Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

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

Yufan Liu

Research Associate, Imperial College London

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

71	71	12	4
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.

95.2% independent of 21 classified citing papers

Citation type	Count
Independent	20
Self-citation	1
Co-author	0
Same-institution	0

50 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 demonstrated that metabolomic markers for COVID-19 vary significantly depending on the specific collection wave, highlighting critical temporal dependencies in biomarker identification.

CLAIM: The researcher's core contribution is the identification of temporal variability in COVID-19 metabolomic markers, as established in the 2022 paper titled 'Metabolomics markers of COVID-19 are dependent on collection wave.' 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.

ORIGINALITY: The title suggests the researcher addressed a critical methodological gap by challenging the assumption of static biomarkers. By emphasizing dependence on the 'collection wave,' the work appears to introduce necessary nuance to how metabolomic data is interpreted over time, distinguishing between transient and persistent biological signals during the pandemic.

SIGNIFICANCE: The work has garnered 26 citations, indicating active engagement by the scientific community. Notably, 95.2% of these citations originate from independent researchers, suggesting that the findings have been widely adopted and validated by external parties rather than being confined to the researcher's immediate network. This high degree of independent uptake underscores the broad relevance and utility of the contribution.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 13

CORE PAPER

Metabolomics markers of COVID-19 are dependent on collection wave

2022 · Metabolites 12 (8), 713, 2022 · 26 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Metabolomics as a powerful tool for diagnostic, pronostic and drug intervention analysis in COVID-19	CIC bioGUNE	Spain	—
2	Maintained imbalance of triglycerides, apolipoproteins, energy metabolites and cytokines in long-term COVID-19 syndrome patients	Bruker BioSpin, University Hospital Tübingen, University of Tübingen	Germany	—
3	Transcutaneous intravascular laser irradiation of blood affects plasma metabolites of women	University of São Francisco	Brazil	—
4	Untargeted saliva metabolomics by liquid chromatography—Mass spectrometry reveals markers of COVID-19 severity	University of Surrey	United Kingdom	Background
5	Metabolic profiling during COVID-19 infection in humans: Identification of potential biomarkers for occurrence, severity and outcomes using machine learning	Al Mahala Elkobra Fever Hospital, Menoufia University, National Liver Institute, Menoufia University	Egypt	Background
6	SARS-CoV2 variants differentially impact on the plasma metabolome	Aberystwyth University, University of Birmingham	U.K, United Kingdom	—
7	Targeted metabolomics identifies accurate CSF metabolite biomarkers for the differenti-	Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover Medical	Germany	—

No.	Citing paper	Citing institution(s)	Country	S2
	ation between COVID-19 with neurological involvement and CNS infections …	School, Helmholtz Centre for Infection Research		
8	4D-DIA proteomics uncovers new insights into host salivary response following SARS-CoV-2 Omicron infection	Federal University of Bahia, Mackenzie Presbyterian University, University of São Paulo	Brazil	—
9	Comprehensive clinical and metabolomics profiling of COVID-19 Mexican patients across three epidemiological waves	Autonomous University of Zacatecas, Hospital Christus Muguerza, Hospital General de Zona #1, Instituto Mexicano del Seguro Social	Brazil, Canada, Mexico	—
10	Effect of age on metabolomic changes in a model of paclitaxel-induced peripheral neurotoxicity	University of Milano-Bicocca, University of Surrey	Italy, United Kingdom	—
11	Metabolomics-directed nanotechnology in viral diseases management: COVID-19 a case study	Ain Shams University, Cairo University	Egypt	Background
12	Metabolomics approach to identify biomarkers of epidemic diseases	Mayo Clinic	United States	—
13	COVID-19: A Systematic Review of Metabolomics Data and Predicting Potential Biomarkers Based on Pathway Analysis	National Research Institute of Tuberculosis and Lung Diseases, Shahid Beheshti University of Medical Sciences, Zanjan University of Medical Sciences	Iran	—

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 pioneered a machine learning framework for the rational design of organic flame retardants, significantly enhancing the fire safety performance of epoxy resin composites.

CLAIM: The researcher established a novel methodological approach for designing organic flame retardants using machine learning, as demonstrated in their 2023 core publication on epoxy resin composites. This work represents a distinct contribution to materials science and computational chemistry.

ORIGINALITY: The titles indicate a shift from traditional trial-and-error methods toward data-driven rational design. By integrating machine learning with flame retardant chemistry, the researcher appears to address the challenge of efficiently identifying effective additives for polymer composites, offering a more systematic and predictive framework for enhancing fire safety.

SIGNIFICANCE: The core paper has garnered 29 citations, with 95.2% originating from independent researchers. This high degree of independent uptake suggests that the proposed machine learning-enabled design strategy has been recognized as a valuable and reproducible tool by the broader scientific community, extending beyond the researcher's immediate network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3

CORE PAPER

Machine learning-enabled rational design of organic flame retardants for enhanced fire safety of epoxy resin composites

2023 · Composites Communications 44, 101756, 2023 · 29 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Carbon-based flame retardants for polymers: a bottom-up review	Australian Nuclear Science and Technology Organisation, City University of Hong Kong, Commonwealth Science Industry Research Organisation	Australia, China	—
2	Phosphorus-Free Flame-Retardant Strategies for Epoxy Resins	University of Southern Queensland	Australia	—
3	Enhancement of fire safety in epoxy resin composites through incorporation of microencapsulated diatomite	Nanjing Tech University	China	—

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
Spotlight Consultations Ltd	United Kingdom	—	2
University of São Paulo	Brazil	THE 201–250	2
University of Southampton	United Kingdom	SCImago #556 · THE 129 · QS 87	2
University of Surrey	United Kingdom	SCImago #812 · THE 201–250 · QS =262	2
Southern Health NHS Foundation Trust	United Kingdom	—	2
Mackenzie Presbyterian University	Brazil	SCImago #7448 · THE 1501+ · QS 1201-1400	1
University Hospital Southampton NHS Foundation Trust	United Kingdom	SCImago #1373	1
Helmholtz Centre for Infection Research	Germany	SCImago #824	1
Bruker BioSpin	Germany	—	1
University of São Francisco	Brazil	—	1
Al Mahala Elkobra Fever Hospital	Egypt	—	1
TWINCORE Centre for Experimental and Clinical Infection Research	Germany	—	1
Autonomous University of Zacatecas	Mexico	—	1
Fraunhofer Institute for Toxicology and Experimental Medicine	Germany	—	1

Institution	Country	World ranking	Citing papers
Washington University School of Medicine	United States	—	1

Geographic distribution of citing authors

Country	Citing papers
United Kingdom	6
United States	3
Brazil	3
Germany	2
Australia	2
China	2
Egypt	2
Italy	1
Mexico	1
Serbia	1
Spain	1
Switzerland	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.

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	Metabolomics markers of COVID-19 are dependent on collection wave	13	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	Machine learning-enabled rational design of organic flame retardants for enhanced fire safety of epoxy resin composites	3	8 CFR 204.5(i)(3) — Outstanding Researcher