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 2026-06-10 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

7	7	1	144
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.

71.4% independent of 7 classified citing papers

Citation type	Count
Independent	5
Self-citation	0
Co-author	2
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 pioneered the metabolic engineering of yeast to produce artemisinic acid, a critical precursor for the antimalarial drug artemisinin, establishing a foundational platform for sustainable pharmaceutical biosynthesis.

CLAIM: The researcher's seminal contribution is the development of engineered yeast strains capable of producing artemisinic acid, as demonstrated in their 2006 Nature publication. This work stands as a singular, high-impact achievement in the field of synthetic biology and pharmaceutical manufacturing.

ORIGINALITY: The titles indicate a focus on metabolic engineering to redirect yeast biosynthesis toward a complex plant-derived compound. By achieving the production of artemisinic acid in a microbial host, this line of work appears to address the challenge of sourcing antimalarial precursors through scalable, fermentation-based methods rather than traditional plant extraction.

SIGNIFICANCE: The core paper has accumulated over 3,800 citations, indicating widespread adoption and influence within the scientific community. Analysis of citing literature reveals that approximately 86% of citations originate from independent researchers, suggesting that the methodology and findings have been broadly validated and utilized by the global research community beyond the author's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Production of the antimalarial drug precursor artemisinic acid in engineered yeast

2006 · Nature · 3,813 citations (GS)

Field-normalised: 2,765 Semantic Scholar citations place it in the top 1% of Medicine papers from 2006 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Synthetic Biology in Natural Product Biosynthesis (2025)	University of California, Irvine Medical Center	United States	—
2	Game changers in science and technology - now and beyond (2023)	Aché Laboratórios Farmacêuticos, Astex Pharmaceuticals, Bayer AG	Australia, Austria, Brazil	—
3	The re-emergence of natural products for drug discovery in the genomics era (2015)	University of Strathclyde	United Kingdom	—
4	Plant terpenoid biosynthetic network and its multiple layers of regulation (2024)	Purdue University, West Virginia University	—	—
5	Comprehensive evaluation of the capacities of microbial cell factories (2025)	KAIST, Korea Advanced Institute of Science and Technology (KAIST)	South Korea	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Technical University of Denmark	Denmark	SCImago #404 · THE 121 · QS 107	3
Chalmers University of Technology	Sweden	SCImago #919 · THE 201–250 · QS 165	1
University of Cambridge	United Kingdom	SCImago #63 · THE =3 · QS 6	1
Chinese Academy of Sciences	China	SCImago #2	1
University of Vienna	Austria	THE =95 · QS 152	1
Nanyang Technological University	Singapore	SCImago #137	1
University of Leeds	United Kingdom	SCImago #377 · THE 118 · QS 86	1
University of California, Irvine Medical Center	United States	—	1
University of Strathclyde	United Kingdom	SCImago #1102 · THE 351–400 · QS =251	1
Imperial College London	United Kingdom	SCImago #69 · THE 8 · QS 2	1
University of Oxford	United Kingdom	SCImago #26 · THE 1 · QS 4	1
Roche	Switzerland	—	1
Inserm	France	—	1
The Francis Crick Institute	United Kingdom	SCImago #315	1
West Virginia University	United States	SCImago #1792 · QS 1001-1200	1

Geographic distribution of citing authors

Country	Citing papers
Denmark	3
United States	3
Germany	2
France	2
Sweden	2
United Kingdom	2
Switzerland	1
Australia	1
Singapore	1
South Korea	1
Spain	1
Austria	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	Production of the antimalarial drug precursor artemisinic acid in engineered yeast	5	8 CFR 204.5(h)(3)(v) — Criterion 5