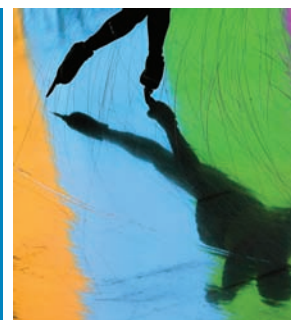


# THOMSON REUTERS INTEGRITY

QUICK GUIDE SERIES: No. 12



## HOW TO FIND COMPOUNDS WITH SIMILAR EXPERIMENTAL ACTIVITY USING THOMSON REUTERS INTEGRITY

Are you investigating a specific target and would like to see compounds that show a high target affinity for a specific receptor?

Find out how the Experimental Activity field within the Experimental Pharmacology Knowledge Area of *Thomson Reuters Integrity*<sup>SM</sup> allows users to search experimental data by system, activity/effect, and target/condition/toxicity.

Benefit from advanced filtering tools within *Integrity* to narrow down the results set to records with the same experimental methodology for the purposes of comparison.

You can also use *Integrity* to gather All Related Information to those compounds with the highest activity retrieved in your search and link to the Drugs & Biologics Knowledge Area to see the corresponding records.

This step-by-step guide will show you how to:

- Find compounds with similar experimental activity
- Search experimental data by system, activity/effect, and target/condition/toxicity
- Compare results for the same study method and narrow them down using advanced filtering tools
- Create charts with different ranges of values from which you can select to view only the subset of your interest

### EXAMPLE SCENARIO: EXPERIMENTAL ACTIVITY WITHIN THOMSON REUTERS INTEGRITY

A group of medicinal chemists are investigating a specific target, dopamine D2 receptor, with the aim of further developing a compound for the treatment of psychosis. They would like to see other compounds with similar experimental activity in vitro that show high target affinity for the D2 receptor.

#### 1. SEARCHING FOR COMPOUNDS WITH SIMILAR EXPERIMENTAL ACTIVITY

- Go to the **Experimental Pharmacology Knowledge Area** of *Integrity*. Select the **Experimental Activity** field, which allows users to search experimental data by system, activity/effect, and target/condition/toxicity.

##### Tip:

- In *Integrity* the Pharmacological Activity field contains information referring to the interaction between the drug and the target receptor or enzyme. Experimental Activity describes broader, more inclusive information that combines System, Activity/Effect and Target/ Condition/Toxicity subcategories.
- To search for target-specific data use the **Lookup box** in the **Index**. (FIGURE 1)
- In this example, select the general target Dopamine D2 Receptor. This retrieves many experimental pharmacology records. (FIGURE 2)

##### Tip:

- You can link directly to the target record from the Experimental Pharmacology results list. A hyperlink appears in the record and with one simple click you will be directed to the record for the Target associated with the data.
- The large number of results can be filtered using the **Filter by Statistics** chart options to narrow down the results set. To make the results comparable for the same study method, **Filter by Method**.
- From the chart select **Displacement of [3H]-raclopride**, a methodology used in binding studies tracking the activity of D2 receptors, then click **View Subset**. This will display a subset of records in the results list that use the same experimental methodology, facilitating comparison. (FIGURE 3)

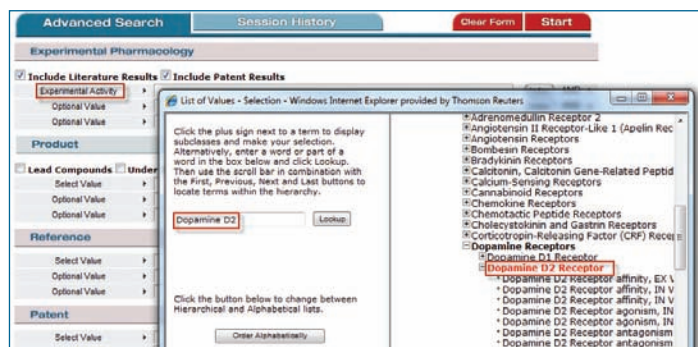


FIGURE 1

Drug Name	Mechanism of Action	Experimental Activity	Pharmacological Activity	Material / Experiment Model
203798	5-HT1A Receptor Antagonists	Dopamine D2 Receptor affinity, IN VITRO	Dopamine D2 receptor affinity	Striatum, rat
204257	5-HT1A Receptor Agonists	Dopamine D2 Receptor affinity, IN VITRO	Dopamine D2 receptor affinity	Striatum, bovin
209348	Dopamine D2 Antagonists	Dopamine D2 Receptor affinity, IN VITRO	Dopamine D2 receptor affinity	Striatum, rat
210580	Dopamine D2 Antagonists	Dopamine D2 Receptor affinity, IN VITRO	Dopamine D2 receptor affinity	Striatum, rat
210581	Dopamine D2 Antagonists	Dopamine D2 Receptor affinity, IN VITRO	Dopamine D2 receptor affinity	Striatum, rat
211599	5-HT2A Antagonists Dopamine D2 Antagonists	Dopamine D2 Receptor affinity, IN VITRO	Dopamine D2 receptor affinity	Striatum, rat

FIGURE 2



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- The results are now all for the same method and, in this case, the activity is already affinity for all records. To further refine the data select the **Experimental Activity** chart for **System** and click to see only **In Vitro** results.

**Tip:**

- There are three Experimental Activity filters that can be used to unify the results: System, Activity/Effect, and Target/Condition/Toxicity.
- To find the compounds with the highest affinity open the **Options** pulldown menu and select **Unify Parameter to Non-Log Form** to set all the parameters to the same form for comparison. (FIGURE 4)
- Once this is done, click on the **Value Range** filter.
- Select a parameter from the dropdown list in the pop-up window. Select **Ki** in this example, then select the unit **M** and click **Go**. (FIGURE 5)
- A chart displays with the different ranges of values from which you can select to view only the subsets with the lowest concentration values and therefore the highest affinity. Note that values are presented initially in logarithmic scale. (FIGURE 6)

**Tip:**

- The values can be changed from Logarithmic to Standard Scale and back by clicking the button next to the chart.

**2. WORKING WITH YOUR DATA**

- Now that you have the compounds with the highest affinity you can view the details of these by opening the **Options** pulldown menu and selecting **All Related Information Via Quick Search** and linking to the **Drugs & Biologics Knowledge Area**, where you can view drug records for competitor compounds. To see the structures select **Options** and **Product List With Structures**. (FIGURE 7)

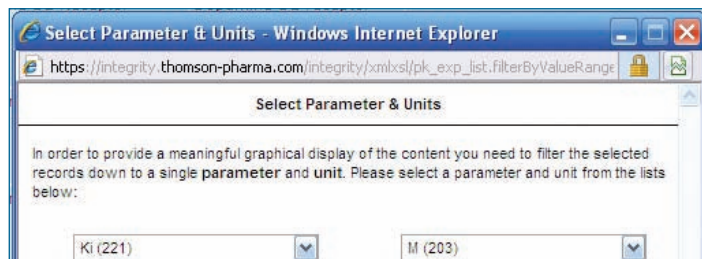


FIGURE 5

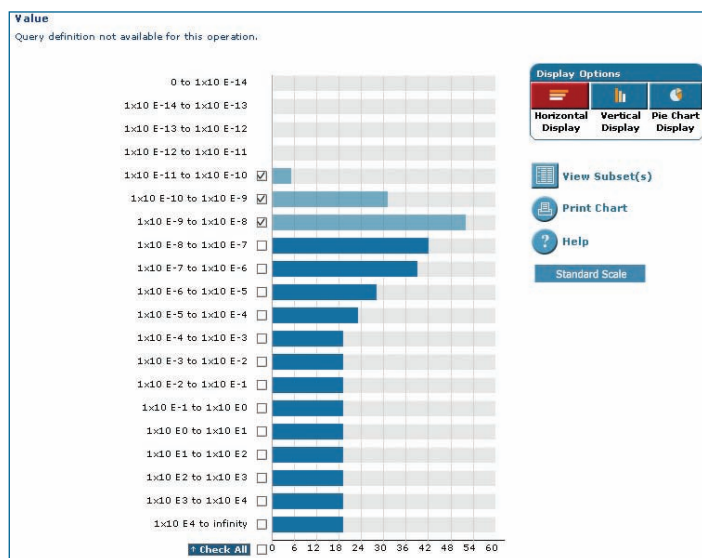


FIGURE 6

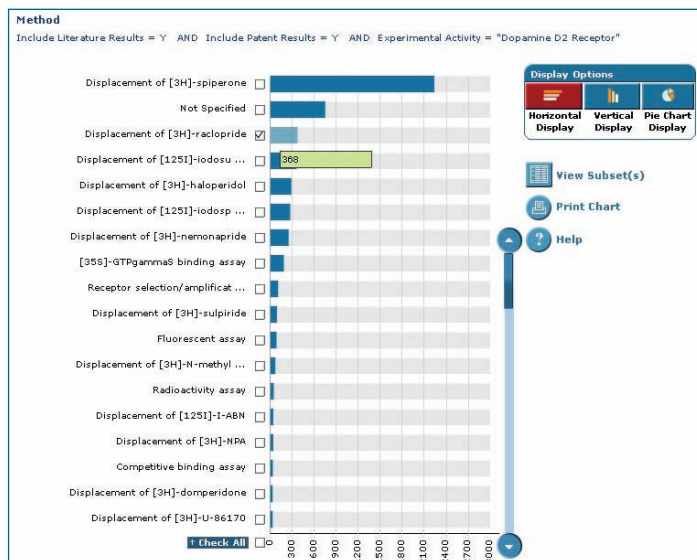


FIGURE 3

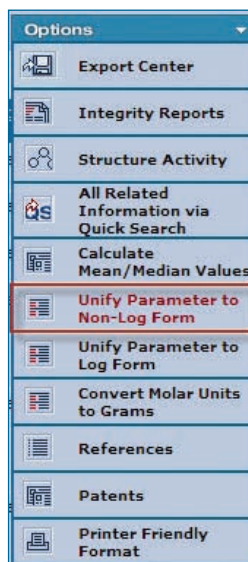


FIGURE 4

FIGURE 7

Click here to view other guides in the *Integrity Quick Guide series*.

If you have any questions about using *Integrity*, please contact us at: [integritysupport@thomsonreuters.com](mailto:integritysupport@thomsonreuters.com)

