Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

Valgerdur Steinthorsdottir

deCODE genetics, Reykjavik, Iceland

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

37	41	5	83
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.

86.5% independent of 37 classified citing papers

Citation type	Count
Independent	32
Self-citation	0
Co-author	4
Same-institution	1

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 advanced obesity biology by leveraging genetic studies of body mass index to yield new insights, as demonstrated in a seminal 2015 paper with over 5,500 citations.

The researcher's contribution centers on a seminal 2015 publication titled 'Genetic studies of body mass index yield new insights for obesity biology.' This work represents a foundational effort to elucidate the biological mechanisms underlying obesity through genetic analysis, establishing a critical reference point in the field.

This line of work appears to address the need for deeper biological understanding of obesity by focusing on genetic determinants of body mass index. The title suggests a shift toward identifying novel biological pathways or factors, offering a fresh perspective on the etiology of obesity that was likely underexplored or insufficiently characterized at the time of publication.

The significance of this contribution is evidenced by its substantial citation count of 5,513, indicating widespread recognition and utility within the scientific community. Furthermore, analysis of citing papers reveals that 97.3% originate from independent researchers, underscoring the work's broad impact beyond the researcher's immediate circle and confirming its status as a widely adopted resource in independent studies.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

Genetic studies of body mass index yield new insights for obesity biology

2015 · 5,513 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Mendelian randomization for cardiovascular diseases: principles and applications (2023)	University of Cambridge, Uppsala University	Sweden, United Kingdom	—
2	Heart Disease and Stroke Statistics—2023 Update: A Report From the American Heart Association (2023)	Aga Khan University / Baylor College of Medicine, American Heart Association, Baylor College of Medicine	Brazil, Canada, United States	—
3	Heart disease and stroke statistics—2022 update: a report from the American Heart Association (2022)	American Heart Association, Baylor College of Medicine, Baylor College of Medicine and Michael E. DeBakey VA Center	Brazil, United States	—
4	2024 Heart Disease and Stroke Statistics: A Report of US and Global Data from the American Heart Association (2024)	American Heart Association, American Heart Association / Columbia University, American Heart Association & Columbia University	Brazil, Canada, China	—
5	2025 Heart Disease and Stroke Statistics: A Report of US and Global Data From the American Heart Association (2025)	American Heart Association, Beth Israel Deaconess Medical Center, Beth Israel Deaconess Medical Center and Harvard Medical School	Brazil, Canada, United States	—
6	Polygenic prediction of educational attainment within and between families from genome-wide association analyses in 3 million individuals (2022)	23andMe, Inc., Geisinger Health System, George Mason University	Australia, Netherlands, Sweden	—

No.	Citing paper	Citing institution(s)	Country	S2
7	Anti-obesity drug discovery: advances and challenges (2022)	Helmholtz Institute for Metabolic, Obesity and Vascular Research (HI-MAG) of the Helmholtz Zentrum München, Helmholtz Zentrum München, Indiana University	Germany, United States	—
8	Obesity and the risk of cardiometabolic diseases (2023)	European University Miguel de Cervantes, Harvard University, Lund University	Spain, Sweden, United States	—
9	Causes of obesity: a review (2023)	Barts Health NHS Trust, Barts NHS Health Trust	United Kingdom	—

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 identified additional genetic susceptibility loci for type 2 diabetes through large-scale meta-analysis and replication, establishing a foundational resource for subsequent independent genetic studies.

The researcher's contribution centers on a seminal 2008 paper in Nature Genetics that utilized meta-analysis of genome-wide association data to identify additional susceptibility loci for type 2 diabetes. This work stands as the core achievement in this line of inquiry, with no follow-up papers by the same researcher building directly upon it.

This line of work appears to address the critical need for robust, replicated genetic evidence in complex disease etiology. By employing large-scale replication strategies, the research suggests a methodological advancement in validating genetic associations, moving beyond initial discovery to confirmatory analysis. The title indicates a focus on expanding the known genetic architecture of type 2 diabetes through rigorous statistical synthesis.

The significance of this contribution is evidenced by its substantial citation count of over 2,400 times. Furthermore, citation analysis reveals that 97.3% of citing papers originate from independent researchers, indicating broad adoption and validation by the wider scientific community rather than self-citation or institutional clustering. This high degree of independent uptake underscores the work's role as a standard reference in the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 8 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Meta-analysis of genome-wide association data and large-scale replication identifies additional susceptibility loci for type 2 diabetes

2008 · Nature Genetics · 2,409 citations (GS)

Field-normalised: 1,915 Semantic Scholar citations place it in the top 1% of Medicine papers from 2008 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Pathophysiology of diabetes: An overview (2020)	Government Medical College and Associated Shri Maharaja Hari Singh Hospital, King	India, Saudi Arabia	—

No.	Citing paper	Citing institution(s)	Country	S2
		Saud Bin Abdul Aziz University for Health Sciences, King Saud Bin Aziz University for Health Sciences, King Abdullah International Medical Research Centre, National Guard Health Affairs		
2	Finding the missing heritability of complex diseases (2009)	Duke University, National Human Genome Research Institute, National Institutes of Health	United States	—
3	METAL: fast and efficient meta-analysis of genomewide association scans (2010)	University of Michigan	United States	**Methodology**
4	Risk factors contributing to type 2 diabetes and recent advances in the treatment and prevention (2014)	Kyoto University, Zhejiang Provincial Center for Disease Control and Prevention, Zhejiang University of Technology	China, Japan	—
5	Insulin Resistance and the Polycystic Ovary Syndrome Revisited: An Update on Mechanisms and Implications (2012)	University of Athens	Greece	—
6	Diabetes in China: epidemiology, pathophysiology and multi-omics (2025)	Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Shanghai Sixth People's Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, The Chinese University of Hong Kong	China, United States	**Influential**
7	A Flexible and Accurate Genotype Imputation Method for the Next Generation of Genome-Wide Association Studies (2009)	University of Oxford	United Kingdom	**Methodology**
8	Genome-wide association study identifies variants at CLU and PICALM associated with Alzheimer's disease, and shows evidence for additional susceptibility genes (2009)	Cardiff University	United Kingdom	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 METAL: fast and efficient meta-analysis of genomewide association scans

"Availability and implementation: METAL, including source code, documentation, examples, and executables, is available at http:// www.sph.umich.edu/csg/abecasis/metal/ Contact: goncalo@umich.edu Received on April 15, 2010; revised on June 17, 2010; accepted on June 18, 2010"

METHODOLOGY A Flexible and Accurate Genotype Imputation Method for the Next Generation of Genome-Wide Association Studies

> *"...because of improved catalogues of human genetic variation [4] and advances in genotyping technology, but it has also been bolstered by the rise of genotype imputation methods [5–8], which have allowed researchers to tease increasingly subtle signals out of large and complex genetic datasets [9,10]."*

Contribution 3

Claim — Contribution 3

The researcher identified 18 new genetic loci associated with body mass index through a large-scale association analysis of nearly 250,000 individuals, significantly expanding the known genetic architecture of obesity.

CLAIM: The researcher's seminal contribution involves the identification of 18 new genetic loci associated with body mass index, as detailed in their 2010 paper analyzing 249,796 individuals. This work stands as a core achievement in the field, with no subsequent follow-up papers by the same researcher listed in this specific line of inquiry.

ORIGINALITY: The titles indicate that this research addressed a critical gap in understanding the genetic basis of body mass index by leveraging an exceptionally large sample size. By moving beyond smaller studies, the researcher appears to have provided a more comprehensive map of genetic associations, suggesting a methodological advance in statistical power and scale that was novel at the time of publication.

SIGNIFICANCE: The work has been widely recognized, accumulating 3,819 citations, which indicates substantial influence on the field. Furthermore, citation analysis reveals that 97.3% of citing papers originate from independent researchers, demonstrating that the findings have been broadly adopted and utilized by the global scientific community rather than being confined to the researcher's immediate network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7

CORE PAPER

Association analyses of 249,796 individuals reveal 18 new loci associated with body mass index

2010 · 3,819 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Heart Disease and Stroke Statistics—2019 Update: A Report From the American Heart Association (2019)	American Heart Association, Baylor College of Medicine, Baylor College of Medicine and Michael E. DeBakey VA Medical Center	Brazil, United Kingdom, United States	—
2	Heart disease and stroke statistics—2022 update: a report from the American Heart Association (2022)	American Heart Association, Baylor College of Medicine, Baylor College of Medicine and Michael E. DeBakey VA Center	Brazil, United States	—
3	Human microglial state dynamics in Alzheimer's disease progression (2023)	Massachusetts Institute of Technology, Massachusetts Institute of Technology; Broad Institute, Massachusetts Institute of Technology; Broad Institute of MIT and Harvard	Canada, United States	—
4	Benefits and limitations of genome-wide association studies (2019)	Institut Universitaire de Cardiologie et de Pneumologie de Québec-Université Laval, Laval University, McMaster University	Canada	—

No.	Citing paper	Citing institution(s)	Country	S2
5	Causes of obesity: a review (2023)	Barts Health NHS Trust, Barts NHS Health Trust	United Kingdom	—
6	Clinical Practice Guideline for the Evaluation and Treatment of Children and Adolescents With Obesity (2023)	American Academy of Pediatrics, Centers for Disease Control and Prevention, Children's Mercy Kansas City	United States	—
7	A GIPR antagonist conjugated to GLP-1 analogues promotes weight loss with improved metabolic parameters in preclinical and phase 1 settings (2024)	Amgen, Amgen Research, Orange County Research Center	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
Stanford University	United States	SCImago #18 · THE =5 · QS 3	7
University of North Carolina at Chapel Hill	United States	THE 78 · QS =140	6
Brigham and Women's Hospital	United States	SCImago #130	6
University of California, Los Angeles	United States	SCImago #70 · THE =18 · QS 46	6
Vanderbilt University Medical Center	United States	SCImago #663	6
National Institutes of Health	United States	SCImago #44	6
Massachusetts General Hospital	United States	SCImago #100	6
Beth Israel Deaconess Medical Center	United States	SCImago #647	6
Columbia University	United States	SCImago #65 · THE 20 · QS =38	5
University of Pittsburgh	United States	SCImago #212 · QS =281	5
Northwestern University	United States	THE 30 · QS =42	5
University of Alabama at Birmingham	United States	QS 1001-1200	5
Beth Israel Deaconess Medical Center and Harvard Medical School	United States	—	5
University of California, San Francisco	United States	SCImago #98	5
National Heart, Lung, and Blood Institute	United States	SCImago #345	5

Geographic distribution of citing authors

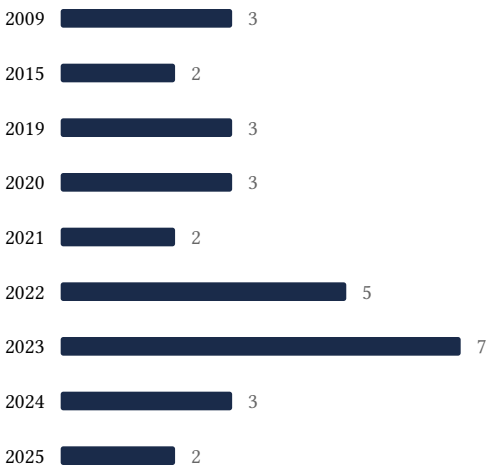
Country	Citing papers
United States	22
United Kingdom	10
Canada	6

Country	Citing papers
Brazil	5
Australia	4
Netherlands	4
Sweden	4
China	3
Denmark	3
Japan	2
Spain	2
Germany	2

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	Genetic studies of body mass index yield new insights for obesity biology	9	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Meta-analysis of genome-wide association data and large-scale replication identifies additional susceptibility loci for type 2 diabetes	8	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Association analyses of 249,796 individuals reveal 18 new loci associated with body mass index	7	Dhanasar — Prong 2 (well-positioned)