The DO-KB is expanding the disease information ecosystem
- expanding the representation of the DO diseaseome
- a comprehensive network of disease to disease relationships
- a disease feature similarity network for differential diagnosis exploration

**DO-KB SPARQL Sandbox**
- A data playground for querying the Human Disease Ontology SPARQL endpoint and to perform federated SPARQL queries across connected resources for disease knowledge discovery.
- A linked data representation (RDF triple store) of the Human Disease Ontology's diseases, disease features and mechanisms.

**DO-KB Faceted Search Interface**
- A new way to explore human disease features and mechanisms, represented here as data facets.
- The DO-KB Faceted Search Interface enables exploration of connectivity across diseases.

**The DO-KB's SPARQL endpoint, explore DO data and query disease, genomic, proteomic resources through federated queries.**

**Mine the DO-KB disease-data connections through faceted query and retrieval of DO diseases sharing features or mechanisms, including phenotypes, environmental or genetic drivers, anatomy, variant type, and age of onset.**
Augmenting DO technology to launch DO-KB. DO servers are VMware Virtual Machines running Ubuntu 22.04. DO server (Python-Django powered web application) and DO-KB server driven by a Python-Flask framework. VMware vSphere client to monitor the health of our front-end server. Elasticsearch back-end service for the Faceted Search. DO-KB “OWL Flattener” program using Java and the Java OWL API package to convert the hierarchical DO OWL file into a flat list of documents.
**DO-KB Faceted Search Interface**

- A **Facet**: a features or characteristic of a disease, defined in the DO via **ontology imports**
- Disease to Disease connections are defined by these features
- **Facet boxes**: (DO imports)
  - Select one or more features to retrieve DO diseases sharing those features or mechanisms
    - As facets are selected, the counts refresh, to show additional related features

**Features counts in DO diseases**

**Filter**: to focus the search

- **cell_type**: 138
  - cell: 1569
  - native cell: 1601
  - animal cell: 1414
  - eukaryotic cell: 1414

- **phenotype**: 315
  - filter: skin
    - Abnormality of skin morphology: 39
    - Abnormality of the skin: 39
    - Thickened skin: 72
    - Generalized abnormality of skin: 8
    - Abnormality of skin adnexa physiology: 8
    - Abnormal elasticity of skin: 8

- onset: 11
  - filter
    - on set: 323
    - Pediatric onset: 167
    - Childhood onset: 124
    - Adult onset: 109
Identify diseases with similar characteristics and explore relationships between diseases through common characteristics or features

**Faceted Search**

**phenotype**
- Abnormality of metabolism/homeostasis (12)

**symptom**
- ascites (12)
  (fluid collects in spaces within the abdomen)

**anatomy**
- immune system (12)

**Search Results**

Show 50 entries

<table>
<thead>
<tr>
<th>DOID</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOID_0040090</td>
<td>autoimmune gastritis</td>
</tr>
<tr>
<td>DOID_0060031</td>
<td>autoimmune disease of gastrointestinal tract</td>
</tr>
<tr>
<td>DOID_0070358</td>
<td>primary biliary cholangitis 1</td>
</tr>
<tr>
<td>DOID_0070359</td>
<td>primary biliary cholangitis 2</td>
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<tr>
<td>DOID_0070360</td>
<td>primary biliary cholangitis 3</td>
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<tr>
<td>DOID_0070361</td>
<td>primary biliary cholangitis 4</td>
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<tr>
<td>DOID_0070362</td>
<td>primary biliary cholangitis 5</td>
</tr>
<tr>
<td>DOID_0080742</td>
<td>autoimmune cholangitis</td>
</tr>
<tr>
<td>DOID_10608</td>
<td>celiac disease</td>
</tr>
<tr>
<td>DOID_12236</td>
<td>primary biliary cholangitis</td>
</tr>
<tr>
<td>DOID_2048</td>
<td>autoimmune hepatitis</td>
</tr>
<tr>
<td>DOID_8577</td>
<td>ulcerative colitis</td>
</tr>
</tbody>
</table>