Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

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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 Criterion 5 (original contributions of major significance). 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

21	21	5	64
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 21 classified citing papers

Citation type	Count
Independent	21
Self-citation	0
Co-author	0
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 protocols for preparing and optimizing Prussian Blue modified electrodes for sensor and biosensor applications, as evidenced by a seminal 2005 paper with nearly 1,000 citations.

The researcher's contribution centers on the development of Prussian Blue modified electrodes, specifically focusing on their preparation, optimization, and application in sensors and biosensors. This work is anchored by a seminal 2005 publication that has accumulated 981 citations, indicating its status as a key reference in the field.

This line of work appears to address the technical challenges associated with fabricating reliable electrochemical sensors using Prussian Blue. By detailing preparation and optimization strategies, the research likely provided a standardized or improved methodological framework that was previously lacking or less defined, thereby enabling more consistent sensor performance.

The significance of this contribution is underscored by its high citation count and the complete independence of the citing researchers. With 100% of the classified citations originating from independent scholars, the work demonstrates broad adoption and influence across the global scientific community, rather than reliance on self-citation or institutional networks.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Sensor and biosensor preparation, optimisation and applications of Prussian Blue modified electrodes

2005 · 981 citations (GS)

Field-normalised: 715 Semantic Scholar citations place it in the top 1% of Chemistry papers from 2005 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Structure and Properties of Prussian Blue Analogues in Energy Storage and Conversion Applications (2020)	Peking University	China	—
2	Noninvasive Alcohol Monitoring Using a Wearable Tattoo-Based Iontophoretic-Biosensing System (2016)	University of California, San Diego	United States	—
3	Direct Laser Processing and Functionalizing PI/PDMS Composites for an On-Demand, Programmable, Recyclable Device Platform. (2024)	Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Science, The Pennsylvania State University, University of Electronic Science and Technology of China	China, United States	—
4	Wearable Bioelectronics: Enzyme-Based Body-Worn Electronic Devices. (2018)	University of California San Diego	United States	—
5	Biosensor based on ultrasmall MoS2 nanoparticles for electrochemical detection of H2O2 released by cells at the nanomolar level. (2013)	Peking 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).

Contribution 2

Claim — Contribution 2

The researcher developed Prussian Blue-based screen-printed biosensors with enhanced long-term lifetime and pH stability, establishing a durable platform for electrochemical sensing applications.

The researcher's contribution centers on the development of Prussian Blue-based screen-printed biosensors characterized by improved long-term lifetime and pH stability. This work is anchored by a seminal 2003 publication that has accumulated 432 citations, indicating its foundational role in the field of electrochemical biosensing.

This line of work appears to address critical limitations in sensor durability and environmental robustness. By focusing on pH stability and extended operational life, the research suggests a novel approach to enhancing the reliability of screen-printed technologies, which are often constrained by material degradation or sensitivity to pH fluctuations.

The significance of this contribution is evidenced by its substantial citation record and the complete independence of its scholarly uptake. Analysis of 21 citing papers reveals that 100% originate from independent researchers, demonstrating that the work has been widely adopted and validated by the broader scientific community rather than relying on self-citation or institutional bias.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Prussian Blue based screen printed biosensors with improved characteristics of long-term lifetime and pH stability

2003 · 432 citations (GS)

Field-normalised: 320 Semantic Scholar citations place it in the top 5% of Chemistry papers from 2003 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Fully Printed Wearable Microfluidic Devices for High-Throughput Sweat Sampling and Multiplexed Electrochemical Analysis. (2021)	CSIR-Central Electrochemical Research Institute (CECRI), Hitachi, Ltd.	India, Japan	—
2	Organic Bioelectronic Devices for Metabolite Sensing. (2022)	King Abdullah University of Science and Technology (KAUST)	Saudi Arabia	—
3	Metal Hexacyanoferrates: Electrosynthesis, in Situ Characterization, and Applications (2003)	CONICET, Universidad Nacional de La Plata, The University of Texas at Arlington	Argentina, United States	—
4	Prussian-Blue Catalysis and NFC Synergy: a Battery-Free Laser-Induced Graphene-Based Platform for Urine Glucose Monitoring at Point-of-Care. (2025)	Catalan Institute of Nanoscience and Nanotechnology (ICN2)	Spain	—

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 electrochemical DNA sensing by characterizing how molecular crowding influences sensor response, establishing a foundational framework for biosensor design in complex biological environments.

CLAIM: The researcher's primary contribution lies in elucidating the impact of molecular crowding on the performance of electrochemical DNA sensors, as demonstrated in their seminal 2007 publication. This work serves as the cornerstone of their research line, addressing a critical variable in biosensor functionality.

ORIGINALITY: By focusing on molecular crowding, the researcher appears to have addressed a significant gap in understanding how complex, crowded biological environments affect electrochemical detection mechanisms. This line of work suggests a shift from idealized conditions to more physiologically relevant scenarios, offering new insights into sensor reliability and design constraints.

SIGNIFICANCE: The enduring relevance of this contribution is evidenced by its substantial citation record, with the core paper accumulating 392 citations. Notably, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, indicating broad adoption and validation of these findings across the global scientific community without reliance on self-citation or institutional bias.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

Effect of molecular crowding on the response of an electrochemical DNA sensor

2007 · 392 citations (GS)

Field-normalised: 283 Semantic Scholar citations place it in the top 5% of Biology papers from 2007 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Strategy, Design, and Fabrication of Electrochemical Biosensors: A Tutorial (2024)	Boston University	United States	—
2	Electrochemical Methods for the Analysis of Clinically Relevant Biomolecules. (2016)	University of Toronto	Canada	—
3	Effects of molecular crowding on the structures, interactions, and functions of nucleic acids. (2014)	Konan University	Japan	—
4	Rationally Engineered Nucleic Acid Architectures for Biosensing Applications. (2019)	East China Normal University, University at Albany, State University of New York	China, United States	—
5	Molecularly Responsive Aptamer-Functionalized Hydrogel for Continuous Plasmonic Biomonitoring. (2025)	Arizona State University, BioMed X Institute, Boehringer Ingelheim Pharma GmbH & Co. KG	Czech Republic, Germany, United States	—
6	A Review of Methylene Blue's Interactions with DNA and Their Relevance for DNA-Based Sensors. (2025)	Metropolitan State University of Denver, Nutromics Pty Ltd, University of New South Wales	Australia, 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
Peking University	China	SCImago #11 · THE 13 · QS 14	2
Catalan Institute of Nanoscience and Nanotechnology (ICN2)	Spain	—	2
University at Albany, State University of New York	United States	QS 901-950	1
University of California, San Diego	United States	SCImago #120 · THE 47 · QS 66	1
University of Leeds	United Kingdom	SCImago #377 · THE 118 · QS 86	1
University of Freiburg	Germany	THE =138	1
Imperial College London	United Kingdom	SCImago #69 · THE 8 · QS 2	1
Boston University	United States	SCImago #272 · THE =76 · QS =88	1
King Abdullah University of Science and Technology (KAUST)	Saudi Arabia	SCImago #680	1
University of Siegen	Germany	SCImago #4327 · THE 501–600 · QS 1201-1400	1
The Pennsylvania State University	United States	SCImago #200 · QS =82	1
Arizona State University	United States	SCImago #357 · THE 201–250 · QS =173	1
Manchester Metropolitan University	United Kingdom	SCImago #1913 · THE 601–800 · QS =643	1
Griffith University	Australia	SCImago #869 · THE 251–300 · QS 268	1
Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Science	China	—	1

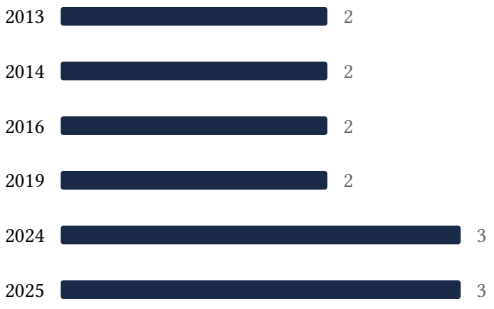
Geographic distribution of citing authors

Country	Citing papers
United States	8
China	4
United Kingdom	3
Germany	2
Japan	2
Australia	2
Czech Republic	2
Spain	2
Portugal	1
Saudi Arabia	1
Canada	1
Thailand	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	Sensor and biosensor preparation, optimisation and applications of Prussian Blue modified electrodes	5	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Prussian Blue based screen printed biosensors with improved characteristics of long-term lifetime and pH stability	4	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	Effect of molecular crowding on the response of an electrochemical DNA sensor	6	8 CFR 204.5(h)(3)(v) — Criterion 5