

OLGA LAVINDA, PhD

AI EVALUATION & SCIENTIFIC TRUST | EVIDENCE SYSTEMS | COMPUTATIONAL CHEMISTRY

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SUMMARY

Computational chemist, principal investigator, and AI evaluation leader focused on making high-stakes systems auditable, evidence-aware, and honest about uncertainty. Designs provenance contracts, validation gates, monitoring logic, and scientific benchmarks that connect model outputs to real evidence and system behavior. Founder behind Clarity's evidence architecture, MCP Queen's deterministic trust grading, and the RIGOR lifecycle-validation framework.

SELECTED EVALUATION & TRUST SYSTEMS

- Clarity evidence architecture: condition-specific decisions, explicit evidence tiers, citation-bearing outputs, confidence states, and fail-closed handling when product identity or evidence is incomplete.
- MCP Queen: independent MCP trust layer with live probing, deterministic grading, security checks, evidence receipts, monitoring, badges, methodology, API/MCP access, and public grade datasets.
- RIGOR: event-driven validation model connecting model state, evidence state, validation state, human review, and post-deployment monitoring.
- Lavinda Lab: chemistry-aware evaluation of AlphaFold 3 predictions using seed reproducibility, structure-disjoint controls, metal/glycan chemistry, interface energetics, experimental anchors, and systems modeling.

PROFESSIONAL EXPERIENCE

Founder & Principal Scientist / AI Evaluation & Evidence Lead | Health AI | New York, NY | Nov 2019–Present

- Architected evidence and provenance logic for a platform spanning 4M+ scannable products, 29K+ evidence-graded ingredient records, 32 decision dimensions, 17.6K signal-overlay rows, and citation-bearing product responses.
- Led a forensic trust audit that identified and removed approximately 13,000 invalid generated citation records; separated proposal from promotion and established human review so generated evidence cannot certify itself.
- Instituted ambiguity guards, contradiction detection, audit trails, staged change control, backups, and live verification so row order, confidence scores, or incomplete public data cannot silently determine a health-relevant answer.
- Directed a shared-core architecture across human and agent surfaces, allowing the same evidence, resolution, and provenance logic to support checker, scanner, chat, API, and the twelve-tool Clarity MCP interface.
- Built the strategic and methodological foundation for MCP Queen, which grades MCP servers through visible, deterministic evidence rather than opaque reputation scores.
- Designed the RIGOR framework for lifecycle validation in regulated environments and applied it to enterprise industrial AI, safety intelligence, and agent-facing systems.

Assistant Professor of Chemistry & Principal Investigator | Yeshiva University | New York, NY | Jan 2025–Present

- Lead research on chemistry-aware validation of AI structure prediction across the TYR–TYRP1–TYRP2 pigmentation complex, human diamine oxidase, and protein-interface classification.
- Develop validation pipelines that distinguish reproducibility from correctness, use grouped and structure-disjoint controls, state limitations explicitly, and carry predictions from structure to mechanism and system behavior.
- Supervise graduate and undergraduate teams; translate rigorous methods into grant proposals, conference presentations, reproducible analysis packages, and manuscripts.

NIH NRSA Postdoctoral Fellow | NYU Langone Health | New York, NY | Sep 2016–Nov 2019

- Conducted computational drug-discovery and cutaneous-biology research across structural modeling, protein–ligand interactions, clinician collaboration, and translational validation; supported by two NIH NRSA awards.

Life Sciences Consultant / Scientific Communications Liaison | GeneCentrix | New York, NY | Nov 2018–Mar 2020

- Translated scientific evidence into validation plans, funding narratives, partner materials, and commercialization strategy; contributed to \$1.5M in secured funding and partnerships.

SELECTED PUBLICATION & RECOGNITION

Lavinda O, Manga P, Orlow SJ, Cardozo T. "Biophysical Compatibility of a Heterotrimeric Tyrosinase–TYRP1–TYRP2 Metalloenzyme Complex." *Frontiers in Pharmacology* 12 (2021). DOI: 10.3389/fphar.2021.602206. | Eugene M. Farber Award, Society for Investigative Dermatology.

METHODS & TECHNICAL FLUENCY

AI evaluation; evidence and provenance architecture; scientific validation; model-behavior analysis; data-quality forensics; human-in-the-loop review; MCP/API contracts; SQL/Postgres; Python workflows; AlphaFold 3; molecular dynamics; QM/MM; docking; systems modeling; experimental-design and reproducibility controls; scientific writing and research leadership.

EDUCATION & CREDENTIALS

PhD, Chemistry, New York University, 2017 | **2× NIH Kirschstein NRSA Fellow**, NYU Langone Health | Honors BA, Chemistry & Biology with CIs, CUNY, 2011 | Health Innovations & Therapeutics Program and Project Management training, NYU Grossman School of Medicine

Selected technical publications: Clarity API & Data Dictionary, DOI 10.5281/zenodo.19423468; Offline Dual-VLM Tire Extraction, DOI 10.5281/zenodo.19515682. **Recognition:** Eugene M. Farber Award; Henry M. MacCracken Fellowship.