



## Undermind.ai (Product Review) Journal of Canadian Health Libraries Association

– Dean Giustini, UBC Biomedical Branch Librarian (March 20th, 2025)

### Table of Contents:

1. Introduction to <a href="#">Undermind.ai</a>	p2
a. <i>Product</i>	
b. URL: <a href="https://www.undermind.ai/">https://www.undermind.ai/</a>	
c. <i>Intended Audience</i>	
d. <i>Cost</i>	
e. <i>Bottom Line</i>	
2. Product / Resource Description	
3. Intended Audience / Users	p3
4. Special Features	p4
5. Compatibility Issues	p5
6. Platform	
7. Usability	p6
8. Strengths and Weaknesses	
9. Comparison with Similar Products	p7
10. Currency	
11. Cost / Value	p8
12. Contact Information	
13. Conclusion	
14. References	p9
15. Figures	
a. <i>Figure 1 – <a href="#">Undermind.ai</a>'s new search page</i>	p10
b. <i>Figure 2 – An Emailed Report Sent from Undermind to User.</i>	p11
c. <i>Figure 3 – Basic search query:</i> <b><i>“Is vitamin c effective in treating common cold? – find meta-analyses and randomized clinical trials”</i></b>	p12
d. <i>Figure 4 – Advanced search query:</i> <b><i>“What are the physiological mechanisms through which Hidradenitis Suppurativa impacts fertility &amp; pregnancy outcomes, particularly regarding infertility rates and pregnancy complications driven by inflammatory and hormonal factors?”</i></b>	p13



## **Introduction**

### **Product:**

[Undermind.ai](https://www.undermind.ai) is a scientific, literature searching and synthesis tool that integrates multiple AI technologies to produce an informative report on complex biomedical topics.

**URL:** <https://www.undermind.ai/>

**Intended Audience:** Researchers, physicians and scientists.

**Cost:** A limited free version (5-search limit per month). A pro version (e.g., \$16/month per user), with some group pricing for “teams” and “enterprise”.

**Bottom Line:** [Undermind.ai](https://www.undermind.ai) is a sophisticated AI search system that conducts comprehensive searches (and a synthesis) of scientific papers found in Semantic Scholar <<https://www.semanticscholar.org>> – a database comprising PubMed.gov, ArXiv.org, and other web sources – and provides users with a useful, curated report of key relevancy-scored articles and summary tables in 8-10 minutes. Recommended for exploratory searches, and finding relevant papers on complex biomedical topics.

### **Product description / purpose:**

[Undermind.ai](https://www.undermind.ai) is a “next generation, AI-powered information retrieval system that researches a complex topic for you” [1]. The tool mimics a human searcher’s multi-step discovery process – and adapts its searching dynamically by leveraging artificial intelligence (AI). In 2023, as a Silicon Valley start-up, Undermind was described as “Google for scientific research”, its founders saying at the time: “...as researchers ourselves [we wanted to build] a search engine that could handle extremely complex questions... geared at experts, like research scientists and doctors, who need to find very specific resources to solve high-stakes problems“ [2].



As mentioned, [Undermind.ai](https://www.undermind.ai) performs searches in Semantic Scholar <<https://www.semanticscholar.org>>, an interdisciplinary database of over 200 million citations [3], via an application programming interface (API) – paired with a large language model (LLM) – to process results [4]. Instead of executing a single search to find papers, “Undermind’s algorithm conducts multiple iterative searches, dynamically adjusting its approach based on previously retrieved results, and carefully reading and following citation trails. This ensures a deeper, more exhaustive exploration” [5].

### **Intended Audience/Users**

Undermind is geared towards scientists and researchers with expert level information needs [6]. According to Shaurya Pednekar, engineer at Undermind, “many of the most prolific users are industry research scientists at pharmaceutical and biotech companies in addition to academics” [5]. Librarians working with faculty, and upper-level undergraduate and grad students may find it useful in teaching AI search technologies, but probably not as a starter tool. Undermind is not suitable for clinicians needing quick answers at point-of-care, or for those doing quick Googling.

### **Special Features**

Here are a few notable features of [Undermind.ai](https://www.undermind.ai):

- 1) **AI Agent:** The AI agent acts like a chatbot, interacting with researchers initially to refine their research question by asking “What do you want to know?” and “Tell me exactly what you want, like a colleague” (See Figure 1). This feature is reminiscent of what librarians do in working with researchers in their consultations and reference interviews;
- 2) **Deep Search Technology:** Deep Search goes beyond keyword searching to the meaning of documents (semantics), performing multiple, successive searches based on what the system finds in relevant papers; Undermind “employs a blend of lexical or keyword search and embedding-based vector or semantic search ...leverag[ing] the latest AI advances using neural nets to allow matching of

queries to documents by contextual meaning even when there is no keyword match” [6]

- 3) **LLM-Classifiers and Summaries:** Large language models are used as “a reasoning engine and classifier at key steps within a structured search process” [7], generating summaries to help researchers understand the retrieved corpus of papers and presenting them in tables with match scores for scanning and analysis. Undermind uses GPT4, an LLM that is part of the GPT (Generative Pre-trained Transformer) series at OpenAI [4].
- 4) **Organized Email Report:** Undermind sends an extensive report of the papers it found on your topic via email in 8-10 minutes (Figure 2). The report reveals how many relevant papers were found (estimating it located 93% of relevant papers after analyzing 144, for example), match scores out of 100 for each paper, and a citation network and timeline. Papers are plotted based on their "relative citation influence" (how often they're cited within the network). Highly influential papers appear at the top, less-cited ones lower down. Using generative AI, the “Write a short review article” feature will compose an evidence-based narrative of key points of the papers and cite them. At this point, new queries can also be generated based on the papers already analyzed in the report.
- 5) **Two (2) completed search examples:**

**i) Basic Search query:** “Is Vitamin C (ascorbic acid) effective in treating common cold?” **Figure 3** (a basic report is available, and can be viewed here): <https://app.undermind.ai/report/e61db6812482cc1248dd13fa4dc2b7652f2ce589c0e5d748a8e456e880fcb7b8>)

According to Josh Ramette at Undermind: “...some research questions (such as “vitamin C and common cold”) may be better served at Google Scholar or other search tool. To take full advantage of the power of Undermind, really complex, cutting edge research topics are more appropriate based on the complexity of the system, especially when you're wondering whether anyone has actually researched that topic yet” [8].

See the following example of Undermind’s handling of a complex biomedical question:

ii) **Advanced search query:** “What are the physiological mechanisms through which Hidradenitis Suppurativa impacts fertility and pregnancy outcomes, particularly regarding infertility rates and pregnancy complications driven by inflammatory and hormonal factors?” **Figure 4** (a basic report is available, and can be viewed here):

<https://app.undermind.ai/report/a0f894bdcf1592dd72311d3d78d6d4e3b8e0300b48be26d2b02a06e74f753652>

## **Compatibility Issues**

Undermind requires no local software installation, or downloading. Signing up for a free account at the website is recommended, and reliable Internet connectivity is essential. After searching, pro users can export results directly into a citation manager (e.g., Zotero, EndNote) or screening platform (e.g., Covidence) using a standard file format (e.g., CSV, BibTeX and RIS). Evidence-based practitioners in healthcare would benefit from a simplified mobile version, given the interface’s complexity. Browser compatibility is acceptable in Chrome, Firefox and Edge.

## **Platform**

Undermind is hosted at <https://www.undermind.ai/home/>. No downloadable client is needed. Searches are saved on the platform, with shareable links. The interface has a minimal feel initially but gets cluttered quickly. Librarians accustomed to thesaurus-based Boolean searching may find the user interface inflexible, but novices may prefer the platform’s ability to search and synthesize papers. Authentication is via username and password. The Terms of Use states that you can “freely share, distribute, and disseminate search results...with any third parties, including but not limited to non-subscribers, other institutions, and the general public.” [9] For libraries with subscriptions, COUNTER statistics are unavailable.

## **Usability**

Undermind relies on the user to communicate their information needs to the research assistant. The system mitigates this by asking users to clarify their research question,

reframing it in several steps. The 8-10 minute wait may frustrate those expecting faster results, though the relevance scores and “Summary of Key Findings” in the emailed report are informative. It’s unclear whether searchers will find the detailed relevancy tables helpful, but they will provide some utility and transparency. Documentation is sparse for this tool, with only one video and the site FAQs. Finally, editing searches is not possible, but searchers can return to reports via history to ask new questions of the system, which increases the usability of search histories.

### **Strengths and Weaknesses**

Undermind’s use of an AI agent or chatbot to refine a query is a strength, especially for complex topics. Another is the systems’ statistical model or ‘discovery curve’ that estimates the total number of relevant papers on any given scientific topic – even for cutting edge topics where there may only be a handful of relevant papers. Aaron Tay, librarian, said the model is based on the idea that “when users start to exhaust relevant papers in an index, they will start getting fewer and fewer relevant papers. This feature offers users confidence that they aren’t missing highly relevant content” [6].

The inability to report a reproducible search strategy is Undermind’s Achilles heel, but most AI-search platforms have this limitation. The cognitive load to learn the AI-based user interface and system is high, but manageable via trial-and-error testing. Given the algorithms embedded in this product, librarians will want to evaluate whether their search results reveal or perpetuate biases of various kinds [10]. The use of OpenAI GPT4 may also raise ethical questions about how to ethically use AI tools, and librarians should be prepared to have those conversations [11]. Due to the computationally intensive nature of the system, the platform prioritizes precision over speed. Researchers wait for 8-10 minutes for results, which will be too long for some.

### **Comparison with Similar Products**

- Google Scholar (GS) <<https://scholar.google.com>> is the largest interdisciplinary search engine with ~400 million citations. Used by researchers, despite all the



browsing and iterative searching required. What Undermind lacks in GS' breadth of coverage and speed, it makes up for with its unique algorithms and syntheses.

- PubMed.gov <<http://www.pubmed.gov>> is the National Library of Medicine (NLM)'s free MEDLINE search index to 37 million citations, and used to access structured search features and Medical Subject Headings (MeSH). Undermind.ai offers synthesis but no MeSH integration, and no reportable/transparent/reproducible search strategies.
- Elicit.com <<https://elicit.com>> integrates generative AI and LLMs, and now offers a “Start A Systematic Review” workflow to support researchers in knowledge synthesis projects. (Undermind's iterative algorithms and depth may edge out Elicit for complex queries).
- SciSpace <<https://scispace.com>> “AI Chat for Scientific Research” puts the focus on visualization and summaries. Less iterative than Undermind, it is more suitable for quick insights than a deeper synthesis, though it recently released its Deep Review feature: <https://scispace.com/search>.
- Scite.ai <<https://scite.ai>> “supercharge your research with AI and search powered by the world's scholarly content - both Open Access and paywalled” emphasizes citation context, and transparent search strings. Undermind prioritizes relevance over transparency, and precision over speed.

## **Currency**

[Undermind.ai](#) uses Semantic Scholar's updated database in real-time, ensuring its currency. The platform's AI-driven search process enhances its currency by adaptively exploring full-text and citation networks, similar to a human researcher's process. Undermind continues to evolve—the 2023 version searched arXiv.org only but now includes Semantic Scholar's content from PubMed, arXiv and other databases. If there is a time lag, it is likely a day or two only. The use of GPT4 and Deep Search Technology suggest the system is current.



## **Cost/Value**

[Undermind.ai](https://www.undermind.ai) offers a free version with a 5-search limit per month with each search analyzing 50 papers, not the 150+ papers as in the subscription pro version. Pro version pricing is based on usage or simultaneous users (e.g., \$16/month per user), and includes some pricing for “Teams” and “Enterprise”. For librarians, the return on investment will depend on the time saved in synthesizing papers. Compared to free tools such as Google Scholar or subscription databases (Ovid MEDLINE), I would call this a boutique item for high-end researchers, but not appropriate for general reference or undergraduate students unless they are interested in AI-enabled searches.

## **Contact Information**

- Website: <https://www.undermind.ai/home/>
- For support, communicate with staff via [Undermind.ai](https://www.undermind.ai) website.
  - Direct email: <[support@undermind.ai](mailto:support@undermind.ai)>
- Community: Limited public presence—social media via X <<https://x.com/UndermindAI>> and LinkedIn <<https://www.linkedin.com/company/undermind-ai>>.

## **Conclusion**

[Undermind.ai](https://www.undermind.ai) is a worthy, niche competitor in the AI search space, and researchers will benefit from using it. For health sciences librarians, it offers an AI-powered way to start a literature review in biomedicine, and to find highly relevant (seed) papers in support of knowledge syntheses. The system’s slow response time (from 8 to 10 minutes) limits its utility in some contexts, despite helpful summaries, match scores and a final report. However, when Undermind reports, for example, that search completeness is between 87% to 100% (in locating all relevant papers), the cost of the subscription to replace the creation of an initial search and screening of papers is worth the investment. Similar to [Elicit.com](https://www.elicit.com), Undermind is a sophisticated option for researchers, and represents the future direction of AI search tools [12]. Users should weigh buying a subscription and the platform’s shortcomings against the time savings offered by the final report.

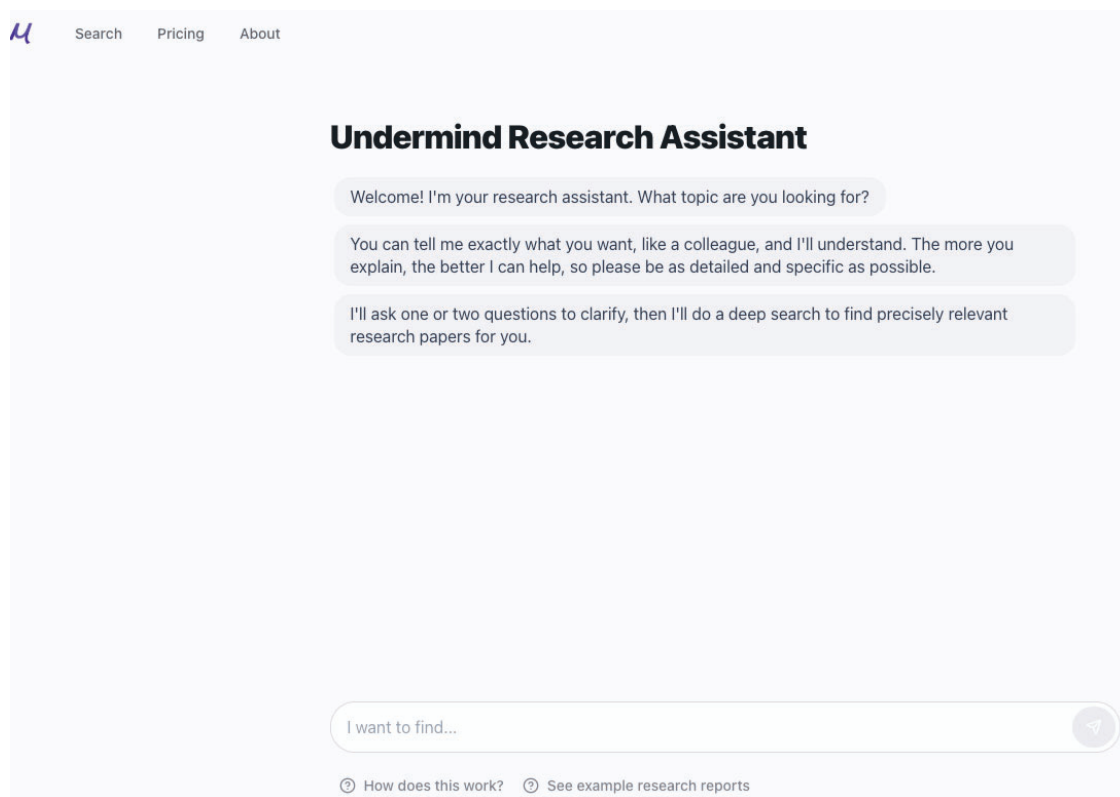


## References

1. [Undermind.ai](https://www.undermind.ai/) homepage [Internet]. Available from: <https://www.undermind.ai/>
2. Y-Combinator [Internet]. Undermind: An AI agent for scientific research [cited 2025 Mar 5]. Available from: <https://www.ycombinator.com/companies/undermind>
3. Semantic Scholar [Internet]. About Us [cited 2025 Mar 5]. Available from: <https://www.semanticscholar.org/about>
4. Ramette J. Discussion of Undermind.ai [Internet]. Zoom transcript. Discussion with D. Giustini. 2025 Feb 3 [cited 2025 Mar 5]. [3 paragraphs].
5. Pednekar S. Discussion of Undermind.ai [Internet]. Email message to D. Giustini. 2025 Jan 30 [cited 2025 Mar 5].
6. Tay A. New AI tool shows the power of successive search. Katina. November 12, 2024. Available from: <https://katinamagazine.org/content/article/main-section/2024/undermind-ai-shows-the-power-of-successive-search>.
7. Hartke T, Ramette J. Benchmarking the Undermind Search Assistant. Whitepaper, Undermind.ai. January 5, 2024. Available from: [https://www.undermind.ai/static/Undermind\\_whitepaper.pdf](https://www.undermind.ai/static/Undermind_whitepaper.pdf)
8. Ramette J. Discussion of Undermind.ai [Internet]. Message to D. Giustini. 2025 Jan 30 [cited 2025 Mar 5]. [3 paragraphs].
9. Undermind [Internet]. Terms of Use [cited 2025 Mar 5]. Available from: [https://www.undermind.ai/terms\\_of\\_use/](https://www.undermind.ai/terms_of_use/)
10. Saeidnia HR. Ethical artificial intelligence (AI): confronting bias and discrimination in the library and information industry. Library Hi Tech News. 2023 Oct 24. Available from: <https://www.emerald.com/insight/content/doi/10.1108/lhtn-10-2023-0182/full/html>
11. Ngulube P, Vincent Mosha NF. Integrating artificial intelligence-based technologies 'safely' in academic libraries: An overview through a scoping review. Technical Services Quarterly. 2025 Jan 2;42(1):46-67. <https://doi.org/10.1080/07317131.2024.2432093>
12. Elicit Blog [Internet]. How we evaluated Elicit Reports. [cited 2025 Mar 5]. Available from: <https://blog.elicit.com/elic-it-reports-eval/>



**Figure 1: Undermind's New Search homepage <<https://app.undermind.ai/>> as of March 12th, 2025 where searchers engage with the AI assistant.**



**Figure 2: An Emailed Report Sent from Undermind to Users.**



Hi Dean,

Your recent Undermind research report is ready.

Best,

The Undermind Team

[View your report](#)

### **Tips for getting the most out of Undermind**

- Share your report with colleagues by copying the report URL.
- Access all your past searches in your history page.
- Ask questions in the chat to dig deeper into the articles it found.

Figure 3: Undermind’s response to a basic search query in biomedicine,

- **“Is vitamin c effective in treating common cold? – find meta-analyses and randomized clinical trials”**

The screenshot shows the Undermind AI interface. At the top, there's a search bar with the query "Effectiveness of vitamin C in cold prevention and treatment". Below the search bar, it indicates "82% COMPLETE (144 PAPERS)" and has a "Share" button. The main heading is "Effectiveness of vitamin C in cold prevention and treatment". Below this, it shows the full search query: "The effectiveness of Vitamin C (ascorbic acid) in the prevention and treatment of the common cold, supported by meta-analyses and randomized clinical trials".

Under the heading, there's a section titled "Discuss results with an expert" with a "New" and "History" button. The expert's response is displayed in a light blue box: "Regular supplementation with vitamin C ( $\geq 200$  mg/day) reduces the duration and severity of the common cold modestly in the general population (by ~8% in adults and ~14% in children), provides significant preventive benefits (reducing incidence by ~50%) in individuals under physical stress, but does not prevent colds in the general population, while therapeutic use after symptom onset shows inconsistent effectiveness [ 1 , 2 , 3 , 7 , 8 ].".

Below the expert's response, there's a prompt: "You can find the full report and references below, but I can answer your questions about them directly. What do you want to know?". There are four buttons for actions: "Explain key background information", "Create a table comparing the top results", "Write a short review article", and "Identify open questions". There's also a "Describe the timeline of research" button. At the bottom of this section, there's a search bar with the text "I want to find..." and a search icon.

Below the search bar, there's a section titled "Read the full report".

**Figure 4:** Undermind’s response to an advanced research query in biomedicine,

- **“What are the physiological mechanisms through which Hidradenitis Suppurativa impacts fertility and pregnancy outcomes, particularly regarding infertility rates and pregnancy complications driven by inflammatory and hormonal factors?”**

**Research Topic: Physiological mechanisms linking Hidradenitis Suppurativa to infertility and pregnancy complications**

Full search query: The physiological mechanisms of Hidradenitis Suppurativa affecting fertility and pregnancy outcomes, with a focus on infertility rates and pregnancy complications resulting from inflammatory and hormonal mechanisms

▼ **Discuss results with an expert** ⓘ

+ New ⌚ History

Hidradenitis Suppurativa (HS) is associated with elevated infertility rates and increased pregnancy complications, with systemic inflammation (e.g., elevated TNF- $\alpha$ ) and hormonal dysregulation implicated as contributing mechanisms, though current evidence remains largely indirect, relying on observational, population-based, and patient-reported data [ 1 , 2 , 3 , 5 ].

You can find the full report and references below, but I can answer your questions about them directly. What do you want to know?

Explain key background information

Create a table comparing the top results

Write a short review article

Identify open questions

Describe the timeline of research

I want to find...

▼ **Read the full report**

Contact:

Dean Giustini, MLIS, MEd

UBC Biomedical Branch Librarian

*Liaison librarian: UBC Faculty of Medicine, St. Paul's and Vancouver hospitals*

VGH Diamond Health Care Centre, UBC Library | (604) 875-4505

Bluesky: [giustini](#) ORCID: [0000-0002-6197-8788](#)

[Google Scholar Research Metrics Profile](#) | [Make an appt](#)



THE UNIVERSITY OF BRITISH COLUMBIA

