



COLLABORATIVE DRUG DISCOVERY

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# CDD Vault FAIR Assay Registration Forms

🚫 **\*\*Problem\*\***

Bioassay Protocols: Unstructured, non-standard language, difficult to digest, compare, or replicate.

Most Databases: Free-text, non-normalised fields → hard to find and understand what has been done previously which leads to data duplication & redundant screens.

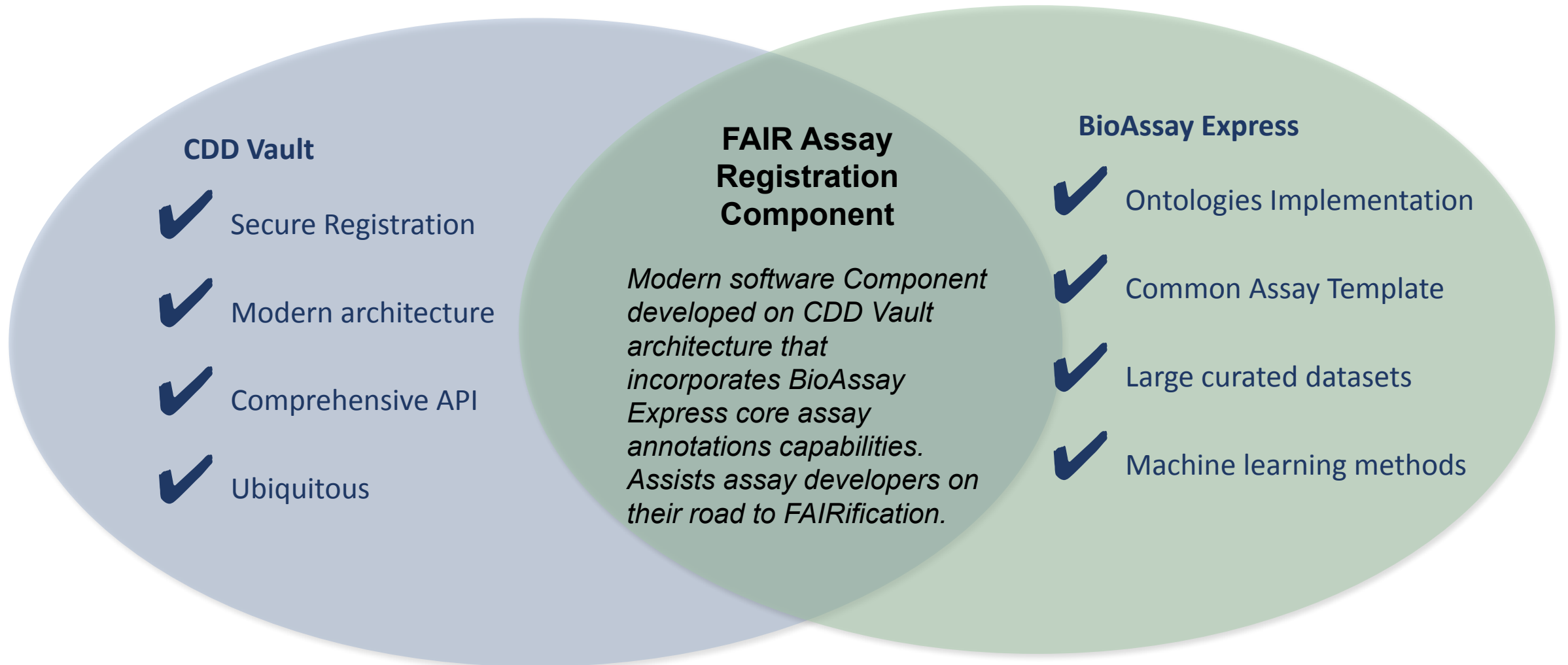
✅ **\*\*Solution\*\***

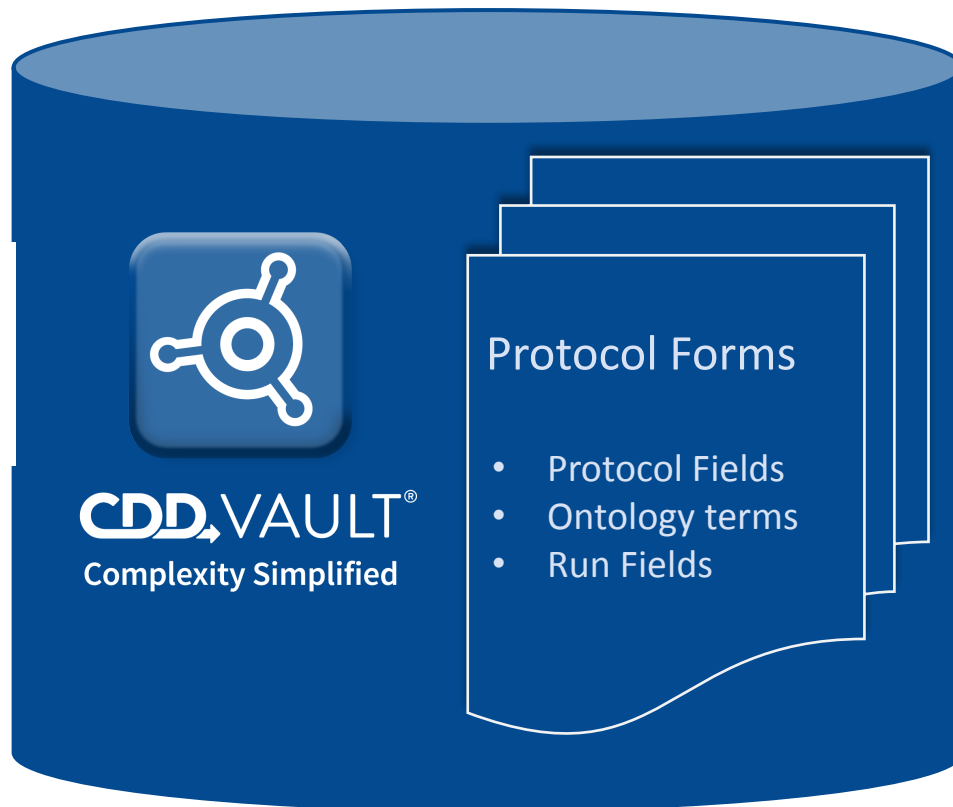
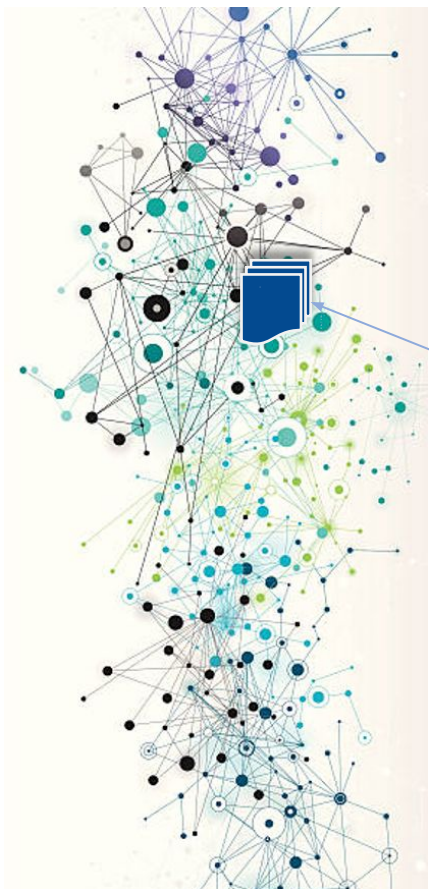
Normalize Text: Align with industry-standard public ontologies → Enhanced data findability & reusability.

Assay Registration System: Essential for FAIR (Findable, Accessible, Interoperable, Reusable) data.



# The Genesis of the Bioassay Registration Component





## Interactive Forms include:

- Assay Fields
  - Vault Admin defined
  - Custom to your organization
- Ontology-based Fields
  - Public Ontologies, including BAO, CELL, GO, Drug Target
  - Fields from Common Assay Template as defined in [www.bioassayexpress.com](http://www.bioassayexpress.com)
- Run Fields
  - Experiment specific
  - May change over time
  - Avoid data duplication across all rows of data (readouts)

**Edit Form: Animal**

Assay Definition    Run Definition

Form Name \*  
Animal

Assay Name \*

Category \*    mouse

SOP

ELN Ref

assay format    Annotation    Free Text

detection instrument    Annotation    Free Text

Text

Assay Fields

Category

SOP

ELN Ref

common assay template

bioassay type

bioassay

assay format

assay design method

assay supporting method

assay cell line

organism

biological process

target

- Easy and intuitive Form creation (drag and drop)
- Share and reuse forms to save time
- Flexibility to add your own custom data fields
- Leverage ontology terms without managing a template
- Create sections and add descriptions using text fields

### Assay definition

- Use Forms to categorize assays
- Avoid freehand naming conventions
- Search each field to quickly filter all assays

### Run Definition

- Capture environment variables
- Record equipment used

### Business rules

- Required/Optional
- Default value
- Lock value
- Customize picklists values for each Form to speed up recording

Run Data **Assay Details** Projects 1 Files 0

### Form selector

Form (select form)

Name \* (select form)

Category Enzyme  
FACS  
Screening  
HTRF  
Radioligand Binding  
Animal  
[Template] common assay template

Form Cell  ... search ontology

Assay Name \* Time Ser  ← Protocol Fields

Category ^ Cell

SOP

bioassay  → Annotation Free Text

assay format  ← Ontology Fields → Annotation Free Text

detection instrument  Annotation Free Text

CANCEL

Readout Definitions [Edit readout definitions](#)

Name	Data Type	Unit	Required	Condition	Description

- Run definitions are always specific to the Assay Form
- Navigate ontologies using the tree structure or simply type in a value and see matching terms

- Select a predefined Form and expedite Assay creation
- Enforce a consistent vocabulary, whilst allowing certain freedoms
- Custom Form validation helps avoid mistakes and ensures the necessary data is captured

Run Data **Assay Details** Projects 1 Files 0

### Create a New Run

Project Assay Development

Run Date \* 2023-07-26

Person Kellan Gregory

Lab

Enzyme Concentration  Lot Number

Search Saved Searches Collections Compounds **Assays** Plates

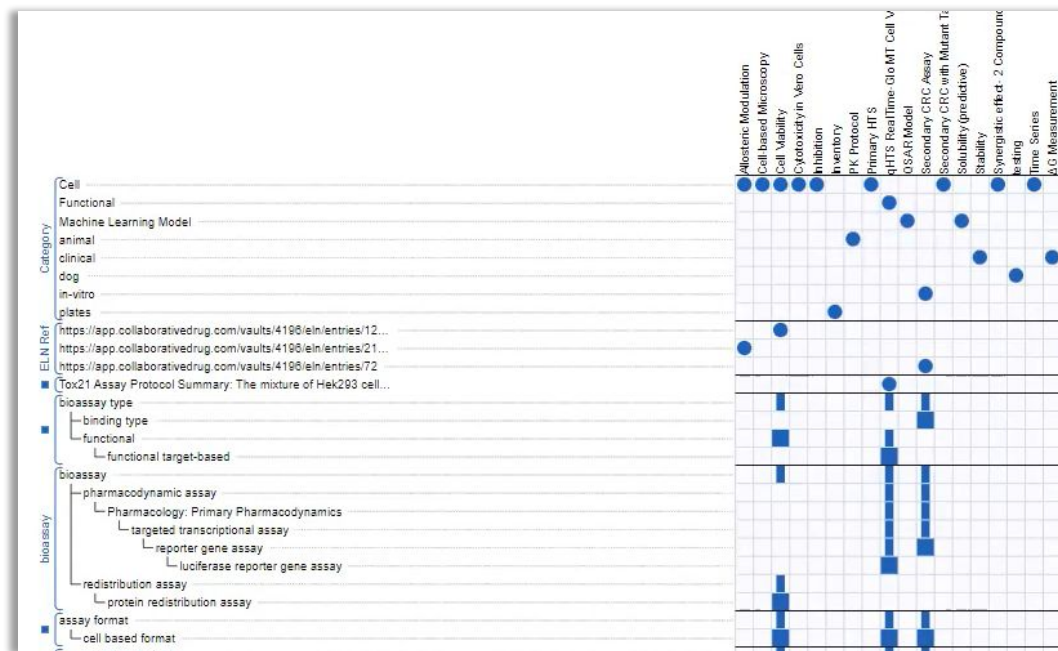
Search (e.g. keyword\*)  Go **Advanced Search Filters**

Filter Layer 1: Category   Case Sensitive  Whole Match

Filter Layer 2: bioassay type

Results Table

Name ↑	Category	SOP	ELN Ref
Cell Viability	Cell		https://app.c



- Easily find previous assays and avoid redundant work
- Straightforward visual comparison of assay definitions
- Ideal for rapid exploration of data for due diligence (M&A)

## Advanced Search Options

- Add layers for each search term
- Custom search options for each field data type (drop-downs, tree selectors, etc)
- Match specific and related ontology terms

## Results Table View

- Quickly scan lists of protocols using a customized set of columns

## Property Grid view

- Fingerprint of each assay
- Easy way to explore and digest assays definitions
- Interactive
- See which assays are precisely documented and which need more annotation

- Semantically rich and normalised assay definitions allows for more meaningful queries. Compare assays and build better models by incorporating more data.
- Harmonized data enables machine access.
- Consistent protocols are easier to integrate with other Platforms and in Data Fabrics.
- CDD Vault's RESTful API enables the easy integration of Assay Forms & Definitions within other systems.





Benefit	Feature
Cost and time saving	Avoid redundant assays, ensure reproducibility, easily find previous data (FAIR)
Efficient Patent/publication	Easy to generate details to support reproducibility
Standardized vocabulary	Easy comparison and collaboration with partners
Consistent query results	Identify patterns in data through human and machine analysis, AI model building
Ease of adoption	Easier than writing a paragraph describing the SOP
API connection with other systems	Interoperability
Annotation with flexibility	Add your own layer of data while integrating with Vault and your natural workflow, combining assay reg with SAR capture

# CDD VAULT<sup>®</sup>

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