



Key Benefits

The ILM approach to systematic literature searching:

- Accelerates the current time-bound and episodic manual review process
- Increases efficiency and productivity
- Provides a deeper understanding of current complex, scientific content
- Operates in near real-time
- Allows automatic deployment of insights into a centralized and customized database.

Digital platforms can compile and store results in a more versatile way, increasing functionality and creating efficiencies.

www.IntelligentLiteratureMonitoring.com

CASE STUDY

Intelligent Literature Monitoring

INTELLIGENT LITERATURE MONITORING WITH INTEGRATED

ARTIFICIAL INTELLIGENCE: Transforming literature search and publication planning in real-time workflows

Intelligent Literature Monitoring (ILM) is a novel approach of augmenting and running continuous systematic literature searches around defined areas of therapeutic domains. ILM leverages Artificial Intelligence (AI) and its subset discipline Natural Language Processing (NLP). **This enables the extraction of valuable insights from an expansive number of medical publications, as they are being published, into a centralized location.**

Objective

We aimed to demonstrate the benefits of transforming literature monitoring from a manual report-based process into an intuitive, semi-automated, AI-driven process.

Methods

WE ASSESSED TWO DIFFERENT APPROACHES TO CONTINUOUS LITERATURE MONITORING:

1. Manual search and output
2. Semi-automated search, with AI integration and digital output, applied across search scenarios producing high (>250) and low (<100) volumes of results.

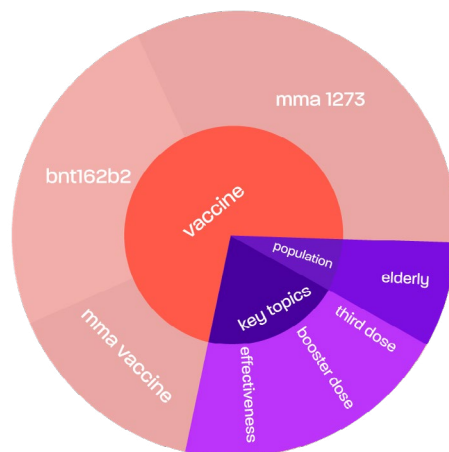
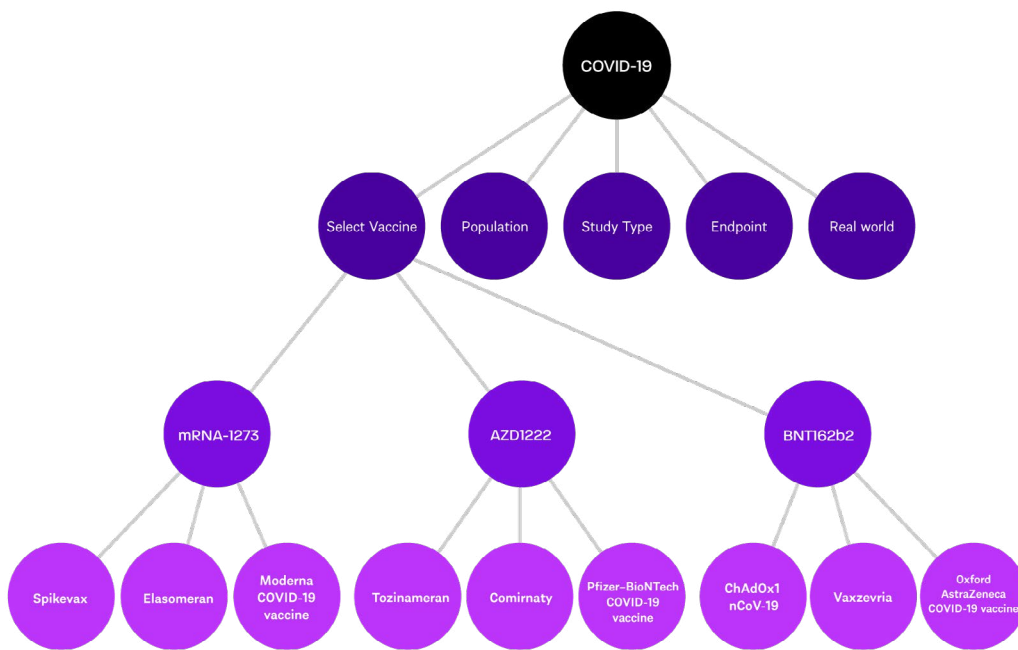
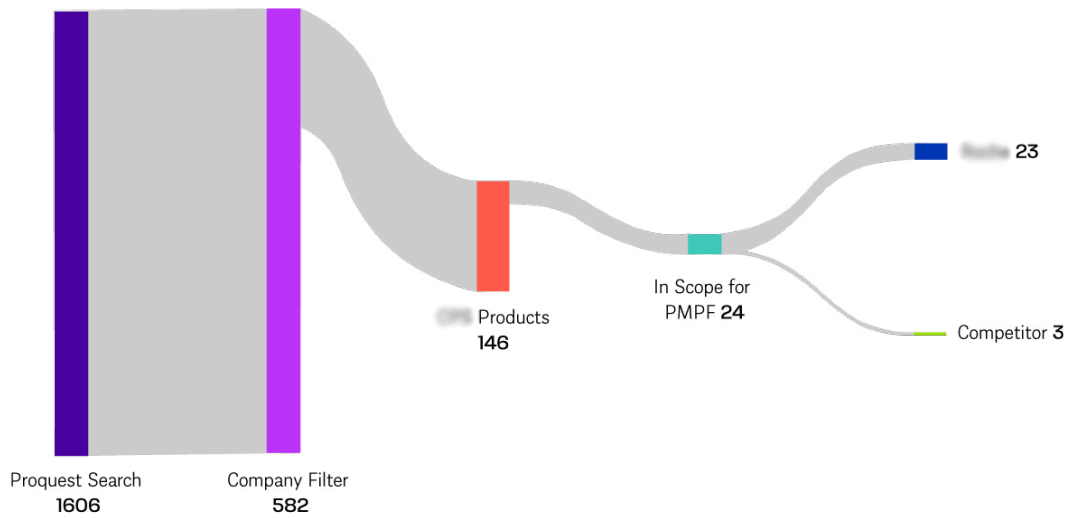
ILM was performed using the Sorcero LI Platform and the BioBERT language model against identical corpora. We compared each approach for man hours, sensitivity, specificity, versatility/utility of outputs and depth of insights. We also qualitatively assessed the digital output from a user experience perspective.



Results

HIGH VOLUME RESULTS

The ILM approach with integrated AI was the most favorable option for search strings with high volumes of search results (e.g. "oncology" or "COVID")



88-92% REDUCTION IN MANUAL TIME

Compared with manually searching and reviewing the literature, this method resulted in a time reduction of 88-92%, along with 99.8% sensitivity and 95% specificity.

Real-world results of the manual (control) process vs. ILM with integrated AI, performed for leading pharmaceutical enterprise medical affairs and publications teams:

	Manual (Control Process)	ILM Process	Results
Total Articles	1606	1606	
# of Batches	44	44	
% Reviewed	100% manual	100% AI + Manual	
Company Criteria Relevancy Filter	581	582	99.83% sensitivity
Product Relevancy Scored	146	146	
Relevancy Inclusion	23 Human Determined	23 AI Determined	>95% specificity
M.D./PhD. Time to Review	715 hours (Avg. 27 mins/articles)	55 hours Review + 25 hours of QA	88% reduction in manual time

COMPARATIVE NEGATIVE PREDICTIVE VALUE (NPV) FROM TWO AI LITERATURE MONITORING PLATFORMS

Sorcero's Language Intelligence approach and continuous learning delivered double-digit absolute performance improvements across all study types, exceeding the 95% NPV threshold commonly accepted as that required for a regulatory-grade literature review solution

	Analyte is subject	Performance study	Human study	Intended use
Bio BERT	85.00%	75.00%	84.60%	79.70%
Sorcero LI Platform	96.50%	88.50%	96.90%	91.10%
Differential	+11.50%	+13.50%	+12.30%	+11.40%

SPECIALIZED, LOW VOLUME SEARCH RESULTS

For low-volume search results, (e.g. rare diseases) a digital tool improved accessibility, distribution, communication, archiving, and sorting/filtering

FILTER REPORT

[LOAD A SEARCH](#) [SAVE THIS SEARCH](#)

- KEY TOPICS
- AGENTS
- KEYWORD
- ARTICLE TYPE
- JOURNAL
- OPI SCORE
- SUMMARY VS CITATION

SELECT TIME PERIOD

TIME RANGE

- Current Report
- Past Two Reports
- All 2022
- Custom

From: January 2020

To: January 2022

RESULTS: 583

SORTED BY: **FEATURED**

Long-term safety and efficacy of patisiran for hereditary transthyretin-mediated amyloidosis with polyneuropathy: 12-month results of an open-label extension study. Publication Impact Score (OPI-5)

Adams D, Polydefkis M, Gonzalez-Duarte A, et al. *Front Neurol.* 2020 Nov 16. [Epub ahead of print]

Prospective clinical study ONPATTRO (patisiran) Clinical trial Competitor

Hereditary ATTR Polyneuropathy Treatment 3-Dec-20 [View Abstract](#)

Impact of tafamidis on health-related quality of life in patients with transthyretin amyloid cardiomyopathy (from the Tafamidis in Transthyretin Cardiomyopathy clinical trial). Publication Impact Score (OPI-5)

Hanna M, Damy T, Grogan M, et al. *Am J Cardiol.* 2020 Nov 18. [Epub ahead of print]

Prospective clinical study VYNDAQEL/VYNDAMAX (tafamidis) Cardiomyopathy

Clinical trial Competitor HEOR Hereditary ATTR Treatment Wild-type ATTR

3-Dec-20 [View Abstract](#)

Efficacy of tafamidis in patients with hereditary and wild-type transthyretin amyloid cardiomyopathy: further analyses from ATTR-ACT. Publication Impact Score (OPI-5)

Rapezzi C, Elliott P, Damy T, et al. *JACC Heart Fail.* 2020 Dec 2. [Epub ahead of print]

Prospective clinical study VYNDAQEL/VYNDAMAX (tafamidis) Cardiomyopathy

Clinical trial Competitor Hereditary ATTR Treatment Wild-type ATTR

7-Jan-21 [View Abstract](#)

Recent advances and current dilemmas in the diagnosis and management of transthyretin cardiac amyloidosis. Publication Impact Score (OPI-5)

Addison D, Slivnick JA, Campbell CM, Vallakati A, Jneid H, Schelbert E. *J Am Heart Assoc.* 2021;10(9):e019840.

Review 29-Apr-21 [View Abstract](#)

Digital tool dashboard snapshot: All-article view

Effects of the Moderate CYP3A4 Inhibitor Erythromycin on the Pharmacokinetics of Palbociclib: A Randomized Crossover Trial in Patients With Breast Cancer

Palbociclib is an oral inhibitor of cyclin-dependent kinases 4 and 6 used in the treatment of locally advanced and metastatic breast cancer, and is extensively metabolized by cytochrome P450 enzyme 3A4 (CYP3A4). A pharmacokinetic/pharmacodynamic relationship between palbociclib and erythromycin

palbociclib 4 breast cancer

February 1, 2022

Molenaar-Kuijsten L, Braal CL, Groenland SL, de Vries N, Rosing H, Beijnen JH, Koelen SL, Vulink AJ, van Dongen MG, Mathijssen RH, Huijtema AD, Steeghs N

Clinical pharmacology and therapeutics
Journal Article

[Article Link](#) [Copy Citation](#)

Knowledge Graph

Drug Agents 14 >

Disease State 1 >

Categories

Palbociclib is an oral inhibitor of cyclin-dependent kinases 4 and 6 used in the treatment of locally advanced and metastatic breast cancer and is extensively metabolized by cytochrome P450 enzyme 3A4 (CYP3A4). A pharmacokinetic/pharmacodynamic relationship between palbociclib exposure and neutropenia is well known. This study aimed to investigate the effects of the moderate CYP3A4 inhibitor erythromycin on the pharmacokinetics of palbociclib. We performed a randomized crossover trial comparing the pharmacokinetics of palbociclib monotherapy 125 mg once daily (q.d.) with palbociclib 125 mg q.d. plus oral erythromycin 500 mg three times daily for seven days. Pharmacokinetic samples of palbociclib were formed at steady-state for both dosing schedules. Eleven evaluable patients have been enrolled. For palbociclib monotherapy, geometric mean area under the plasma concentration-time curve from zero to infinity (AUC_{0-24h}), maximum plasma concentration (C_{max}), and minimum plasma concentration (C_{min}) were 1.46 × 10³ ng•h/mL (coefficient of variation (CV) 45.0%), 80.5 ng/mL (CV 48.5%), and 48.4 ng/mL (CV 38.8%), respectively, compared with 2.09 × 10³ ng•h/mL (CV 49.3%, P = 0.000977), 115 ng/mL (CV 53.7%, P = 0.00562), and 70.7 ng/mL (CV 47.5%, P = 0.000488) when palbociclib was administered concomitantly with erythromycin. Geometric mean ratios (90% confidence intervals) of AUC_{0-24h}, C_{max}, and C_{min} for palbociclib plus erythromycin vs. palbociclib monotherapy were 1.43 (1.24-1.66), 1.43 (1.20-1.69), and 1.46 (1.30-1.63). Minor differences in adverse events were observed, and only one grade ≥ 3 toxicity was observed in this short period of time. To conclude, concomitant intake of palbociclib with the moderate CYP3A4 inhibitor erythromycin resulted in an increase in palbociclib AUC_{0-24h} and C_{max} of both 43%. Therefore, a dose reduction of palbociclib to 75 mg q.d. is rational, when palbociclib and moderate CYP3A4 inhibitors are used concomitantly.

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Digital tool dashboard snapshot: Report view with key findings

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