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.

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

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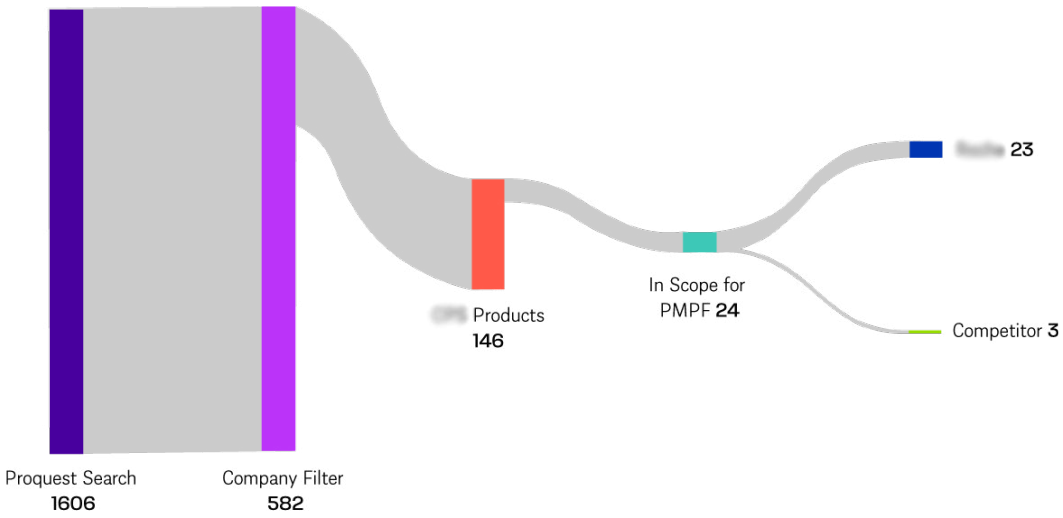
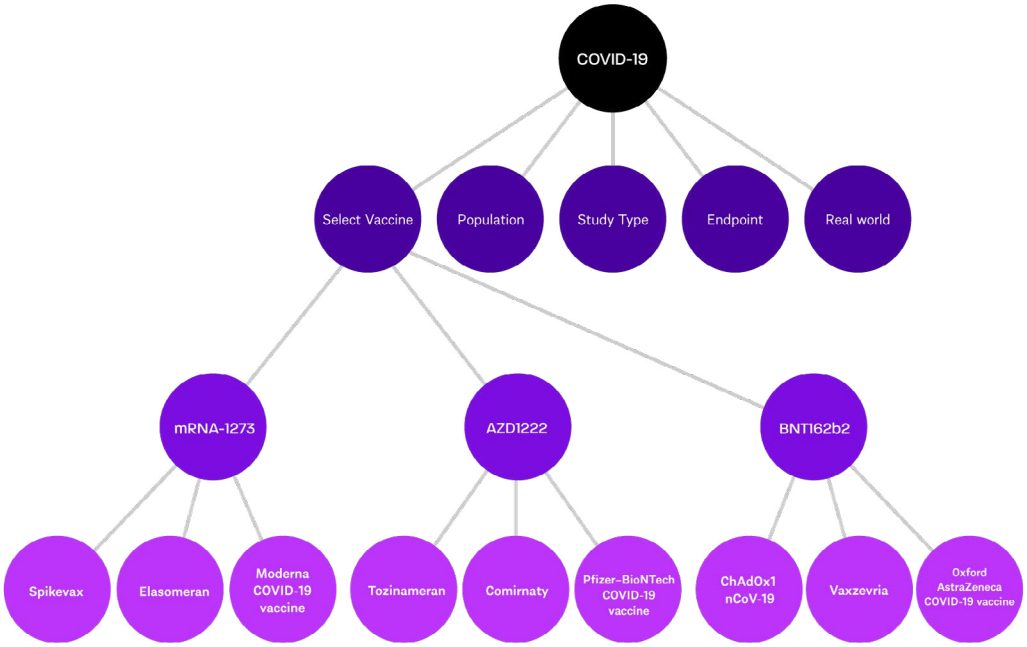
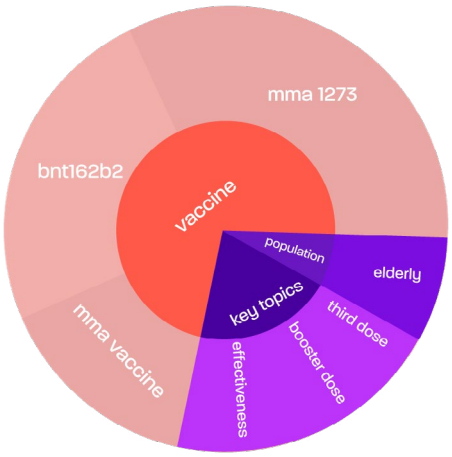
Results

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

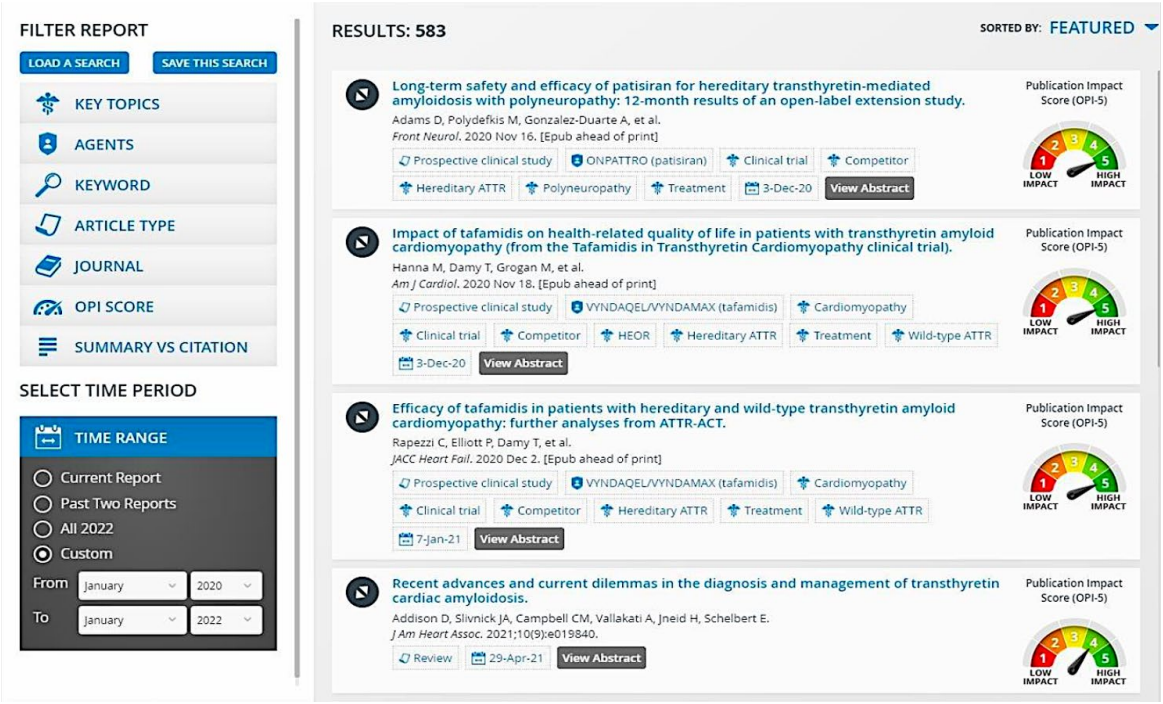
COMPARATIVE NEGATIVE PREDICTIVE VALUE (NPV) FROM TWO AI LITERATURE MONITORING PLATFORMS

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



Digital tool dashboard snapshot: All-article view

Digital tool dashboard snapshot: Report view with key findings