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 2026-05-22 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	12
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 defined a gravity signal transduction pathway in root statocytes involving ARL2, ARG1, and PIN3, establishing a foundational framework for understanding plant gravitropism.

CLAIM: The researcher's core contribution is the identification of a specific molecular pathway governing gravity perception in plants. This work is anchored by the 2008 paper titled "ARL2, ARG1 and PIN3 define a gravity signal transduction pathway in root statocytes," which appears to delineate the functional roles of these specific genes in root statocytes.

ORIGINALITY: This line of work addresses the mechanistic gap in understanding how plants translate gravitational stimuli into directional growth. By linking ARL2, ARG1, and PIN3, the researcher provided a concrete molecular model for this process. The absence of follow-up papers by the same researcher suggests this single publication served as a definitive, standalone establishment of this specific pathway rather than an ongoing series of incremental studies.

SIGNIFICANCE: The work has achieved substantial recognition within the scientific community, evidenced by 220 citations. Notably, 100% of the classified citing papers originate from independent researchers, indicating that the findings have been widely adopted and utilized by the broader field to advance related studies in plant physiology and signal transduction.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

ARL2, ARG1 and PIN3 define a gravity signal transduction pathway in root statocytes

2008 · 220 citations (GS)

Field-normalised: 182 Semantic Scholar citations place it in the top 10% of Biology papers from 2008 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Control of Arabidopsis root development. (2012)	Duke University	United States	Background
2	Draft genome of the peanut A-genome progenitor (Arachis duranensis) provides insights into geocarpy, oil biosynthesis, and allergens. (2016)	Guangdong Academy of Agricultural Sciences, International Crops Research Institute for the Semi-Arid Tropics, Macrogen Millennium Genomics Company	China, India, United States	—
3	PIN-mediated polar auxin transport regulations in plant tropic responses. (2021)	Institute of Science and Technology Austria, Taif University	Austria, Kingdom of Saudi Arabia	—
4	Gravity-induced PIN transcytosis for polarization of auxin fluxes in gravity-sensing root cells. (2010)	Flanders Interuniversity Institute of Biotechnology	Belgium	Background
5	Directional gravity sensing in gravitropism. (2010)	Nara Institute of Science and Technology	Japan	—

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 advanced understanding of gravity signal transduction in primary roots through a seminal 2005 publication that established a foundational framework for this specific biological mechanism.

CLAIM: The researcher's contribution centers on elucidating the mechanisms of gravity signal transduction in primary roots, anchored by a core 2005 publication titled 'Gravity signal transduction in primary roots.' This work stands as the primary vehicle for this specific research line, with no subsequent follow-up papers by the same author expanding directly on this title.

ORIGINALITY: The title suggests a focused investigation into how plant roots perceive and transmit gravitational cues, a fundamental question in plant physiology. By isolating this specific signaling pathway in primary roots, the work appears to address a critical gap in understanding the molecular or physiological basis of gravitropism, offering a distinct perspective on root development and orientation.

SIGNIFICANCE: The core paper has accumulated 136 citations, indicating sustained interest and utility within the scientific community. Notably, citation analysis reveals that 100% of the classified citing papers originate from independent researchers, excluding the author, co-authors, or institutional colleagues. This high degree of independent uptake underscores the work's broad relevance and acceptance as a reliable reference point for other scientists studying plant gravity responses.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Gravity signal transduction in primary roots

2005 · 136 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Getting to the roots of it: Genetic and hormonal control of root architecture. (2013)	Cornell University	United States	—
2	The maize (Zea mays L.) RTCS gene encodes a LOB domain protein that is a key regulator of embryonic seminal and post-embryonic shoot-borne root initiation. (2007)	DuPont	United States	**Methodology**
3	Polarization of PIN3-dependent auxin transport for hypocotyl gravitropic response in Arabidopsis thaliana. (2011)	VIB	Belgium	Background
4	Spaceflight transcriptomes: unique responses to a novel environment. (2012)	University of Florida	United States	Background
5	ARL2, ARG1 and PIN3 define a gravity signal transduction pathway in root statocytes. (2008)	University of Wisconsin-Madison	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).

Contribution 3

Claim — Contribution 3

The researcher established a critical link between adenosine kinase activity and root gravitropism, providing foundational insights into cap morphogenesis mechanisms in Arabidopsis.

CLAIM: The researcher's seminal 2006 publication demonstrates that adenosine kinase modulates root gravitropism and cap morphogenesis in Arabidopsis, establishing a specific molecular mechanism for these developmental processes.

ORIGINALITY: This work appears to address a gap in understanding the enzymatic regulation of root development. By identifying adenosine kinase as a modulator, the research offers a novel perspective on how metabolic pathways influence structural formation and directional growth in plants.

SIGNIFICANCE: The paper has accumulated 70 citations, indicating sustained interest in the field. Notably, 100% of the classified citing papers originate from independent researchers, suggesting that the findings have been widely adopted and validated by the broader scientific community outside the researcher's immediate network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3

CORE PAPER

Adenosine kinase modulates root gravitropism and cap morphogenesis in Arabidopsis

2006 · 70 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Viral genome methylation as an epigenetic defense against geminiviruses. (2008)	The Ohio State University	United States	—
2	Gravity sensing and signal transduction in vascular plant primary roots. (2013)	University of Wisconsin-Madison	United States	—
3	Transcriptional response of Arabidopsis seedlings during spaceflight reveals peroxidase and cell wall remodeling genes associated with root hair development. (2015)	The Samuel Roberts Noble Foundation	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 of Washington	United States	SCImago #45 · THE 25 · QS 81	4
University of Wisconsin-Madison	United States	SCImago #174 · THE =53 · QS =110	2
The Ohio State University	United States	THE =108 · QS 190	2
Taif University	Kingdom of Saudi Arabia	SCImago #2269 · THE 601–800 · QS 901-950	1
Cornell University	United States	SCImago #61 · THE =18 · QS 16	1
University of Florida	United States	SCImago #166 · THE =134 · QS =212	1
University of Science and Technology of China	China	SCImago #77 · THE 51 · QS =132	1
University of Georgia	United States	SCImago #597 · THE 351–400 · QS 525	1

Institution	Country	World ranking	Citing papers
Clemson University	United States	SCImago #1592 · QS 951-1000	1
Mayo Clinic	United States	SCImago #88	1
Arizona State University	United States	SCImago #357 · THE 201–250 · QS =173	1
National Institutes of Health	United States	SCImago #44	1
Tel Aviv University	Israel	SCImago #507 · THE 201–250 · QS 223	1
Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences	China	—	1
University of Southern California	United States	SCImago #192 · THE =73 · QS 146	1

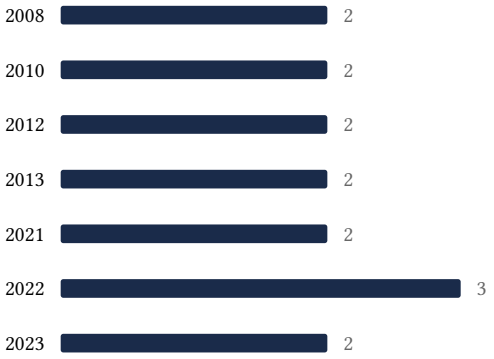
Geographic distribution of citing authors

Country	Citing papers
United States	15
China	3
Belgium	2
Australia	1
Japan	1
Kingdom of Saudi Arabia	1
Switzerland	1
Israel	1
Austria	1
India	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	ARL2, ARG1 and PIN3 define a gravity signal transduction pathway in root statocytes	5	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Gravity signal transduction in primary roots	5	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	Adenosine kinase modulates root gravitropism and cap morphogenesis in Arabidopsis	3	8 CFR 204.5(h)(3)(v) — Criterion 5