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1. Document Description

This document contains the suggested necessary changes to integrate mass spectrometry data into the pancreatic beta-cell (PBC) catalog.

2. Application Domain

The pancreatic beta-cell.

3. Conceptual Design

Integration of Mass spectrometry data model into PBC catalog. Figure#1 is the output of this step. We need to add the following tables:

1) Pride_Project: This table includes the metadata attributes that are specific to the repository.
2) Pride_Project_Mass_Spec_Data: Associate table between Pride_Project and Mass_Spec_Data table.

4. Logical Design

4.1 Cardinality

Pride_Project to Mass_Spec_Data: Many-Many: One pride's project can have multiple mass spectrometry data. One mass spectrometry data file can be shared by multiple pride's projects.

4.2 New Attributes in new tables
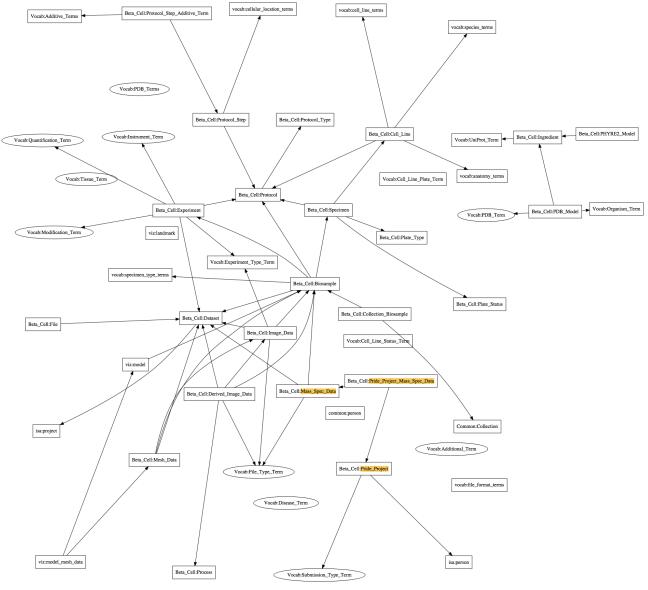
4.2.1 Beta_Cell: Pride_Project Table

Attribute	Type
'RID', 'RCT', 'RMT', 'RCB', 'RMB'	System default columns
Project_Title	String
Project_Description	String
Submission_Type	Controlled Vocabulary parameter
Reason_For_Partial	String
Submitter	Foreign Key

4.2.2 Beta_Cell: Pride_Project_Mass_Spec_Data Table

Attribute	Type
'RID', 'RCT', 'RMT', 'RCB', 'RMB'	System default columns
Pride_Project	String, Foreign Key
Mass_Spec_Data	String, Foreign Key

The Pancreatic Beta-Cell (PBC) Extension

Figure#1: The Updated ER Model

4.3 New Attributes in existing tables

4.3.1 Beta_Cell: Mass_Spec_Data Table

Attribute	Type
File_Type	Controlled Vocabulary parameter
File_Mapping	String
Resubmission_px	String

* We need to delete File_Id column from this table.

4.3.2 Beta_Cell: Experiment Table

Attribute	Type
Experimental_Factor	String
Reanalysis_Px	String
Quantification	Controlled Vocabulary parameter
Modification	Controlled Vocabulary parameter
Instrument	Controlled Vocabulary parameter

4.3.3 Beta_Cell: Biosample

Attribute	Type
Sample_Processing_Protocol	String
Data_Processing_Protocol	String

4.3.4 isa: project

Attribute	Type
Tag	String
Other_Omics_Link	String
Pubmed_Id	String

4.4 New Controlled Vocabulary Terms

- Tissue_Term
- Disease_Term
- Quantification_Term
- Instrument_Term
- Modification_Term
- Submission_Type_Term
- Additional_Term