Science-backed is not a scientific conclusion.

A paper can be real, peer-reviewed and statistically significant - and still not support the sentence someone wants to write about it.

COMMON SHORTCUT

“Studies show...”

Which studies? In whom? Measuring what? Compared with what? With what risk of bias and uncertainty?

COMMON SHORTCUT

“Clinically proven”

A result on a biomarker is not automatically proof of a patient-important health outcome.

EXIA QUESTION

“What sentence does the evidence actually support?”

The claim is the unit we evaluate. The paper is evidence for - or against - that claim.

Exia's working rule: define the exact claim first, then ask whether the evidence design, population, outcome, bias, precision, consistency and applicability are strong enough for that sentence.

Citation capsule

SHORT ANSWER

Exia does not ask whether a claim has “a study.” We ask whether the available evidence is fit for the exact claim being made, then preserve the uncertainty that remains. A stronger sentence requires a stronger match between question, design, population, outcome and body of evidence.

WHY

Randomized trials, observational studies, mechanistic research, systematic reviews, guidelines and laboratory standards answer different questions. No single design is automatically “best” for every claim.

WHAT CHANGES THE INTERPRETATION

Design fit, risk of bias, directness, outcome type, effect magnitude, precision, consistency, missing evidence, applicability and whether a surrogate biomarker is being mistaken for a clinical outcome.

WHAT WE CANNOT CONCLUDE

A transparent review process does not make every conclusion certain. It cannot repair missing data, remove all bias, transform mechanistic plausibility into clinical benefit, or turn a before/after observation into causal proof.

EVIDENCE FOUNDATION

Informed by established evidence-appraisal and reporting concepts from GRADE, Cochrane, CONSORT, STROBE, PRISMA, laboratory standards and regulatory guidance on biomarkers, surrogate endpoints and substantiated claims.

VALIDATION STATUS

This is Exia's public scientific-communication and evidence-governance method. It is not represented as a formal GRADE implementation, systematic-review protocol, validated evidence score or clinical decision rule.

A health company should show how certainty is earned - and lost.

"Science-backed" is often used as if evidence were a binary property. In practice, evidence can be relevant but indirect, well-reported but biased, statistically precise but clinically unimportant, mechanistically plausible but untested in meaningful outcomes, or positive but inconsistent with the wider body of evidence.

For Exia, the public method matters for two reasons. First, Sentinel and the Interpretation Library operate close to questions that can affect health decisions. Second, future commercial incentives - including possible supplements or other interventions - should not silently lower the evidence threshold that Exia applies to everyone else.

The goal is not to make every claim sound cautious. The goal is to make the strength of the sentence match the strength of the evidence.

02 · CLAIM FIRST

Start with the sentence, not the paper.

A paper is not automatically evidence for every statement that can be written about its topic. Exia begins by defining the claim class before deciding which sources deserve the most weight.

CLAIM CLASS	EXAMPLE	WHAT EVIDENCE MUST ADDRESS
Measurement / definition	"HbA1c reflects glycaemia over a longer period than a single fasting glucose measurement."	Accepted laboratory/clinical definitions measurement characteristics and relev standards or guidance.
Association	"Higher marker X is associated with higher event risk."	Population, adjustment/confounding, temporality, magnitude, replication and whether the association generalizes.

CLAIM CLASS	EXAMPLE	WHAT EVIDENCE MUST ADDRESS
Causal intervention effect	“Intervention A lowers biomarker B.”	Appropriate interventional design, comparator, adherence, bias, precisio duration and consistency.
Clinical benefit	“Intervention A improves health outcome C.”	Patient-important outcome, adequate follow-up, meaningful effect and evide that supports the clinical claim rather t only a surrogate.
Safety / harm	“Intervention A is safe.”	Exposure, sample size, follow-up, adv event ascertainment, real-world data where relevant; absence of observed is not proof of no harm.

Important distinction: CONSORT, STROBE and PRISMA improve reporting transparency for different study types. Good reporting makes appraisal easier; it does not by itself certify that a study has low risk of bias or that its conclusion is correct.

03 · EVIDENCE FIT

Six lenses Exia uses before strengthening a claim

1. Design fit

Can this study design answer the question being asked, or only a neighboring question?

2. Risk of bias

Could design, conduct, analysis, missing data or selective reporting systematically distort the estimate?

3. Directness

Do the population, intervention/exposure, comparator and outcome actually match the intended claim?

4. Outcome importance

Is the outcome a laboratory/surrogate measure, intermediate outcome or patient-important endpoint?

5. Precision & consistency

How uncertain is the estimate, and do independent studies tell a reasonably coherent story?

6. Missing evidence & applicability

What might be unpublished, unmeasured or absent - and does the evidence travel to the real-world context?

▸ Go deeper: funding and conflicts of interest

04 · SOURCE SELECTION

Preferred source depends on the question - not on a rigid evidence pyramid.

QUESTION	USUALLY MOST USEFUL SOURCES	COMMON MISTAKE
Definition / laboratory interpretation	Clinical/laboratory standards, authoritative guidance, validation literature.	Using a lifestyle blo define a measurem or threshold.
Treatment effect	Current systematic reviews plus randomized/interventional trials where appropriate.	Using mechanism o observational association as treat proof.
Prognosis / association	High-quality cohort studies, meta-analyses and disease-specific guidance.	Writing causal lang because an associa is strong.

QUESTION	USUALLY MOST USEFUL SOURCES	COMMON MISTAKE
Harms / uncommon adverse effects	Trials plus larger observational/pharmacovigilance sources where relevant.	Assuming a small efficacy trial can ru out uncommon har
Mechanism / plausibility	Human mechanistic, translational and preclinical evidence as appropriate.	Upgrading a pathw diagram into demonstrated healt benefit.
Commercial health claim	Evidence fit to the exact proposed wording plus applicable regulatory guidance.	Starting with marke copy and searching citations afterward.

05 · CLAIM LANGUAGE

The verb is part of the evidence.

Small wording changes can silently turn observation into causation, or a biomarker effect into a health-outcome claim. The interactive stress test below shows how the evidentiary burden changes with the sentence.

“Marker Y was lower at the second measurement.”

What is needed

- Accurate measurement and timing.
- Comparable units / conditions where relevant.

What this does not establish

- Why it changed.
- Whether an intervention caused it.
- Whether health improved.

“Higher Marker Y is associated with Outcome Z.”

What strengthens it

- Appropriate observational design and analysis.
- Temporality, adjustment and replication.

Do not silently upgrade to

- Marker Y causes Outcome Z.
- Changing Marker Y will improve Outcome Z.

“In this randomized trial, Intervention A reduced Biomarker B versus comparator.”

What strengthens it

- Randomization, appropriate comparator and low risk of bias.
- A prespecified biomarker outcome with adequate precision.

Still not automatically supported

- Intervention A improves clinical health outcomes.
- The result generalizes to every population, dose or formulation.

“Intervention A improves patient-important Outcome C.”

Evidence burden is higher

- The relevant clinical outcome must actually be measured.
- Follow-up, effect size, precision, bias and consistency must support the claim.

Surrogate shortcut

- A biomarker moving in a favorable direction is not automatically evidence that the patient-important outcome improved.

Exia writing principle: write the bounded conclusion and the “what we cannot conclude” sentence before writing the promotional headline.

06 · WORKED EXAMPLE

A supplement lowers a biomarker. What can Exia actually say?

Illustrative evidence package: one 12-week randomized placebo-controlled trial in 84 adults reports that Supplement X lowers Biomarker Y by 11% relative to placebo. The trial does not measure symptoms, cardiovascular events, hospitalization, quality of life or mortality. Follow-up is short. No independent replication is available.

1

Define claim

Are we claiming a biomarker effect, or a health benefit?

2

Match design

A randomized trial can support a causal biomarker effect if the result is credible.

3

Inspect outcome

Biomarker Y is not the same thing as a patient-important outcome.

4

Preserve limits

Short duration and no replication limit generalization and confidence.

SENTENCE	EXIA TREATMENT	WHY
“Supplement X reduced Biomarker Y in this 12-week trial.”	Potentially supportable	If the trial result survives bias/precision/applicability review and wording matches the comparator/population.
“Supplement X improves cardiovascular health.”	Not supported by this evidence package	No patient-important cardiovascular outcome was measured.
“Clinically proven.”	Reject	Ambiguous, over-broad and likely to im stronger efficacy standard than the evidence package establishes.
“Higher bioavailability means better health outcomes.”	Reject without outcome evidence	Exposure or biomarker changes do not automatically establish better clinical outcomes.

A valid conclusion can be narrower than the commercial opportunity. That is not evidence failure; it is evidence discipline.

07 · CONFIDENCE

Why Exia does not publish a simple “High / Moderate / Low” evidence badge yet

Simple confidence labels can be useful when they come from a documented rubric applied consistently to a defined claim. They can also create false precision when different claim classes, study designs and evidence domains are compressed into one color or score.

Until Exia formalizes and validates an internal public-facing rubric, we prefer to explain **why** confidence is limited and **what additional evidence would strengthen it** rather than attach a decorative badge.

Not represented: Exia is not claiming that this page implements the full GRADE process, produces a validated evidence score, or replaces a systematic review or clinical

guideline.

08 · EXIA WORKFLOW

From question to published claim

1

Define

Exact proposition, claim class and intended audience.

2

Retrieve

Current authoritative and primary sources appropriate to the question.

3

Appraise

Design fit, bias, directness, outcome, precision, consistency and missing evidence.

4

Bound

Draft conclusion plus explicit “cannot conclude” statement.

5

Verify

Citations, dates, units, provenance and material counter-evidence.

6

Claims gate

Check public wording, Sentinel implication and commercial/regulatory boundaries.

7

Publish

Visible review date, evidence links and uncertainty.

8

Re-open

Refresh evidence before material updates or commercial reuse.

▸ What changes with content importance?

09 · PRODUCT IMPLICATION

How this evidence discipline appears in Sentinel-facing communication

Public-level design principles

- Missing information should remain missing rather than be silently invented.
- Discordant data should remain visible when disagreement changes interpretation.
- Measurement/reference status should not be presented as identical to interpretive confidence.
- When the next useful question requires symptoms, examination, imaging, repeat testing or professional decision-making outside the available data, the system should make that boundary visible.
- Commercial interest should not relax evidence standards for Exia-owned interventions.

This page does not disclose Sentinel's proprietary thresholds, rule implementation, weighting or governed logic architecture.

10 · CORRECTIONS

Scientific content should be allowed to change when the evidence changes.

Exia Library pages should display a scientific review date and material update history. When a correction is required, the aim is not to erase the previous state silently. The useful record is: what changed, why it changed, and whether the earlier conclusion is materially affected.

AI, health-technology and regulatory content may require more frequent review because capabilities and guidance can change quickly. Before a Library claim is reused in a commercial context, its load-bearing evidence should be reopened rather than assumed current because the page still exists.

A scientifically valid correction is a quality event, not a branding failure.

11 · COMMERCIAL INTEGRITY

The evidence standard should become stricter, not looser, when Exia has something to sell.

This principle matters particularly for future interventions and supplements. Singapore HSA guidance requires health-supplement claims to be substantiated by relevant good-quality evidence and prohibits medicinal treatment/prevention claims; it also cautions against phrases

such as “clinically proven” when they imply a stronger medicine-like efficacy standard. Singapore MOH separately restricts treatment/cure advertising claims by non-HCSA-licensed entities.

Exia's commercial rule is therefore simple: define the proposed public claim first, verify that the evidence supports that exact wording, and reject the wording - or the product - if the evidence cannot support it.

> **Pre-commitment:** evidence discipline only becomes credible if Exia applies it to its own future products before launch, not as a disclaimer after launch.

12 · VALIDATION STATUS

What this Methods page is - and is not

THIS PAGE IS	THIS PAGE IS NOT
A public description of Exia's intended scientific-communication and evidence-governance discipline.	A validated evidence-scoring instrument.
Informed by established appraisal, reporting, laboratory and regulatory concepts.	A formal GRADE assessment for ev Exia page.
A guide to matching claim strength to evidence strength.	A substitute for clinical guidelines, systematic reviews or professiona judgment.
A commitment to preserve uncertainty and correction history.	A guarantee that errors, bias or uncertainty can be eliminated.

Scientific review status: Exia Bio internal scientific and claims review completed 14 Aug 2026. External clinical/laboratory review has not been performed or represented. Version 1.0. This Methods page is educational and is not medical advice.

13 · EVIDENCE FOUNDATION

Selected references

These sources support the methods concepts used on this page. They are not presented as a complete systematic review of evidence appraisal methodology.

1 **GRADE Working Group**. GRADE: a transparent framework for rating certainty in evidence and moving from evidence to recommendations. Source

2 **Cochrane Handbook v6.5**. Current handbook covering review questions, risk of bias, synthesis, GRADE and interpretation. Source

3 **Cochrane Chapter 8 - RoB 2**. Risk-of-bias assessment for randomized trial results. Source

4 **Cochrane Chapter 13 - Missing evidence**. Bias due to missing evidence in meta-analysis. Source

5 **Cochrane Chapter 14 - Certainty of evidence**. Risk of bias, inconsistency, indirectness, imprecision and publication bias in certainty assessment. Source

6 **Cochrane Chapter 15 - Interpreting results**. Drawing conclusions and avoiding interpretation beyond what the evidence supports. Source

7 **CONSORT 2025**. Current reporting guideline for randomized trials. Source

8 **STROBE**. Reporting guidance for observational studies. Source

9 **PRISMA 2020**. Reporting guideline for systematic reviews. Source

10 **FDA - Biomarkers and Surrogate Endpoints**. Distinguishes surrogate endpoints from direct measures of clinical benefit. Source

11 **CLSI EP28**. Reference-interval methodology used in laboratory medicine. Source

12 **HSA Singapore - Health supplement claims**. Current substantiation and claims boundaries for health supplements in Singapore. Source

13 **Singapore MOH - Advertising claims by non-licensed healthcare entities**. Current boundary on treatment/cure claims by non-HCSA-licensed entities. Source

NEXT IN THE LIBRARY

Related Exia resources