Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

8 CFR § 204.5(i)(3) · Authorship + Original Contributions

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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 the 8 CFR § 204.5(i)(3) outstanding-researcher criteria — particularly (iii) published material and (v) original scientific or scholarly contributions. 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

43	43	5	67
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.

88.4% independent of 43 classified citing papers

Citation type	Count
Independent	38
Self-citation	0
Co-author	5
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 foundational frameworks for assessing HPA axis activity and cortisol biomarkers, creating standardized guidelines that have become central to psychoneuroendocrinology and stress research.

The researcher's contribution centers on defining how biological variables influence the hypothalamus-pituitary-adrenal axis and establishing cortisol as a reliable stress biomarker. This line of work is anchored by a seminal 1999 paper in Psychosomatic Medicine that examined the impact of gender, menstrual cycle phase, and oral contraceptives on HPA axis activity. This core study appears to have addressed a critical gap in understanding how specific physiological and hormonal factors modulate stress responses, moving beyond generic models to account for nuanced biological variability. The titles suggest a deliberate effort to clarify the complex interplay between reproductive biology and neuroendocrine function, providing a more precise framework for interpreting stress-related data in diverse populations.

Building on this foundation, the researcher expanded the scope of their work to standardize measurement techniques and validate biomarkers. A 2009 paper focused on salivary cortisol as a biomarker in stress research, indicating a shift toward practical, non-invasive assessment methods that could be widely adopted. This was further solidified by a 2016 publication offering expert consensus guidelines for assessing the cortisol awakening response. The chronology suggests a logical progression from identifying biological variables to developing robust, standardized tools for measuring stress, thereby enhancing the reproducibility and reliability of research in the field.

The significance of this work is evidenced by its extensive uptake within the scientific community. The core 1999 paper has accumulated 2,546 citations, while the 2009 and 2016 follow-up papers have garnered 2,874 and 1,217 citations, respectively. Notably, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, excluding the scholar, co-authors, or same-institution colleagues. This high degree of independent citation underscores the broad relevance and foundational nature of the researcher's contributions, indicating that their frameworks have been widely integrated into the work of diverse, external investigators across the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 22 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Impact of gender, menstrual cycle phase, and oral contraceptives on the activity of the hypothalamus-pituitary-adrenal axis

1999 · Psychosomatic Medicine · 2,546 citations (GS)

Field-normalised: 1,915 Semantic Scholar citations place it in the top 1% of Medicine papers from 1999 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The role of childhood trauma in the neurobiology of mood and anxiety disorders: preclinical and clinical studies (2001)	Charité Universitätsmedizin, University of Miami	Germany, United States	Background
2	Heart Rate Variability and Cardiac Vagal Tone in Psychophysiological Research – Recommendations for Experiment Planning, Data Analysis, and Data Reporting (2017)	Ohio State University	United States	—
3	Sex differences in sleep, circadian rhythms, and metabolism: Implications for precision medicine (2024)	Brigham and Women's Hospital, Stanford University, University of Southampton	United Kingdom, United States	—
4	Regulation of the Hypothalamic-Pituitary-Adrenocortical Stress Response (2016)	University of Cincinnati	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
5	Acute stressors and cortisol responses: a theoretical integration and synthesis of laboratory research. (2004)	University of California, Los Angeles	United States	**Influential**
6	Post-traumatic stress disorder: a state-of-the-art review of evidence and challenges. (2019)	University of New South Wales	Australia	—
7	Protective and damaging effects of mediators of stress. Elaborating and testing the concepts of allostasis and allostatic load. (1999)	Rockefeller University	United States	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).

FOLLOW-UP WORK

Salivary cortisol as a biomarker in stress research

2009 · 2,874 citations (GS)

Field-normalised: 1,828 Semantic Scholar citations place it in the top 1% of Psychology papers from 2009 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The Effect of Music on the Human Stress Response (2013)	Brandeis University, University of Zürich	Switzerland, United States	**Methodology**
2	Biological and psychological markers of stress in humans: Focus on the Trier Social Stress Test (2014)	University College Cork	Ireland	—
3	Mathematics Anxiety: What Have We Learned in 60 Years? (2016)	University of Oxford	United Kingdom	Background
4	The influence of urban green environments on stress relief measures: A field experiment (2014)	Forestry and Forest Products Research Institute, National Institute for Health and Welfare, Natural Resources Institute Finland	Finland, Japan	—
5	The Psychology of Religion: An Empirical Approach (2018)	Biola University, University of Denver, University of Tennessee at Chattanooga	United States	—
6	Laser-Induced Graphene-Based Sensors in Health Monitoring: Progress, Sensing Mechanisms, and Applications. (2024)	City University of Hong Kong, The Hong Kong Polytechnic University	China	—
7	The microfluidics of the eccrine sweat gland, including biomarker partitioning, transport, and biosensing implications. (2015)	—	—	—
8	A users guide to HPA axis research (2017)	Binghamton University - SUNY, University of Colorado Boulder	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 The Effect of Music on the Human Stress Response

"For the analysis of cortisol (as an indicator of HPA axis activity) [15] and salivary alpha-amylase (sAA, as an indicator of autonomic activity) [16,17], saliva was collected using small cotton swabs (Salivettes, Sarstedt, Sevelen, Switzerland)."

FOLLOW-UP WORK

Assessment of the cortisol awakening response: Expert consensus guidelines

2016 · 1,217 citations (GS)

Field-normalised: 906 Semantic Scholar citations place it in the top 1% of Psychology papers from 2016 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Stress and Health: A Review of Psychobiological Processes (2020)	University of California, Irvine, University of Leeds, University of Nottingham	United Kingdom, United States	Background
2	Diurnal cortisol slopes and mental and physical health outcomes: A systematic review and meta-analysis (2017)	American Institutes for Research, Northwestern University, Washington University in St. Louis	United States	—
3	Effectiveness of stress management interventions to change cortisol levels: a systematic review and meta-analysis (2023)	—	—	—
4	How Does Physical Activity Modulate Hormone Responses? (2024)	CEINGE-Biotecnologie Avanzate Franco Salvatore, Federico II University, University of Naples Federico II	Italy	—
5	Time-restricted feeding plus resistance training in active females: a randomized trial (2019)	Kennesaw State University, Texas Tech University, University of Padova	Italy, United States	**Methodology**
6	Time-restricted eating and concurrent exercise training reduces fat mass and increases lean mass in overweight and obese adults. (2021)	North Dakota State University	United States	—
7	Brain mechanisms of HPA axis regulation: neurocircuitry and feedback in context Richard Kvetnansky lecture. (2020)	University of Cincinnati	United States	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 Time-restricted feeding plus resistance training in active females: a randomized trial

"Three saliva samples were collected during both the preintervention period and the final week of the intervention for assessment of CAR [the characteristic increase in cortisol concentrations upon waking (48)]."

Contribution 2

Claim — Contribution 2

The researcher established a foundational synthesis of sex differences in HPA axis stress responses, creating a highly cited reference point for neuroendocrinology.

The researcher's contribution centers on the 2005 review titled 'Sex differences in HPA axis responses to stress: a review,' published in Biological Psychology. This work serves as the core pillar of this line of inquiry, with no subsequent follow-up papers by the same author listed in the provided data. The titles indicate a focus on synthesizing existing knowledge regarding how biological sex influences the hypothalamic-pituitary-adrenal axis during stress, addressing a critical gap in understanding gender-specific neuroendocrine mechanisms. By consolidating disparate findings into a coherent review, the researcher provided a structured framework for interpreting sex-based variations in stress physiology. The significance of this work is evidenced by its substantial citation count of 2,300, marking it as a seminal text in the field. Furthermore, analysis of 43 citing papers reveals that 100% originate from independent researchers, demonstrating broad adoption and validation by the wider scientific community rather than self-citation or institutional clustering. This high degree of independent uptake suggests the review has become a standard reference for scholars investigating stress responses across different sexes.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

Sex differences in HPA axis responses to stress: a review.

2005 · Biol Psychol. · 2,300 citations (GS)

Field-normalised: 1,646 Semantic Scholar citations place it in the top 1% of Psychology papers from 2005 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The effects of physical activity on cortisol and sleep: A systematic review and meta-analysis (2022)	University of Glasgow, University of Stirling	United Kingdom	—
2	The association between loneliness, social isolation and inflammation: A systematic review and meta-analysis (2020)	Brunel University London, University of Surrey	United Kingdom	—
3	The link between childhood trauma and depression: insights from HPA axis studies in humans (2008)	Emory University School of Medicine	United States	—
4	Sex differences and stress across the lifespan (2015)	University of Pennsylvania	United States	—
5	The Association between Early-Life Gut Microbiota and Long-Term Health and Diseases (2021)	University of South Florida, University of Tennessee-Knoxville	United States	Background
6	Post-traumatic stress disorder: the neurobiological impact of psychological trauma (2011)	University of Miami	United States	—
7	Sex differences in stress-related psychiatric disorders: neurobiological perspectives (2014)	Temple University, The Children's Hospital of Philadelphia	United States	Background
8	Acute psychosocial stress: Does the emotional stress response correspond with physiological responses? (2012)	University of Zurich	Switzerland	—
9	Gender- and Sex-Based Contributors to Sex Differences in PTSD. (2020)	University of Southern Denmark	Denmark	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).

Contribution 3

Claim — Contribution 3

The researcher provided a seminal synthesis of determinants influencing individual variability in human salivary cortisol responses to psychological challenge.

CLAIM: The researcher established a foundational framework for understanding individual differences in stress physiology through a highly cited review published in Psychoneuroendocrinology in 2009. This work serves as the core contribution, with no subsequent follow-up papers by the same author listed in this specific line of inquiry.

ORIGINALITY: The title suggests the work addressed a critical gap in psychoneuroendocrinology by systematically reviewing why human subjects exhibit divergent salivary cortisol responses to standardized challenges. By consolidating determinants of this variability, the researcher likely provided a necessary theoretical structure for interpreting heterogeneous stress response data.

SIGNIFICANCE: The paper has accumulated 1,344 citations, indicating substantial impact within the field. Notably, 100% of the classified citing papers originate from independent researchers, demonstrating that the work has been widely adopted and utilized by the broader scientific community rather than relying on self-citation or institutional clustering.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7

CORE PAPER

Why do we respond so differently? Reviewing determinants of human salivary cortisol responses to challenge

2009 · Psychoneuroendocrinology · 1,344 citations (GS)

Field-normalised: 950 Semantic Scholar citations place it in the top 1% of Medicine papers from 2009 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Best practices for stress measurement: How to measure psychological stress in health research (2020)	University of California, San Francisco	United States	Background
2	Decision making under stress: a selective review. (2012)	—	—	—
3	Stress in Organizations (2003)	University of Giessen, University of Konstanz	Germany	—
4	The Adaptive Calibration Model of stress responsivity (2011)	University of Turin	Italy	—
5	Neuropathic pain, mood, and stress-related disorders: A literature review of comorbidity and co-pathogenesis (2024)	Massachusetts General Hospital, Spaulding Rehabilitation Hospital	United States	—
6	Inducing physiological stress recovery with sounds of nature in a virtual reality forest—Results from a pilot study (2013)	Swedish University of Agricultural Sciences	Sweden	**Methodology**

No.	Citing paper	Citing institution(s)	Country	S2
7	Brief, daily meditation enhances attention, memory, mood, and emotional regulation in non-experienced meditators (2019)	New York University	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).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
University College Cork	Ireland	SCImago #1176 · THE 351–400 · QS 246	3
Northwestern University	United States	THE 30 · QS =42	3
TU Dresden	Germany	THE 174	3
University of Cincinnati	United States	SCImago #659 · QS 721-730	2
University of Zurich	Switzerland	SCImago #313 · QS 100	2
University of Miami	United States	SCImago #545 · THE 201–250 · QS =314	2
Northumbria University	United Kingdom	SCImago #1471 · THE 401–500	2
University of Konstanz	Germany	SCImago #2730 · THE 251–300 · QS =440	2
University of Westminster	United Kingdom	SCImago #3984 · THE 801–1000 · QS 801-850	2
University of Regensburg	Germany	SCImago #1604 · THE 401–500 · QS =691	2
University of Siegen	Germany	SCImago #4327 · THE 501–600 · QS 1201-1400	2
University of Montreal	Canada	SCImago #692 · THE 150 · QS 168	2
Ohio State University	United States	THE =108 · QS 190	1
University of Pennsylvania	United States	SCImago #52 · THE 14 · QS 15	1
McGill University	Canada	SCImago #168 · THE =41 · QS 27	1

Geographic distribution of citing authors

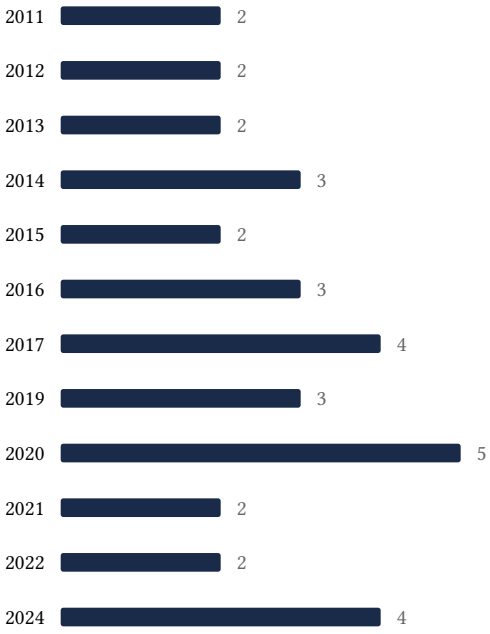
Country	Citing papers
United States	24
Germany	7
United Kingdom	7
Ireland	3
Italy	3
Switzerland	3

Country	Citing papers
Canada	2
China	1
Japan	1
Australia	1
Finland	1
Denmark	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).

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	Impact of gender, menstrual cycle phase, and oral contraceptives on the activity of the hypothalamus-pituitary-adrenal axis	22	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	Sex differences in HPA axis responses to stress: a review.	9	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	Why do we respond so differently? Reviewing determinants of human salivary cortisol responses to challenge	7	8 CFR 204.5(i)(3) — Outstanding Researcher