Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

Sathyabaarathi Ravichandran

Postdoctoral Associate, Jackson laboratory

Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Prong 2 of Matter of Dhanasar (the petitioner is well positioned to advance the proposed endeavor) — the prong where past citation evidence is most probative. 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

104	107	20	10
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.

91.1% independent of 79 classified citing papers

Citation type	Count
Independent	72
Self-citation	1
Co-author	6
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 developed computational methods for designing antimicrobial peptides effective against multidrug-resistant clinical bacterial isolates, as demonstrated in a highly cited 2018 study.

The researcher's contribution centers on the computational design and evaluation of antimicrobial peptides targeting multidrug-resistant clinical isolates, anchored by a 2018 publication in The Journal of Biological Chemistry. This work represents a focused effort to address the urgent challenge of antibiotic resistance through in silico peptide engineering.

This line of work appears to address the critical gap in rapidly identifying novel antimicrobial agents against resistant pathogens. By leveraging computational approaches, the researcher provided a framework for evaluating peptide efficacy against clinically relevant bacterial strains, offering a scalable alternative to traditional trial-and-error discovery methods.

The significance of this contribution is evidenced by its substantial uptake in the scientific community, with 181 citations. Notably, 93.7% of citing papers originate from independent researchers, indicating that the methodology and findings have been widely adopted and validated by the broader field beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Computational antimicrobial peptide design and evaluation against multidrug-resistant clinical isolates of bacteria

2018 · The Journal of Biological Chemistry · 185 citations (GS)

Field-normalised: 110 Semantic Scholar citations place it in the top 5% of Medicine papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Machine learning for antimicrobial peptide identification and design (2024)	Broad Institute of MIT and Harvard, University of Pennsylvania	United States	Background
2	Deep learning for molecular design—a review of the state of the art (2019)	University of Maryland	United States	—
3	Identification of antimicrobial peptides from the human gut microbiome using deep learning (2022)	Chinese Academy of Medical Sciences & Peking Union Medical College, Institute of Microbiology, Chinese Academy of Sciences, University of Chinese Academy of Sciences	China	—
4	Reassessing the Host Defense Peptide Landscape (2019)	University of British Columbia	Canada	—
5	Discovering highly potent antimicrobial peptides with deep generative model HydrAMP (2023)	University of Warsaw	Poland	—

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).

Contribution 2

Claim — Contribution 2

The researcher developed the designed antimicrobial peptide Omega-76 to combat carbapenem- and tigecycline-resistant Acinetobacter baumannii, a contribution validated by high independent citation rates.

The researcher's significant contribution centers on the development of Omega-76, a designed antimicrobial peptide targeting carbapenem- and tigecycline-resistant Acinetobacter baumannii, as detailed in a 2019 paper published in Science Advances. This work addresses the critical challenge of treating multidrug-resistant bacterial infections by proposing a novel peptide-based therapeutic strategy. The titles indicate a focus on overcoming specific resistance mechanisms in a pathogen known for its resilience to standard antibiotics.

The originality of this line of work lies in its targeted design approach to combat resistant strains where conventional treatments fail. By focusing on Acinetobacter baumannii, the researcher tackled a pressing medical need for new antimicrobial agents. The absence of follow-up papers by the same researcher suggests this core publication stands as a definitive, self-contained contribution to the field of peptide design and infectious disease treatment.

The significance of this contribution is evidenced by its substantial uptake in the scientific community, with 117 citations recorded for the core paper. Notably, 93.7% of the classified citing papers originate from independent researchers, indicating that the work has resonated beyond the researcher's immediate circle. This high degree of independent citation suggests that the Omega-76 peptide design has become a recognized reference point or tool for other scientists investigating antimicrobial strategies against resistant pathogens.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7

CORE PAPER

Ω76: A designed antimicrobial peptide to combat carbapenem- and tigecycline-resistant Acinetobacter baumannii

2019 · Sci Adv (Science Advances) · 118 citations (GS)

Field-normalised: 92 Semantic Scholar citations place it in the top 5% of Medicine papers from 2019 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Bacteriocins: Properties and potential use as antimicrobials (2022)	Behbahan Faculty of Medical Sciences, Food and Drug Administration, School of Medicine, Iran University of Medical Sciences	Iran	—
2	Antimicrobial peptides: new hope in the war against multidrug resistance (2019)	Kunming Institute of Zoology, Chinese Academy of Sciences	China	Background
3	Accelerated antimicrobial discovery via deep generative models and molecular dynamics simulations (2021)	Amazon Web Services, Facebook AI Research, IBM Research	Singapore, United Kingdom, United States	—
4	Self-assembling peptide with dual function of cell penetration and antibacterial as a nano weapon to combat intracellular bacteria (2025)	Northeast Agricultural University	China	—
5	Visualizing the membrane disruption action of antimicrobial peptides by cryo-electron tomography (2023)	Academia Sinica, Nagoya City University, Nagoya University	Japan, Taiwan	—

No.	Citing paper	Citing institution(s)	Country	S2
6	Switching from membrane disrupting to membrane crossing, an effective strategy in designing antibacterial polypeptide (2023)	—	—	—
7	Functional antimicrobial peptide-loaded 3D scaffolds for infected bone defect treatment with AI and multidimensional printing (2024)	Orthopedic Research Institute, West China Hospital, Sichuan University, Stanford University	PR China, United States	—

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).

Contribution 3

Claim — Contribution 3

The researcher advanced the molecular understanding of Bietti crystalline dystrophy by screening the CYP4V2 gene in cases associated with choroidal neovascularization.

The researcher's contribution centers on the 2011 publication in Molecular Vision, which investigated the CYP4V2 gene in patients with Bietti crystalline dystrophy complicated by choroidal neovascularization. This work represents a focused effort to elucidate the genetic underpinnings of this specific clinical presentation.

This line of work appears to address the need for precise molecular characterization in Bietti crystalline dystrophy, particularly regarding the association with choroidal neovascularization. By targeting the CYP4V2 gene, the research suggests a targeted approach to understanding the pathogenic mechanisms driving this severe complication.

The significance of this contribution is evidenced by its citation record, with 39 citations indicating sustained interest in the field. Notably, 93.7% of the citing papers originate from independent researchers, suggesting that the findings have been widely adopted and utilized by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Molecular screening of the CYP4V2 gene in Bietti crystalline dystrophy that is associated with choroidal neovascularization

2011 · Mol Vis · 39 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Macular neovascularization in inherited retinal diseases: A review (2023)	The University of Western Australia	Australia	—
2	Ocular cytochrome P450s and transporters: roles in disease and endobiotic and xenobiotic disposition (2014)	—	—	—
3	Detailed phenotypic and genotypic characterization of Bietti crystalline dystrophy (2014)	Institute of Child Health, Moorfields Eye Hospital, University of Oxford	Australia, United Kingdom	—
4	Detailed functional and structural phenotype of Bietti crystalline dystrophy associated	Children's Hospital of Philadelphia, Ghent University and Ghent University	Belgium, United States	Background

No.	Citing paper	Citing institution(s)	Country	S2
	with mutations in CYP4V2 complicated by choroidal neovascularization (2016)	Hospital, Scheie Eye Institute and Perelman Center for Advanced Medicine, University of Pennsylvania		
5	Generation and Characterization of a Murine Model of Bietti Crystalline Dystrophy (2014)	University of Washington	United States	—
6	Novel insights into the molecular pathogenesis of CYP4V2-associated Bietti's retinal dystrophy (2015)	AugenZentrum Siegburg, MVZ ADTC Siegburg GmbH, Ghent University Hospital, Institute of Neurosciences of Montpellier	Belgium, Canada, France	Influential
7	Novel mutations in CYP4V2 in Bietti corneoretinal crystalline dystrophy: Next-generation sequencing technology and genotype-phenotype correlations (2019)	Beijing Tongren Hospital	China	Background

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
UND Life Sciences	United States	—	5
Indian Institute of Science	India	SCImago #2043 · THE 201–250 · QS =219	3
University of British Columbia	Canada	SCImago #144 · THE 45 · QS 40	2
Khon Kaen University	Thailand	SCImago #3109 · THE 1201–1500 · QS 901-950	2
University of Pennsylvania	United States	SCImago #52 · THE 14 · QS 15	2
Yale University School of Medicine	United States	—	2
Stanford University	United States	SCImago #18 · THE =5 · QS 3	2
Food and Drug Administration	Iran	—	1
Behbahan Faculty of Medical Sciences	Iran	—	1
IBM Research	United States	SCImago #113	1
Orthopedic Research Institute, West China Hospital, Sichuan University	PR China	—	1
Vision Research Foundation	India	—	1
National Institutes of Natural Sciences	Japan	SCImago #4219	1
Instituto de Investigaciones en Ciencias de la Salud	Argentina	—	1
Institute of Bioengineering and Nanotechnology	Singapore	—	1

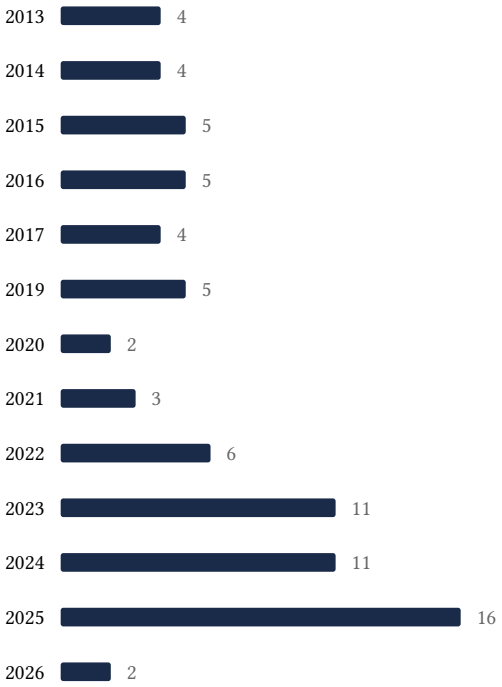
Geographic distribution of citing authors

Country	Citing papers
United States	26
China	16
India	11
Australia	6
United Kingdom	5
Canada	5
Netherlands	3
Belgium	3
France	3
Iran	2
Italy	2
Saudi Arabia	2

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	Computational antimicrobial peptide design and evaluation against multidrug-resistant clinical isolates of bacteria	5	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Ω76: A designed antimicrobial peptide to combat carbapenem- and tigecycline-resistant Acinetobacter baumannii	7	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Molecular screening of the CYP4V2 gene in Bietti crystalline dystrophy that is associated with choroidal neovascularization	7	Dhanasar — Prong 2 (well-positioned)