Online Resource 2

Screening, decision clocks and method traceability

Companion to "Citation Reuse After Article Reinstatement: Evidence from Three Restoration Events"

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This supplement summarizes the dated pre-outcome study-design and screening records (September–October 2026) and the corrected validation results. It does not recreate the historical bibliographic databases from original raw source files.

S2.1 Two different eleven-unit denominators

A 2026-07-28 Crossref/Retraction Watch snapshot analysis identified 11 unique reinstatement DOIs with at least one other same-DOI notice category (five expression-of-concern, five correction, one retraction combinations). This notice-companion grouping is not the strict scientific restoration-family screen. The author-level study separately tracked 11 screened restoration families containing 12 focal article DOI records. Their downstream eligibility statuses are reconstructed from dated pre-outcome screening checkpoints in Table S2.1; the original consolidated eleven-family source file has not been recovered.

The 11-family denominator reflects the study-specific qualified event screen. It is not a prevalence estimate across all reinstated publications or an inference from the 11 notice-companion DOIs.

S2.2 Downstream eligibility of screened event families

Table S2.1. Reconstructed downstream eligibility status from outcome-blind records. "Non-executable" means the original study rules did not provide a fully qualified author-level analysis under the screened corpus, not that the reinstatement never happened or that no other author could exist.

Family	Focal identifier	Study execution status	Specific original-rule limitation
FASEB	10.1096/fj.02-0453fje	Included: 7 complete author units	Pre-T0 34 citing works; 8 A-ID units; seven qualified topical continuations; TOP20 frozen
GENOMICS	10.1016/j.ygeno.2008.11.010	Included: 8 complete author units	7 pre-T0 citing works; 10 A-ID units; eight post-T1 eligible, two topic holds; TOP20 frozen
CIRCRES	10.1161/ CIRCRESAHA.116.308301	Included: 12 complete author units	75 pre-T0 citing works; short interruption qualified by explicit received dates; 6 additional post-T1 holds
PLANCK	2 related original DOI records; one family	Excluded from core set-use analysis	No eligible c≥3 related-work candidates in either focal citation universe
JNNP	10.1136/jnnp.2004.048363	No executable core cohort	Prior focal exposure nonzero; identified current-awareness bibliography has no usable primary author

Family	Focal identifier	Study execution status	Specific original-rule limitation
			unit
IOP	10.1088/1757-899X/872/1/012032	Non-executable: prior-citer gate	10-day interruption; no pre-T0 OpenAlex focal-citing work in bounded search
HEART	10.1136/heartjnl-2011-301156.29	Non-executable: prior-citer gate	No pre-T0 OpenAlex focal-citing work in bounded search
CPB / KARGER	10.1159/000443123	Non-executable in bounded author search	First-party clock 2020-08-28 to 2020-10-29 (62 days); no eligible overlapping topical author opportunity located
RSER-2010	10.1016/j.rser.2010.08.018	Non-executable: event clock	Erroneous notice DOI linkage; no reliable first-party exact analytical T0
RSER-2017	10.1016/j.rser.2017.02.003	Non-executable: event clock	Notice chronology does not resolve separate earlier strict T0
RCSANN	10.1308/rcsann.2020.0038	Non-executable: event clock	Original retraction/reinstatement dates unavailable in surviving evidence

Cross-check: 3 families ultimately contributed 7 + 8 + 12 = 27 complete author units; the eight others were not included in that denominator. The PLANCK family encompasses two focal DOI records. Detailed row-level reasons and capture provenance for every strict family still require checking against the final census/snapshot archive.

S2.3 Pre-outcome related-work sets

The source-work universe comprised distinct pre-retraction citing publications of each focal article after DOI/title deduplication. The record gives 34 such FASEB publications, seven for GENOMICS and 75 for CIRCRES. For a related candidate j, c_j is its independent source-work count; $S_j = [\Sigma_i I(j \in R_i)/L_i] / [\Sigma_i 1/L_i]$, where R_i is the source reference list and L_i its size. A candidate required $c_j \geq 3$ and publication before focal retraction. Sorting used descending S_j, descending c_j and ascending canonical Work ID. Sets were constructed without reading later reuse outcomes.

FASEB: 143 eligible nonfocal candidates; reciprocal-length denominator 0.6073394224139331. The frozen 20 IDs and their recorded scores are available in Table S2.2. A dated pre-outcome check recorded a pass for duplicate and alias resolution in the FASEB set. This recovers that event's frozen ranking, but not a full source-work-to-candidate membership matrix.

Table S2.2. FASEB pre-outcome frozen TOP20 (Work IDs and source-frequency/normalized-score values as archived; no fresh reconstruction).

Rank	OpenAlex Work ID	Independent sources c	Normalized score S
1	W1566509581	21	0.597695268351
2	W1952053031	21	0.539854605511
3	W1500809101	20	0.513621391003
4	W1536256102	20	0.500075969354
5	W1585651720	15	0.402941030386
6	W1514296939	16	0.400252539912
7	W1957207331	15	0.342140696598
8	W2034844685	12	0.327758986422
9	W2086869569	13	0.324216429584
10	W2025778924	8	0.322458402552

Rank	OpenAlex Work ID	Independent sources c	Normalized score S
11	W2040051757	13	0.314535062447
12	W1529553680	8	0.291894101989
13	W2052886216	9	0.284913256505
14	W1996679060	7	0.276827254695
15	W2037948947	12	0.274267092818
16	W1972914549	12	0.267487866709
17	W2149942972	9	0.251002039525
18	W2082824466	9	0.239576918950
19	W2032304318	7	0.219550542970
20	W2132424160	8	0.203673370668

GENOMICS: seven pre-retraction source works; 51 eligible candidates; normalized denominator 0.1429081992121949. The complete original 20-rank TSV was recovered from the dated archive (30 September 2026). The pre-T0 source-work-to-candidate reference-membership matrix and frozen OpenAlex raw graph snapshot remain unavailable.

CIRCRES: 75 pre-retraction source works; 345 raw candidates passing c≥3. A PubMed-only alias W2271771390 duplicated the DOI-linked UKPDS 34 article W2188846692 (DOI 10.1016/S0140-6736(98)07037-8). The alias was removed and W2113506865 entered rank 20 of the corrected set before unblinding. The original corrected 20-rank TSV has been recovered, and its SHA256 agrees exactly with the dated pre-outcome manifest. A subsequent result correction for Yabing Chen used that fixed set.

Original 20-rank member tables are now available for FASEB, GENOMICS and CIRCRES. The recovered files contain the frozen Work IDs, source frequency and normalized scores, but neither they nor the derived-data validator independently reproduce the entire candidate ranking from the historical raw citation graph and source-reference matrices.

S2.4 Topic and decision-time gates

Primary author unit: a literal persistent OpenAlex Author ID on a pre-retraction focal-citing publication. Same-author identity on the relevant interval work, continuity in an event-specific research question, a qualified interval citation decision and eligible later topical output were required before outcomes were read. Name, ORCID and affiliations provided corroboration but were not substitutes for the frozen A-ID gate.

Preferred decision time was the manuscript received/submitted/preprint date. When this was unavailable, the original rule required a ≥180-day publication-date buffer. A work with a pre-restoration received date cannot qualify as a later decision merely by being published after the restoration date.

Table S2.3. Representative original pre-outcome topic/clock evidence (examples, not a complete 27-unit received-date ledger).

Family	Actual-question topic gate	Relevant clock	Recorded eligibility illustration
FASEB	Nogo/NgR injury–regeneration and hippocampal lesion/reorganization	2013-08-01 restoration; fallback from 2014-01-28	Seven of eight pre-outcome A-ID units retained; one topic hold
GENOMICS	Pituitary development, gene regulation and genetically defined pathology	2011-11-01 restoration; fallback from 2012-04-29	Eight of ten pre-outcome A-ID units retained; two topic holds
CIRCRES	Vascular smooth-muscle/vascular calcification mechanism	2022-10-13 to 2023-03-22, too short for interval publication fallback	For example 10.3390/ijms24065392 received 2023-02-16 and qualifies on received-date

Family	Actual-question topic gate	Relevant clock	Recorded eligibility illustration
			evidence
CPB/KARGER	LOX-1 / oxidized LDL and vascular mechanism	2020-08-28 to 2020-10-29 from publisher notices	No qualifying interval author overlap located in bounded prescreen

S2.5 Outcome sequencing, missingness and correction

The three frozen families contributed 27 complete author units (FASEB 7, GENOMICS 8, CIRCRES 12), before the recorded outcome review began. Interval set-use was observed for 4, 7 and 4 author units respectively (15/27). The primary conditional measure examined first eligible post-restoration topical outputs: 12 core author units had observable bibliographies representing nine different works; 0/12 cited the restored focal. Three core author units shared two bibliography-unobserved abstract records, giving the no-imputation 0%–20% bound across all 15 core units.

The initially reported secondary set-use count of 7/12 was corrected by result-blind validation: an earlier eligible first post-restoration work by Yabing Chen (DOI 10.1161/ATVBAHA.123.319198, 2024-01-11) cited a frozen related work but not the focal. Final validated set-level continued use was 8/12 (3/4 FASEB, 4/4 GENOMICS, 1/4 CIRCRES), without changing the 0/12 primary result. Final confirmed later re-citation through 2026-10-01 remained 6/27 author units, all GENOMICS, represented by four different works. These are author-unit counts, not independent-document observations.

The pre-unblinding integrity lock identifies all three focal IDs, fixed sets and the 27-unit cohort. The final validation record confirms the corrected figures. This annex does not independently authenticate timestamps and SHA-256 hashes of every historical source capture or furnish publisher-bibliography images for each primary negative case.

S2.6 Evidence-provenance and missing-source register

Table S2.4. Evidence access. “Not found” is a source-preservation finding, not a claim of permanent loss or of failure of the prior scientific validation.

Material	Evidence now available	Unresolved release provenance
Pre-outcome event census and candidate interpretation	Archived R8–R12 source-checkpoint summaries	Available as text records; final standalone source-row 11-family freeze not found
Crossref July 2026 official matched snapshot	Original dated Crossref 2026-07-28 CSV recovered and matched to W10-R1/R2 expected size and SHA256 (local custody); frozen commit 1a6805b02061166bdbd3db8b9938e081b87301f4	Original CSV is not redistributed in this annex; independent full Crossref-to-OpenAlex-to-results replay remains incomplete
FASEB TOP20 ranks/score values	Pre-outcome FASEB set freeze v0.5 and pre-unblinding alias PASS	20 IDs and scores available; raw per-source membership matrix not recovered
GENOMICS TOP20 ranks/source membership	Original W10-R9 frozen 20-rank TSV recovered from Library (3,410 bytes; SHA256 9077f4775949b6c76e3e63189823f86d3de0ea8986d7b50c593cc70493c03b63)	Original pre-T0 work-by-reference membership matrix and historical OpenAlex snapshot still not archived
CIRCRES TOP20 corrected ranks/source membership	Original W10-R12 corrected 20-rank TSV recovered (3,609 bytes; frozen manifest SHA256 3116c7482fe8d7577120fb311451d64b16	Duplicate alias correction preserved; full pre-T0 source-work reference matrix and historical graph not

Material	Evidence now available	Unresolved release provenance
	3237b74b05ef346923b238075f7f76 matches)	archived
Event-specific author/topic/decision clocks	W10-R9/R10/R11/R12 source-checkpoint text	Selected rules and witnesses recovered; all 27 author-level original timestamps not certified
Primary absent citation-edge assertions	R13 and R14 outcome and missingness reports	Derived RETURN classifications available; complete raw bibliography snapshots not certified
Blinded validation correction	Post-IV terminal corrected result authority	Scientific result frozen and correction provenance identified

Source coverage: the original three-event frozen TOP20 member rankings are preserved, including the recovered GENOMICS/CIRCRES files. The original strict eleven-family source census, complete historical OpenAlex/source-reference matrices, all author clocks and focal-negative first-party reference snapshots remain partial. Full source-to-result reconstruction is not asserted.

Source bibliography

Crossref/Retraction Watch historical event dataset (official 2026-07-28 snapshot described above); OpenAlex public scholarly graph; publisher notice/article and primary bibliography pages; PubMed as relevant. Source versions and historical checkpoint evidence are retained in a separate private preservation archive. The recovered event-specific ranked tables, derived author- and event-level records, provenance descriptions and validation scripts are publicly available at Zenodo (https://doi.org/10.5281/zenodo.23251878). The public deposit does not include the complete historical OpenAlex graph or all source-bibliography captures and therefore does not independently reconstruct every upstream observation.