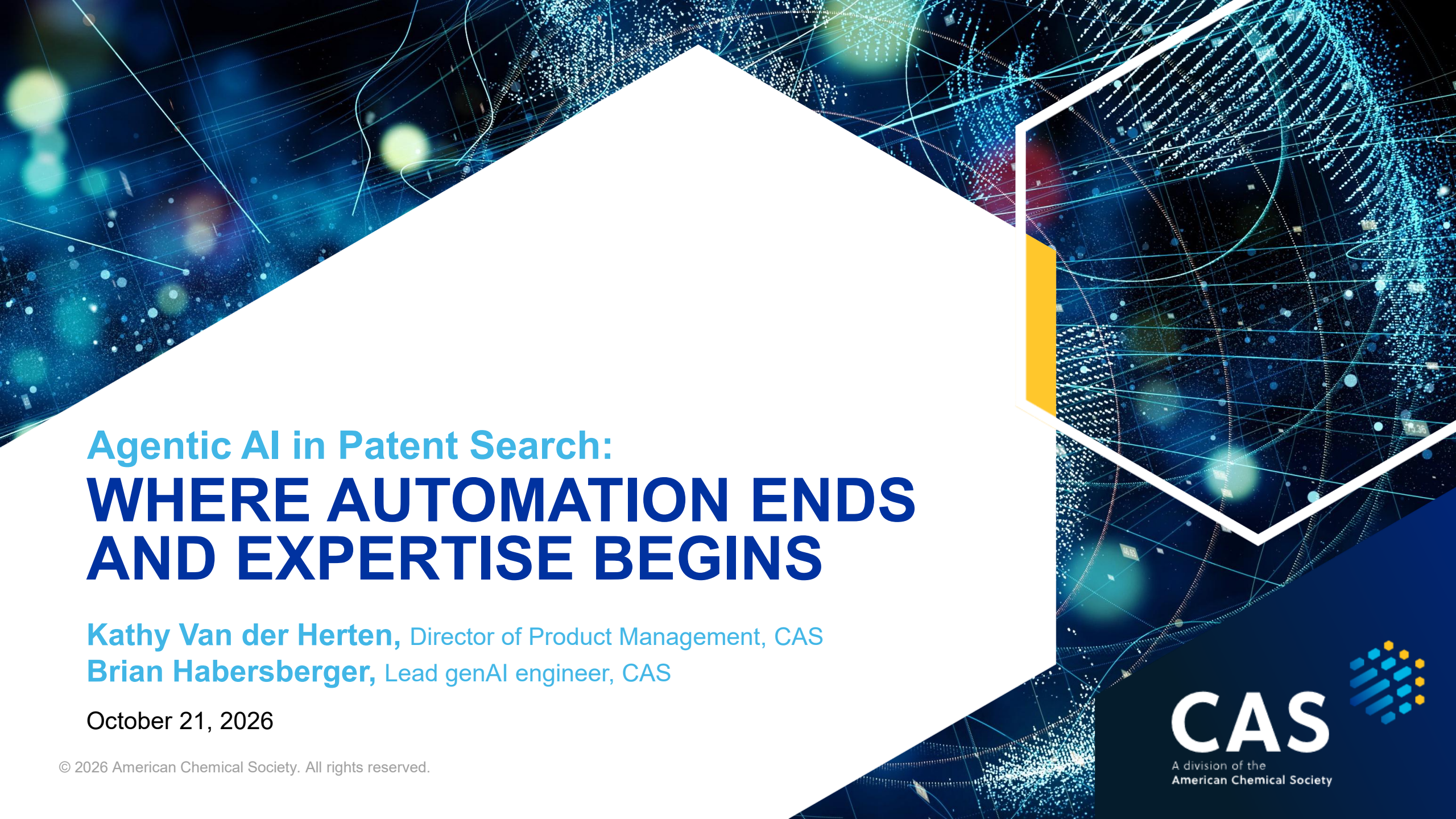




Agentic AI in Patent Search: **WHERE AUTOMATION ENDS AND EXPERTISE BEGINS**

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October 21, 2026

CAS accelerates breakthroughs

Our Vision

Improving lives
through the
transforming power
of science

At CAS, our passion is advancing scientific progress.

As a specialist in scientific knowledge management, we are proud to partner with innovators across industries, enabling them to harness the power of connected scientific information and accelerate the journey from inspiration to innovation.

Agentic AI in the Patent Workflow

A snapshot, not a settled picture. This space is moving fast.

Across current AI-assisted patent tools, agents are increasingly performing or actively supporting specific tasks in each stage of the patent lifecycle, not just answering questions about patents.

1 Invention capture & disclosure

Agents interview the inventor, turn notes, sketches or a rough disclosure into a structured record, and flag missing technical detail before drafting starts.

2 Prior art & novelty search

Agents translate a plain-language invention description into a search strategy, run it across patent and scientific literature, and return a ranked, explained shortlist rather than a raw list of hits.

3 Drafting: claims & specification

Agents produce a first full draft of claims, specification and abstract from a disclosure or claim tree, formatted to a chosen patent office's requirements, for the attorney to edit line by line.

4 Prosecution & office actions

Agents read an examiner's rejection, map the cited references against the claim language, and draft a structured response with supporting arguments for the attorney to review.

5 Freedom-to-operate & clearance

Agents screen a product or design against active claims in relevant jurisdictions and produce a structured clearance summary an attorney can verify, instead of a manual patent-by-patent review.

6 Invalidity, infringement & litigation support

Agents break a claim into its individual limitations, search for evidence against each one, and assemble a limitation-by-limitation claim chart with citations and a confidence score.

7 Portfolio management & classification

Agents classify large batches of patents against a company's own taxonomy, extract key dates from incoming office correspondence, and surface renewal, licensing or abandonment candidates.

Searcher's Paradox

Patents are public and searchable,
so why is finding them hard?

- Patents are public documents describing an invention in dense legal and technical language.
- A patent searcher isn't just looking for words on a page. They're trying to **anticipate** every way an invention could have been described.
- Same invention, described as a chemical structure, a functional description, a means plus function claim, or a broad genus covering thousands of unnamed variations.
- **Anticipation**, not just the search itself, is where the real difficulty lives.

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(54) Title: MODIFIED RNAI AGENTS

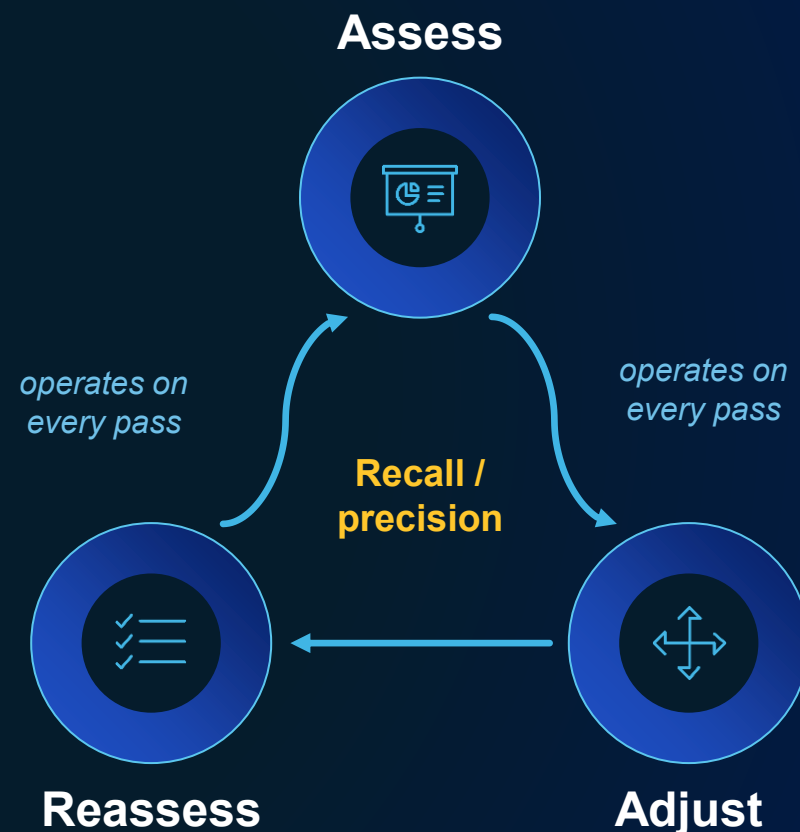
(57) Abstract: One aspect of the present invention relates to double-stranded RNAi (dsRNA) duplex agent capable of inhibiting the expression of a target gene. The dsRNA duplex comprises one or more motifs of three identical modifications on three consecutive nucleotides in one or both strand, particularly at or near the cleavage site of the strand. Other aspects of the invention relates to pharmaceutical compositions comprising these dsRNA agents suitable for therapeutic use, and methods of inhibiting the expression of a target gene by administering these dsRNA agents, e.g., for the treatment of various disease conditions.

WO 2013/074974 A2

The Human Balancing Act

The tradeoff between finding everything and staying manageable

- Casting a wider net catches more relevant art but buries it in noise; narrowing the search cuts noise but risks missing the one reference that matters
- The right balance shifts with the purpose of the search, and there's no universal setting that works for every project
- **That balance is held together by ongoing human judgment:** assess results, adjust the strategy, reassess against the criteria, repeat



A cautionary tale · February 2026

AI-written Citations, Filed in a Real Patent Case

Lexos Media IP LLC v. Overstock.com
U.S. District Court, District of Kansas

Five attorneys sanctioned Citations
struck with no leave to amend

~900 documented AI-hallucination
cases in U.S. filings since
2023 — and the penalties
keep climbing.

ILLUSTRATIVE MOCK-UP — NOT THE ACTUAL FILING

Plaintiff's response in opposition — excerpt

As this Court has recognized, post-sale conduct bears on willfulness. See *Symbol Tech. Sys. v. Aruba Networks*, 812 F. Supp. 2d 1090 (D. Kan. 2019) (holding the accused party liable for continued distribution). The reasoning in *Halbertson v. Datamark*, 655 F.3d 1120 (Fed. Cir. 2014), quoting Judge Alvarez, further compels this result.

DOES NOT EXIST

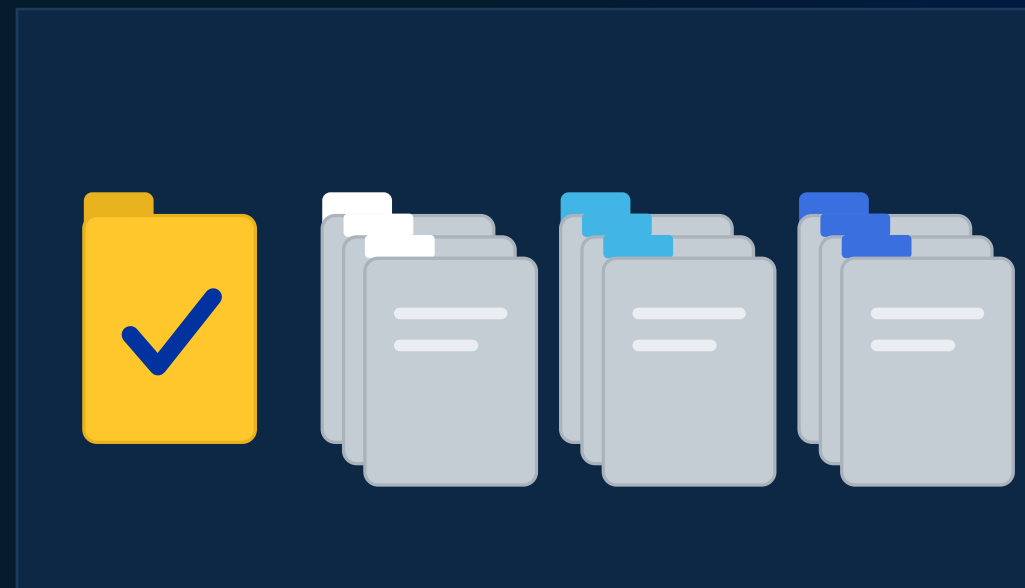
The context-window bottleneck

You Can't Feed It Everything — and most of what you could is noise

Dump in as many “relevant” docs as you can fit



Curate and organize the valuable parts of docs

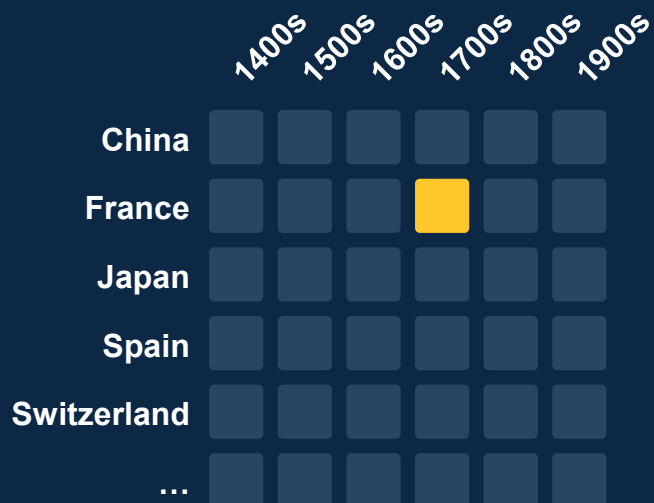


Curating the right excerpts first fixes both problems: the buried reference surfaces, and nothing spills past the edge.

The shape of the question

Concentrated Questions Versus Dilute Questions

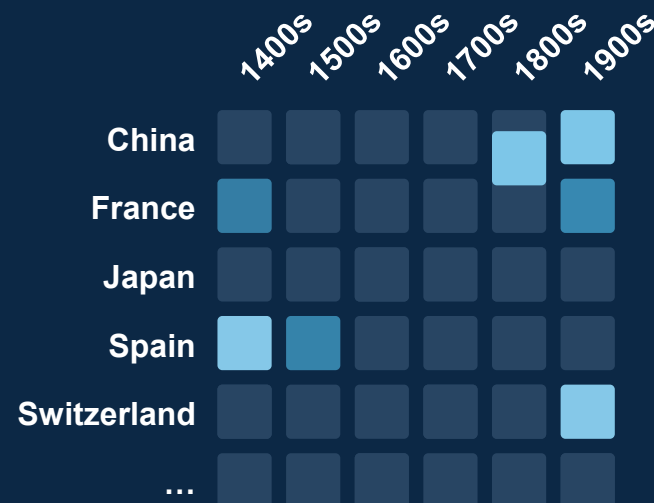
CONCENTRATED



“Who was King of France in 1736?”

The answer lives in one place.

DILUTE



“Which countries have had a female head of state?”

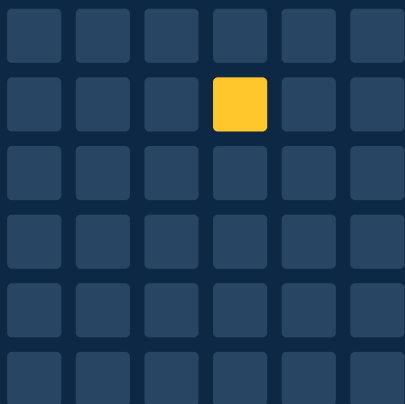
Assembled from everywhere.

In IP you rarely want the five most similar patents — you want the whole landscape. Landscape, freedom-to-operate, invalidity, and opposition turn on **recall**. Top-*k* similarity returns the closest handful — nearly the reverse of what a dilute task needs.

The shape of the question

Concentrated Questions Versus Dilute Questions

CONCENTRATED



“What’s the boiling point of acetonitrile?”

The answer lives in one place.

DILUTE



“Which catalysts achieved >90% selectivity for CO₂-to-methanol conversion?”

Assembled from everywhere.

In IP you rarely want the five most similar patents — you want the whole landscape. Landscape, freedom-to-operate, invalidity, and opposition turn on **recall**. Top-*k* similarity returns the closest handful — nearly the reverse of what a dilute task needs.

An example from a decade of IP work in PV

Patents don't use standard language



In the context of patents describing materials solutions, what does "TPO" mean?

Thermoplastic polyolefin (or thermoplastic olefin)

This is a class of polymer blends—typically polypropylene (or another polyolefin) combined with an elastomer such as EPDM or an ethylene-based rubber, often with fillers. TPOs are widely referenced in patents covering automotive parts (bumpers, dashboards, cladding), single-ply roofing membranes, and general molded goods. If the patent is about bulk polymer compounds, molding, sheet/membrane materials, or mechanical properties, this is almost certainly the intended meaning.

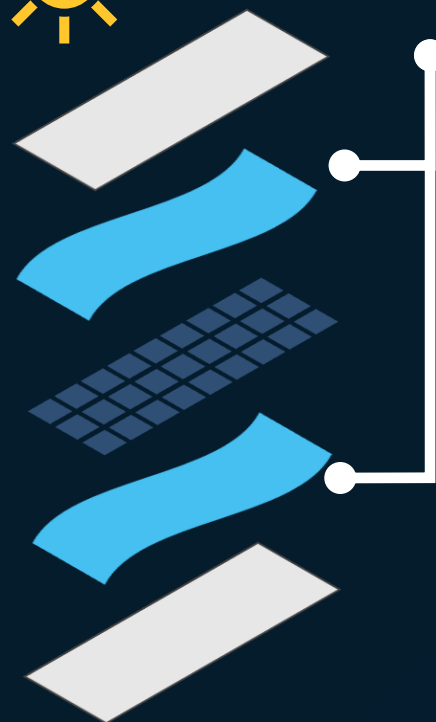
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PV Encapsulant

\$10B / yr · ~8% CAGR

- EVA
- POE
- TPO
 - “Thermoplastic polyolefin”
 - Ethylene/α-olefin
 - Alkoxysilane-grafted
 - No filler
 - Crosslinks

Structure and sequence search

Some prior art isn't language at all

Many LLMs can view images, but without chemical indexing and structure or sequence search, cannot act in substance domains.



Markush / genus claim

a scaffold standing for thousands of compounds



Substructure

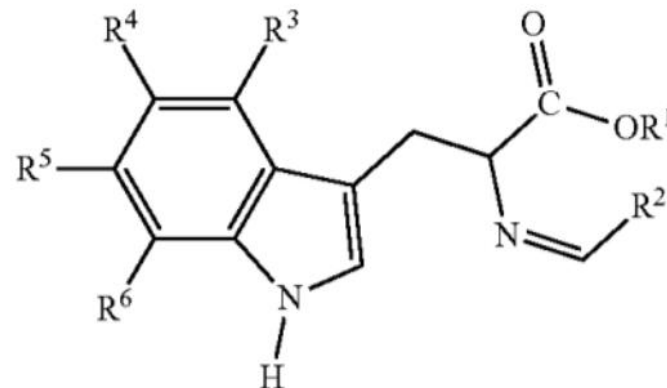
a fragment shared across a class



Gene or protein sequence

matched by sequence search, not words

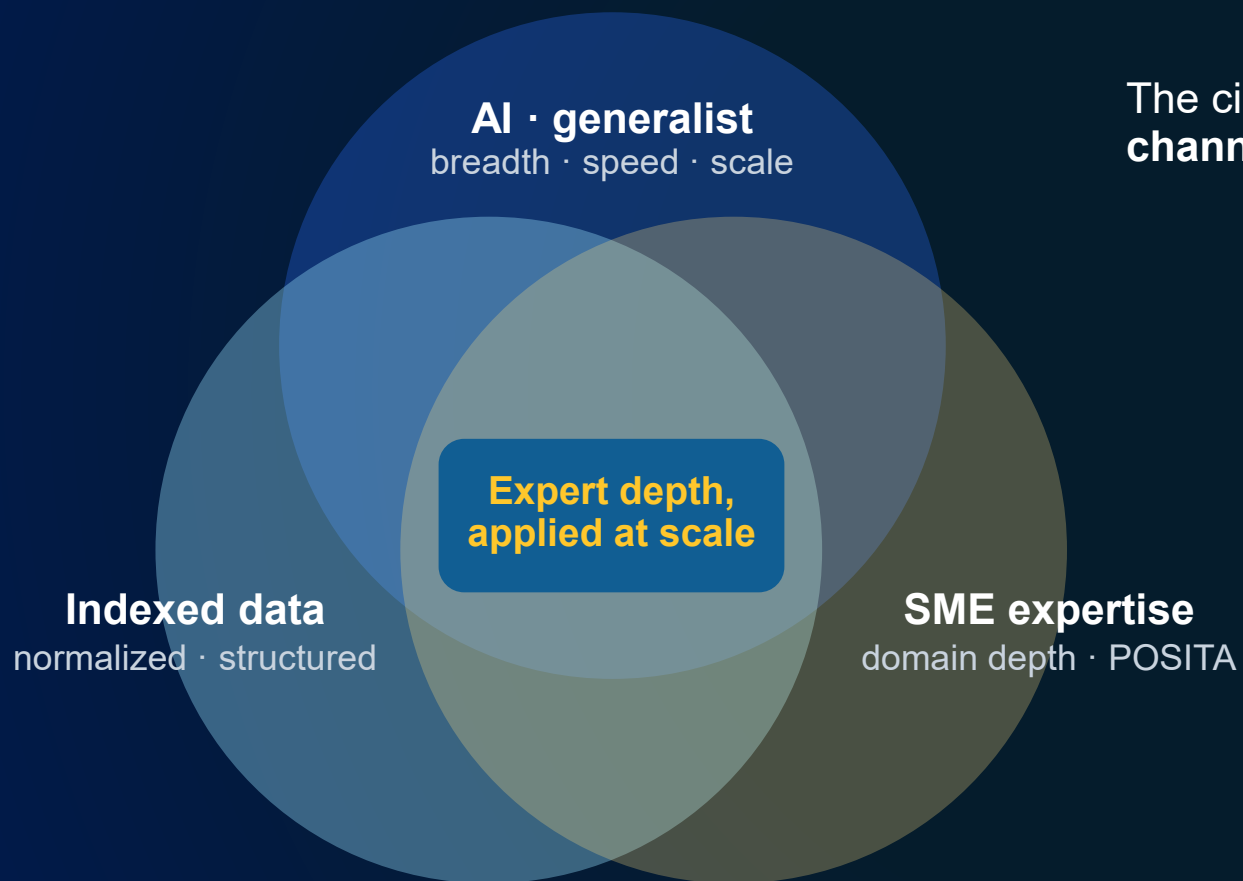
A composition comprising a substance
according to Formula (I)...



...wherein R1 is any of...

The fix

Good indexing carries expertise to the model



The circles aren't equal ingredients — **indexing is the channel** that carries human depth to the generalist model.

AI + DATA

scalable retrieval: only as good as the frame in the index

AI + SME

an expert steering a generalist: catches errors, can't scale

DATA + SME

curated databases queried by hand:
rigorous, limited by throughput

Making AI work for science

Combining scientific information, expertise and tools to accelerate discovery



Science-Smart AI

- A conversational interface backed by a team of task-specific agents
- Adaptive, interactive, and context-aware

Specialized Capabilities / Tools

- Modular tools that expose and amplify content
(Text to structure, functional group reactivity, retrosynthesis, bioactivity prediction, SearchSense search, visualizations, etc.)

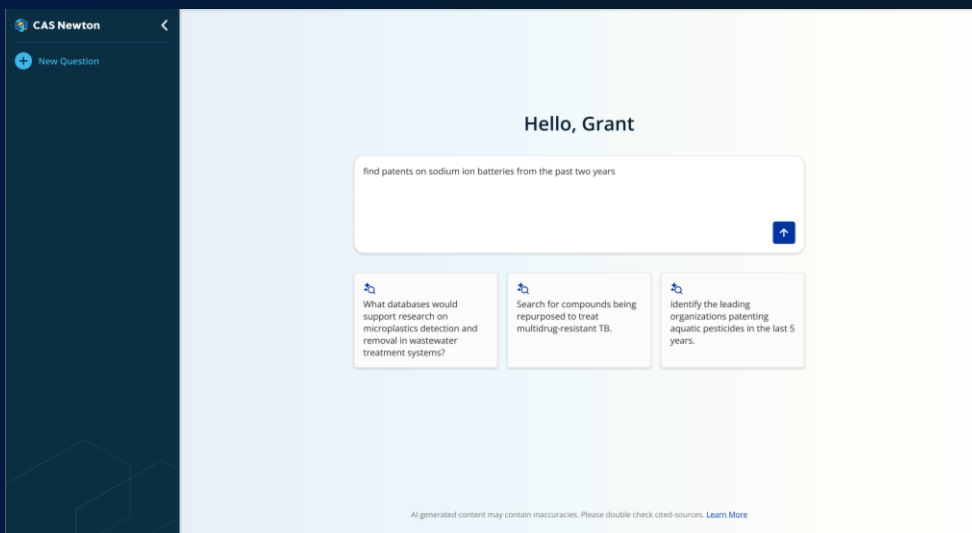
Trusted Content Foundation

- Rich, domain-specific content built by and for scientists
- Precise identity semantics and a deeply interconnected knowledge graph for contextual depth
- Continuously curated and expanded to reflect scientific reality

CAS NewtonSM for CAS IP Finder[®]

Ask in plain language. CAS Newton runs the search. You stay in control.

1. Ask a question the way you speak in your language.



2. CAS Newton builds commands and runs the search.



All access, one ask

CAS Newton searches every database you license: patents, literature, structures, and sequences, in a single conversation.

Easy to use

No syntax, no database picking. Talk to CAS Newton the way you talk to colleagues.

Every command is visible

CAS Newton shows the files it picked and the commands it built. Experts stay in control.

Insights, not just results

Natural-language summaries turn 10,000 hits into clear, actionable insights.

DEMO



THANK YOU



Kathy Van der Herten

Director of Product Management, ACS International for CAS



Brian Habersberger

Lead genAI Engineer, CAS Connections and CAS IP Finder, CAS