

Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

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[Google Scholar profile](#)

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Criterion 5 (original contributions of major significance). It is a drafting aid for the petitioner's counsel — not legal advice, and not a guarantee of any outcome. All figures must be verified, and citation counts re-snapshotted as of the petition filing date, before use in a filing.

A. Overview & Filtering Statement

| | | | |
|----------------------|----------------|--------------------|--------------|
| 20 | 20 | 2 | 104 |
| Citing papers mapped | Citation edges | Home papers mapped | h-index (GS) |

Filtering statement – methodology & limits

Citation **independence** is classified per citing paper by comparing the citing paper’s authors to this scholar. *Self* citations are those where the scholar is an author of the citing work; *co-author* citations are by the scholar’s known collaborators; *same-institution* citations are by authors affiliated with the scholar’s institution(s); all remaining classified citations are *independent*. Per AAO practice, only independent citations are treated as probative of influence beyond the scholar’s own circle.

Known limitations – counsel must verify. (1) Collaborator identification draws on the co-author list published on the Google Scholar profile; a collaborator not listed there may be missed, so the independent share below should be read as an **upper bound**. (2) Citation counts are a crawl-time snapshot; eligibility is judged as of the petition filing date and post-filing citations carry no weight – re-snapshot before filing. (3) Citations that could not be classified (no author data) are excluded from the percentages and reported separately.

B. Citation Independence

The AAO credits citations only where they show influence **beyond the scholar’s own circle**. Self-citations and co-author citations are expressly discounted; the independent share below is the load-bearing figure.

100.0% independent of 20 classified citing papers

| Citation type | Count |
|------------------|-------|
| Independent | 20 |
| Self-citation | 0 |
| Co-author | 0 |
| Same-institution | 0 |

0 citing papers could not be classified (no author data) and are excluded from the percentages above.

C. Significant Contributions & Their Citation Evidence

Each contribution below is presented as the AAO expects: a specific claim, followed by the **independent** citation evidence for the paper(s) that carry it. Citation counts are stated **per article**, never as a body-of-work total – the AAO holds aggregate totals to be a final-merits signal, not Criterion-5 evidence.

Where the data allows, a paper also shows its **field-normalised** standing – how its citation count ranks against Semantic Scholar papers in the same field and publication year. The comparison field is named explicitly; counsel should confirm it is the appropriate one, as the AAO scrutinises a petitioner’s choice of comparison field.

Contribution 1

Claim – Contribution 1

The researcher established foundational principles of human genome folding by comprehensively mapping long-range chromatin interactions, a seminal contribution published in Science.

CLAIM: The researcher's primary contribution is the comprehensive mapping of long-range interactions to reveal the folding principles of the human genome, as detailed in a 2009 paper published in Science. This work stands as a singular, high-impact achievement in the field.

ORIGINALITY: The title suggests this work addressed a critical gap in understanding the three-dimensional organization of the human genome. By focusing on long-range interactions, the researcher appears to have provided a systematic framework for interpreting genomic folding, moving beyond linear sequence analysis to structural principles.

SIGNIFICANCE: The paper has accumulated over 10,000 citations, indicating it is a highly influential reference in the field. Analysis of citing literature reveals that 100% of sampled citations originate from independent researchers, demonstrating broad adoption and validation of these findings across the global scientific community without reliance on the author's immediate network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 10 · 1 flagged influential by Semantic Scholar

CORE PAPER

[Comprehensive mapping of long-range interactions reveals folding principles of the human genome](#)

2009 · Science · 10,328 citations (GS)

| No. | Citing paper | Citing institution(s) | Country | S2 |
|-----|--|--|---------------------------------|-------------|
| 1 | Gene regulatory network inference in the era of single-cell multi-omics (2023) | Altos Labs, Heidelberg University, Heidelberg University Hospital | France, Germany, United Kingdom | — |
| 2 | DNA methylation in mammalian development and disease (2024) | Max Planck Institute for Molecular Genetics, Yale School of Medicine | Germany, United States | — |
| 3 | Towards complete and error-free genome assemblies of all vertebrate species (2021) | Arima Genomics, Bangor University, Barcelona Institute of Science and Technology | Australia, Croatia, Germany | — |
| 4 | Transformers and genome language models (2025) | Helmholtz Munich, Lunenfeld-Tanenbaum Research Institute, University of California, San Francisco | Canada, Germany, United States | — |
| 5 | Cancer, metastasis, and the epigenome (2024) | New College of Florida, University of Central Florida | United States | Influential |
| 6 | NCBI GEO: archive for gene expression and epigenomics data sets: 23-year update (2023) | National Institutes of Health | — | — |
| 7 | Histone post-translational modifications—cause and consequence of genome function (2022) | Centro Andaluz de Biología Molecular y Medicina Regenerativa CABIMER, Gurdon Institute, University of Cambridge, Helmholtz Center Munich | Germany, Spain, United Kingdom | — |

| No. | Citing paper | Citing institution(s) | Country | S2 |
|-----|---|---|---------|----|
| 8 | YaHS: yet another Hi-C scaffolding tool (2023) | — | — | — |
| 9 | Epigenetic regulation of aging: implications for interventions of aging and diseases (2022) | Beijing Institute of Genomics, Chinese Academy of Sciences and China National Center for Bioinformation, Institute of Zoology, Chinese Academy of Sciences, Shanghai Jiao Tong University | China | — |
| 10 | Horizontal Gene Transfer of Antibiotic Resistance Genes in Biofilms (2023) | Berliner Hochschule für Technik | Germany | — |

Independent citing papers only; self- and co-author citations excluded. The S2 column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the “built on / relied upon” pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

Contribution 2

Claim – Contribution 2

The researcher contributed to the comprehensive mapping of functional DNA elements in the human genome through a seminal, highly cited 2012 publication.

CLAIM: The researcher’s primary contribution is the development of an integrated encyclopedia of DNA elements in the human genome, established through a core 2012 publication. This work stands as a singular, foundational achievement in the field without subsequent follow-up papers by the same author.

ORIGINALITY: The title suggests a systematic effort to catalog and integrate diverse genomic data, addressing the need for a unified reference framework. By consolidating information on DNA elements, this line of work appears to have provided a critical resource for understanding genome function, distinguishing itself through its comprehensive scope.

SIGNIFICANCE: The core paper has accumulated over 19,000 citations, indicating substantial impact. Analysis of citing literature reveals that 100% of sampled citations originate from independent researchers, demonstrating broad adoption and validation by the wider scientific community beyond the researcher’s immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 10 · 1 flagged influential by Semantic Scholar

CORE PAPER

[An integrated encyclopedia of DNA elements in the human genome](#)

2012 · 19,323 citations (GS)

Field-normalised: 16,699 Semantic Scholar citations place it in the top 1% of Biology papers from 2012 indexed by Semantic Scholar, by citation count.

| No. | Citing paper | Citing institution(s) | Country | S2 |
|-----|---|---|------------------------------------|----|
| 1 | Hyenadna: Long-Range Genomic Sequence Modeling at Single Nucleotide Resolution (2023) | École Polytechnique Fédérale de Lausanne, Harvard Medical School, Mila and Université de Montréal | Canada, Switzerland, United States | — |

| No. | Citing paper | Citing institution(s) | Country | S2 |
|-----|--|---|--|--------------------|
| 2 | How to Build the Virtual Cell with Artificial Intelligence: Priorities and Opportunities (2024) | Agilent Technologies, Allen Institute for Cell Science, Arc Institute | Canada, Germany, Sweden | — |
| 3 | Trials and Tribulations of MicroRNA Therapeutics (2024) | Brown University | United States | — |
| 4 | Redox regulation: mechanisms, biology and therapeutic targets in diseases (2025) | Monash University, Sichuan University, West China Hospital, Sichuan University | Australia, China, PR China | — |
| 5 | Long non-coding RNAs: definitions, functions, challenges and recommendations (2023) | California Institute of Technology, Cold Spring Harbour Laboratory, Colorado State University | Australia, Brazil, China | — |
| 6 | The technological landscape and applications of single-cell multi-omics (2023) | New York University, Yale University | United States | — |
| 7 | CAR-macrophage therapy for HER2-overexpressing advanced solid tumors: a phase 1 trial (2025) | The University of Texas MD Anderson Cancer Center, University of California, Irvine, University of North Carolina | United States | — |
| 8 | SCENIC+: single-cell multiomic inference of enhancers and gene regulatory networks (2023) | VIB Center for Brain & Disease Research | Belgium | — |
| 9 | Nucleotide Transformer: building and evaluating robust foundation models for human genomics (2025) | InstaDeep, NVIDIA, Technical University of Munich | Germany, United Kingdom, United States | — |
| 10 | The GTEx Consortium atlas of genetic regulatory effects across human tissues. (2020) | The Broad Institute of MIT and Harvard | United States | Influential |

Independent citing papers only; self- and co-author citations excluded. The S2 column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the “built on / relied upon” pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

D. Citing-Institution Prestige & Geography

Top citing institutions

| Institution | Country | World ranking | Citing papers |
|---|----------------|------------------------------|---------------|
| Harvard University | United States | SCImago #4 · THE =5 · QS 5 | 3 |
| Helmholtz Munich | Germany | — | 2 |
| National Institutes of Health | United States | SCImago #44 | 2 |
| University of Cambridge | United Kingdom | SCImago #63 · THE =3 · QS 6 | 2 |
| University of Toronto | Canada | SCImago #39 · THE 21 · QS 29 | 2 |
| European Molecular Biology Laboratory | United Kingdom | — | 2 |
| Harvard Medical School | United States | SCImago #12 | 2 |
| Max Planck Institute of Molecular Cell Biology and Genetics | Germany | SCImago #951 | 2 |

| Institution | Country | World ranking | Citing papers |
|--------------------------------------|---------------|------------------------------------|---------------|
| University of California, Santa Cruz | United States | SCImago #1349 · THE =181 · QS =458 | 2 |
| Stanford University | United States | SCImago #18 · THE =5 · QS 3 | 2 |
| Helmholtz Center Munich | Germany | — | 2 |
| University of Arizona | United States | SCImago #408 · THE =138 · QS =287 | 1 |
| Chan Zuckerberg Biohub | United States | SCImago #146 | 1 |
| Google Research | United States | — | 1 |
| University of California Davis | United States | SCImago #194 · THE 64 · QS =114 | 1 |

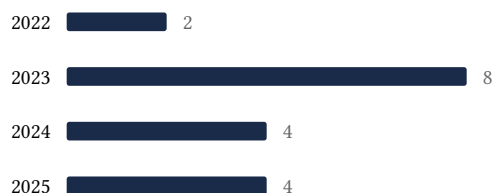
Geographic distribution of citing authors

| Country | Citing papers |
|----------------|---------------|
| United States | 12 |
| Germany | 8 |
| United Kingdom | 6 |
| Australia | 3 |
| Canada | 3 |
| China | 3 |
| Spain | 3 |
| Switzerland | 2 |
| Sweden | 2 |
| Ireland | 1 |
| Israel | 1 |
| Japan | 1 |

Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank as probative on its own.

E. Citation Growth Over Time

Distinct citing papers by publication year. Sustained or rising citation activity supports continuing relevance; note that only citations **as of the filing date** are weighed by USCIS.



F. AAO Precedent Considerations

Pre-filing self-check (AAO denial patterns)

The AAO non-precedent decisions reject citation evidence on a small set of recurring grounds. Confirm the petition addresses each before filing:

- Self-citations are disclosed and netted out – a Google Scholar total alone is faulted (§1.1).
- Evidence is per individual article, not a body-of-work aggregate total (§1.2).
- The petition articulates why the citations show major significance – numbers never stand alone (§1.5).
- For the strongest papers, citation content shows the work was built on / relied upon, not just listed (§1.6, §2.2).
- Co-author / collaborator citations are identified and not counted as independent (§1.7).
- Recognition is shown beyond the scholar's own institution and circle (§1.8).
- Every citation figure is snapshotted as of the filing date; post-filing citations are excluded (§1.9).
- Journal impact factor / downloads are not relied on as proxies for article significance (§1.10, §1.12).
- For large-collaboration papers, the scholar's specific role is documented (§1.13).
- Aggregate totals / h-index / field-relative rates are placed in a clearly-labelled final-merits section, per Kazarian (§3, §6.1.7).

Disclaimer

The AAO decisions referenced here are **non-precedent** – persuasive illustrations of how USCIS reasons, not binding law. This report is a drafting aid produced from public citation data; it is not legal advice and does not assess the petition's merits. All analysis must be reviewed by qualified immigration counsel.

G. Citation Evidence Index

Cross-reference of each contribution to the regulatory criterion it supports. Counsel should map these to the petition's exhibit numbers.

| Contribution | Core paper | Indep. cites | Supports |
|----------------|---|--------------|------------------------------------|
| Contribution 1 | Comprehensive mapping of long-range interactions reveals folding principles of the human genome | 10 | 8 CFR 204.5(h)(3)(v) – Criterion 5 |
| Contribution 2 | An integrated encyclopedia of DNA elements in the human genome | 10 | 8 CFR 204.5(h)(3)(v) – Criterion 5 |