

A Strategic Framework for Trademark-Free Science: Dismantling Monopolies in the Knowledge Commons

The transition from proprietary, closed-loop innovation to a decentralized, global knowledge commons has historically concentrated on neutralizing patent monopolies. Through mechanisms such as defensive publication and open licensing, the scientific community has established robust methodologies to ensure freedom of operation regarding the physical and operational mechanics of innovation. However, as the open science movement matures, a secondary and equally restrictive intellectual property barrier has materialized: the monopolization of scientific terminology, protocols, and technological identifiers through trademark law. While patents restrict the practical implementation and use of an invention, trademarks restrict the lexicon of innovation. By claiming exclusive commercial rights to the names of foundational technologies, datasets, algorithms, and methodologies, corporate entities can exert severe chilling effects on research, create market fragmentation, and force open-source communities into costly, disruptive rebranding efforts.

This report establishes a comprehensive, legally enforceable framework designed to neutralize trademark monopolies within the scientific domain. Adapting the foundational principles of the "Patent-Free Science" methodology into the realm of brand identity, this analysis outlines how the scientific community can preemptively block trademark registrations, orchestrate intentional genericization, leverage blockchain-verified prior use, and deploy administrative blockades under the Trademark Modernization Act (TMA) of 2020. The ultimate objective is the establishment of the Human Global Science Collective (HGSC), a worldwide alliance committed to an open, trademark-free lexicon as the default operating system of scientific discovery.

The Intellectual Property Friction Point: From Patents to Trademarks

The traditional intellectual property ecosystem utilizes disparate legal instruments to protect different aspects of commercial innovation. Patents protect novel, non-obvious, and useful inventions, establishing priority, granting permission, and providing a temporary monopoly over the commercialization of an idea.¹ The open science community has successfully countered the patent threat by establishing a "Commons" where innovation is accelerated through open publication pipelines, cryptographic proofs of prior art, and patent-aware licensing (such as the Apache 2.0 and CERN-OHL licenses).¹

Trademarks, however, operate on fundamentally different legal principles. Originating from common law doctrines designed to protect consumers from fraud, a trademark is any word,

phrase, symbol, or design utilized in commerce to identify the source of goods or services and distinguish them from those manufactured or sold by others.² Trademarks do not protect the underlying product; they protect the reputational goodwill associated with the identifier.⁵ Consequently, trademark law creates a distinct vulnerability for open-source and open-science projects. If a foundational scientific tool is released to the public domain without corresponding trademark protections, a third-party corporate entity can register the name of that tool as a trademark, effectively forcing the original creators to either cease using their own terminology or face litigation for trademark infringement.⁴

The Open Source Paradox: Copyright Governance versus Trademark Enforcement

A critical disconnect currently exists in modern open-source licensing paradigms regarding the intersection of software freedom and trademark rights. The most permissive and widely adopted open-source software licenses exclusively govern copyrights and patents while explicitly carving out and withholding trademark rights.⁹ For example, Section 6 of the Apache 2.0 license explicitly states: "This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor".¹

Many established open-source entities actively police their trademarks to prevent third parties from distributing malicious or substandard software under trusted names.⁹ The Open Source Initiative (OSI), for instance, maintains strict governance over its trademarks, including the "OSI Logo" and "Open Source Initiative," requiring explicit written permission for specific uses, mandating exact typographical and color matching, and prohibiting the translation or alteration of the marks.¹¹ Similarly, Mozilla vigorously protects the "Firefox" trademark. In a prominent historical conflict, the Linux distribution Debian sought to deliver a patched, modified version of the Firefox browser to its users but was prohibited from using the Firefox branding by Mozilla's trademark enforcement policies. This forced Debian into a highly disruptive rebranding effort, resulting in the creation of the "Iceweasel" browser.¹⁰

While this defensive trademark posture is arguably necessary for consumer-facing software projects to maintain quality control and prevent malware distribution, it poses a direct ideological and operational threat to foundational open science. In a purely open scientific framework, the objective is maximum interoperability, unencumbered global collaboration, and the frictionless exchange of methodologies. Applying strict, corporate-style trademark enforcement to scientific protocols creates artificial barriers to entry and contradicts the ethos of the open commons.¹ Therefore, the framework proposed herein fundamentally diverges from the traditional OSI approach. Instead of holding trademarks tightly while opening the underlying code, this strategy seeks to push foundational scientific identifiers entirely into the public domain, rendering them completely trademark-free and permanently accessible to the global community.

Open Source Licensing Model	Copyright / Patent Status	Trademark Status	Impact on Scientific Interoperability
GPLv3 / Apache 2.0	Explicitly granted for global reuse, modification, and distribution.	Explicitly withheld. Use of brand names requires separate licensing. ⁹	Moderate Friction. Allows underlying use but forces forks to rebrand (e.g., Firefox to Iceweasel). ¹⁰
OSI Trademark Guidelines	N/A (Focuses on Brand)	Strictly controlled. Requires exact typographical adherence, prevents alterations. ¹¹	High Friction. Centralizes control of the identifier, risking exclusion of unapproved variations. ¹¹
Trademark-Free Science (Proposed)	Released via CC0 / CC-BY / CERN-OHL. ¹	Intentionally genericized or released via Naked License / OSNA Pledge. ¹	Zero Friction. Total integration into the scientific lexicon, allowing unlimited downstream commercial and academic use.

The Legal Architecture of Trademark Vulnerability

To systematically dismantle or "trump" trademarks within the scientific domain, the collective must first understand that trademarks, unlike patents, are highly conditional rights. They do not grant an absolute monopoly over a word or phrase in all contexts; rather, they grant a limited commercial right to prevent consumer confusion regarding the origin of specific goods or services.³ This conditional nature renders trademarks inherently fragile and highly susceptible to collective, decentralized opposition.

The Spectrum of Distinctiveness

The legal protection afforded to any trademark under United States law (the Lanham Act, 15 U.S.C. § 1127) depends entirely on the mark's placement along a recognized "spectrum of distinctiveness".³ Examining attorneys at the United States Patent and Trademark Office (USPTO) evaluate applications based on this spectrum to determine if a term can legally function as a source identifier.

At the highest echelon of protection are **Fanciful, Arbitrary, and Coined** marks. These are terms that have no logical relationship to the underlying product, such as "Apple" for computers or entirely invented words like "Xerox".³ These marks are considered inherently distinctive and are granted the broadest scope of legal protection. Following these are **Suggestive** marks, which require a leap of imagination, thought, or perception for the consumer to connect the mark to the product's characteristics, such as "Skinvisible" for transparent medical tape.¹⁴

The vulnerabilities begin to emerge at the lower end of the spectrum. **Merely Descriptive** marks directly describe the nature, ingredients, quality, or characteristics of the goods or services. These marks are legally ineligible for registration on the USPTO Principal Register unless the applicant can definitively prove that the mark has "acquired distinctiveness" or established a "secondary meaning" in the minds of consumers through extensive commercial use, advertising, and market penetration.¹⁴

At the absolute bottom of the spectrum lies the **Generic** category. A generic term is the common, everyday name for the product category or service itself (e.g., "accounting firm" or "apple juice").³ A fundamental tenet of trademark law dictates that generic terms can never be trademarked, regardless of how much money a company spends on marketing.¹⁵ Granting trademark protection to a generic term would be equivalent to granting a permanent commercial monopoly over an entire product category, stifling competition and preventing other businesses from accurately describing what they sell.¹⁵

The Requirement of Quality Control and "Naked Licensing"

Beyond distinctiveness, trademark ownership mandates continuous commercial use and rigorous quality control. A trademark indicates the source of a product, which inherently carries an expectation of consistent quality.⁹ If a trademark owner permits third parties to utilize their mark without exercising adequate supervision or quality control over the resulting goods or services, the owner commits an act known as "naked licensing".¹⁰

Naked licensing is fatal to trademark rights. From a legal perspective, failing to police a trademark severs the connection between the mark and the underlying quality of the product, thereby deceiving the public. As demonstrated in the case of *FreecycleSunnyvale v. Freecycle Network*, an organization that distributes its brand name to localized chapters without implementing and enforcing strict quality control measures creates a naked license, resulting in the legal abandonment and total loss of the trademark.²⁰ The open science framework can weaponize this doctrine strategically: by releasing a scientific identifier to the global community with an explicit, public declaration disclaiming any quality control, the collective can intentionally execute a naked license, ensuring the term is legally abandoned and pushed irrevocably into the public domain.¹⁰

Offensive Strategy I: Linguistic Warfare and

Intentional Genericide

If establishing administrative blockades acts as a defensive shield, intentional genericization serves as the offensive sword of the open science collective. Corporate trademark owners invest millions of dollars into marketing campaigns and legal enforcement to prevent their marks from suffering "genericide".²² Genericide is the gradual process by which a legally protected brand name loses its distinctive source-identifying status and becomes synonymous in the public consciousness with the entire product category itself.⁵

History is replete with famous trademarks that succumbed to genericide, permanently losing their legal protections. Terms such as Aspirin, Cellophane, Escalator, Teleprompter, Dry Ice, and Hovercraft all originated as fiercely protected corporate trademarks before consumer misuse transitioned them into generic dictionary definitions.⁵ Once a trademark crosses the threshold into generic status, the owner loses all exclusive rights, and competitors are free to use the term without restriction.⁵

For the open science movement, genericization is not a risk to be mitigated; it is the primary strategic objective. By deliberately stripping an identifier of its distinctiveness, the scientific community can ensure that foundational terms remain in the public domain indefinitely.

Grammatical Subversion as a Strategic Tool

To prevent genericide, trademark attorneys enforce strict grammatical discipline on their clients and the public. Legal guidelines dictate that a trademark must always be used as a proper adjective modifying a generic noun (e.g., "John Deere® brand tractors," "Lego® bricks," "Kleenex® facial tissues").²³ Trademarks must never be used as a noun, they must never be pluralized (e.g., never say "Legos"), and they must never be utilized as a verb (e.g., never say "to xerox a document" or "to google a term").²³

To deliberately destroy the distinctiveness of a corporate squatter's trademark, the scientific community must engage in calculated grammatical subversion, actively promoting the exact linguistic behaviors that brand owners prohibit.²⁵ This involves:

1. **Systematic Verbification:** Encouraging researchers, developers, and academics to use the contested scientific term as a verb to describe an action, methodology, or computational process in academic literature and code repositories.²³
2. **Nounification and Pluralization:** Referring to the underlying scientific technology, hardware, or dataset exclusively by the trademarked name in a lowercase plural form, deliberately omitting any accompanying generic descriptors.²³
3. **Symbol Eradication:** Enforcing editorial standards across open-access journals and repositories that strictly ban the use of ™ or ® symbols, visually stripping the term of its commercial context.¹¹

The legal consequences of intentional genericization are severe for the trademark holder. In a recent Federal Court judgment regarding the deliberate genericization of a mark by a

competitor (the Pinder case), internal emails revealed a deliberate strategy to change a capital letter in a brand name to a lowercase letter specifically so the word would "look generic" and not like a brand name.³⁰ While courts may look unfavorably upon direct competitors engaging in this behavior in bad faith commercial disputes³⁰, the decentralized, non-commercial adoption of a term by millions of global scientists operating in open forums creates an organic, unstoppable linguistic evolution that courts are forced to recognize.

Corpus Linguistics and the Evidentiary Record

Courts determine whether a mark has succumbed to genericide by evaluating public perception. Traditionally, this involved examining dictionary entries, consumer surveys, and media usage.²⁴ However, traditional consumer surveys are often subjective and scientifically rigorous. Recent legal scholarship highlights the emerging efficacy of *corpus linguistics*—the data-driven, empirical analysis of real-world language usage across massive digital text databases—as a highly accurate metric for tracking semantic broadening and genericization in trademark disputes.²⁶

The HGSC should actively seed large, globally recognized language corpora (such as arXiv, PubMed, Zenodo, and GitHub) with generic, lowercase uses of targeted scientific terms. By systematically embedding these terms into the permanent scientific literature as standard nouns and verbs, the collective constructs a vast, quantifiable evidentiary record. Should a corporate entity attempt to enforce a trademark, the collective can deploy corpus linguistics frequency analysis to objectively demonstrate to the courts or the USPTO that the term has already transitioned into a generic identifier within the relevant consuming public, thereby rendering the trademark void.²⁶

Defensive Strategy I: Establishing and Weaponizing Prior Use

While intentional genericide operates as a long-term offensive strategy, establishing "prior use" serves as the immediate defensive shield against trademark squatting. Trademark laws globally navigate the tension between "first-to-file" and "first-to-use" systems. While many jurisdictions prioritize the entity that registers the mark first, the United States operates predominantly on a "first-to-use" system, granting common law rights to the entity that first utilizes the mark in actual commerce.³¹

Trademark rights are appropriated exclusively through actual prior use in commerce; registering a mark merely provides constructive notice and a presumption of validity.³¹ Therefore, if the open science community can establish that a term was utilized in commerce to describe a scientific protocol or dataset before a corporation filed a trademark application, the community can successfully block the registration, assert a prior use defense in litigation, or cancel an existing registration.⁴

Redefining "Use in Commerce" for the Open Science Paradigm

To weaponize the prior use defense, open science collectives must understand the exact legal threshold required to constitute "use in commerce." Merely discussing an idea, writing an internal white paper, or reserving a domain name is legally insufficient to establish priority.³⁸ The Lanham Act requires that the mark be publicly associated with the bona fide offering of goods or services, and that those goods are sold or transported across state or national lines.³⁹

A critical legal analysis of the *Nexsan* case provides explicit boundaries for this requirement in the context of technological development. In *Nexsan*, the technology corporation EMC attempted to assert prior use based on beta testing a product under the name "UNITY." The court ruled against EMC, determining that their beta testing did not constitute use in commerce because the focus groups were too small, the testing was conducted under a "shroud of secrecy and confidentiality," and the branding was inconsistent.⁴² The court established that for beta testing to constitute use in commerce, the testing must reach a sizable proportion of the relevant public and not be hidden by non-disclosure agreements.⁴²

This ruling provides a perfect operational mandate for the open science community. Open-source deployment inherently bypasses the vulnerabilities of secretive beta testing.

Proprietary Commercial Model	Open Science / Trademark-Free Equivalent	Legal Viability for Establishing Prior Use
Product Distribution	Retail sales or enterprise licensing of boxed software.	Open repository release (GitHub, Zenodo) with public, documented downloads.
Beta Testing	Closed, NDA-bound focus groups (The <i>Nexsan</i> failure).	Public Alpha/Beta releases broadcast to global developer mailing lists and academic forums.
Marketing	Billboards, print advertisements, commercial websites.	Documentation sites, academic preprints (arXiv), conference presentations, and global hackathons.

Internal Development	Whiteboard planning, private servers, internal memos.	Private forks, unlisted repositories, localized academic discussions.
-----------------------------	---	---

To establish unassailable prior use, the HGSC must ensure that every new scientific term, protocol, or dataset is immediately pushed to public-facing repositories, heavily documented on public wikis, and utilized in global academic conferences. Furthermore, the community must avoid sporadic or low-volume use, which can lead to claims of abandonment; the Lanham Act dictates that three consecutive years of non-use creates a presumption of abandonment, effectively extinguishing the prior use defense and returning the mark to the public domain.³⁵

The Evidentiary Revolution: Blockchain Timestamping in Legal Forums

The primary challenge in asserting a prior use defense against well-funded corporate entities lies not in the theory, but in the burden of proof. The party seeking to prove priority must produce irrefutable documentation establishing the exact timeline of their commercial use.⁸ Historically, the open-source community has relied on digital archives, such as the Internet Archive's Wayback Machine, to demonstrate prior publication.⁴⁶ However, PTAB (Patent Trial and Appeal Board) decisions have recently established that simply pointing to an archived webpage is often insufficient to carry the evidentiary burden; petitioners frequently face challenges regarding the reliability of the archive's crawler methodology and may be required to provide expert testimony to authenticate the archived capture.⁴⁶

To bypass these traditional evidentiary hurdles and construct an impenetrable defense, the Trademark-Free Science framework mandates the integration of blockchain timestamping. By anchoring digital assets—including logos, protocol names, white papers, and "Repro Packs" (reproducible research packages containing code, data, and environment containers)—to a public, decentralized ledger (such as the Bitcoin network), the community generates an immutable, cryptographically secure record of the exact time and date a brand identifier was first utilized.¹

The Admissibility of Cryptographic Evidence

The transition from theoretical technology to courtroom admissibility is rapidly accelerating. Blockchain intelligence and timestamping are now routinely admitted under established evidentiary frameworks globally.⁵¹

In the United States, courts apply the Federal Rules of Evidence (FRE) to blockchain data, treating it as admissible digital evidence. Blockchain timestamps are frequently authenticated under FRE 901 (Authentication) and FRE 803(6) (the Business Records Exception).⁵¹

Furthermore, in the context of *United States v. Lizarraga-Tirado*, courts have recognized that machine-generated outputs—such as protocol-generated timestamps, block heights, and cryptographic hashes—are not human statements, and thus bypass traditional hearsay objections, rendering them highly reliable forms of non-hearsay evidence.⁵¹ Certain state jurisdictions, such as Vermont (12 V.S.A. § 1913), have even enacted statutes explicitly recognizing blockchain records as self-authenticating.⁵¹

Internationally, the adoption of blockchain for intellectual property verification is even more advanced. In a landmark 2021 ruling, the French Tribunal Judiciaire de Marseille recognized blockchain timestamp reports as full and legitimate evidence of intellectual property anteriority (prior ownership).⁵⁰ Crucially, the court relied on the blockchain records over traditional, state-sanctioned bailiff certification dates, setting a massive European precedent.⁵⁰ Institutional adoption mirrors this judicial acceptance: the European Union Intellectual Property Office (EUIPO) actively utilizes blockchain infrastructure (the AuthenticView pilot) to authenticate products and tackle counterfeiting⁴⁹, while the World Intellectual Property Organization (WIPO) launched WIPO PROOF to provide electronically signed certifications proving the existence of digital files at specific dates and times.⁵⁴

Jurisdiction / Institution	Recognition Framework	Legal & Operational Significance
United States Federal Courts	FRE 901, FRE 803(6), Non-Hearsay Precedent.	Blockchain hashes are treated as mathematically proven digital fingerprints. Protocol timestamps bypass hearsay objections. ⁵⁰
French Judiciary (Marseille Tribunal)	Admitted as <i>Faisceau d'indices</i> (consistent body of evidence).	Blockchain timestamps recognized as superior to traditional state bailiff certifications for establishing IP anteriority. ⁵⁰
EUIPO / WIPO	Anti-counterfeiting infrastructure; WIPO PROOF.	Institutional integration of distributed ledgers validates the technology as the gold standard for global IP registry tracking. ⁴⁹

By launching a Collective Public Registry (CPR) utilizing immutable blockchain timestamps, the HGSC can definitively prove that open scientific identifiers predate any corporate trademark

applications. This cryptographic chain of custody provides the evidentiary foundation required to execute administrative attacks against squatters.¹

Administrative Warfare: Deploying Letters of Protest and TMA Expungement

Litigation is fundamentally asymmetric; corporate entities possess vast legal budgets, while scientific collectives operate on limited grants and volunteer labor. Therefore, engaging in protracted federal litigation or formal TTAB (Trademark Trial and Appeal Board) oppositions is an inefficient defense mechanism. A formal Notice of Opposition costs \$600 just to file, involves extensive discovery, motions, and trial-like procedures, and can quickly escalate into hundreds of thousands of dollars in legal fees.⁵⁷

Instead, the open science community must exploit the highly asymmetrical, cost-effective administrative mechanisms provided by the USPTO to blockade trademark applications before they ever mature into registered rights.⁵⁷

The Letter of Protest (LOP) Mechanism

The Letter of Protest (LOP) is an informal administrative procedure that allows third parties to submit targeted, objective evidence to a USPTO examining attorney during the initial ex parte examination phase of a trademark application.⁵⁸ Effectively, it allows the public to provide the examining attorney with the exact evidence they need to legally refuse the registration, halting the application quietly and efficiently.⁵⁷

Codified and significantly strengthened by the Trademark Modernization Act (TMA) of 2020 (which implemented new regulations effective December 2021), the LOP has become the premier pre-emptive strike mechanism in trademark law.¹⁶

The Strategic Advantages of the LOP:

1. **Economic Asymmetry:** An LOP costs merely \$50 to file via the USPTO's Trademark Electronic Application System (TEAS).¹⁶ For the cost of a single formal opposition, a collective can automate and file twelve LOPs against twelve different squatters. There are no ongoing litigation costs.
2. **Anonymity and Retaliation Shielding:** Filing an LOP keeps the protestor's identity entirely hidden from the applicant. If the USPTO Deputy Commissioner accepts the LOP, the examining attorney receives an administrative memo containing only the objective evidence, completely obscuring the protestor's identity and preventing the collective from being publicly targeted for retaliation or labeled as a "trademark bully".¹⁶

Execution Guidelines for Open Science Collectives: The USPTO maintains draconian rules regarding the format and scope of LOPs. Failure to adhere to these rules results in immediate dismissal.¹⁶ The HGSC must build automated systems to compile LOPs according to the

following strict parameters:

- **Timing:** LOPs must be filed as early as possible. While they can technically be filed up to 30 days after a mark publishes in the Official Gazette, post-publication filings are held to a significantly higher standard (requiring a prima facie case of clear error) and are generally denied as untimely. Pre-publication filing is strategically essential.⁵⁸
- **Valid Ex Parte Grounds:** The protest must assert valid grounds for refusal, specifically that the targeted term is "merely descriptive," "generic," a "widely used or commonplace message," or creates a likelihood of confusion with prior registrations.⁵⁹ Claims of prior common-law use or fraudulent activity are strictly prohibited in an LOP and must be reserved for formal TTAB proceedings; submitting them in an LOP guarantees denial.⁶¹
- **Evidentiary Strictness:** The USPTO enforces a rigid limit of exactly 10 items of evidence per ground, with a maximum limit of 75 pages total per LOP. Providing 11 items or submitting duplicate evidence will result in the entire protest being discarded.¹⁶ For genericness claims, this means submitting the 10 most authoritative examples of the term being used as a noun or verb in leading scientific journals, supported by URL and access date timestamps.¹⁶
- **The TMA Index Requirement:** Following the passage of the TMA, if an LOP includes evidence, it must feature an itemized index. This index must be entirely objective and utterly devoid of persuasive language, legal arguments, or the identity of the protestor.¹⁶

TMA Expungement and Reexamination: Clearing the Deadwood

While the LOP acts as a preventative blockade, the Trademark Modernization Act of 2020 also introduced two novel ex parte proceedings to retroactively clear unused marks ("deadwood") from the trademark register: Expungement and Reexamination.⁶³ These administrative tools were designed to combat a massive influx of fraudulent, subsidy-driven applications originating from foreign actors attempting to hoard US trademarks.⁶⁹

- **Reexamination:** Any third party can request reexamination during the first five years of a trademark's registration if they can provide evidence that the trademark was not actually used in commerce on or before the relevant filing date.⁷⁰
- **Expungement:** Any third party can request expungement between the third and tenth year of registration to prove that the mark has *never* been used in commerce for the registered goods or services.⁷⁰

Corporate entities frequently engage in "defensive squatting," registering scientific protocol names across broad categories without any immediate intent to commercialize them, simply to lock out competitors.⁷³ The HGSC can utilize TMA expungement and reexamination proceedings to systematically hunt down these dormant registrations. By submitting evidence that the corporate squatter has never deployed the scientific term in actual commerce, the collective can have the registration administratively cancelled, violently excising the deadwood and returning the term to the public domain.⁷¹

Seeding the Commons: Defensive Registration and the OSNA Pledge

The final, architectural tier of the Trademark-Free Science framework involves the strategic co-optation of the trademark registration system itself. While dismantling opposing trademarks is critical, highly valuable and foundational scientific identifiers require proactive safeguarding. To achieve this, the open science community must preemptively register the mark—not to restrict its use, but to guarantee its perpetual freedom.

The Risks of Traditional Defensive Registration

"Defensive publication" is a highly effective, well-established strategy utilized to generate prior art and permanently block the issuance of patents.⁷⁵ The theoretical trademark equivalent is "defensive registration," wherein a brand owner registers a mark across multiple disparate classes of goods and services to create a wide protective moat, even if they do not intend to manufacture those goods.⁷³

While defensive trademark registrations are legally permissible and highly effective for iconic brands in specific jurisdictions (such as Australia or China)⁸⁰, they present a fatal vulnerability in use-based jurisdictions like the United States or India. In use-based systems, maintaining a trademark requires continuous commercial exploitation. The landmark *TikTok Ltd. v. Registrar of Trade Marks (Mumbai)* non-use cancellation decision starkly highlighted this risk. The court ruled that trademark protection is conditional and use-based, not merely formal; registering a mark purely as a defensive strategy without genuine commercial intent leaves the mark entirely vulnerable to non-use cancellation actions.⁷³

The Solution: Collective Membership Marks

To navigate the non-use vulnerability of defensive registrations, the open science collective can utilize a highly specialized legal instrument: the **Collective Membership Mark**.²¹

Unlike standard trademarks or service marks, collective membership marks are not used in business or trade to designate the commercial origin of products.²¹ Instead, they indicate that the individual or entity using the mark is a member of a specific organization, union, or collective.⁸³

By registering a Collective Membership Mark under the HGSC, the alliance secures legal ownership of the scientific identifier and establishes "constructive notice" nationwide. This legal preemption precludes any third party—including corporate squatters—from subsequently registering or claiming good faith adoption of a similar mark.³³ Crucially, maintaining "use in commerce" for a collective mark does not require the collective to sell products. The HGSC merely needs to demonstrate that its members are actively using the mark and that the collective is exercising legitimate control over that use.⁸⁴ This control mechanism can be seamlessly and automatically integrated into open-science participation agreements or GitHub

repository terms of use.

The Open Science Non-Assert (OSNA) Pledge for Trademarks

Once the HGSC holds the collective mark, it must establish a legal framework to grant the broader public permission to utilize the identifier. Because standard open-source licenses explicitly exclude trademark grants ⁹, a parallel, trademark-specific legal instrument is required to mirror the functionality of open copyright licenses.

Drawing architectural inspiration from Google's Open Patent Non-Assertion Pledge—which successfully pledged not to assert specific MapReduce patents against open-source software developers ⁸⁵—the HGSC will publish the **Open Science Non-Assert (OSNA) Pledge for Trademarks**.¹

The OSNA pledge operates as a unilateral, legally binding covenant. Through this public declaration, the HGSC pledges to permanently refrain from asserting its trademark rights against any entity utilizing the collective mark for research, clinical, educational, humanitarian, or open-source commercial purposes.¹

Crucially, the pledge is subject to a strict "defensive termination" clause. The right to use the trademark is immediately and automatically revoked for any entity that initiates intellectual property litigation against the HGSC, its members, or the broader open-source community.¹ This structure deters patent trolls and trademark squatters, creating a zone of non-aggression.

This multi-layered approach—combining a formally registered collective mark with a legally binding non-assertion pledge layered over CC0 or CC-BY data licenses—creates a functional "Trademark Copyleft." It neutralizes the threat of commercial squatters by occupying the legal space on the trademark register, while simultaneously guaranteeing the global scientific community unfettered, frictionless freedom to operate.¹

Implementation Roadmap for the Human Global Science Collective

Transitioning from theoretical legal strategy to systemic global change requires highly coordinated execution. The establishment of the Human Global Science Collective (HGSC) will follow a rigorous 90-day implementation roadmap, directly adapting the logistical principles of the "Patent-Free Science" operational draft ¹ to address the immediate threat of trademark monopolies.

Phase	Timeframe	Strategic Objectives	Legal & Operational Deliverables

Phase I: Foundations	Weeks 0–2	Establish the legal architecture and cryptographic repository infrastructure.	<p>1. Draft and publicly ratify the OSNA Trademark Non-Assert Pledge.</p> <p>2. Launch the Collective Public Registry (CPR) utilizing blockchain timestamping protocols to establish an irrefutable archive of prior use evidence for all open scientific identifiers.¹</p>
Phase II: Securing the Lexicon	Weeks 2–6	Identify critical scientific terminology vulnerable to corporate squatting and establish priority.	<p>1. Execute a bulk ingest of historical scientific literature, preprints, and open-source code into the CPR to cryptographically lock in prior use dates.³⁴</p> <p>2. Automate the deployment of \$50 Letters of Protest via TEAS against pending corporate applications targeting foundational terms.⁵⁷</p>
Phase III: Alliance Formation	Weeks 6–12	Seed the collective defense pool and decentralize the	1. Recruit 5-7 anchor institutions to formally constitute the

		brand hierarchy.	Founding Cohort of the HGSC. ¹ 2. File for a Collective Membership Mark under the HGSC to occupy the federal register. 3. Initiate widespread, decentralized use of protected terms as generic verbs and lowercase nouns in academic literature to accelerate the process of intentional genericide. ²³
--	--	------------------	---

The privatization of scientific terminology through trademark law represents a profound and growing friction point in the acceleration of global discovery. The prevailing assumption that trademarks are an unassailable bastion of corporate control is fundamentally flawed; trademarks are fragile, highly conditional legal constructs reliant on linguistic exclusivity, stringent use-in-commerce requirements, and continuous quality control.

By systematically targeting these structural vulnerabilities, the scientific community can dismantle brand monopolies. The deployment of blockchain-authenticated prior use evidence, the surgical execution of Letters of Protest and TMA expungement proceedings, the weaponization of naked licensing doctrines, and the coordinated orchestration of intentional genericide offer a comprehensive, highly effective playbook for linguistic liberation. Through the unified efforts of the Human Global Science Collective, the core principles of Open Science can be irrevocably embedded into the legal architecture of intellectual property, ensuring that the lexicon of human innovation remains forever in the public domain.

Works cited

- 1. A Framework for Patent-Free Science.pdf
- 2. What's in a Name? Learn How Trademarks Can Protect Your Practice - APA Services, accessed April 9, 2026, <https://www.apaservices.org/practice/business/management/trademarks>

3. Protecting Common Words or Phrases as Trademarks - CHIP LAW GROUP, accessed April 9, 2026, <https://www.chiplawgroup.com/protecting-common-words-or-phrases-as-trade-marks/>
4. How to Prove Trademark Infringement - Verna Law, P.C., accessed April 9, 2026, <https://vernalaw.com/how-to-prove-trademark-infringement/>
5. When a trademark becomes too popular: Understanding the risk of 'genericide' - Dentons, accessed April 9, 2026, <https://www.dentons.com/en/insights/newsletters/2025/november/12/dentons-intellectual-property-hub/when-a-trademark-becomes-too-popular-understanding-the-risk-of-genericide>
6. A Free Speech Framework for Trademark Law (Chapter 3) - Cambridge University Press, accessed April 9, 2026, <https://www.cambridge.org/core/books/trademarks-and-free-speech/free-speech-framework-for-trademark-law/A1B2D39F277E3DDC6BE5ADD0D2F2818B>
7. New Frontiers in Open Source Enforcement and Compliance - Greenberg Traurig, LLP, accessed April 9, 2026, https://www.gtlaw.com/-/media/files/insights/published-articles/2023/1/the-trade-mark-lawyer_george-zalepa_new-frontiers-in-open-source-enforcement-and-compliance.pdf
8. Can You Trademark a Name Already in Use? What the Law Says, accessed April 9, 2026, <https://thesocialmedialawfirm.com/blog/trademarks-and-copyrights/can-you-trademark-a-name-that-is-already-in-use-but-not-trademarked/>
9. Protecting Your Brand in Open Source: Trademarks, Forks, and Enforcement Strategies, accessed April 9, 2026, <https://www.termsfeed.com/blog/open-source-trademark/>
10. Open Source Doesn't Mean A Trademark Free-For-All - Forrester, accessed April 9, 2026, <https://www.forrester.com/blogs/open-source-doesnt-mean-a-trademark-free-for-all/>
11. Trademark and brand guidelines - Open Source Initiative, accessed April 9, 2026, <https://opensource.org/about/brand-and-trademark-guidelines>
12. Competing Through Keyword Advertising | Journal of Competition Law & Economics, accessed April 9, 2026, <https://academic.oup.com/jcle/article/16/3/306/5835644?rss=1>
13. Overview of Trademark Law, accessed April 9, 2026, <https://cyber.harvard.edu/metaschool/fisher/domain/tm.htm>
14. Trademark Considerations in Naming A Business | Crown, LLP, accessed April 9, 2026, https://crownllp.com/wp-content/uploads/2021/04/MCBA_TMConsiderationsNamingBusiness_Website.pdf
15. Generic Terms Legally Excluded From Trademark Protection | Intellectual Property Law Center | Justia, accessed April 9, 2026, <https://www.justia.com/intellectual-property/trademarks/strength-of-marks/gene>

[ric-terms/](#)

16. Letters of Protest | New York Intellectual Property Lawyer Nikki Siesel, accessed April 9, 2026, <https://www.ny-trademark-lawyer.com/letters-of-protest.html>
17. Enhancing Efficiency and Accessibility for Federal Trademark Protection: Leveraging Blockchain Technology for Prosecution, Maintenance, and Enforcement Processes. - USF Scholarship Repository, accessed April 9, 2026, <https://repository.usfca.edu/cgi/viewcontent.cgi?article=1012&context=studentwork>
18. What is a Generic Trademark? - Patent Hacks®, accessed April 9, 2026, <https://www.patenthacks.com/resource/what-is-a-generic-trademark/>
19. Chapter 12: Trademark Law Primer 12.1 Trademark Principles 12.1.1 History and Development, accessed April 9, 2026, <https://www.law.berkeley.edu/wp-content/uploads/2016/05/Trademark-Law-Primer.pdf>
20. Trademarks in Open Source - Google, accessed April 9, 2026, <https://google.github.io/opencasebook/trademarks/>
21. Collective Marks Under the Law | Intellectual Property Law Center - Justia, accessed April 9, 2026, <https://www.justia.com/intellectual-property/trademarks/categories-of-marks/collective-marks/>
22. Protecting Trademarks from Genericide | Practical Law - Westlaw, accessed April 9, 2026, [https://content.next.westlaw.com/practical-law/document/1e4a148e8927511e38578f7ccc38dcbee/Protecting-Trademarks-from-Genericide?viewType=FullText&transitionType=Default&contextData=\(sc.Default\)](https://content.next.westlaw.com/practical-law/document/1e4a148e8927511e38578f7ccc38dcbee/Protecting-Trademarks-from-Genericide?viewType=FullText&transitionType=Default&contextData=(sc.Default))
23. Top 7 Strategies to Prevent Trade Mark Genericide - Spoor & Fisher, accessed April 9, 2026, <https://spoor.com/top-7-strategies-to-prevent-genericide-of-trade-marks/>
24. How Genericide Leads to Trademark Dilution and Infringement Risks - PatentPC, accessed April 9, 2026, <https://patentpc.com/blog/how-genericide-leads-to-trademark-dilution-and-infringement-risks>
25. genericide | Wex | US Law | LII / Legal Information Institute, accessed April 9, 2026, <https://www.law.cornell.edu/wex/genericide>
26. Going Generic: A Linguistics Approach to Genericide in Trademark Law, accessed April 9, 2026, <https://digitalcommons.law.byu.edu/lawreview/vol50/iss1/8/>
27. Client Alert: 10 Guidelines to Properly Use and Protect Your Trademark - PIB Law, accessed April 9, 2026, <https://www.piblaw.com/newsroom-news-359>
28. Trademark Tug-of-War: Winning the Battle Against Genericization, accessed April 9, 2026, <https://www.cpmlaw.com/trademark-tug-of-war-winning-the-battle-against-genericization/>
29. Best Practices to Avoid Genericide - International Trademark Association, accessed April 9, 2026,

- <https://www.inta.org/news-and-press/inta-news/famous-and-well-known-marks-committee-develops-best-practices-to-avoid-genericide/>
30. The problem with Deliberate Genericization: Lessons from a recent judgment of Federal Court | LexGeneris, accessed April 9, 2026,
<https://lexgeneris.com/the-problem-with-deliberate-genericization-lessons-from-a-recent-judgment-of-federal-court/>
 31. Priority Disputes - Common Law Rights vs. Federal Trademark Registration, accessed April 9, 2026,
<https://www.ny-trademark-lawyer.com/priority-disputes-common-law-rights-vs-federal-trademark-registr.html>
 32. How to Prevent Trademark Squatting - Wiser Market, accessed April 9, 2026,
<https://wisermarket.com/how-to-prevent-trademark-squatting/>
 33. Prior User vs. Federal Registrant: Whose Mark Is It, Anyway? - Fish & Richardson, accessed April 9, 2026,
<https://www.fr.com/insights/thought-leadership/articles/prior-user-vs-federal-registrant-whose-mark-is-it-anyway1/>
 34. TRADEMARK LAW - Madisonian, accessed April 9, 2026,
<https://madisonian.net/downloads/trademark/2023/9.Beebe.Use.in.Commerce.2023.pdf>
 35. Common Defenses Against Trademark Infringement Claims | Horn Wright, LLP, accessed April 9, 2026,
<https://www.hornwright.com/intellectual-property/trademarks/common-defenses-against-trademark-infringement-c/>
 36. Trademark Infringement: Legal Guidance - PatentPC, accessed April 9, 2026,
<https://patentpc.com/blog/trademark-infringement>
 37. How Can Prior Use Defense Protect You in Trademark Litigation?, accessed April 9, 2026,
<https://www.lodhs.com/blog/how-can-prior-use-defense-protect-you-in-trademark-litigation/>
 38. The Name Game: Cybersquatting and Trademark Infringement on Social Media Websites - BrooklynWorks, accessed April 9, 2026,
<https://brooklynworks.brooklaw.edu/cgi/viewcontent.cgi?article=1107&context=jlp>
 39. Canceling a Registered Trademark: How to Challenge a Trademark Based on Prior Use, accessed April 9, 2026, <https://moorefirm.co/?p=9682>
 40. IN THE UNITED STATES DISTRICT COURT FOR THE MIDDLE DISTRICT OF PENNSYLVANIA THE PENNSYLVANIA STATE : UNIVERSITY, : Plaintiff : N, accessed April 9, 2026,
<https://business.cch.com/ipld/PennsylvaniaStateUnivKeystoneAlternatives.pdf>
 41. TRADEMARK SQUATTING - Wisconsin International Law Journal, accessed April 9, 2026,
https://wilj.law.wisc.edu/wp-content/uploads/sites/1270/2014/01/Sangsuvan_final_v2.pdf
 42. Trademark Priority: Risks of Too Much Secrecy and "Use in Commerce" - Revision Legal, accessed April 9, 2026,
<https://revisionlegal.com/trademark/trademarks/trademark-priority-use-in-comm>

[erces-risks/](#)

43. How Prior Use Affects Trademark Opposition Outcomes - PatentPC, accessed April 9, 2026, <https://patentpc.com/blog/how-prior-use-affects-trademark-opposition-outcomes>
44. IP IQ | News and Insights Relating to All Things Intellectual Property, accessed April 9, 2026, <https://www.ipiqblog.com/>
45. Preparing Evidence of Use in Trade Mark Prosecution - LexGeneris, accessed April 9, 2026, <https://lexgeneris.com/preparing-evidence-of-use-in-trade-mark-prosecution/>
46. Proceed With Caution When Using Wayback Machine® Prior Art - PTAB Litigation Blog, accessed April 9, 2026, <https://www.ptablitigationblog.com/proceed-with-caution-when-using-wayback-machine-prior-art/>
47. Timestamped Proof of Ownership for Trademark Applications: A Guide - ScoreDetect, accessed April 9, 2026, <https://www.scoredetect.com/blog/posts/timestamped-proof-of-ownership-for-trademark-applications-a-guide>
48. Digital Proof of Possession | Now & Then: From Watermarks to Timestamps | Dibs Design, accessed April 9, 2026, <https://dibs.design/blog/digital-proof-of-possession-watermarks-to-timestamps/>
49. EUIPO authentication blockchain infrastructure enters a promotion phase - European Union, accessed April 9, 2026, <https://www.euipo.europa.eu/mt/news/observatory/euipo-authentication-blockchain-infrastructure-enters-a-promotion-phase>
50. Blockchain Evidence in Court - Bernstein.io, accessed April 9, 2026, <https://www.bernstein.io/blockchain-evidence-in-court>
51. Building Strong Cases with Blockchain Evidence: Admissibility, Chain of Custody, Experts, and Court-ready Reporting - TRM Labs, accessed April 9, 2026, <https://www.trmlabs.com/resources/blog/building-strong-cases-with-blockchain-evidence-admissibility-chain-of-custody-experts-and-court-ready-reporting>
52. The Admissibility of Blockchain as Digital Evidence - Purdue Global Law School, accessed April 9, 2026, <https://www.purdueglobalawschool.edu/blog/news/admissibility-blockchain-digital-evidence>
53. The Court of Marseille recognised blockchain timestamping as legitimate evidence of copyright ownership - EUIPO, accessed April 9, 2026, <https://www.euipo.europa.eu/en/law/recent-case-law/the-court-of-marseille-recognised-blockchain-timestamping-as-legitimate-evidence-of-copyright-ownership>
54. Blockchain: Transforming the registration of IP rights and strengthening the protection of unregistered IP rights - WIPO, accessed April 9, 2026, <https://www.wipo.int/en/web/wipo-magazine/articles/blockchain-transforming-the-e-registration-of-ip-rights-and-strengthening-the-protection-of-unregistered-ip-rights-55817>

55. From Web 2 to Web 3: Harnessing blockchain technology for IP - EUIPO - European Union, accessed April 9, 2026,
<https://www.euipo.europa.eu/en/news/from-web-2-to-web-3-harnessing-blockchain-technology-for-ip>
56. Using Blockchain Evidence in China's Digital Copyright Legislation to Enhance the Sustainability of Legal Systems - MDPI, accessed April 9, 2026,
<https://www.mdpi.com/2079-8954/12/9/356>
57. Protect Your Trademark: The Power of a Letter of Protest - Whitcomb Selinsky PC, accessed April 9, 2026,
<https://www.whitcomblawpc.com/business-law-blog/cant-afford-to-file-a-600-opposition-to-a-competitors-pending-trademark-application-maybe-you-can-file-a-50-letter-of-protest-instead>
58. Trademark Law Alert--The Letter of Protest Can Be a Cost-Effective Tool, accessed April 9, 2026, <https://www.cll.com/newsroom-news-173139>
59. Letter of protest practice tip - USPTO, accessed April 9, 2026,
<https://www.uspto.gov/trademarks/trademark-updates-and-announcements/letter-protest-practice-tip>
60. Letters of Protest at the USPTO: A Practical Guide for Brand Owners - Thomas Horstemeyer, accessed April 9, 2026,
<https://thip.law/insights/letters-of-protest-at-the-uspto-a-practical-guide-for-brand-owners/>
61. Filing Letters of Protest - Alt Legal, accessed April 9, 2026,
<https://www.altlegal.com/blog/filing-letters-of-protest/>
62. Letters of Protest: Provide Convincing Evidence for Successful LOPs - Alt Legal, accessed April 9, 2026,
<https://www.altlegal.com/blog/letters-of-protest-provide-convincing-evidence-for-successful-lops/>
63. Download a printable transcript - USPTO, accessed April 9, 2026,
https://www.uspto.gov/sites/default/files/video_transcripts/20210301_RoundtableTrademarkModernizationAct.srt
64. Letters of Protest: Practical Tips for Filing a Successful LOP - Alt Legal, accessed April 9, 2026, <https://www.altlegal.com/blog/lop-filing-tips/>
65. TMEP 1715.04: Information for Parties Filing Letter of Protest - BitLaw, accessed April 9, 2026, https://www.bitlaw.com/source/tmep/1715_04.html
66. TMEP 1715.04(a): Types of Evidence Appropriate for Letter of Protest, Oct. 2017 Ed. (BitLaw), accessed April 9, 2026,
https://www.bitlaw.com/source/tmep/1715_04_a.html
67. Letter of Protest - USPTO, accessed April 9, 2026,
<https://www.uspto.gov/sites/default/files/LOP.pdf>
68. TEAS letter of protest - USPTO, accessed April 9, 2026,
<https://www.uspto.gov/sites/default/files/documents/TM-TEAS-Letter-of-Protest.pdf>
69. Amazon's Quiet Overhaul of the Trademark System - California Law Review, accessed April 9, 2026,
<https://www.californialawreview.org/print/amazon-trademark>

70. TBMP - Chapter 0300 - PLEADINGS - USPTO, accessed April 9, 2026, <https://www.uspto.gov/sites/default/files/documents/tbmp-0300-June2022.pdf>
71. United States Patent and Trademark Office Fiscal Year 2025 Congressional Submission, March 2024 - U.S. Department of Commerce, accessed April 9, 2026, <https://www.commerce.gov/sites/default/files/2024-03/USPTO-FY2025-Congressional-Budget-Submission.pdf>
72. Trademark Trial and Appeal Board Manual of Procedure (TBMP) - USPTO, accessed April 9, 2026, <https://www.uspto.gov/sites/default/files/documents/tbmp-Master-June2025.pdf>
73. Defensive Trademark Registrations and the Risk of Cancellation: The TikTok Non-Use Decision in Perspective, accessed April 9, 2026, <https://www.khuranaandkhurana.com/defensive-trademark-registrations-and-the-risk-of-cancellation-the-tiktok-non-use-decision-in-persp>
74. Choose Defensive Trademark Registration Cautiously – Kangxin Intellectual Property Lawyers, accessed April 9, 2026, <https://en.kangxin.com/html/2/218/223/225/22259.html>
75. Defensive Publication vs Patent - XLSCOUT, accessed April 9, 2026, <https://xlscout.ai/defensive-publication-vs-patent/>
76. Defensive publications – an often overlooked (and less expensive) alternative to patents, accessed April 9, 2026, <https://www.rentschpartner.ch/en/blog/blog-posts/defensive-publications-an-often-overlooked-and-less-expensive-alternative-to-patents>
77. Defensive Publishing and the Public Domain - IP Mall, accessed April 9, 2026, https://ipmall.law.unh.edu/sites/default/files/hosted_resources/IP_handbook/ch10/IPHandbook-Ch%2010%2001%20Boettiger-Chi-Ham%20Defensive%20Publishing.pdf
78. Defensive publication or patent application: Which works best? | Dennemeyer.com, accessed April 9, 2026, <https://www.dennemeyer.com/ip-blog/news/defensive-publication-or-patent-application-which-works-best/>
79. Ethics and Law of Intellectual Property : Current Problems ... - epdf.pub, accessed April 9, 2026, <https://epdf.pub/download/ethics-and-law-of-intellectual-property.html>
80. Defensive Trade Marks | LexGeneris, accessed April 9, 2026, <https://lexgeneris.com/defensive-trade-marks/>
81. Safeguarding Your Brand The strategic move of defensive trade mark registration - Dentons, accessed April 9, 2026, <https://www.dentons.com/en/insights/alerts/2024/june/19/defensive-trade-mark-registrations>
82. INTA Comments on Draft Amendment on PRC Trademark Law, accessed April 9, 2026, https://www.inta.org/wp-content/uploads/public-files/advocacy/testimony-submissions/INTA-comments-to-PRC-Trademark-Law_EN.pdf
83. Collective Trademarks | New York Intellectual Property Lawyer, accessed April 9, 2026, <https://www.ny-trademark-lawyer.com/collective-trademarks.html>

84. Collective mark applications - USPTO, accessed April 9, 2026,
<https://www.uspto.gov/trademarks/apply/collective-mark-applications>
85. Google Makes Open Patent Non-assertion Pledge and Proposes New Licensing Models, accessed April 9, 2026,
<https://www.eff.org/deeplinks/2013/03/google-makes-open-patent-non-assertion-pledge>
86. Open Patent Non-Assertion Pledge - Google, accessed April 9, 2026,
<https://www.google.com/patents/opnpledge/pledge/>
87. A Look into Google's Open Patent Non-Assertion Pledge: Insights on Google's AI Patents [3], accessed April 9, 2026,
<https://piip.co.kr/en/blog/google-patents-open-source-software-3>
88. OpenAI's patent pledge: a post-Moderna analysis - Oxford Academic, accessed April 9, 2026, <https://academic.oup.com/jiplp/article/20/6/392/8026143>
89. Copyright and Open Source as a Framework for Patent Pledges, accessed April 9, 2026,
<https://scholar.law.colorado.edu/cgi/viewcontent.cgi?article=1177&context=ctlj>
90. Universal Intent Layer Hypothesis - Zenodo, accessed April 9, 2026,
<https://zenodo.org/records/17672016/files/Universal%20Intent%20Layer%20Hypothesis.pdf?download=1>