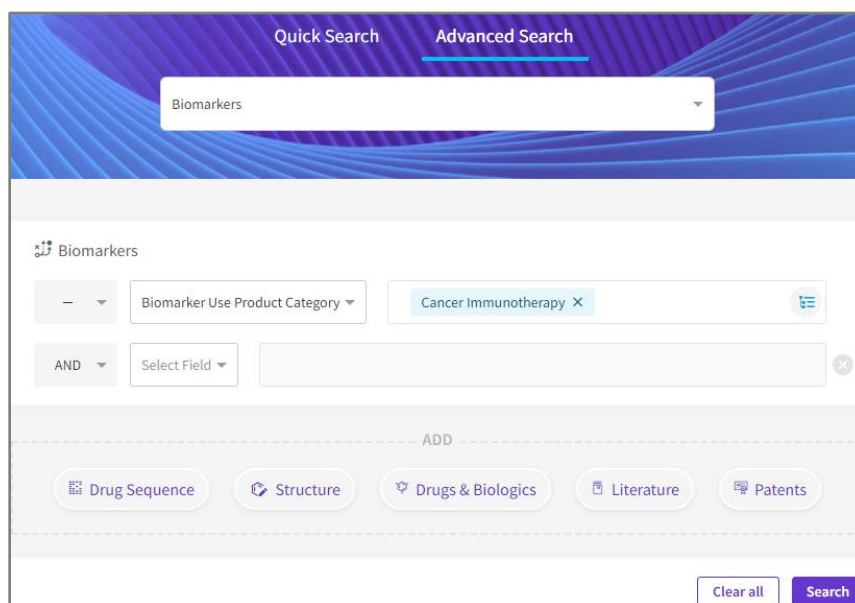


Assessing biomarker clinical validity

Cortellis Drug Discovery Intelligence

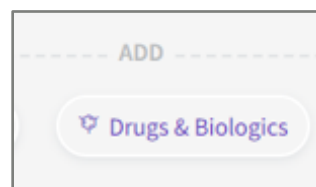
Easily differentiate between biomarkers that are in exploration versus those that are generally accepted as drug development tools in clinical trials.

1. Use **Advanced Search** to find biomarkers around your area of interest. In this example we are searching for **Biomarker Use Product Category** -> Cancer Immunotherapy:

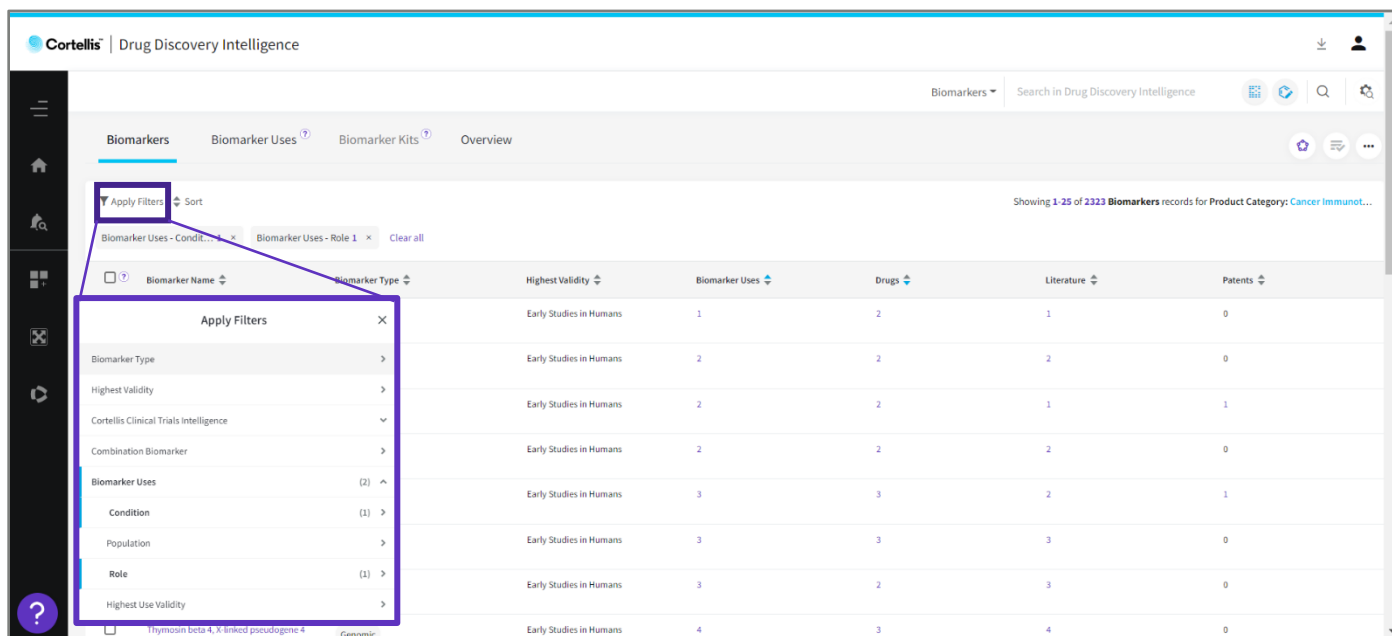


The screenshot shows the 'Advanced Search' tab selected. A dropdown menu is open showing 'Biomarkers'. Below this, the search criteria are defined: 'Biomarker Use Product Category' is set to 'Cancer Immunotherapy'. The search is structured with 'AND' and 'Select Field' options. At the bottom, there are buttons for 'ADD', 'Drug Sequence', 'Structure', 'Drugs & Biologics', 'Literature', and 'Patents'. A 'Clear all' button and a 'Search' button are also present.

Tip If you need to broaden your query, use the **Drugs & Biologics** button within the Biomarkers Advanced Search, then search for Product Category = Cancer Immunotherapy. This will include any biomarker associated with a cancer immunotherapy drug, irrespective of its biomarker use.



- Once in your results page, **Apply Filters** to further define the **Biomarker Uses** of interest, for instance by **Condition, Role, Technique** or **Substrate** used to measure the biomarker. The example below is refining by Condition -> melanoma, and by Role -> Monitoring treatment efficacy:









The screenshot shows the Cortellis Drug Discovery Intelligence interface. The top navigation bar includes the Cortellis logo, the title "Drug Discovery Intelligence", and a search bar. The main content area is divided into tabs: Biomarkers, Biomarker Uses, Biomarker Kits, and Overview. The Biomarkers tab is active, displaying a table of biomarker records. A purple box highlights the "Apply Filters" button in the top left of the table area. A purple arrow points from this button to a dropdown menu that is open, showing a list of filter categories: Biomarker Type, Highest Validity, Cortellis Clinical Trials Intelligence, Combination Biomarker, Biomarker Uses (2), Condition (1), Population, Role (1), and Highest Use Validity. The table itself shows columns for Biomarker Name, Biomarker Type, Highest Validity, Biomarker Uses, Drugs, Literature, and Patents. The first row of data shows "Early Studies in Humans" for Biomarker Type, with 1 Biomarker Uses, 2 Drugs, 1 Literature, and 0 Patents.

Biomarker Name	Biomarker Type	Highest Validity	Biomarker Uses	Drugs	Literature	Patents
Early Studies in Humans	Early Studies in Humans	1	2	1	0	
Early Studies in Humans	Early Studies in Humans	2	2	2	0	
Early Studies in Humans	Early Studies in Humans	2	2	1	1	
Early Studies in Humans	Early Studies in Humans	2	2	2	0	
Early Studies in Humans	Early Studies in Humans	3	3	2	1	
Early Studies in Humans	Early Studies in Humans	3	3	3	0	
Early Studies in Humans	Early Studies in Humans	3	2	3	0	
Thymosin beta 4, X-linked pseudogene 4	Genomic	4	3	4	0	

Exploring clinical validity

- Go to the **Biomarker Uses** tab to see the context in which the biomarkers have been used. You will easily identify that in the **Highest Use Validity** column:

Biomarkers Biomarker Uses ? Biomarker Kits ? Overview								
▼ Apply Filters ▲ Sort Showing								
Biomarker Uses - Condit... 1 x Biomarker Uses - Role 1 x Clear all								
<input type="checkbox"/> ? Biomarker Name ▲	Indication ▲	Population ▲	Role ▲	Highest Use Validity ▲	Drugs ▲	Supporting ▲		
<input type="checkbox"/> Glucose transporters and hexokinases	 Melanoma, metastatic	All	Monitoring Treatment Efficacy	Early Studies in Humans	5	2		
<input type="checkbox"/> Heme oxygenase 1	 Melanoma	All	Monitoring Treatment Efficacy	Experimental	1	2		
<input type="checkbox"/> von Willebrand factor	 Melanoma	All	Monitoring Treatment Efficacy	Emerging	0	1		
<input type="checkbox"/> Rho guanine nucleotide exchange factor 15	 Melanoma	All	Monitoring Treatment Efficacy	Emerging	0	1		
<input type="checkbox"/> Protein FAM124B	 Melanoma	All	Monitoring Treatment Efficacy	Emerging	0	1		
<input type="checkbox"/> Serine/threonine-protein kinase receptor R3	 Melanoma	All	Monitoring Treatment Efficacy	Emerging	0	1		

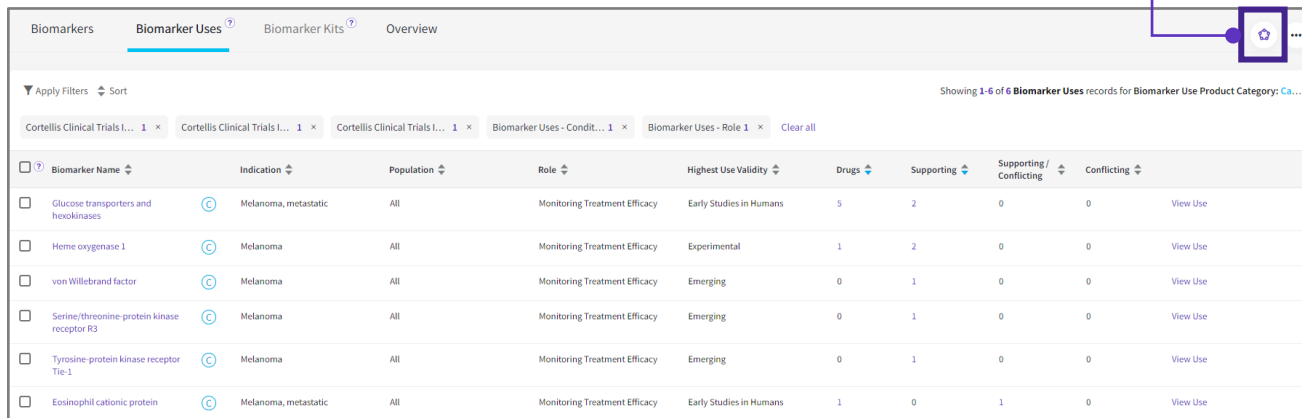
Highest Use Validity

Exploratory studies: **Emerging, Experimental**
 Clinical research: **Early/Late studies in humans**
 Clinical practice: **Recommended/approved**

- Use **Apply Filters** again to refine for biomarkers used in clinical trials covered in the **Cortellis Clinical Trials Intelligence** platform. In this example, we are filtering by biomarkers **Used in Clinical Trial** in **phase III** studies to determine **Efficacy**:

Apply Filters		effic
Biomarker Type	>	
Highest Validity	>	
Cortellis Clinical Trials Intelligence	(3) ^	
Used in Clinical Trial	(1) >	
Phase	(1) >	
Design	(1) >	
Combination Biomarker	>	
		<input checked="" type="checkbox"/> Efficacy (6)

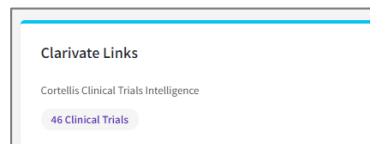
5. We now have a short list of markers, and we can check the supporting literature with the **Related content** button:



The screenshot shows the 'Biomarker Uses' section of the Clarivate interface. A callout box highlights the 'Related content' button (represented by a house icon) in the top right corner. The table below displays 6 biomarker records for the category 'Cancer'. Each record includes a checkbox, biomarker name, indication, population, role, highest use validity, drugs, supporting literature, supporting/conflicting literature, and conflicting literature. A 'View Use' link is provided for each record.

<input type="checkbox"/>	Biomarker Name	Indication	Population	Role	Highest Use Validity	Drugs	Supporting	Supporting / Conflicting	Conflicting	
<input type="checkbox"/>	Glucose transporters and hexokinases	Melanoma, metastatic	All	Monitoring Treatment Efficacy	Early Studies in Humans	5	2	0	0	View Use
<input type="checkbox"/>	Heme oxygenase 1	Melanoma	All	Monitoring Treatment Efficacy	Experimental	1	2	0	0	View Use
<input type="checkbox"/>	von Willebrand factor	Melanoma	All	Monitoring Treatment Efficacy	Emerging	0	1	0	0	View Use
<input type="checkbox"/>	Serine/threonine-protein kinase receptor R3	Melanoma	All	Monitoring Treatment Efficacy	Emerging	0	1	0	0	View Use
<input type="checkbox"/>	Tyrosine-protein kinase receptor Tie-1	Melanoma	All	Monitoring Treatment Efficacy	Emerging	0	1	0	0	View Use
<input type="checkbox"/>	Eosinophil cationic protein	Melanoma, metastatic	All	Monitoring Treatment Efficacy	Early Studies in Humans	1	0	1	0	View Use

Tip If you subscribe to **Cortellis Clinical Trials Intelligence**, you can navigate to the trials associated with your biomarker of interest from the **Biomarker record** itself.



For more information contact Customer Service at **LS Product Support**