Guide to IMMUNOPHARMACOLOGY

Database & Web-Portal Release Notes

Version: alpha 1.0

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Overview

The Guide to PHARMACOLOGY (GtoImmuPdb) is a extension to the Guide to PHARMACOLOGY (GtoPdb).
The colour scheme used in GtoImmuPdb on the website is #0176af (with slight variations used for menu-bar sub-items). This is referred to as **gtip-blue** in this documentation.

Included in this release

1. **GtoImmuPdb Portal**

    i. **URL**
    - The portal URl is ***http://dev.guidetopharmacology.org/immuno***

    ii. **Menu Bars**
    - Contains link back to Guide to PHARMACOLOGY home
    - 'Home' links to GtoImmuPdb Home
    - Targets menu, items link to immuno-focussed target pages
    - All other menu items function as in GtoPdb

    iii. **Targets**
    - Each target class links to the receptor families tree for that class, with immuno view switched on.

    iv. **Ligands**
    - Function as for GtoPdb - to ligand lists with no immuno focus

    v. **Processes/Pathways**
    - New logo for processes displayed
    - Lists the top-level immuno process categories
    - Processes link to Immuno Process Associations list page

    vi. **Cell Type**
    - New logo for cell types displayed
    - Lists the top-level immuno cell type categories
    - Cell types link to Cell Type Associations list page

    vii. **Disease**
    - Draft logo for disease displayed
    - No further functions, suggested categories displayed (OMIM, OrphaNet, Disease Ontology)

    viii. **News**
    - Suggested panel - no current function

    ix. Twitter/Facebook

- As for GtoPdb.

    x. Latest Updates & Help

- Placeholder to display release version and updates
- Placeholder for link to guide to what GtoImmuPdb is and user guide

2. **Receptor Family pages**

    i. URL

- *dev.guidetopharmacology.org/GRAC/ReceptorFamiliesForward? type=GPCR&imm=true*
- linked to from target panel on GtoImmuPdb portal

    ii. Toggle

- Button toggle, presented in GtoImmuPdb gtip-blue colour
- Toggles between GtoImmuPdb view and standard GtoPdb view
- Switches header banner and menu-bar
- Highlights any families in tree that are tagged in the database as being 'in GtoImmuPdb' with gtip-blue background

    iii. Family links

- With GtoImmuPdb view toggled 'on' the links from family names, if highlighted as being 'in GtoImmuPdb', lead to family pages with GtoImmuPdb view switch on.

3. **Family pages**

    i. URL

- *dev.guidetopharmacology.org/GRAC/FamilyDisplayForward? familyId=3&imm=true*

    ii. Toggle

- Button toggle, presented in GtoImmuPdb gtip-blue colour
- Toggles between GtoImmuPdb view and standard GtoPdb view
- Switches header banner and menu-bar
- Highlights any targets, within the 'targets' section, that are tagged in the database as being 'in GtoImmuPdb' with gtip-blue background

    iii. 'Target' section

- In the section after the overview, named variously depending on the class, the targets are listed. With the GtoImmuPdb view turned on, target names will appear with gtip-blue background
- Clicking on the detailed view link (if available) goes, as in GtoPdb, to the detailed target page

4. **Detailed Target Page**

    i. URL

- *dev.guidetopharmacology.org/GRAC/ObjectDisplayForward? objectId=19&familyId=3&familyType=GPCR&imm=true*

    ii. Contents

- Three new sections added:
  1. Immunopharmacology Comments
  2. Immuno Cell Type Associations
  3. Immuno Process Associations
- Highlighted new sections in **gtip-blue**. Sections are highlighted in this release to make them more obvious.
- New contents sections link to anchor points further down the page, where the full details of those sections is displayed.

iii. Immunopharmacology Comments

- Displays comments held in `object.gtip_comment`. These are general comments applied to the target by our curators, often when including (tagging) them as being 'in GtoImmuPdb'.
- Any references embedded in the comment are resolved and display with a number, referencing the correct citation in the 'References' section of the page.

iv. Immuno Cell Type Associations

- Displays details of cell type association to the target. One section for each top-level immuno cell type category.
- Within each section it lists any Cell Ontology terms associated to the target
- Displays comments added by curators specifically about that association
- Displays any references (listed as numbers) added by our curators

v. Immuno Process Associations

- Displays details of process association to the target. One section for each top-level immuno process category.
- Within each section it lists any Gene Ontology terms associated to the target. These are followed by the GO ID and the GO evidence code.
- Shows the level of GO annotation available for the target-process associations:
  1. Not associated to GO process
  2. Associated to GO processes
  3. Associated to GO process with only IEA (inferred from electronic annotation) evidence.
- This level of annotation is part of our effort to distinguish between targets associated to processes (via GO only) and those that our curatorial team have identified as being of immunological relevance. It also distinguishes associations from GO that only have IEA evidence (therefore not reviewed by GO curator).
- Displays comments added by curators specifically about that association
- Displays any references (listed as numbers) added by our curators

5. **Immuno Process Association List Pages**

   i. **URL**
   - *dev.guidetopharmacology.org/GRAC/ObjectImmProcessListForward? immprocess=ISDD*
   - linked to from Processes/Pathways panel on GtoImmuPdb portal

   ii. **Menu**
   - Page uses the modified header and menu for GtoImmuPdb (see menu-bar section 1.ii)

   iii. **Page content**
   - Lists all targets in the database that are associated to an immuno process
   - Displays target name (linking to detailed target page), target family, process association comments & associated GO terms (with ID and evidence).
   - Displays if the target has been manually tagged as being 'in GtoImmuPdb' by our curators. This is part of our effort to distinguish between targets associated to processes (via GO only) and those that our curatorial team have identified as being of immunological relevance.
   - Displays comments held in `object.gtip_comment`. These are general comments applied to the target by our curators, often when including (tagging) them as being 'in GtoImmuPdb'.

   iv. **Page structure**
   - The targets are listed in a table format.
   - There is a separate table for each class of target. Users can jump to the class they are interested in using anchor links at the top of the main section of the page.
   - Only targets associated with one of the top-level immuno processes is show at once. Users can select which process to view via tabs positioned just above the tables.

6. **Immuno Cell Type Association List Pages**

   i. **URL**
   - *dev.guidetopharmacology.org/GRAC/ObjectCelltypeAssocListForward? immcelltype=BCELL*
   - linked to from Cell Types panel on GtoImmuPdb portal

   ii. **Menu**
   - Page uses the modified header and menu for GtoImmuPdb (see menu-bar section 1.ii.)

   iii. **Page content**
   - Lists all targets in the database that are associated to an immuno cell types
   - Displays target name (linking to detailed target page), target family, process association comments & associated Cell Ontology terms (with ID).
   - Displays if the target has been manually tagged as being 'in GtoImmuPdb' by our curators. At present targets can be associated to cell types without being tagged into GtoImmuPdb.
   - Displays comments held in `object.gtip_comment`. These are general comments applied to the target by our curators, often when including (tagging)

them as being 'in GtoImmuPdb'.

    iv. Page structure
- The targets are listed in a table format.
- There is a separate table for each class of target. Users can jump to the class they are interested in using anchor links at the top of the main section of the page.
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7. Search

The main site search, accessed by using the search box in the site header, has been extended to incorporate data include in many of the new tables covering process and cell type associations. These are detailed here:

    i. Processes search
- process association comments
- top-level immuno process category names
- GO terms, definitions and IDs

    ii. Cell Types search
- top-level cell type category names
- cell type association comments
- Cell Ontology terms, definitions and IDs

Search result go to the existing results page on GtoPdb (so header and menu bar revert to GtoPdb).

8. Database Development

New tables have been added to the schema to support inclusion of process and cell type associations. Modifications have also been made in order to tag target and ligands as being 'in GtoImmuPdb' and apply comments. These are listed here, but separate documentation covers the details which are outside the scope of these release notes.

    i. Immuno Processes
- gtip_process
- gtip2go_process
- object2go_process
- go_process
- go_process_rel
- process_assoc
- process_assoc_refs

    ii. Cell Types
- co_celltype
- co_celltype_isa
- co_celltype_relationship

- celltype_assoc
- celltype_assoc_colist
- celltype_assoc_refs
- immuno2co_celltype
- immuno_celltype

iii. Other tables
- object : added columns for in GtoImmuPdb and comments
- ligand : added column for in GtoImmuPdb

9. **Process data**

A full description of the process association data in GtoImmuPdb can be found in the separate, GtoImmuPdb Process Data documentation.
GtoImmuPdb_Immuno_Process_Data.pdf

10. **Cell Type data**

A full description of the cell type association data in GtoImmuPdb can be found in the separate, GtoImmuPdb Cell Type Data documentation.
GtoImmuPdb_Immuno_Cell_Type_Data.pdf

Future plans

- Disease associations
- Search on GtoImmuPdb comments against targets
- Include GtoImmuPdb comment against ligands
- Produce GtoImmuPdb view for ligand list pages
- Develop 'News' section of portal
- Further develop menu-bars specific for GtoImmuPdb views

User guide

Portal

The main portal URL is (**dev.guidetopharmacology.org/immuno**).
A schematic, flow-diagram of the way to navigate the GtoImmuPdb is provided in the GtoImmuPdb User Guide: **GtoImmuPdb_User_Guide_alpha_v1.0.pdf**