

Guide to IMMUNOPHARMACOLOGY

Database & Web-Portal Release Notes

Version: alpha 4.0

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Overview

The Guide to PHARMACOLOGY (GtoImmuPdb) is an extension to the Guide to PHARMACOLOGY (GtoPdb).

This fourth, alpha-release (version 4.0), follows 2 months on from the third, alpha-release (version 3.0).

These release notes detail only new and modified features from v3.0 to v4.0. Please refer to the previous release notes for comprehensive details.

Included in this release

1. Navigation for Disease

i. Menu Bars

- New menu item for **Diseases**
 - sub-items (2) link to either the list of immuno diseases associated to targets or immuno diseases associated to ligands (**Disease List Pages**)

2. Portal

i. Diseases

- Diseases panel is now functional
- Contains two links to different views of the same page
- List of immuno diseases associated to targets
(<http://dev.guidetopharmacology.org/GRAC/ImmunoDiseaseListForward?type=target>)
- List of immuno disease associated to ligands
(<http://dev.guidetopharmacology.org/GRAC/ImmunoDiseaseListForward?type=ligand>)

3. Disease List Pages

These pages are the newest addition to the Guide to IMMUNOPHARMACOLOGY. In this release (v4.0) their development remains in progress, but the initial display is in place.

i. URL

- Two URLs, one to display the target associations and one for ligands
- <http://dev.guidetopharmacology.org/GRAC/ImmunoDiseaseListForward?type=target>
- <http://dev.guidetopharmacology.org/GRAC/ImmunoDiseaseListForward?type=ligand>

type=ligand

ii. Tab view

- The page displays either target to immuno disease or ligand to immuno disease associations. Users can switch between these two views using the tab at the top of the page

iii. Display toggles

- Both the target and ligand views have display toggles at the top right. These can be used to show all or hide all of the individual target or ligand associations.
- By default, when the page loads, all associations are hidden (to save space).
- The number of associations for each disease are always displayed so that users can see what data is available.

iv. Target associations

- The table shows one section (row) per disease
- Any external references (to other disease resources, OMIM, Orphanet or Disease Ontology) are displayed, with hyperlinks
- Total target associations are displayed, with link to display/hide the associations
- When associations are displayed, the table shows 3 columns:
 1. Target - shows target name hyper-linking to detailed view page, immuno disease section
 2. Comments - specific curated comments about the target-disease associations. Hovering over displays full comments
 3. Ligands - this lists any ligand for which the target is a primary target and where the ligand is an approved drug. Hyperlinks to clinical data section of ligand summary page

v. Ligand Associations

- The table shows one section (row) per disease
- Any external references (to other disease resources, OMIM, Orphanet or Disease Ontology) are displayed, with hyperlinks
- Total ligand associations are displayed, with link to display/hide the associations
- When associations are displayed, the table shows 3 columns:
 1. Ligand - shows ligand name hyper-linking to ligand summary page, immuno pharmacology section
 2. Comments - specific curated comments about the ligand-disease associations. Hovering over displays full comments
 3. References (*not functioning*) - *intended to display literature references for the association*

4. Immuno-Relevance Search Weighting

A more general development has been the inclusion of specific weightings to the rank of search results from the Guide to IMMUNOPHARMACOLOGY.

This only applies to the site-wide search accessed from the search box in the top right-hand corner, and only from the Guide to IMMUNOPHARMACOLOGY header.

An example URL would be: <http://dev.guidetopharmacology.org/immuno/>

When a search is run, any targets or ligands that are returned from the search will get there

base ranking up-weighted depending on how much immuno-data is associated to it - this is effectively a measure of their **immuno-relevancy**

i. Immuno-relevancy criteria

- Is the target/ligand tagged for GtoImmuPdb?
 - Add 0.75 to relevancy factor
- Does target/ligand have general GtoImmuPdb comments?
 - Add a further 0.25 to relevancy factor
- Is there process data associated to the target?
 - Counts association to GO processes
 - 1-8, add 0.25 to relevancy factor
 - 8-16, add 0.37 to relevancy factor
 - +16, add 0.5 to relevancy factor
- Is there cell type data associated to the target?
 - Counts associations to main cell type categories
 - 1-3, add 0.25 to relevancy factor
 - +3, add 0.5 to relevancy factor
- Is there disease data associated to the target/ligand?
 - Count disease associations
 - For targets, 1-3, add 0.25 to relevancy factor
 - For targets, +3, add 0.5 to relevancy factor
 - For ligands, 1-3, add 0.5 to relevancy factor
 - For ligands, +3, add 1 to relevancy factor
- All targets/ligands with some immuno data get an additional base 1.0 added to the relevancy factor.
- The rank from the search is multiplied by the immuno relevancy factor - this up-weights targets and ligands, based on the degree to which they are immuno-relevant in the search results.
- This method and exact weighting will be refined through testing.

5. Cell Type Associations

i. Displaying definitions

- table.column **immuno_celltype.definition** holds definition of the main cell type categories
- This has been made editable through the submission tool
- The definition is displayed on the cell type list page.
- <http://dev.guidetopharmacology.org/GRAC/ObjectCelltypeAssocListForward?immcelltype=BCELL>

Future plans

- Disease associations - include references in ligand immunopharmacology section on disease.

- Develop 'News' section of portal
- Refine immuno relevancy search
- Improve immuno disease to target/ligand lists - e.g. display references, improve info on ligands that are approved, in clinical trials or associated to same disease as target.

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_v4.0.pdf**