Sigma-Aldrich®

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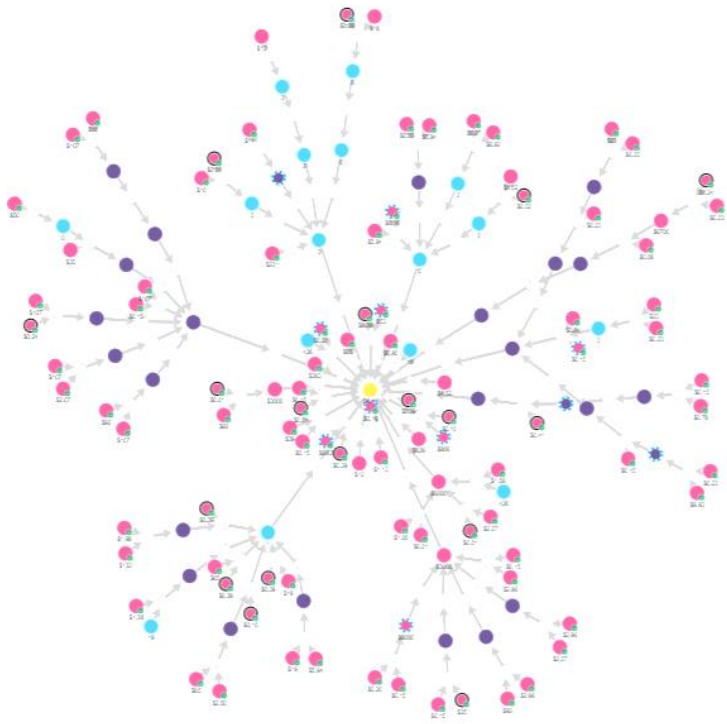
SYNTHIA™

Retrosynthesis Software

Quick-Start Guide

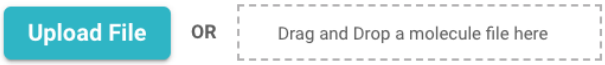


SYNTHIA™ Retrosynthesis Software
Quick-Start Guide: New Analysis

1 Select New Analysis

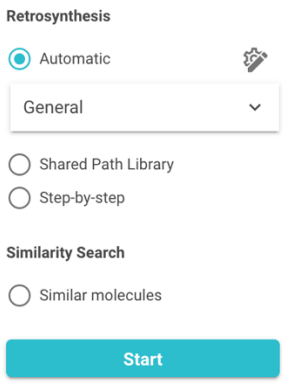
2 Input your target

- Draw or paste a SMILES in the sketcher
- Search for a known molecule by name or CAS
- Upload or drag and drop a molecule file (mol or sdf)



3 Choose Analysis Type

Single Target Multiple Targets



- **Automatic:** Up to 50 pathways for each target from commercial starting materials or
- **Shared Path Library:** Up to 3 convergent routes to make library of targets from commercial starting materials
- **Step-by-step:** All reactions to make target, one step at a time

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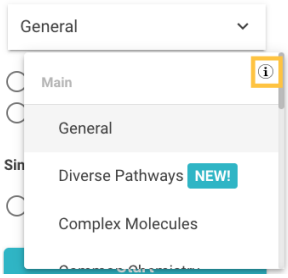
Quick-Start Guide: Customize

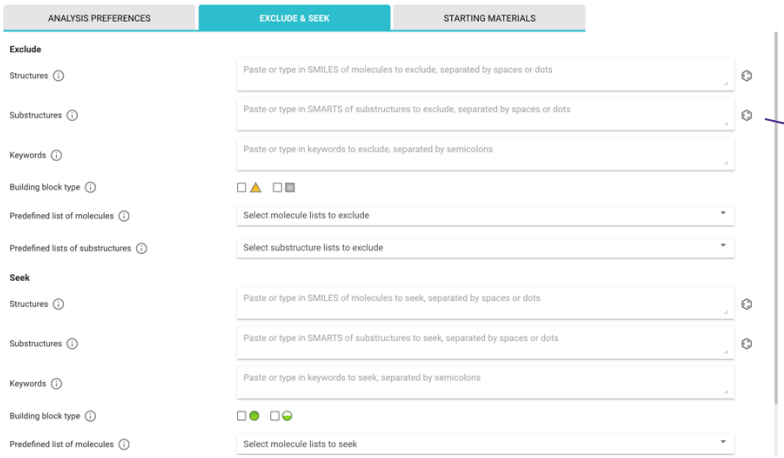
4 Customize Search

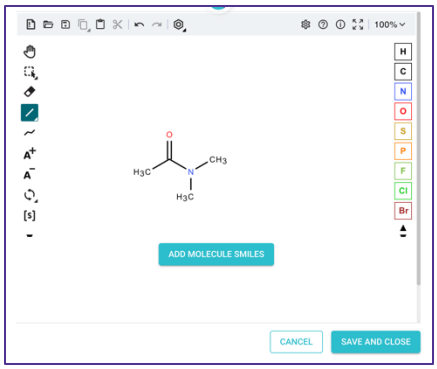


- For **Automatic** or **Shared Path Library** click the DROP-DOWN and choose a CONFIGURATION
- Hover over ⓘ for more information on Configuration options

Exclude & Seek Structures/Sub-Structures/Keywords/Lists:

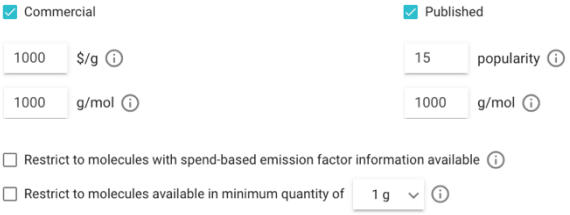
1. Click to Edit Configurations
2. Choose the **EXCLUDE & SEEK** Tab
3. Paste a SMILES or DRAW ( ) using the **Structure Editor** to exclude/seek a starting material, intermediate, or sub-structure.
4. Use **Keywords** to exclude/seek a **catalyst , reagent**, **solvent**, or **reaction type.**
5. Exclude/Seek predefined **Lists of Molecules** Create or Edit Molecule Lists
6. Exclude/Seek **Building Block type** based on EPA safer chemicals classification: Exclude ☐△ ☐■ Seek ☐● ☐◒





Define Starting Materials:

1. Click STARTING MATERIALS tab
2. Limit COMMERCIAL starting materials based on **price**, **molecular weight**, **emission information** and/or **minimum available quantity**
3. Limit PUBLISHED starting materials based on **popularity** (minimum number of references) and **molecular weight**



- Click **Done** after Configuration is Complete then Start Analysis

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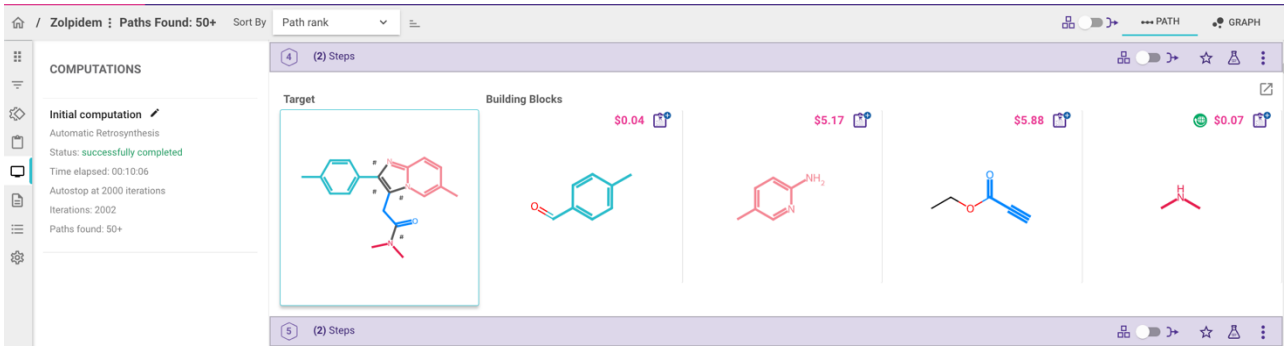
Quick-Start Guide: RESULTS

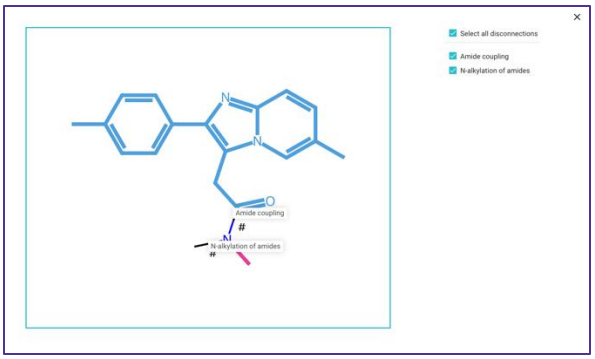
5 View Initial Results

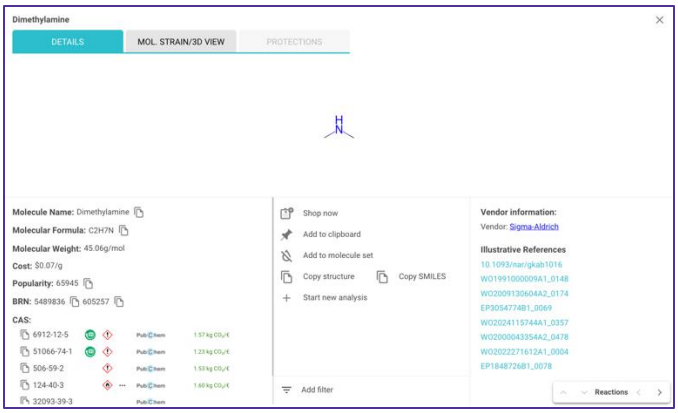
Once the **computations** are complete, the status will change to **'Successfully Completed'** and default to the **Building Blocks View** sorted by **Path Rank.**



6 View Results: Building Block View

Click on Target to see disconnection summary. Click on any building block to view **Molecule Details** including **chemical hazard information, PubChem link,** and **Illustrative references**





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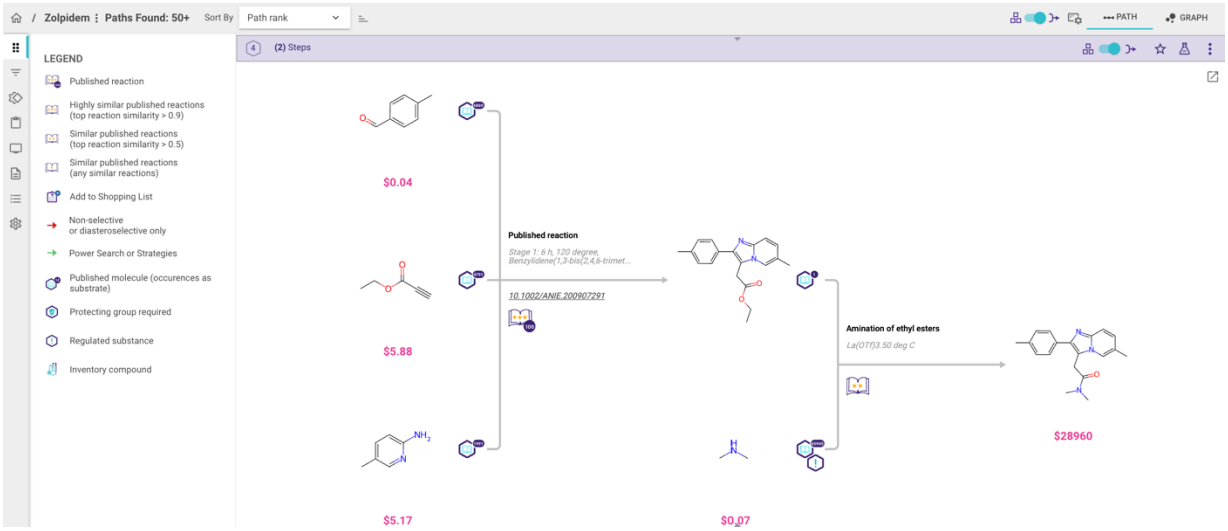
Quick-Start Guide: REFINE PATH VIEW

7 Results: Pathway View

Toggle entire results or individual pathways to see **Pathway View**
Click on to see symbols **Legend.**



Sort and View Results: Single Path View

Choose option to Sort by:

- Path rank
- Number of steps
- Number of protection steps
- Similarity to published reactions

Click any molecule or reaction to view corresponding **Molecule Details** or **Reaction Details**.

Click on to view **Similar published reactions.**

Click on (top right of pathway box) to open **Full Screen Pathway**

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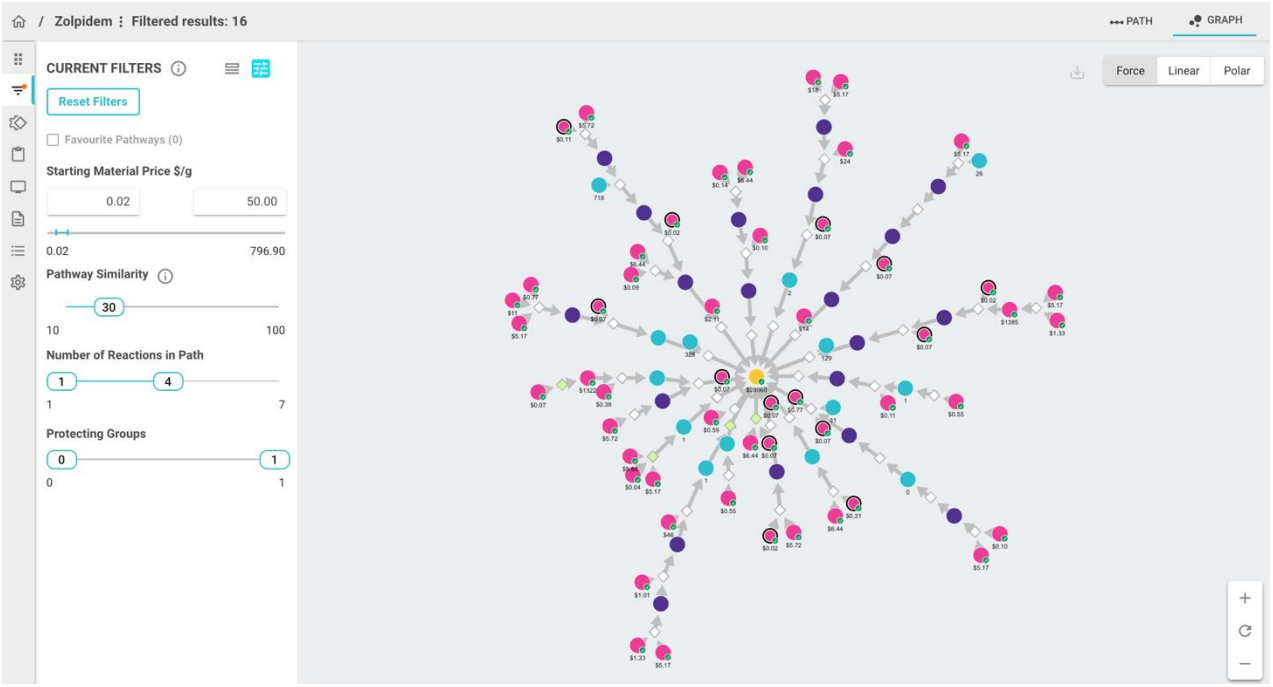
Quick-Start Guide: REFINE GRAPH VIEW

8 View/Sort/Refine Results: Graph View



View/Sort/Refine Results: Click Graph View

1. Click **Filter** icon
2. Click to adjust filters:
   - **Starting Material Price ($/g)**
   - **Pathway Similarity**
   - **Number of Reactions in Path**
   - **Protecting Groups**

PRO TIP: *For more diverse results, reduce **Pathway Similarity***

3. Click to view the **Reaction Report** to **Sort/Search/Refine** by:
   - Reaction
   - No. of Reactants
   - Stereocenters
   - Buyable/Known
   - Create Rings
   - Cut in Half

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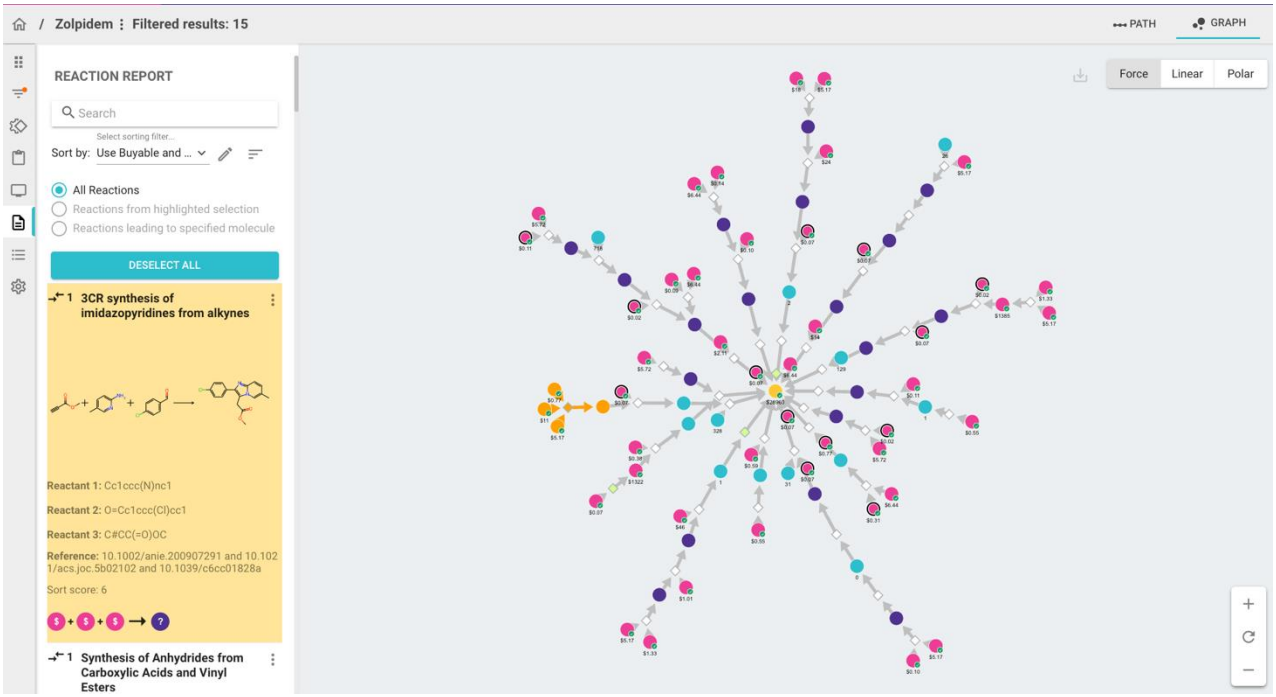
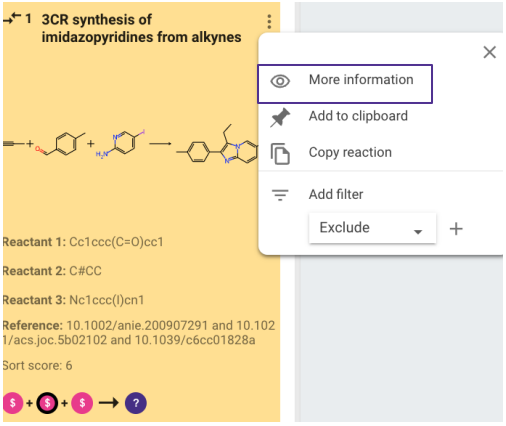
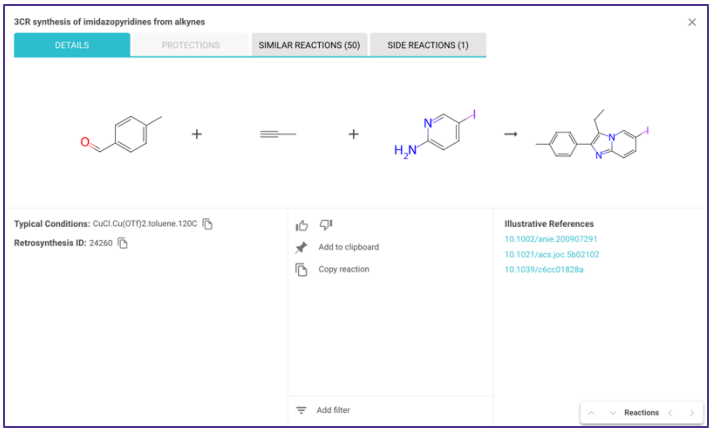
Quick-Start Guide: REACTION REPORT

9 View/Sort/Refine Reaction Report: Graph View



1. Click then sort by/search and select a desired reaction to highlight (yellow).
2. To view **Reaction Details** click then **More Information.**
3. Refine results further under **Add filter** to **Exclude / Limit To**





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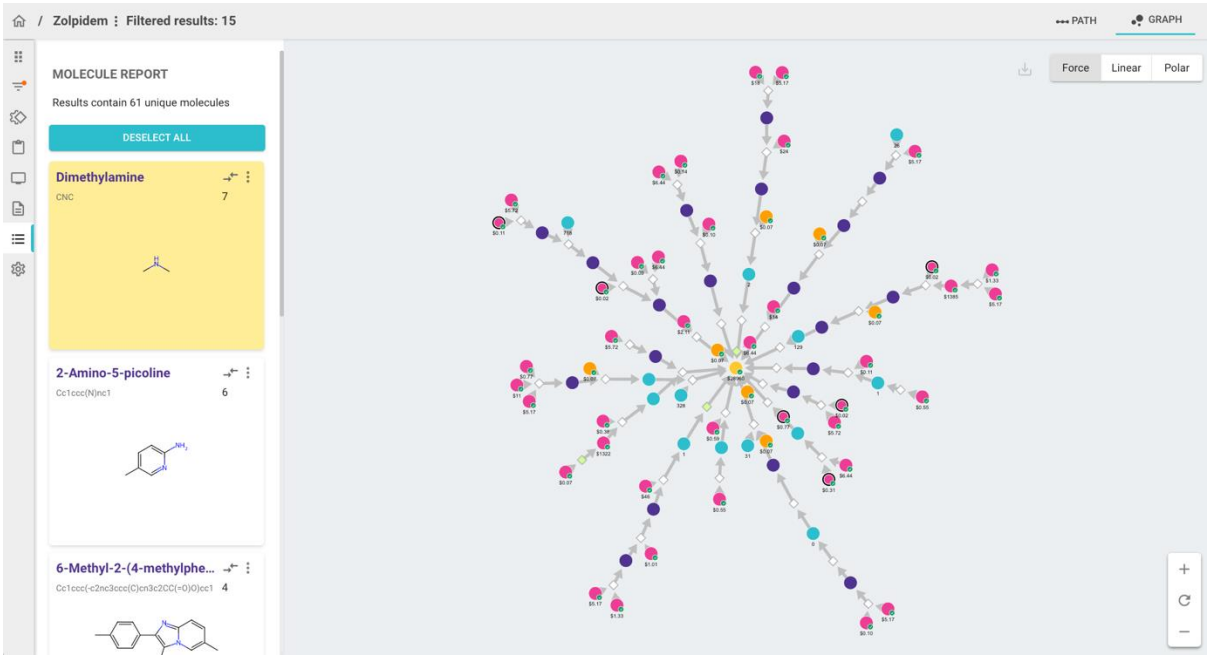
Quick-Start Guide: MOLECULE REPORT

10 View Molecule Report: Graph View



1. Click ☰ to view the **Molecule Report**
2. Select a molecule to highlight in the graph.
3. Click ⋮ then select:
    1. **More Information** – for a detailed look at the molecule
    2. **Shop now** – to see pricing & availability
    3. **Copy Structure** – to copy for use in the drawing tool or other application
    4. **+ Start New Analysis** – to view retrosynthesis of the selected molecule
    5. **Add Filter – Exclude / Limit To -** to further refine the answer set & view a filtered pathway graph.

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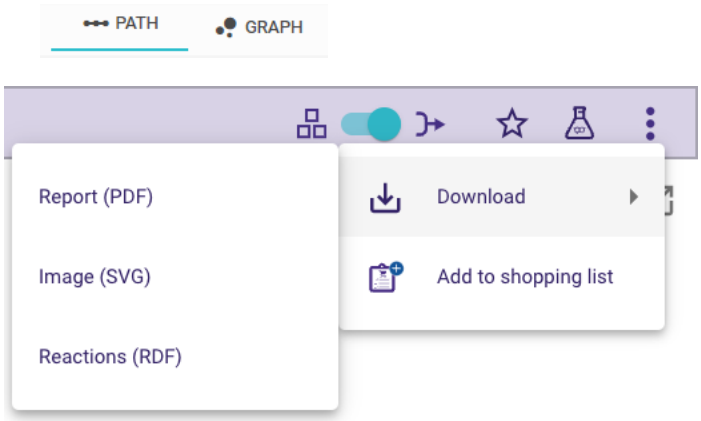
Quick-Start Guide: EXPORT

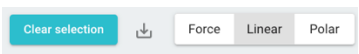
Export Single Pathway(s)

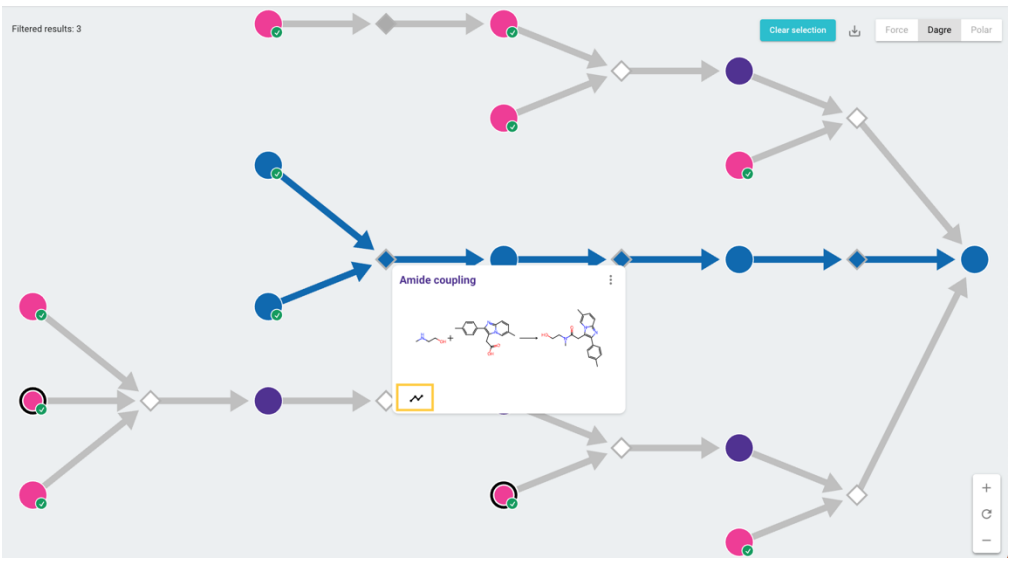
1. Click the desired analysis tile
2. Review & select the desired pathway(s)
3. Click ⋮
4. Choose **Download**
5. Select Export type:
    1. **PDF** – Document file
    2. **SVG** – Image file
    3. **RDF** – Reaction data file



Export Pathways in Graph View

1. Click on GRAPH to view reaction nodes
2. Choose **Linear** to view pathways as a tree
3. Select the desired pathway(s) by clicking the reaction node furthest from the target
4. Click on the **Pathway** icon at the lower left of the window for selected reaction
5. Click
6. Export selected pathway as a **PDF** document





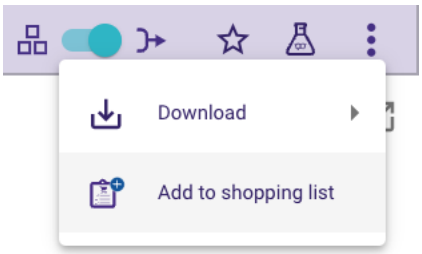
SYNTHIA™ Retrosynthesis Software

Quick-Start Guide: SHOPPING LIST

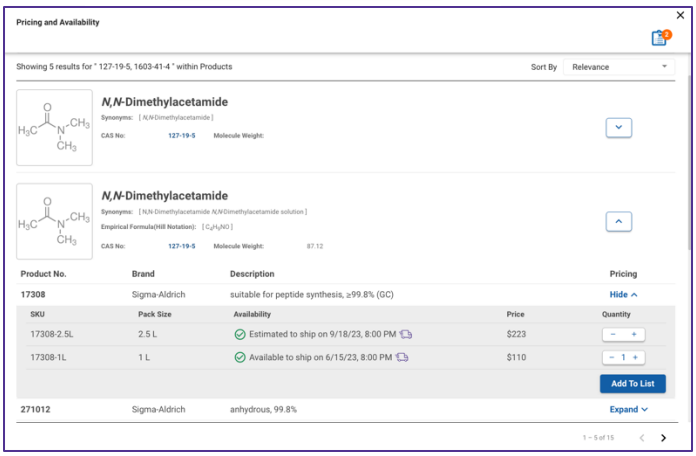
1. Link SYNTHIA™ to E-Commerce Account (first time only)

Click on  and follow prompts to login to Sigma-Aldrich E-commerce Account

2. Add to Shopping List from Pathway

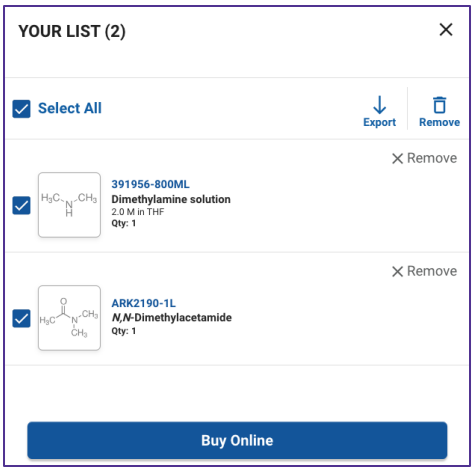


1. Click the desired analysis tile
2. Review & select the desired pathway(s)
3. Click 
4. Choose  **Add to shopping list** to open Price and Availability window
5. Click  to see product options for desired compound
6. Click **Expand** to see price and availability details
7. Click + to add Quantity and then choose **Add to List**
8. Repeat for all desired compounds



3. Export Shopping List

1. Click 
2. Check box for **Select All**
3. Choose Export **Export** to download as .csv file
4. Choose **Buy Online** to open shopping list in **E-Commerce site**



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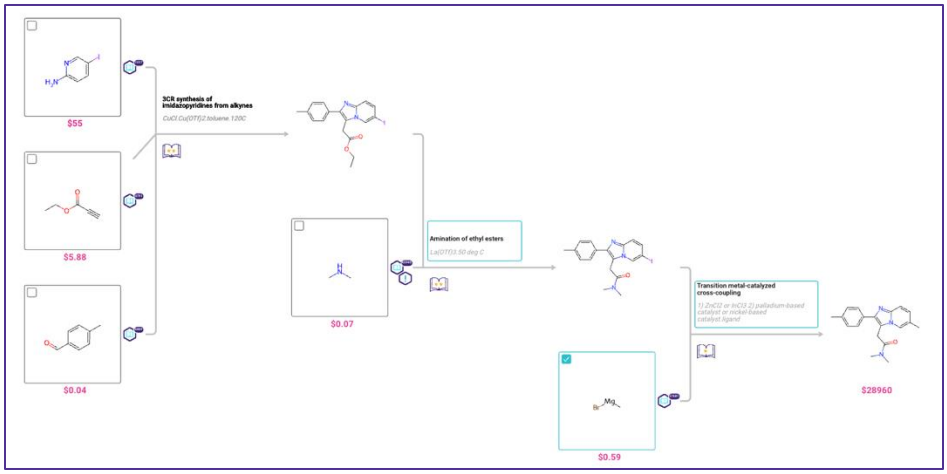
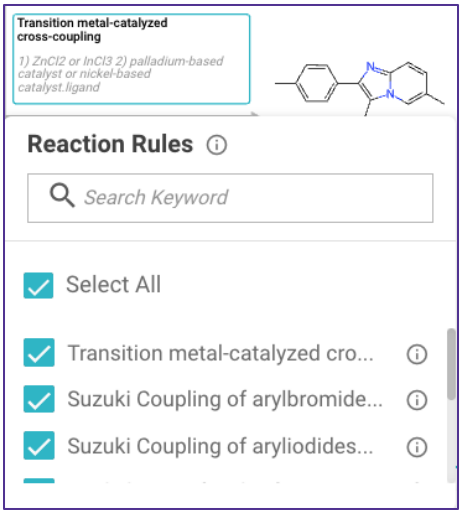
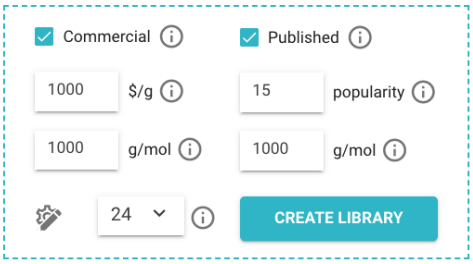
Quick-Start Guide: Diversity Library

1. Click  to create library from selected pathway 



2. ☑ Check box to select starting material(s)
3. Click reaction to see alternative rules (if available)
4. Select individual reactions or ☑ Select All
5. Choose library size 24
6. Click  to limit price and size of starting materials
7. CREATE LIBRARY





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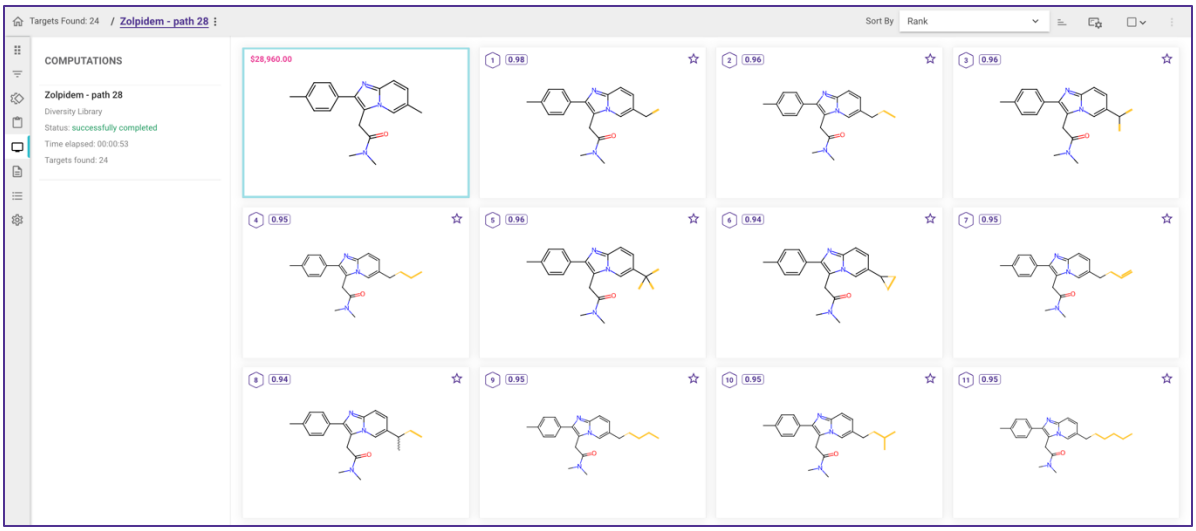
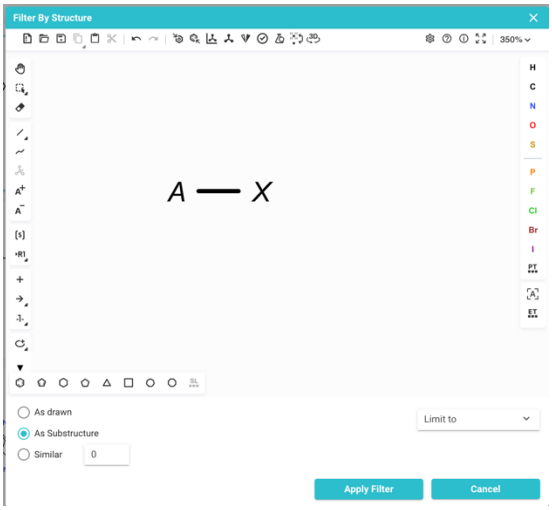
Quick-Start Guide: Diversity Library

Review Diversity Library

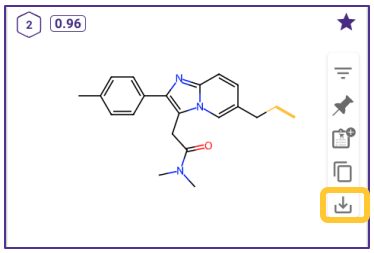


- Click structure to see pathway details
- Filter targets by structure or substructure:
  1. Open then click **Structures +**
  2. Draw structure and choose **As drawn** or **As Substructure**
  3. Choose **Exclude** or **Limit to**
  4. **Apply Filter**



- Check box to select all or Ctrl+click to select individual targets
- Click and choose to download selection as HTML or CSV

- Hover-over individual target and click to download structure or pathway



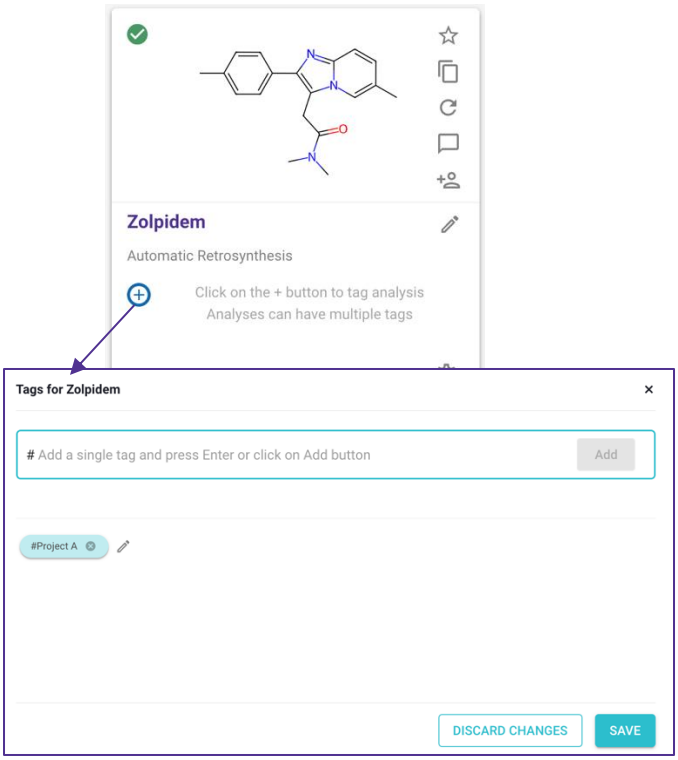
SYNTHIA™ Retrosynthesis Software

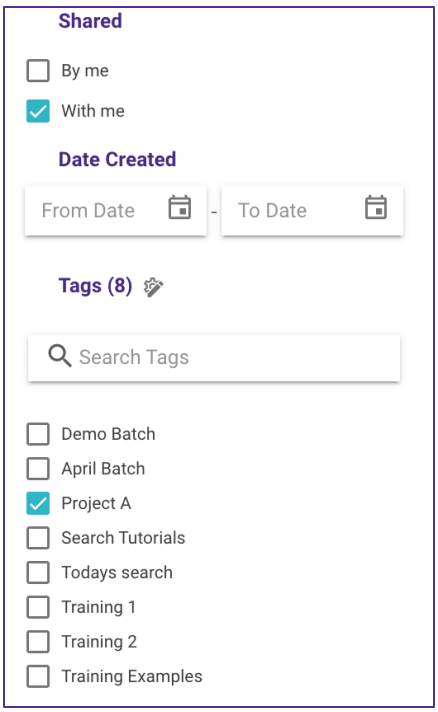
Quick-Start Guide: SHARING

Organize & Share Results

Organize Pathway Results on Homepage using Tags

1. Click ⊕ to add a **Tag** to a search tile
2. Type the name of the Tag to create a new Tag or Choose an existing Tag
3. Click Add You may add multiple tags to a single search.
4. Click SAVE
5. Use **Filters** on left side to limit results list to corresponding tag





Share Pathway Results

1. Click on the share icon on the search results tile and type the email of the person you want to share the result with. SYNTHIA™ will show the name(s) of any matching users.
2. Click the **Share** button to send the pathway to colleague.
3. Use the **Filters** on left side of homepage to see searches that have been shared with me or by me
4. Click on the **Comment** icon to add or view comments