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 2026-06-11 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

576	683	30	19
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.

97.9% independent of 528 classified citing papers

Citation type	Count
Independent	517
Self-citation	9
Co-author	2
Same-institution	0

48 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 developed efficient heterogeneous catalytic systems for aminocarbonylation and related amidation reactions, establishing a foundational approach to sustainable organic synthesis that has been widely adopted by the independent scientific community.

The researcher's core contribution centers on the development of palladium nanoparticles supported on ZIF-8 as an efficient heterogeneous catalyst for aminocarbonylation, as detailed in a seminal 2013 paper. This work serves as the foundation for a broader line of inquiry into sustainable catalytic methods for forming amide bonds, a critical transformation in pharmaceutical and materials chemistry.

This line of work appears to address the need for robust, reusable catalytic systems that operate under milder conditions. Following the initial 2013 study, the researcher expanded this framework by investigating alternative catalysts, including 2-furanylboronic acid for direct amidation at room temperature and mesoporous niobium oxide spheres for transamidation. The chronological progression from metal-based heterogeneous systems to diverse catalytic materials suggests a systematic effort to optimize reaction efficiency and broaden the scope of applicable substrates.

The significance of this research is evidenced by its substantial uptake within the field. The core 2013 paper has accumulated 223 citations, while subsequent follow-up studies have garnered 69 and 53 citations respectively. Notably, analysis of citing literature indicates that 97.9% of citations originate from independent researchers, demonstrating that this work has influenced the broader scientific community beyond the researcher's immediate institution or collaboration network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 162

CORE PAPER

Palladium nanoparticles supported on ZIF-8 as an efficient heterogeneous catalyst for aminocarbonylation

2013 · 223 citations (GS)

Field-normalised: 172 Semantic Scholar citations place it in the top 5% of Chemistry papers from 2013 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Tetravalent Boron-based Therapeutics	—	—	—
2	Nanomaterials via ZIF-8: preparations, catalytic and drug delivery applications	GLA University, Guru Ghasidas Vishwavidyalaya, Presidency University	India	—
3	Metal–organic frameworks: versatile heterogeneous catalysts for efficient catalytic organic transformations	State Key Laboratory of Advanced Technology For Materials Synthesis and Processing	China	—
4	Zeolitic imidazolate framework materials: recent progress in synthesis and applications	University of Exeter	United Kingdom	—
5	Application of metal and metal oxide nanoparticles@ MOFs	CSIRO Manufacturing, Institució Catalana de Recerca i Estudis Avançats, Institut Català de Nanociència i Nanotecnologia	Australia, Belgium, Japan	—
6	A review on zeolite imidazole frameworks: synthesis, properties, and applications	Ibb University, Yuvaraja's College (Autonomous)	India, Yemen	—
7	Buchwald-Hartwig reaction: an overview	Alzahra University	Iran	—

No.	Citing paper	Citing institution(s)	Country	S2
8	Synthesis of pearl necklace-like ZIF-8@ chitosan/PVA nanofiber with synergistic effect for recycling aqueous dye removal	Institute for Color Science and Technology	Iran	—
9	Metal–organic frameworks as solid catalysts for the synthesis of nitrogen-containing heterocycles	Madurai Kamaraj University	India	—
10	Metal–organic frameworks and their catalytic applications	Kyoto University, University of Science and Technology of China	China, Japan	—
11	Recent developments in palladium catalysed carbonylation reactions	Institute of Chemical Technology	India	—
12	Zeolitic imidazolate frameworks: synthesis, functionalization, and catalytic/adsorption applications	Inha University	South Korea	—
13	Chloroform as a Carbon Monoxide Precursor: In or Ex Situ Generation of CO for Pd-Catalyzed Aminocarbonylations	University of Illinois Urbana-Champaign	United States	—
14	Synthesis and characterizations of ZIF-8/GO and ZIF-8/rGO composites for highly sensitive detection of Cu2+ ions	Jeonbuk National University, Najran University, University of Malaya	Greece, Malaysia, Saudi Arabia	—
15	Metals@ ZIFs: Catalytic applications and size selective catalysis	Wuhan University of Technology	China	—
16	Fabrication of Pd@ ZIF-8 catalysts with different Pd spatial distributions and their catalytic properties	The Synergetic Innovation Center for Advanced Materials	China	—
17	Dual-crosslinked networks of superior stretchability and toughness polyacrylamide-carboxymethylcellulose hydrogel for delivery of alendronate	Peking University Third Hospital	China	—
18	In situ generation of palladium nanoparticles: ligand-free palladium catalyzed pivalic acid assisted carbonylative Suzuki reactions at ambient conditions	Nanjing Normal University	China	—
19	Direct white-light-emitting and near-infrared phosphorescence of zeolitic imidazolate framework-8	Beijing Normal University	China	—
20	Bimetallic alloy nanocrystals encapsulated in ZIF-8 for synergistic catalysis of ethylene oxidative degradation	Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences	China	—
21	Metal-organic framework grown in situ on chitosan microspheres as robust host of palladium for heterogeneous catalysis: Suzuki reaction and the p-nitrophenol …	Ningde Normal University, Northeastern University	China, United States	—
22	Zeolitic imidazolate framework-68 as an efficient heterogeneous catalyst for chemical fixation of carbon dioxide	California Institute of Technology, Guangdong University of Technology	China, United States	—

No.	Citing paper	Citing institution(s)	Country	S2
23	Synthetic design of functional boron imidazolate frameworks	Chinese Academy of Sciences, Fujian Institute of Research on the Structure of Matter	China	—
24	Porous organic cage stabilised palladium nanoparticles: efficient heterogeneous catalysts for carbonylation reaction of aryl halides	Tsinghua University	China	—
25	Cascade reactions catalyzed by bionanostructures	Universidad Autónoma de Madrid	Spain	—
26	Co/Cu bimetallic ZIF as New heterogeneous catalyst for reduction of nitroarenes and dyes	Institute for Advanced Studies in Basic Sciences, Universidad de Alicante	Iran, Spain	—
27	Metal-organic framework templated electrodeposition of functional gold nanostructures	University of Manchester	United Kingdom	—
28	Palladium-catalyzed carbonylative synthesis of isoindolinones from benzylamines with TFBen as the CO source	Zhejiang Sci-Tech University	China	—
29	Mechanistic probes of zeolitic imidazolate framework for photocatalytic application	Argonne National Laboratory, Marquette University	United States	—
30	Post-synthesis functionalization of a zeolitic imidazolate structure ZIF-90: a study on removal of Hg (II) from water and epoxidation of alkenes	Inha University	South Korea	—

Showing the 30 most-cited of 125 independent citing papers.

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

2-Furanylboronic Acid as an Effective Catalyst for the Direct Amidation of Carboxylic Acids at Room Temperature

2015 · 69 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Nonclassical routes for amide bond formation	Institut Charles Gerhardt Montpellier	France	—
2	Advances in nitroarene reductive amidations	University of Eswatini, University of Johannesburg	Eswatini, South Africa	—
3	Recent developments in amide synthesis using nonactivated starting materials	Universidad de los Andes	Colombia	—
4	Large-scale amidations in process chemistry: practical considerations for reagent selection and reaction execution	Pfizer	United States	—
5	Unique physicochemical and catalytic properties dictated by the B3NO2 ring system	Microbial Chemistry Research Foundation	Japan	—
6	Heterocyclic boron acid catalyzed dehydrative amidation of aliphatic/aromatic carboxylic acids with amines	Qingdao University of Science and Technology, State Key Laboratory of Materials-Oriented	China	—

No.	Citing paper	Citing institution(s)	Country	S2
		Chemical Engineering, Weifang University of Science and Technology		
7	Iridium-Catalyzed Reductive Strecker Reaction for Late-Stage Amide and Lactam Cyanation	University of Oxford	United Kingdom	—
8	An Electrochemical Design for a General Catalytic Carboxylic Acid Substitution Platform via Anhydrides at Room Temperature: Amidation, Esterification, and …	The Pennsylvania State University	United States	—
9	Boronic acid–DMAPO cooperative catalysis for dehydrative condensation between carboxylic acids and amines	Nagoya University	Japan	—
10	The ortho-substituent on 2, 4-bis (trifluoromethyl) phenylboronic acid catalyzed dehydrative condensation between carboxylic acids and amines	Nagoya University	Japan	—
11	Hafnium-catalyzed direct amide formation at room temperature	Stockholm University	Sweden	—
12	Mechanistic insight into asymmetric hetero-Michael addition of α, β-unsaturated carboxylic acids catalyzed by multifunctional thioureas	HUN-REN Research Centre for Natural Sciences, Kyoto University	Hungary, Japan	—
13	Manganese catalyzed direct amidation of esters with amines	Shihezi University, Zhengzhou University	China	—
14	Catalytic Dehydrative Peptide Synthesis with gem-Diboronic Acids	Kyoto University	Japan	—
15	Tetramethyl orthosilicate (TMOS) as a reagent for direct amidation of carboxylic acids	Imperial College London, Pfizer Ltd.	U.K, United Kingdom	—
16	Mechanistic elucidation of zirconium-catalyzed direct amidation	Stockholm University	Sweden	—
17	On the use of triarylsilanols as catalysts for direct amidation of carboxylic acids	Imperial College London, King's College London, Pfizer Ltd.	U.K, United Kingdom	—
18	Diboronic acid anhydrides as effective catalysts for the hydroxy-directed dehydrative amidation of carboxylic acids	Kitasato University	Japan	—
19	NMR quantification of hydrogen-bond-activating effects for organocatalysts including boronic acids	University of California	United States	—
20	High throughput experimentation as a tool to guide the microwave assisted catalytic amidation of aryl amines with aryl acids	Purdue University West Lafayette	United States	—
21	All Non-Carbon B3NO2 Exotic Heterocycles: Synthesis, Dynamics, and Catalysis	Institute of Microbial Chemistry, Microbial Chemistry Research Foundation	Japan	—
22	Straightforward α-Amino Nitrile Synthesis Through Mo(CO)6-Catalyzed Reductive Functionalization of Carboxamides	Stockholm University, Umeå University	Sweden	—

No.	Citing paper	Citing institution(s)	Country	S2
23	Catalytic and non-catalytic amidation of carboxylic acid substrates	Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, University of Tehran	Iran	—
24	1, 3-Difunctionalization of Aminocyclopropanes via Dielectrophilic Intermediates	École Polytechnique Fédérale de Lausanne	Switzerland	—
25	A benzophenothiazine/boronic acid hybrid photocatalyst enables the single electron transfer (SET) to carboxy groups: SET-initiated cyclization of α, β-unsaturated …	Kyoto University	Japan	—
26	Siloxy Esters as Traceless Activators of Carboxylic Acids: Boron-Catalyzed Chemoselective Asymmetric Aldol Reaction	Hokkaido University, The University of Tokyo	Japan	—
27	Dehydrative Condensation of Carboxylic Acids with Amines Promoted by HBF4/MS 5A	Nagoya University	Japan	—
28	Visible-light-mediated amide synthesis in deep eutectic solvents	Universidad de Alicante, University of Calabria	Italy, Spain	—
29	Phenysilane and silicon tetraacetate: versatile promotors for amide synthesis	Université de Caen Normandie	France	—
30	A calix [4] arene based boronic acid catalyst for amide bond formation: proof of principle study	—	—	—

Showing the 30 most-cited of 37 independent citing papers.

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

Mesoporous niobium oxide spheres as an effective catalyst for the transamidation of primary amides with amines

2014 · 53 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

Contribution 2

Claim — Contribution 2

The researcher developed efficient synthetic routes for Tamiflu and related alkaloids using inexpensive d-ribose and shikimic acid derivatives, establishing a foundational methodology for complex pharmaceutical synthesis.

The researcher's core contribution centers on the efficient formal synthesis of Oseltamivir Phosphate (Tamiflu) utilizing inexpensive d-ribose as the starting material, as detailed in a seminal 2010 publication. This work established a cost-effective chemical pathway for producing a critical antiviral agent, addressing the need for accessible manufacturing methods during periods of high demand.

This line of work appears to address the challenge of simplifying complex pharmaceutical synthesis by leveraging readily available chiral pool materials. The subsequent 2011 publications suggest the researcher extended this methodological framework to

access (-)-shikimic acid derivatives and explore pattern recognition approaches for morphine alkaloid cores, indicating a broader application of these synthetic strategies to other biologically active compounds.

The significance of this research is evidenced by the core paper's 77 citations, with follow-up works accumulating additional citations. Notably, 97.9% of the scholar's total citing papers originate from independent researchers, demonstrating that this synthetic methodology has been widely adopted and validated by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 33 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Efficient Formal Synthesis of Oseltamivir Phosphate (Tamiflu) with Inexpensive d-Ribose as the Starting Material

2010 · 77 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Synthesis of carbocyclic and heterocyclic β-aminocarboxylic acids	University of Szeged	Hungary	—
2	Influenza neuraminidase inhibitors: synthetic approaches, derivatives and biological activity	Nanjing Agricultural University	China	Influential
3	Enantioselective synthesis of oseltamivir phosphate (Tamiflu) via the iron-catalyzed stereoselective olefin diazidation	Georgia State University	United States	—
4	Growing utilization of radical chemistry in the synthesis of pharmaceuticals	National Institute of Pharmaceutical Education and Research, University of Kansas	India, United States	—
5	Development of a Concise Synthesis of (–)-Oseltamivir (Tamiflu)	—	—	—
6	Synthesis of (–)-Oseltamivir by Using a Microreactor in the Curtius Rearrangement	Tokyo University of Science	Japan	—
7	Two Approaches toward the Formal Total Synthesis of Oseltamivir Phosphate (Tamiflu): Catalytic Enantioselective Three-Component Reaction Strategy and l …	Institute of Microbial Chemistry	Japan	—
8	Recent development in synthetic strategies for oseltamivir phosphate	Microbial Chemistry Research Foundation, The University of Tokyo	Japan	—
9	An efficient synthesis of oseltamivir phosphate (Tamiflu) via a metal-mediated domino reaction and ring-closing metathesis	Kasetsart University	Thailand	—
10	Unleashing the power of domino reactions on carbohydrates: State of the Art	University of Milan, University of Modena and Reggio Emilia	Italy	—
11	Several generations of chemoenzymatic synthesis of oseltamivir (Tamiflu): evolution of strategy, quest for a process-quality synthesis, and evaluation of efficiency …	Brock University, CareerChem	Canada	—

No.	Citing paper	Citing institution(s)	Country	S2
12	A Practical and Azide-Free Synthetic Approach to Oseltamivir from Diethyl d-Tartrate	Sun Yat-sen University	China	—
13	Selective syntheses of novel highly functionalized β-aminocyclohexanecarboxylic acids	Hungarian Academy of Sciences, University of Szeged	Hungary	—
14	Use of the Diels– Alder adduct of pyrrole in organic synthesis. Formal racemic synthesis of Tamiflu	Yamaguchi University	Japan	—
15	A Synthesis of Oseltamivir (Tamiflu) Starting from d-Mannitol	Ewha Womans University	South Korea	—
16	A new access route to functionalized cispentacins from norbornene beta-amino acids	Egis Pharmaceuticals (Hungary), HUN-REN Research Centre for Natural Sciences, Institute for Medical Biology	Hungary, Poland	—
17	Synthesis and Structural Studies of α/β-Peptides Derived from Fused Furano-pyran β-Amino Acid and L-Ala	Indian Institute of Chemical Technology	India	—
18	Nucleotides and nucleic acids; oligo-and polynucleotides	MRC Laboratory of Molecular Biology	United Kingdom	—
19	Synthesis, Isolation and Characterization of Process-Related Impurities in Oseltamivir Phosphate	Jiwaji University	India	—
20	Formal Total Synthesis of (–)-Oseltamivir Phosphate	Asahi-Kasei EMD Corporation (Japan), Kobe University	Japan	—
21	Advances in the synthesis of antiviral agents from carbohydrate-derived chiral pools	Central University of Gujarat	India	—
22	A concise synthetic approach toward Tamiflu (oseltamivir phosphate): cis-aziridine as the key synthon and RCM	National Chemical Laboratory	India	—
23	A concise and practical synthesis of oseltamivir phosphate (Tamiflu) from D-mannose	Kasetsart University	Thailand	—
24	Selective nitrile oxide dipolar cycloaddition for the synthesis of highly functionalized β-aminocyclohexanecarboxylate stereoisomers	Hungarian Academy of Sciences, University of Jyväskylä, University of Szeged	Finland, Hungary	—
25	A new and efficient asymmetric synthesis of oseltamivir phosphate (Tamiflu) from D-mannose	Kasetsart University	Thailand	—
26	Ring-Closing Metathesis	North Carolina State University	United States	—
27	Stereospecific synthetic approach towards Tamiflu using the Ramberg–Backlund reaction from cysteine hydrochloride	CSIR – National Chemical Laboratory	India	—
28	Progress of Chiral Schiff Bases with C1 Symmetry in Metal-Catalyzed Asymmetric Reactions	Kobe University	Japan	—

No.	Citing paper	Citing institution(s)	Country	S2
29	Synthesis, Isolation and Characterization of Process-Related Impurities in Oseltamivir Phosphate	Jiwaji University	India	—
30	Transformation of D-Serine to Highly Functionalized Cyclohexenecarboxylates in Study of Oseltamivir Synthesis	National Taiwan University	Taiwan	—

Showing the 30 most-cited of 33 independent citing papers.

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

Expeditious access to (–)-shikimic acid derivatives for Tamiflu synthesis

2011 · 10 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

FOLLOW-UP WORK

A pattern recognition approach to 14-epi-hydrophenanthrene core of the morphine alkaloids based on shikimic acid

2011 · 9 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

Contribution 3

Claim — Contribution 3

The researcher developed an efficient total synthesis of aigialomycin D and subsequently explored its analogues as protein kinase inhibitors for cancer targets.

The researcher established a foundational contribution in natural product chemistry by publishing a seminal paper on the efficient and practical total synthesis of aigialomycin D in 2007. This core work provided a critical methodological advance for accessing this complex marine natural product, enabling further structural and biological investigation.

Building upon this synthetic achievement, the researcher extended the scope of the work in 2011 by exploring aigialomycin D and its analogues as protein kinase inhibitors for cancer targets. This progression suggests a deliberate strategy to translate synthetic accessibility into therapeutic potential, addressing the gap between chemical synthesis and pharmacological application in oncology.

The significance of this line of work is evidenced by substantial independent uptake. The core synthesis paper has garnered 59 citations, while the follow-up study on kinase inhibition has received 39 citations. Notably, 97.9% of the 528 classified citations for this scholar originate from independent researchers, indicating that the broader scientific community, rather than the researcher's immediate circle, has recognized and utilized these contributions.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

An efficient and practical total synthesis of aigialomycin D

2007 · 59 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Mitsunobu and related reactions: advances and applications	University of Hyderabad	India	—
2	Benzenediol lactones: a class of fungal metabolites with diverse structural features and biological activities	Southwest University	China	—
3	Aigialomycins and related polyketide metabolites from the mangrove fungus Aigialus parvus BCC 5311	Mahidol University, National Center for Genetic Engineering and Biotechnology	Thailand	—
4	Learning from nature: advances in geldanamycin-and radicicol-based inhibitors of Hsp90	University of Nottingham	United Kingdom	—
5	Total Synthesis of Aigialomycin D using a One-Pot Ketene Generation– Trapping– Aromatization Sequence	Imperial College, Imperial College London	United Kingdom	—
6	β-Keto-dioxinones and β, δ-diketo-dioxinones in biomimetic resorcylate total synthesis	Imperial College London	United Kingdom	—
7	A concise total synthesis of amphidinolide T2.	Hong Kong University of Science and Technology, Zhejiang University	China, Hong Kong	—
8	Stereoselective Total Synthesis of Aigialomycin D	Indian Institute of Chemical Technology	India	—
9	Organic synthesis using microwave heating	University of Graz	Austria	—

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

Exploring aigialomycin d and its analogues as protein kinase inhibitors for cancer targets

2011 · 39 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Institute of Chemical Technology	India	SCImago #2170	14
Tarbiat Modares University	Iran	SCImago #3250 · THE 601–800	13
Persian Gulf University	Iran	SCImago #9786 · THE 1201–1500	12
Institute of Chemical and Engineering Sciences	Singapore	—	11
University of Kalyani	India	SCImago #9073	7
China Pharmaceutical University	China	SCImago #800 · THE 1001–1200	6
Kyoto University	Japan	SCImago #375 · THE 61 · QS 57	6

Institution	Country	World ranking	Citing papers
The University of Tokyo	Japan	SCImago #141 · THE 26 · QS =36	6
Hunan University	China	SCImago #294 · THE 251–300 · QS =504	6
University of Pannonia	Hungary	SCImago #5017 · THE 1501+ · QS 1201-1400	6
Leibniz Institute for Catalysis	Germany	—	6
Stockholm University	Sweden	SCImago #578 · THE 201–250 · QS =147	6
Nanjing Tech University	China	SCImago #742 · THE 601–800	6
State Key Laboratory of Materials-Oriented Chemical Engineering	China	—	6
Central Salt and Marine Chemicals Research Institute	India	SCImago #7055	5

Geographic distribution of citing authors

Country	Citing papers
China	145
India	113
Iran	50
United States	33
Japan	32
United Kingdom	23
France	16
South Korea	12
Hungary	12
Germany	12
Italy	11
Singapore	11

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).

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	Palladium nanoparticles supported on ZIF-8 as an efficient heterogeneous catalyst for aminocarbonylation	162	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	Efficient Formal Synthesis of Oseltamivir Phosphate (Tamiflu) with Inexpensive d-Ribose as the Starting Material	33	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	An efficient and practical total synthesis of aigialomycin D	9	8 CFR 204.5(i)(3) — Outstanding Researcher