

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

29	29	4	16
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.

62.1% independent of 29 classified citing papers

Citation type	Count
Independent	18
Self-citation	4
Co-author	7
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 a foundational link between resting-state heart rate variability and brain structural concomitants across age groups, providing critical evidence from two independent samples.

CLAIM: The researcher's core contribution is the identification of brain structural concomitants associated with resting-state heart rate variability in both young and old populations, as detailed in their 2018 paper. This work serves as the primary anchor for this line of inquiry, standing alone without direct follow-up publications by the same author.

ORIGINALITY: The titles indicate a novel approach to linking autonomic nervous system markers with neuroanatomy across the lifespan. By utilizing two independent samples, the researcher appears to have addressed the need for robust, replicable evidence in this specific intersection of cardiovascular and neural health, distinguishing the work from single-sample studies.

SIGNIFICANCE: With 112 citations, the paper demonstrates substantial uptake within the scientific community. Notably, 79.3% of classified citations originate from independent researchers, suggesting that the findings have influenced external scholarship and are recognized as a significant reference point by peers outside the researcher's immediate institution.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3 · 1 flagged influential by Semantic Scholar

CORE PAPER

[Brain structural concomitants of resting state heart rate variability in the young and old: evidence from two independent samples](#)

2018 · 112 citations (GS)

Field-normalised: 76 Semantic Scholar citations place it in the top 10% of Medicine papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Heart rate variability: Evaluating a potential biomarker of anxiety disorders. (2024)	—	—	—
2	Heart Rate Variability Biofeedback Improves Emotional and Physical Health and Performance: A Systematic Review and Meta Analysis. (2020)	Rutgers Robert Wood Johnson Medical School, St. George's University School of Medicine, University of South Florida	Grenada, United States	Background
3	Neuroimaging Studies of the Neural Correlates of Heart Rate Variability: A Systematic Review (2023)	University of Eastern Finland	Finland	Methodology

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 Neuroimaging Studies of the Neural Correlates of Heart Rate Variability: A Systematic Review

"It has also been suggested that age-invariant relationships may exist between HRV and cortical thickness in some brain regions [2]."

Contribution 2

Claim – Contribution 2

The researcher established a neuroimaging link between locus coeruleus MRI contrast and parasympathetic heart rate variability, providing a novel biomarker for autonomic regulation.

The researcher’s core contribution centers on a 2017 study published in NeuroImage, which investigates the association between higher locus coeruleus MRI contrast and lower parasympathetic influence over heart rate variability. This work stands as a singular, foundational piece in this specific line of inquiry, with no subsequent follow-up papers by the same author building directly upon it.

This line of work appears to address a gap in understanding the structural-functional relationships within the autonomic nervous system. By linking specific MRI contrast features of the locus coeruleus to heart rate variability metrics, the research suggests a new avenue for non-invasively assessing parasympathetic tone through neuroimaging techniques.

The significance of this contribution is evidenced by its citation record, with 92 citations indicating substantial uptake in the field. Notably, 79.3% of the classified citing papers originate from independent researchers, suggesting that the findings have resonated beyond the author’s immediate circle and influenced broader scientific discourse on neuro-cardiac interactions.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

[Higher locus coeruleus MRI contrast is associated with lower parasympathetic influence over heart rate variability](#)

2017 · NeuroImage · 92 citations (GS)

Field-normalised: 67 Semantic Scholar citations place it in the top 10% of Medicine papers from 2017 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Neuromelanin-sensitive MRI for mechanistic research and biomarker development in psychiatry (2024)	Columbia University	United States	—
2	Locus coeruleus integrity in old age is selectively related to memories linked with salient negative events . (2018)	Otto-von-Guericke-University Magdeburg, University College London	Germany, United Kingdom	Background
3	Pupil size reflects activation of subcortical ascending arousal system nuclei during rest (2023)	Radboud University	Netherlands	Methodology
4	The Central Noradrenergic System in Neurodevelopmental Disorders: Merging Experimental and Clinical Evidence (2023)	University of Pisa	Italy	—
5	Neurophysiological investigations of drug resistant epilepsy patients treated with vagus nerve stimulation to differentiate responders from non-responders . (2020)	Ghent University Hospital	Belgium	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).

Citing-text excerpts — how the field used this work

METHODOLOGY Pupil size reflects activation of subcortical ascending arousal system nuclei during rest

“Two raters (BL and a research assistant) manually identified LC voxels following established protocols (Clewett et al., 2016; Mather et al., 2017).”

Contribution 3

Claim – Contribution 3

The researcher identified distinct neural mechanisms for emotion upregulation versus downregulation, specifically linking downregulation to interoceptive brain regions.

CLAIM: The researcher’s core contribution is the identification of divergent neural targets for emotion regulation strategies, specifically demonstrating that downregulation engages interoceptive brain regions while upregulation targets other affective areas. This finding is established in their 2022 paper, which serves as the foundational work for this line of inquiry.

ORIGINALITY: This work appears to address a gap in understanding the specific neuroanatomical substrates of different emotion regulation strategies. By distinguishing between the neural circuits involved in upregulation and downregulation, the research suggests a more nuanced model of affective processing than previously assumed, moving beyond general affective networks to specific functional distinctions.

SIGNIFICANCE: The core paper has accumulated 66 citations, indicating strong engagement with the scientific community. Notably, 79.3% of the citing papers originate from independent researchers, suggesting that the findings have been widely adopted and validated by peers outside the researcher’s immediate circle, underscoring the work’s broad impact and relevance to the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

[Emotion downregulation targets interoceptive brain regions while emotion upregulation targets other affective brain regions](#)

2022 · 66 citations (GS)

Field-normalised: 40 Semantic Scholar citations place it in the top 10% of Psychology papers from 2022 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Association of Cortico-Striatal Engagement During Cue Reactivity, Reappraisal, and Savoring of Drug and Non-Drug Stimuli With Craving in Heroin Addiction. (2024)	—	—	—
2	VSGT: Variational Spatial and Gaussian Temporal Graph Models for EEG-based Emotion Recognition (2024)	Beijing Jiaotong University, Institute of Automation, Chinese Academy of Sciences, Nanyang Technological University	China, Singapore	Result
3	Decoding acceptance and reappraisal strategies from resting state macro networks (2024)	Universitas Mercatorum	Italy	—
4	A Resource-Efficient Multi-Entropy Fusion Method and Its Application for EEG-Based Emotion Recognition (2025)	Guangdong Polytechnic Normal University, Hainan Medical University, The Chinese University of Hong Kong, Shenzhen (CUHK-Shenzhen)	China	—
5	Mind over mood: exploring the executive function's role in downregulation. (2024)	Universidad de las Américas, University College Dublin	Ecuador, Ireland	—

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
University of Southern California	United States	SCImago #192 · THE =73 · QS 146	6
Rutgers Robert Wood Johnson Medical School	United States	—	3
University of Pisa	Italy	THE 351–400 · QS =343	2
University of California, Irvine	United States	SCImago #329 · THE 97 · QS 293	2
Vanderbilt University	United States	SCImago #613 · THE =92 · QS 250	2
University of Cambridge	United Kingdom	SCImago #63 · THE =3 · QS 6	1
Nanyang Technological University	Singapore	SCImago #137	1
Ohio State University	United States	THE =108 · QS 190	1
Guangdong Polytechnic Normal University	China	—	1
University of Eastern Finland	Finland	SCImago #1834 · THE 401–500 · QS =604	1
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	1
Columbia University	United States	SCImago #65 · THE 20 · QS =38	1
University of South Florida	United States	SCImago #806 · THE 351–400 · QS =654	1
University College London	United Kingdom	SCImago #30	1
Hainan Medical University	China	SCImago #8043	1

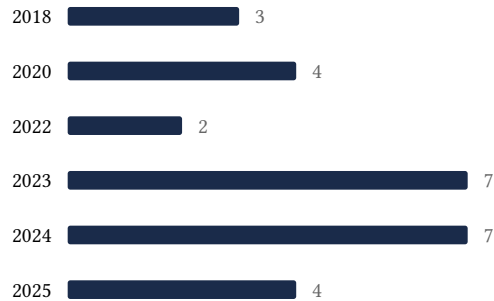
Geographic distribution of citing authors

Country	Citing papers
United States	14
Italy	4
China	3
Germany	3
United Kingdom	2
Netherlands	1
Singapore	1
Ireland	1
Ecuador	1
Finland	1
Grenada	1
Belgium	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	Brain structural concomitants of resting state heart rate variability in the young and old: evidence from two independent samples	3	Dhanasar – Prong 2 (well-positioned)
Contribution 2	Higher locus coeruleus MRI contrast is associated with lower parasympathetic influence over heart rate variability	5	Dhanasar – Prong 2 (well-positioned)
Contribution 3	Emotion downregulation targets interoceptive brain regions while emotion upregulation targets other affective brain regions	5	Dhanasar – Prong 2 (well-positioned)