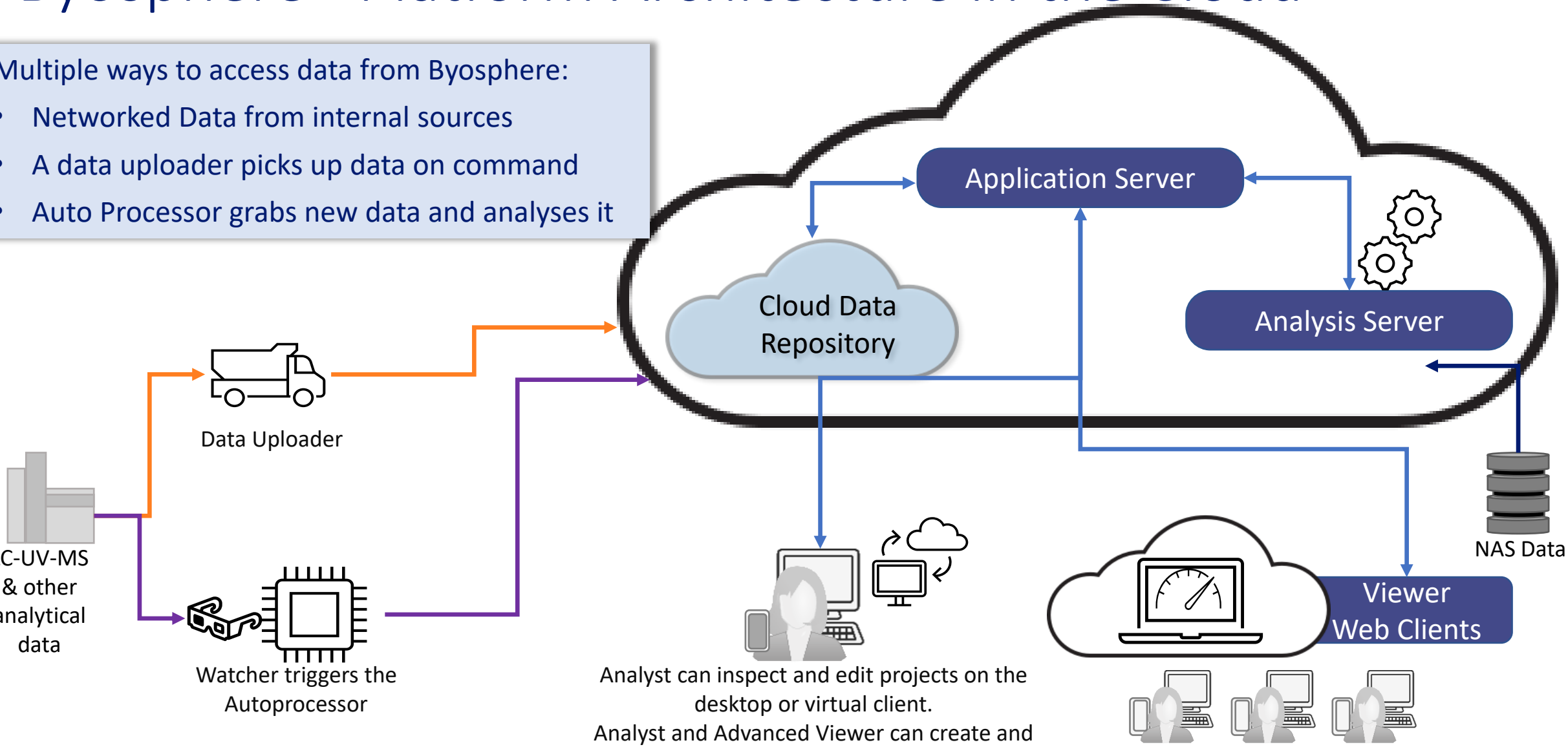
Byosphere® Platform Architecture in the Cloud

Multiple ways to access data from Byosphere:

- Networked Data from internal sources
- A data uploader picks up data on command
- Auto Processor grabs new data and analyses it



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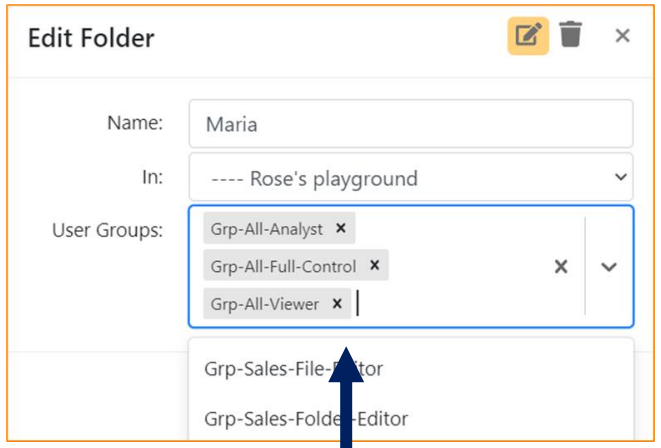
Byosphere® GxP capability for CMC / 21 CFR11/ …



Quality Management System (QMS)

Versioning and secure storage

Signatures and Sign-off

Audit Trail

User permissions/ Folder restrictions

GxP in Byosphere®

File Name	Changed By	Changed On	Change	Comment	Signature State
Waters mAb Demo.ntms	Maria Basanta-Sanchez	2021-01-14 19:43:03	Analysis		

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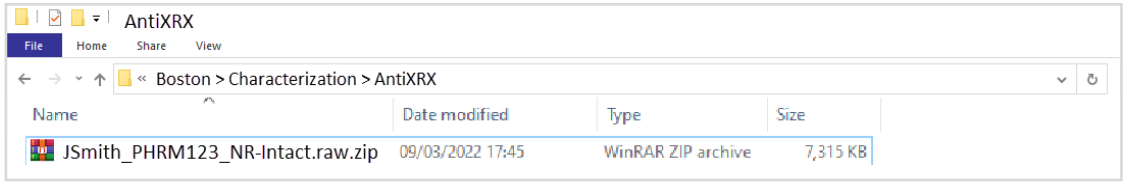
Metadata captures multiple dimensions of information

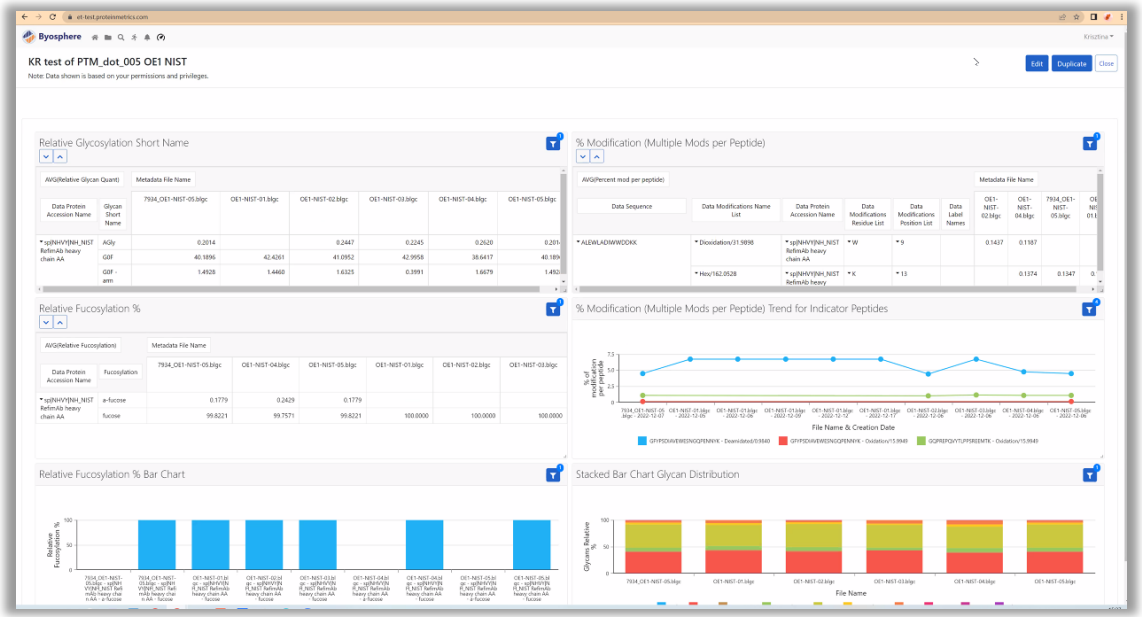
Multiple Dimensions of Data + Metadata

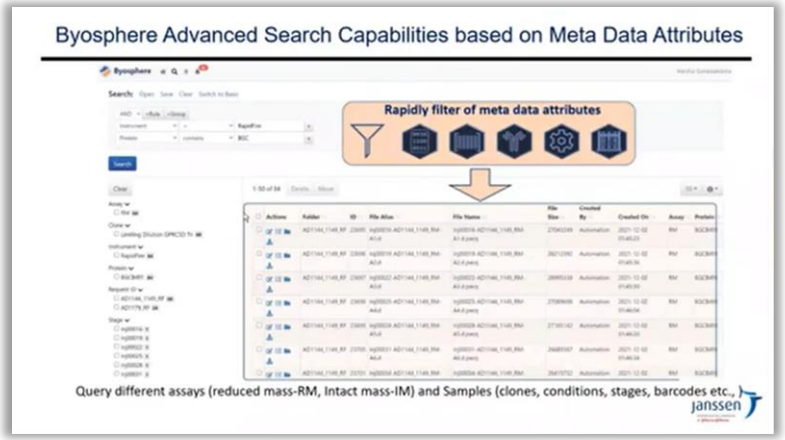


Boston/Characterization/AntiXRX/JSmith_PHRM123_NR-Intact

Location/Assay/Project/Analyst_Molecule_workflow

Boston/Characterization/AntiXRX/JSmith_PHRM123_NR-Intact





See also Bioprocessing Presentation by Janssen
https://proteinmetrics.com/2022-bioprocessing-summit-autonomous-pipeline-for-characterizing-biotherapeutics/

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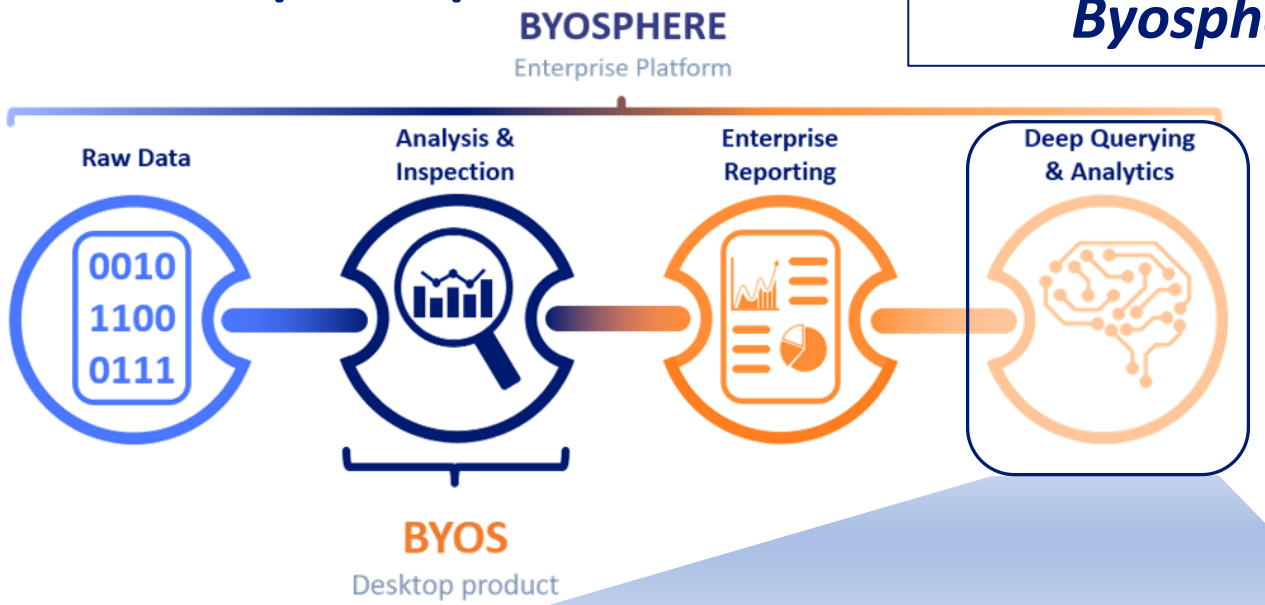
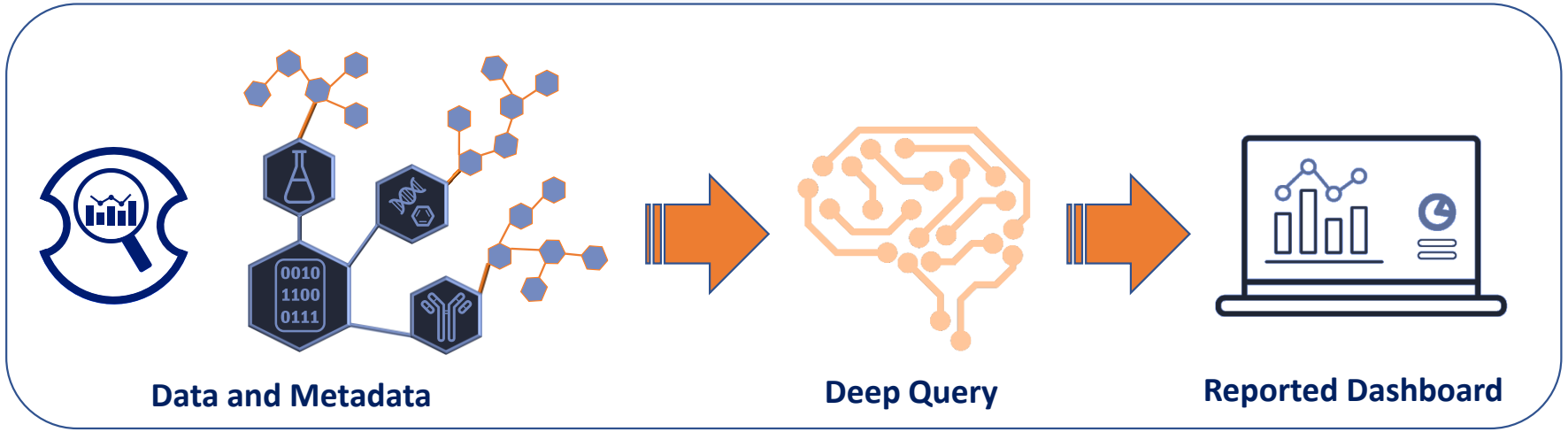
How to answer the deeper questions?

New Release –
Byosphere 5.0

NEW



Get more insights from complex data



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How to leverage information – Dashboard mechanism in Byosphere®

Enabling the organization

Understand what is happening in your studies, pipeline, laboratories

Information to action

Drill down into what disjunctions there are in a laboratory, a process, or a molecule

Dashboards – use cases at a glance

How to monitor system Suitability by lab managers

CQA monitoring across Labs – can be tracked and investigated by anyone with authorization to view data

Bioprocessing – how efficient bioreactors have been

Integrate into existing Ecosystem

With insights available in seconds, the ability to

- *correct deviant processes,*
- *to improve analytics*

Are clear to people wanting to avoid weeks of cutting and pasting into spreadsheets.

PROTEIN METRICS by Dotmatics

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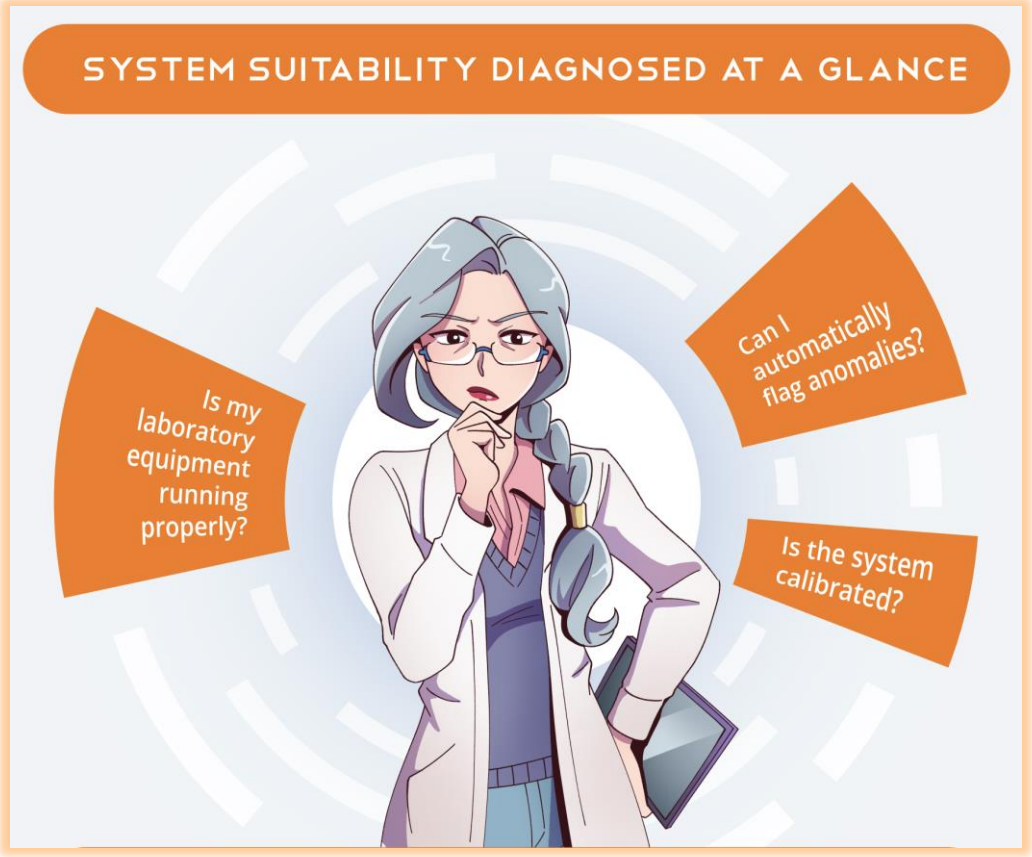
Dashboards – system performance and realibility

How to effortlessly monitor System Suitability?

- Leverage **Automation**
  - ✓ as samples are completed
    - ➢automatically picked up
    - ➢processed
    - ➢results loaded
- Analyst or Lab Manager opens the Dashboard
  - ✓immediately see the latest results compared directly to historical data
- Alerts – flag issues with automated emails!



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System Suitability Dashboards

- Plot Instrument mass accuracy over time/ lab/ …
- Review sensitivity with bellwether peptides
- Assess reproducibility – RT tracking
- Gauge digestion efficiency – e.g., number of missed cleavages.

See also System Suitability Webinar
https://proteinmetrics.com/monitoring-system-suitability-byosphere-dashboards/

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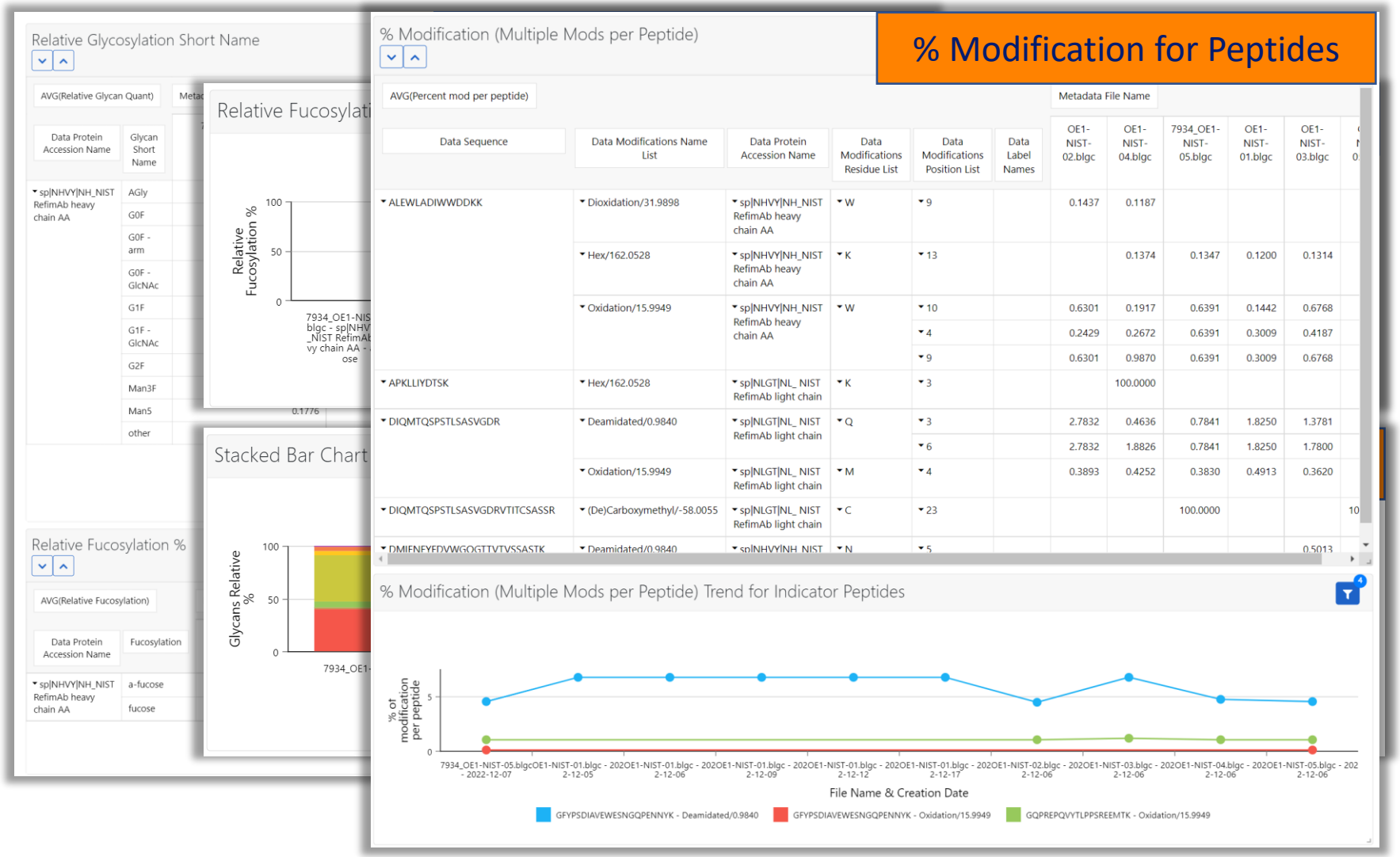
PTM Dashboard Template to adapt to custom projects

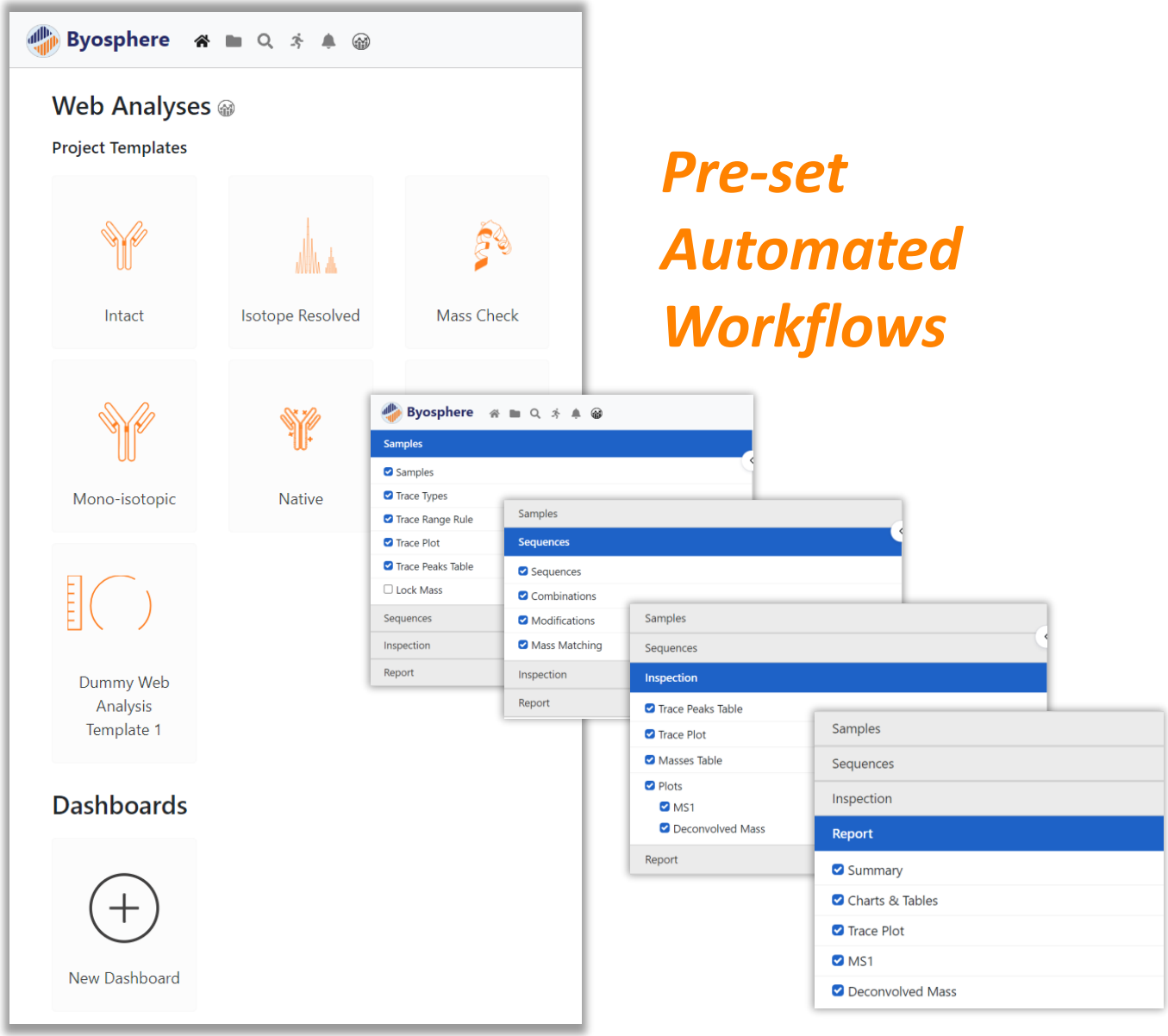
- Critical Quality Attributes monitoring
- To deep query data across the development pipeline
- Dashboards for all data relevant to a molecule or a project
- Pivot Tables and Charts/Plots



Intact Web Analysis – Enabling the future

NEW

- Intact Web analysis performed through web platform
- Starter Templates
  - Intact
  - Isotope-resolved
  - Native
  - Reduced
- Easy to navigate setup – choose what to show within
  - Samples
  - Sequences
  - Inspection
  - Report



Pre-set Automated Workflows

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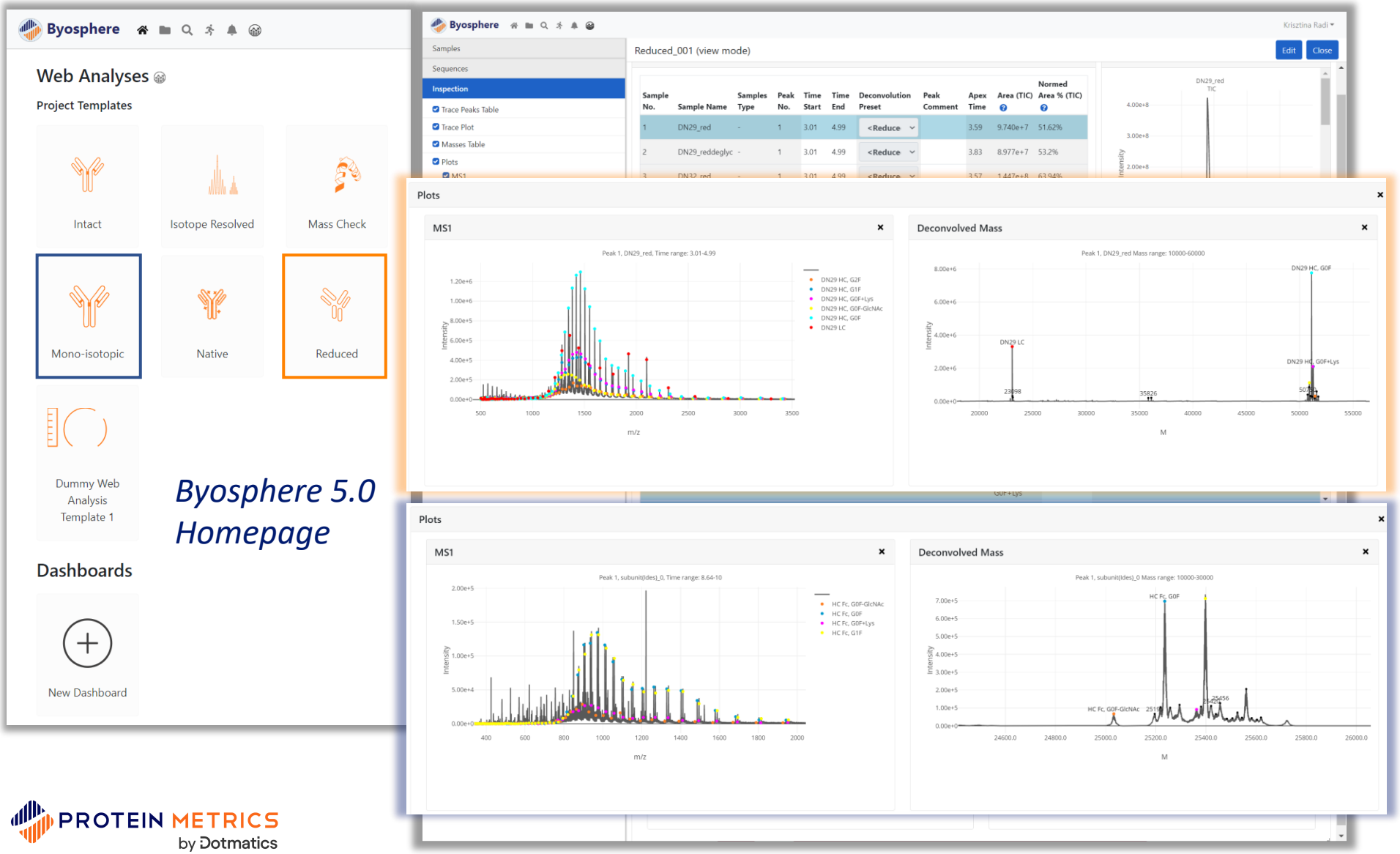
Intact Web Analysis



- Templates help with default settings for analysis type
- Projects are easily shared through weblink
- Anyone with access can view results and reports
- Persistent connection to raw data files – stored in the cloud

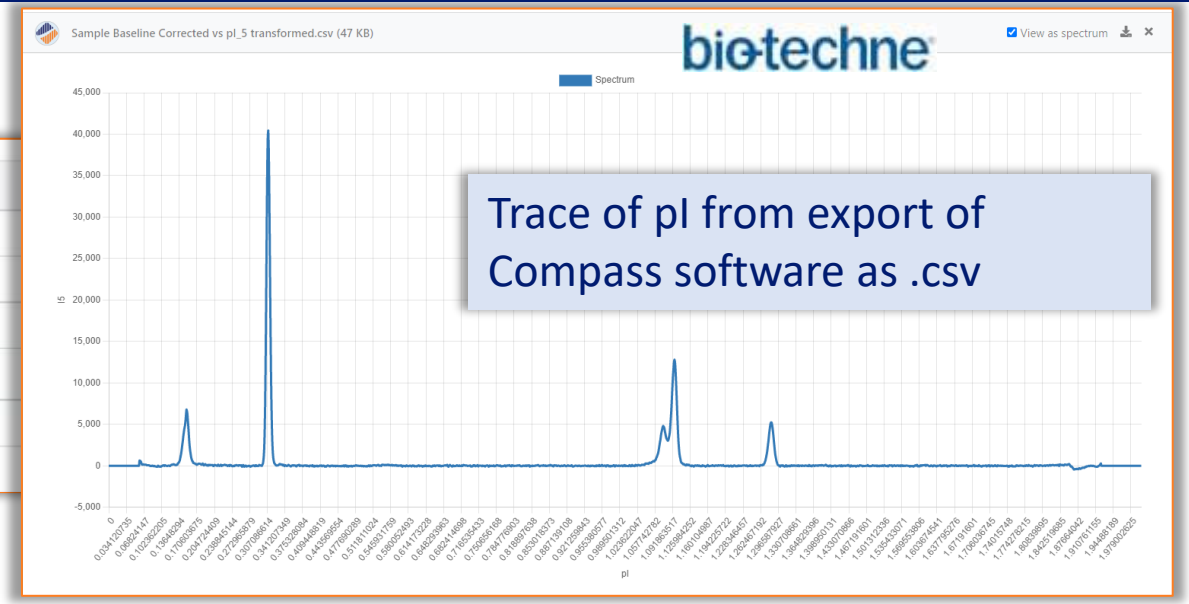
Incorporation of non-Mass Spec data

With Special thanks to Jessica Dermody, Rick le Bold, and Babu Kunnummal at Bio-Techne for the example ProteinSimple data!

Render certain file types directly in the browser:

- **Gel images**
- **Traces from other instruments**
- **Custom rendering for csv**
- **Video and image files**
- **PDF reports**

File Type	File Extension
audio	aac, midi, mp3, ogg, opus, wav, weba
image	bmp, gif, jpeg, jpg, png, svg
json	json
pdf	pdf
text	csv, log, txt
video	mp4, ogv, webm



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Summary

Protein analysis should never be limited by software

Vendor-neutral enterprise software allows users to process complex data from many LC-MS systems

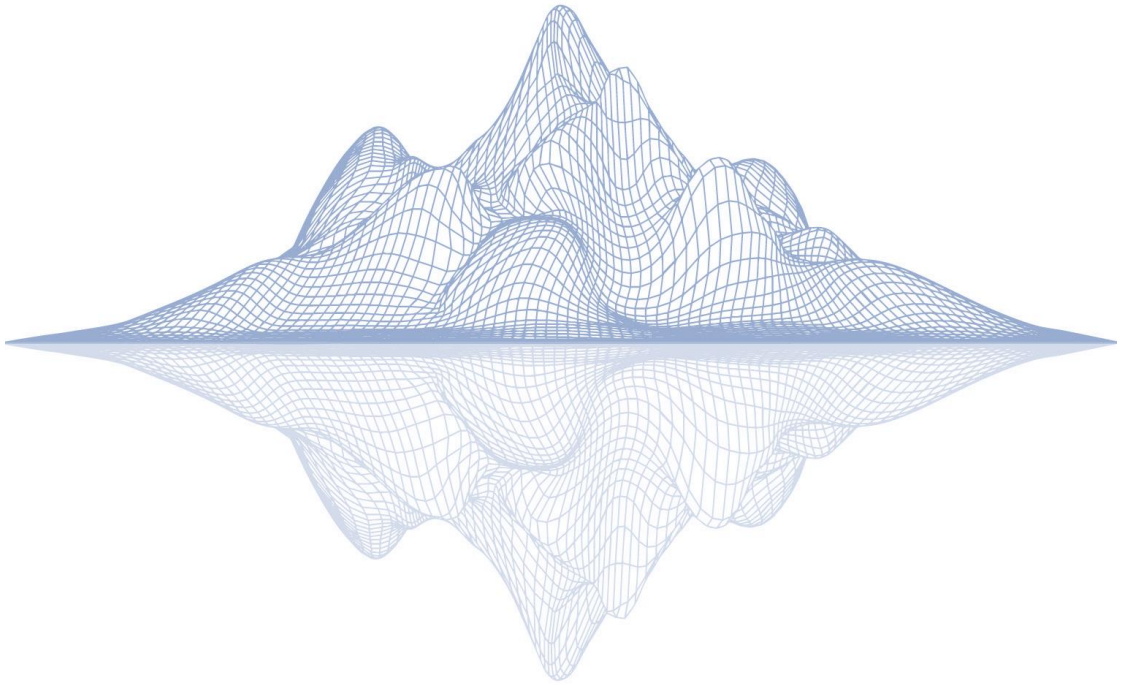
Dashboards offer a rapid overview of the state of studies

Dashboards help organizations make the most of their human and instrument capital and provide an ROI far exceeding the instruments themselves

Native intact web analysis offers a deconvolution software available completely through the web platform

Access to other biophysical data increases the data pool for projects and can be leveraged to gain crucial insights and greater, connected knowledge generation

Visit us at Booth #6



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For more information visit www.proteinmetrics.com

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