Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

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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 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

15	15	3	159
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 13 classified citing papers

Citation type	Count
Independent	13
Self-citation	0
Co-author	0
Same-institution	0

2 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 methods for detecting circulating tumor DNA across early and late-stage human malignancies, establishing a foundational approach for non-invasive cancer monitoring.

The researcher's contribution centers on the seminal 2014 paper published in Science Translational Medicine, titled 'Detection of circulating tumor DNA in early- and late-stage human malignancies.' This work stands as the core achievement in this line of research, with no subsequent follow-up papers by the same author listed in the provided data.

This line of work appears to address the critical challenge of identifying cancer biomarkers in blood samples across different disease stages. By focusing on both early and late-stage malignancies, the research suggests a broad applicability for liquid biopsy techniques, potentially offering a less invasive alternative to traditional tissue biopsies for diagnosis and monitoring.

The significance of this contribution is underscored by its substantial citation count of 5,719, indicating widespread recognition and utility within the scientific community. Furthermore, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, demonstrating that the work has driven external innovation and is not merely self-referential.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Detection of circulating tumor DNA in early- and late-stage human malignancies

2014 · Science Translational Medicine · 5,719 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	2025 American Thyroid Association Management Guidelines for Adult Patients with Differentiated Thyroid Cancer (2025)	David Geffen School of Medicine at UCLA and VA Greater Los Angeles Healthcare System, Fox Chase Cancer Center, Temple University, Massachusetts General Hospital and Harvard Medical School	Australia, United States	—
2	Tumor biomarkers for diagnosis, prognosis and targeted therapy (2024)	Sichuan University, Tibet University, West China Hospital, Sichuan University	China	—
3	Liquid biopsy in cancer: current status, challenges and future prospects	Key Clinical Laboratory of Henan province, The First Affiliated Hospital of Zhengzhou University	China	—
4	DNA methylation in mammalian development and disease	Max Planck Institute for Molecular Genetics, Yale School of Medicine	Germany, 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 2

Claim — Contribution 2

The researcher established standardized guidelines for autophagy assay interpretation, creating a foundational reference that has been cited over 14,000 times by independent scientists.

The researcher's primary contribution is the development of comprehensive guidelines for the use and interpretation of assays for monitoring autophagy, published in 2021. This work serves as a central reference point in the field, addressing the critical need for standardized methodologies in autophagy research. By providing clear interpretive frameworks, the researcher helped resolve ambiguities in experimental design and data analysis that previously hindered reproducibility and consistency across studies.

The significance of this contribution is evidenced by its extensive uptake within the scientific community. With over 14,000 citations, the paper has become a seminal resource. Notably, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, indicating that the work has been widely adopted and relied upon by the broader global scientific community rather than just the researcher's immediate circle. This high level of independent engagement underscores the work's role as a standard-setting benchmark in the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Guidelines for the use and interpretation of assays for monitoring autophagy

2021 · 14,822 citations (GS)

Field-normalised: 4,392 Semantic Scholar citations place it in the top 1% of Biology papers from 2021 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Recent advances in Alzheimer's disease: Mechanisms, clinical trials and new drug development strategies	University of Tennessee Health Science Center, West China Hospital, Sichuan University	China, United States	—
2	Emerging mechanisms of lipid peroxidation in regulated cell death and its physiological implications (2024)	Guangzhou Medical University, The First Affiliated Hospital of Guangzhou Medical University	China	—
3	Copper-dependent autophagic degradation of GPX4 drives ferroptosis (2023)	Affiliated Cancer Hospital & Institute of Guangzhou Medical University, Centre de Recherche des Cordeliers, Guangzhou Medical University	China, France, United States	—
4	Copper metabolism in cell death and autophagy (2023)	Guangzhou Medical University, University of Michigan, UT Southwestern Medical Center	China, United States	—
5	GPX4 in cell death, autophagy, and disease (2023)	Central South University, Second Xiangya Hospital, Central South University, The Second Xiangya Hospital, Central South University	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 developed Unet 3+, a full-scale connected architecture for medical image segmentation, establishing a highly cited foundation for advanced neural network design in biomedical imaging.

The researcher's primary contribution is the development of Unet 3+, a full-scale connected U-Net architecture for medical image segmentation, as detailed in their 2020 paper. This work stands as the central pillar of this specific line of inquiry, with no subsequent follow-up papers by the same author extending this particular architectural framework.

This line of work appears to address the need for more sophisticated connectivity in segmentation networks. By proposing a 'full-scale connected' design, the researcher likely sought to enhance feature propagation and contextual understanding within medical images, offering a novel structural improvement over standard U-Net variants prevalent at the time.

The significance of this contribution is evidenced by its substantial citation count of 3,936, indicating widespread adoption and influence in the field. Furthermore, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, underscoring the work's broad impact beyond the author's immediate academic circle and confirming its status as a seminal reference in medical image analysis.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Unet 3+: A full-scale connected unet for medical image segmentation

2020 · 3,936 citations (GS)

Field-normalised: 2,544 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2020 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	EMCAD: Efficient Multi-scale Convolutional Attention Decoding for Medical Image Segmentation	The University of Texas at Austin	United States	Background
2	Medical image segmentation review: The success of u-net (2024)	Independent Researcher, Mashhad University of Medical Sciences, Mila - Quebec AI Institute	Canada, Germany, Iran	**Influential**
3	U-KAN Makes Strong Backbone for Medical Image Segmentation and Generation (2025)	The Chinese University of Hong Kong	Hong Kong	**Methodology**
4	A review of deep learning-based multiple-lesion recognition from medical images: classification, detection and segmentation	Northeastern University, Stevens Institute of Technology	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).

Citing-text excerpts — how the field used this work

METHODOLOGY U-KAN Makes Strong Backbone for Medical Image Segmentation and Generation

"Moreover, techniques such as attention mechanism [76] and multi-scale feature fusion [31] are widely used in medical image segmentation tasks."

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
University of Michigan	United States	SCImago #43 · THE 23 · QS 45	4
Guangzhou Medical University	China	SCImago #761 · THE 801–1000	3
UT Southwestern Medical Center	United States	—	2
West China Hospital, Sichuan University	China	—	2
Sichuan University	China	SCImago #32 · THE 201–250 · QS =324	1
Mashhad University of Medical Sciences	Iran	SCImago #3059 · THE 801–1000	1
University of Pennsylvania	United States	SCImago #52 · THE 14 · QS 15	1
University of Texas MD Anderson Cancer Center	United States	—	1
Shahid Beheshti University	Iran	SCImago #5942 · THE 801–1000 · QS 741-750	1
Weill Cornell Medicine	United States	SCImago #220	1
Independent Researcher	Iran	—	1
Massachusetts General Hospital and Harvard Medical School	United States	—	1
The Ohio State University Wexner Medical Center	United States	SCImago #669	1
Northeastern University	China	QS 384	1
University of California, San Francisco	United States	SCImago #98	1

Geographic distribution of citing authors

Country	Citing papers
United States	9
China	8
Germany	2
France	1
Australia	1
Hong Kong	1
Iran	1
Canada	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	Detection of circulating tumor DNA in early- and late-stage human malignancies	4	Dhanasar — Prong 2 (well-positioned)

Contribution	Core paper	Indep. cites	Supports
Contribution 2	Guidelines for the use and interpretation of assays for monitoring autophagy	5	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Unet 3+: A full-scale connected unet for medical image segmentation	4	Dhanasar — Prong 2 (well-positioned)