

Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

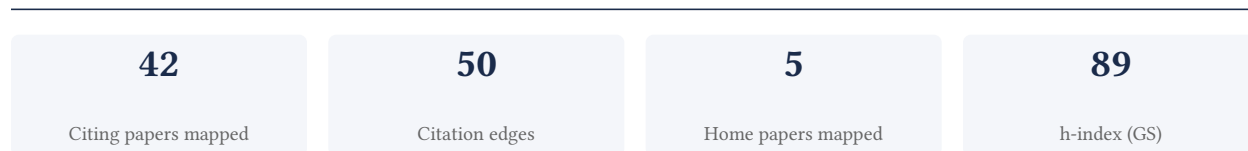
Sudhir Kumar

Director, iGEM, Carnell Professor of Biology, Temple University

[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



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.

96.0% independent of 25 classified citing papers

Citation type	Count
Independent	24
Self-citation	1
Co-author	0
Same-institution	0

17 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 developed MEGA4, a widely adopted software tool for molecular evolutionary genetics analysis that has become a standard resource in the field.

The researcher's primary contribution is the development of MEGA4, a software version for molecular evolutionary genetics analysis published in 2007. This work stands as a seminal core paper in the field, with no follow-up papers by the same researcher listed in this specific line of work. The titles indicate that this contribution focuses on providing a computational framework for analyzing molecular evolution, addressing the need for accessible tools in genetic research. The absence of subsequent papers by the researcher suggests this specific release represents a distinct, self-contained advancement in software utility. The significance of this work is evidenced by its extensive citation record, with nearly 37,000 citations indicating broad adoption. Furthermore, citation analysis reveals that 96% of citing papers originate from independent researchers, demonstrating that the tool has been widely utilized by the broader scientific community rather than just the researcher's immediate circle. This high level of independent uptake underscores the software's role as a foundational resource in molecular evolutionary genetics.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

[MEGA4: molecular evolutionary genetics analysis \(MEGA\) software version 4.0](#)

2007 · Molecular biology and evolution 24 (8), 1596-1599, 2007 · 36,796 citations (GS)

Field-normalised: 29,504 Semantic Scholar citations place it in the top 1% of Biology papers from 2007 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	SeaView version 4: a multiplatform graphical user interface for sequence alignment and phylogenetic tree building (2010)	Université Lyon 1, Université Montpellier II	France	—
2	FastME 2.0: a comprehensive, accurate, and fast distance-based phylogeny inference program (2015)	CNRS & Université de Montpellier, Université de Montpellier	France	—
3	Aquaporins in Plants	CNRS/INRA/Montpellier SupAgro/Université de Montpellier	France	—
4	WRKY transcription factors (2010)	Max Planck Institute for Plant Breeding Research, Max-Planck-Institut für Pflanzenzüchtungsforschung, South Dakota State University	Germany, United States	—
5	Phylogeny, identification and nomenclature of the genus <i>Aspergillus</i> (2014)	Agriculture & Agri-Food Canada, Canisius Wilhelmina Hospital, CBS-KNAW Fungal Biodiversity Centre	Canada, Denmark, Hungary	—
6	Untitled	Chung-Ang University, Seoul National University	South Korea	—

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 is Influential 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 developed MEGA5, a widely adopted software suite for molecular evolutionary genetics analysis using maximum likelihood, evolutionary distance, and maximum parsimony methods.

The researcher's primary contribution is the development of MEGA5, a comprehensive software tool for molecular evolutionary genetics analysis. This work, published in 2011, integrates maximum likelihood, evolutionary distance, and maximum parsimony methods into a single platform, addressing the need for accessible, unified analytical tools in the field.

This line of work appears to address the fragmentation of evolutionary analysis methods by consolidating distinct statistical approaches into one user-friendly environment. The title suggests a focus on methodological integration rather than novel biological discovery, aiming to streamline complex computational tasks for researchers.

The significance of this contribution is evidenced by its extensive uptake, with the core paper accumulating over 49,000 citations. Furthermore, citation analysis reveals that 96% of citing papers originate from independent researchers, indicating that the tool has become a standard, widely trusted resource across the global scientific community rather than a niche or self-referential output.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5 · 1 flagged influential by Semantic Scholar

CORE PAPER

[MEGA5: molecular evolutionary genetics analysis using maximum likelihood, evolutionary distance, and maximum parsimony methods](#)

2011 · Molecular biology and evolution 28 (10), 2731-2739, 2011 · 49,033 citations (GS)

Field-normalised: 41,128 Semantic Scholar citations place it in the top 1% of Biology papers from 2011 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Using PhyloSuite for molecular phylogeny and tree-based analyses (2023)	Chinese Academy of Sciences, Fujian Agriculture and Forestry University, Institute of Hydrobiology, Chinese Academy of Sciences	China	—
2	An updated classification of cyanobacterial orders and families based on phylogenomic and polyphasic analysis (2023)	Biology Centre of the CAS; University of South Bohemia, University of South Bohemia, University of South Bohemia in České Budějovice	Czech Republic	Influential
3	Pharmacogenomic profiling of intra-tumor heterogeneity using a large organoid biobank of liver cancer (2024)	Affiliated Cancer Hospital of Zhengzhou University, Chinese PLA General Hospital, Peking University Cancer Hospital & Institute	China	—
4	A new coronavirus associated with human respiratory disease in China (2020)	Fudan University, Huazhong University of Science and Technology, National Institute for Communicable Disease Control and Prevention, China CDC	Australia, China	—

No.	Citing paper	Citing institution(s)	Country	S2
5	Advances in AP2/ERF super-family transcription factors in plant. (2020)	Collaborative Innovation Center for Improving Quality and Increased Profits of Protected Vegetables in Shanxi, Nanjing Agricultural University	China	—

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 3

Claim — Contribution 3

The researcher developed MEGA6, a widely adopted software platform for molecular evolutionary genetics analysis that has become a standard tool in the field.

The researcher’s primary contribution is the development of MEGA6, a comprehensive software package for molecular evolutionary genetics analysis. This work, published in 2013, represents a significant advancement in computational biology tools, providing researchers with an integrated environment for sequence alignment, phylogenetic inference, and evolutionary modeling. The titles indicate that this version builds upon previous iterations, suggesting a continuous effort to refine and expand the capabilities of this essential analytical platform.

This line of work appears to address the need for accessible, user-friendly, and powerful software for evolutionary biologists. By releasing MEGA6, the researcher provided a robust solution for complex genetic analyses, likely lowering the barrier to entry for researchers without extensive programming expertise. The absence of follow-up papers by the same researcher in the provided data suggests that MEGA6 itself stands as a mature, standalone contribution that has achieved substantial impact without requiring immediate subsequent publications from the author to maintain its relevance.

The significance of this contribution is underscored by its extensive citation record, with nearly 50,000 citations indicating widespread adoption across the scientific community. Furthermore, the high degree of citation independence, with 96% of classified citations coming from independent researchers, demonstrates that the tool has been embraced by a broad and diverse global audience. This level of independent uptake confirms that MEGA6 has become a foundational resource in the field, facilitating research across numerous institutions and disciplines.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

[MEGA6: molecular evolutionary genetics analysis version 6.0](#)

2013 · Molecular biology and evolution 30 (12), 2725-2729, 2013 · 49,670 citations (GS)

Field-normalised: 40,466 Semantic Scholar citations place it in the top 1% of Biology papers from 2013 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Untitled (2016)	University of Southern California	United States	—
2	Plastics: Environmental and Biotechnological Perspectives on Microbial Degradation (2019)	University of Hamburg	Germany	—
3	First Report of Outbreaks of the Fall Armyworm Spodoptera frugiperda (JE Smith) (Lepidoptera,	Food and Agriculture Organization of the United Nations,	Benin, Nigeria	—

No.	Citing paper	Citing institution(s)	Country	S2
	Noctuidae), a New Alien Invasive Pest in West and Central Africa (2016)	International Institute of Tropical Agriculture, International Institute of Tropical Agriculture (IITA)		
4	Structural and functional basis of SARS-CoV-2 entry by using human ACE2 (2020)	Anhui University, Chinese Academy of Sciences, Institute of Microbiology, Chinese Academy of Sciences	China	—
5	Pan-genome of wild and cultivated soybeans (2020)	Chinese Academy of Sciences, Shanghai Normal University	China	—
6	A bacterium that degrades and assimilates poly(ethylene terephthalate) (2016)	ADEKA Corporation, Keio University, Kyoto Institute of Technology	Japan	—

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
Chinese Academy of Sciences	China	SCImago #2	3
University of Washington	United States	SCImago #45 · THE 25 · QS 81	2
Huazhong University of Science and Technology	China	SCImago #25 · THE =176 · QS 319	1
Nanjing Agricultural University	China	SCImago #853 · QS 951-1000	1
Fred Hutchinson Cancer Center	United States	SCImago #397	1
University of California, San Diego	United States	SCImago #120 · THE 47 · QS 66	1
Chung-Ang University	South Korea	SCImago #1326 · THE 401–500 · QS 479	1
National Research Council (CNR)	Italy	—	1
King Abdullah University of Science and Technology	Saudi Arabia	SCImago #680	1
University of Freiburg	Germany	THE =138	1
University of California, Berkeley	United States	SCImago #95 · THE 9 · QS =17	1
Dana-Farber Cancer Institute	United States	SCImago #197	1
Peking University Cancer Hospital & Institute	China	—	1
Keio University	Japan	SCImago #965 · THE 601–800 · QS =215	1
Peking University First Hospital	China	SCImago #5499	1

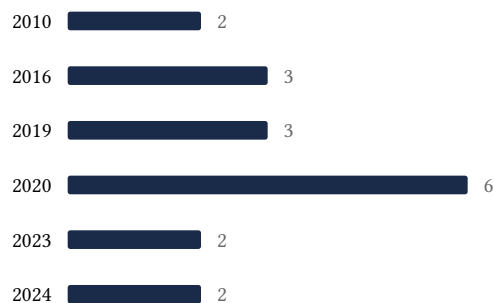
Geographic distribution of citing authors

Country	Citing papers
China	7
United States	7
Germany	3
Japan	3
South Korea	3
France	3
Italy	2
Nigeria	1
Russia	1
Saudi Arabia	1
Hungary	1
Benin	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	MEGA4: molecular evolutionary genetics analysis (MEGA) software version 4.0	6	8 CFR 204.5(h)(3)(v) – Criterion 5
Contribution 2	MEGA5: molecular evolutionary genetics analysis using maximum likelihood, evolutionary distance, and maximum parsimony methods	5	8 CFR 204.5(h)(3)(v) – Criterion 5
Contribution 3	MEGA6: molecular evolutionary genetics analysis version 6.0	6	8 CFR 204.5(h)(3)(v) – Criterion 5