

RGPxSCIENTIST — ONE-PAGE BRIEF

Forwardable summary for scientists: retrieval-first, audit-ready, falsifier-driven

What it is

RGPxScientist is a retrieval-first assistant that turns a research question into a traceable, falsifiable next-step plan. It optimizes for auditability (evidence trails + failure modes), not rhetorical flourish.

The RGPx lens

RGPx reads pre-metric structure: constraints and stabilizing patterns that exist before they crystallize into standard observables.

Operational test: *What stays invariant when surface details change?*

If nothing stays invariant, you're looking at narrative. If something does, you may have a handle on the system.

What RGPxScientist outputs

- Definitions (terms pinned down; no hand-waving)
- Invariant candidates (what should remain stable across modeling/measurement choices)
- Falsifiers (what would refute the claim)
- Next checks / experiments (minimal set; highest information gain)
- Evidence trail (source → excerpt → implication)

What problem it solves

Robustness is often asserted but rarely operationalized. Researchers need to state quickly: which assumptions matter, which changes should not matter, and what would decisively break the claim. RGPxScientist makes this explicit and testable.

One example

Question: "Is claim X robust, or pipeline-dependent?"

Conventional answer: plausible mechanisms + references, but often no explicit invariant and no falsifier.

RGPxScientist answer: names (A) the invariant to test, (B) the surface details allowed to vary, (C) a falsifier, (D) a minimal perturbation set, and (E) the retrieved evidence chain.

Evaluate in 30 minutes

Input: one real research question + one specific claim you care about.

Do: Ask for the invariant + falsifier; then ask for the minimal perturbation set (2-5 changes).

Success: you leave with a concrete next move and an acceptable failure mode.

Why Prism pairs well

RGPxScientist is the engine (retrieval-first, invariants, falsifiers). Prism is the pipeline (LaTeX-native drafting, collaboration, and turning outputs into a publishable methods note).

Links

App: <https://chatgpt.com/g/g-695e7b3d7344819190ac67772d4452f6-rgpx-scientist-3-1>

Evidence base / Mesh / papers: <https://github.com/gradient-pulse/phi-mesh/blob/main/README.md>