pharmaceuticals

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Article

Transarterial Chemoembolization with BioPearls for the Treatment of Hepatocellular Carcinoma: A Preliminary Experience

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Abstract: Background/Objectives: Transarterial chemoembolization (TACE) is a widely accepted and minimally invasive treatment for primary and metastatic liver cancer. Performing TACE with drug-eluting beads helps obtain a greater drug concentration in the target lesion, significantly reducing systemic drug leakage, liver toxicity, and adverse events. The aim of this study is to describe the safety and feasibility of TACE performed with BioPearl^{TM}, the first biodegradable drug-eluting microspheres. **Methods**: This was a retrospective observational study on 13 consecutive patients affected by hepatocellular carcinoma (HCC) treated with doxorubicin-loaded-BioPearl^{TM}-TACE. Data on safety, feasibility, and tumor response were collected. **Results**: One intra-procedural catheter blockage was registered, as well as two post-treatment bilomas that required additional treatment. No severe general drug-related side effects were detected at the follow-up. The 1-month overall disease control was 90.9%, with six complete responses. **Conclusions**: Data suggest that chemoembolization with BioPearl^{TM} is feasible and safe for the treatment of HCC as indicated by good tolerability.

Keywords: hepatocellular carcinoma; transarterial chemoembolization; safety; tumor response; doxorubicin; drug-eluting microspheres

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1. Introduction

The hepatocellular carcinoma (HCC) is one of the most common neoplasms, ranking sixth and third among all tumors in the world in terms of incidence and mortality, respectively, with an incidence rate that is increasing in a great number of countries across Europe, North America, Australia and New Zealand, and South America [1]. Unfortunately, HCC patients are often diagnosed in intermediate and advanced stages, in which curative options are limited due to both lesion number and liver impairment [2]. Among locoregional therapies, when curative treatment options (i.e., surgical resection, percutaneous ablation, and transarterial radioembolization) are not indicated, transarterial chemoembolization (TACE) can be considered [2]. TACE is a widely accepted and minimally invasive treatment for patients with HCC, as studies have confirmed that TACE can prolong the overall survival of patients with intermediate-stage HCC [2–7]. Moreover, TACE can also

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JCR ABBREVIATION
PHARMACEUTICALS-BASE

ISO ABBREVIATION
Pharmaceuticals

Journal information

EDITION
Science Citation Index Expanded (SCIE)

CATEGORY
PHARMACOLOGY & PHARMACY

CHEMISTRY, MEDICINAL

LANGUAGES	REGION	1ST ELECTRONIC JCR YEAR
English	SWITZERLAND	2019

Publisher information

PUBLISHER	ADDRESS	PUBLICATION FREQUENCY
MDPI	MDPI AG, Grosspeteranlage 5, CH-4052 BASEL, SWITZERLAND	12 issues/year

Journal's performance

Journal Impact Factor

The Journal Impact Factor (JIF) is a journal-level metric calculated from data indexed in the Web of Science Core Collection. It should be used with careful attention to the many factors that influence citation rates, such as the volume of publication and citations characteristics of the subject area and type of journal. The Journal Impact Factor can complement expert opinion and informed peer review. In the case of academic evaluation for tenure, it is inappropriate to use a journal-level metric as a proxy measure for individual researchers, institutions, or articles. Learn more

2025 JOURNAL IMPACT FACTOR	JOURNAL IMPACT FACTOR WITHOUT SELF CITATIONS
5.7	5.5
View calculation	View calculation

Journal Impact Factor Trend 2025

Export

Journal Impact Factor contributing items

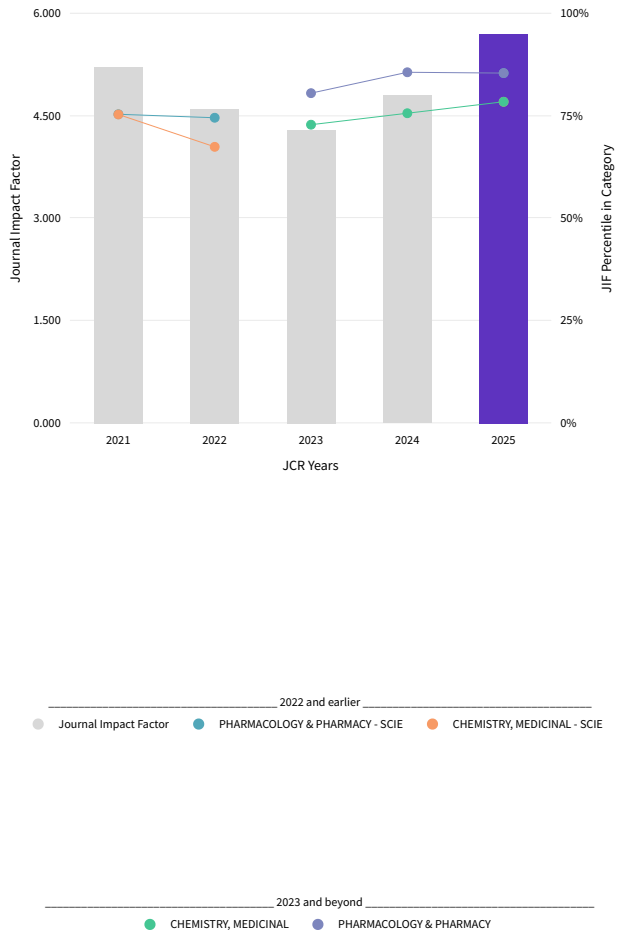
Export

Citable items (3,421) Citing Sources (3,345)

TITLE	CITATION COUNT
Origin of Antibiotics and Antibiotic Resistance, and Their Impacts on Dru…	486

Recent Advances in Potential Health Benefits of Quercetin	230
The Role of AI in Drug Discovery: Challenges, Opportunities, and…	135
Nitrogen Containing Heterocycles as Anticancer Agents: A Medicinal…	121
Computer-Aided Drug Design and Drug Discovery: A Prospective Analysis	116
Current Overview of Metal Nanoparticles' Synthesis,…	93
Properties of Poly (Lactic-co-Glycolic Acid) and Progress of Poly (Lactic-co-…	89
Afatinib Reverses EMT via Inhibiting CD44-Stat3 Axis to Promote…	84
A Comprehensive Review on Deep Eutectic Solvents and Its Use to Extra…	82
Lactylation-Related Gene Signature Effectively Predicts Prognosis and…	81

View All in Web of Science



View all years

Journal Citation Indicator (JCI)

Export

1.05

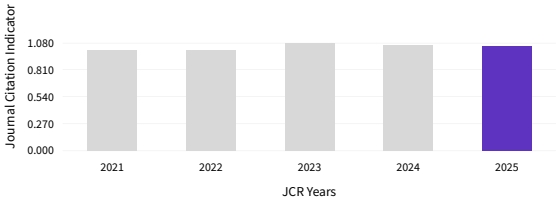
The Journal Citation Indicator (JCI) is the average Category Normalized Citation Impact (CNCI) of citable items (articles & reviews) published by a journal over a recent three year period. The average JCI in a category is 1. Journals with a JCI of 1.5 have 50% more citation impact than the average in that category. It may be used alongside other metrics to help you evaluate journals. Learn more

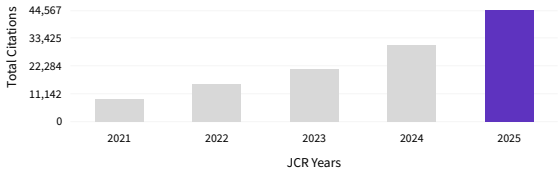
Total Citations

Export

44,567

The total number of times that a journal has been cited by all journals included in the database in the JCR year. Citations to journals listed in JCR are compiled annually from the JCR years combined database, regardless of which JCR edition lists the journal.





View all years

View all years

Citation distribution

Export

The Citation Distribution shows the frequency with which items published in the year or two years prior were cited in the JCR data year (i.e., the component of the calculation of the JIF). The graph has similar functionality as the JIF Trend graph, including hover-over data descriptions for each data point, and an interactive legend where each data element's legend can be used as a toggle. You can view Articles, Reviews, or Non-Citable (other) items to the JIF numerator. Learn more

ARTICLE CITATION MEDIAN

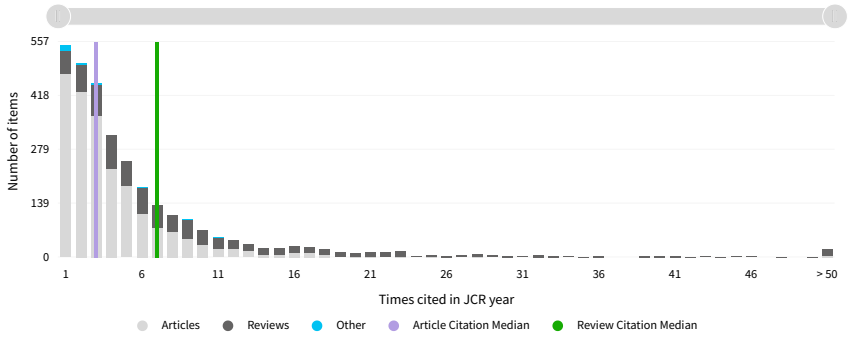
3

REVIEW CITATION MEDIAN

7

UNLINKED CITATIONS

150



TIMES CITED

0

ARTICLES

332

REVIEWS

40

OTHER

47

Open Access (OA)

Export

The data included in this tile summarizes the items published in the journal in the JCR data year and in the previous two years. This three-year set of published items is used to provide descriptive analysis of the content and community of the journal. Learn more

Items

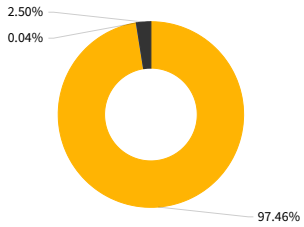
TOTAL CITABLE	% OF CITABLE OA
5,340	99.96%

Citations*

TOTAL CITABLE	% OF CITABLE OA
21,859	100.00%

CITABLE

GOLD OPEN ACCESS
5,338 / 97.46%



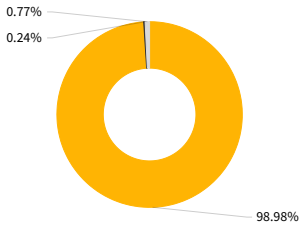
SUBSCRIPTION AND FREE TO READ
2 / 0.04%

NON-CITABLE

OTHER (NON CITABLE ITEMS)
137 / 2.50%

CITABLE

GOLD OPEN ACCESS
21,859 / 98.98%



SUBSCRIPTION AND FREE TO READ
0 / 0.00%

NON-CITABLE

OTHER (NON CITABLE ITEMS)
54 / 0.24%

UNLINKED CITATIONS
171 / 0.77%

*Citations in 2025 to items published in [2023 - 2025]

Rank by Journal Impact Factor

Journals within a category are sorted in descending order by Journal Impact Factor (JIF) resulting in the Category Ranking below. A separate rank is shown for each category in which the journal is listed in JCR. Beginning in 2023, ranks are calculated by category. Learn more

CATEGORY
CHEMISTRY, MEDICINAL

16/72

JCR YEAR	JIF RANK	JIF QUARTILE	JIF PERCENTILE
2025	16/72	Q1	78.5
2024	18/72	Q1	75.7
2023	20/72	Q2	72.9

CATEGORY
PHARMACOLOGY & PHARMACY

52/356

JCR YEAR	JIF RANK	JIF QUARTILE	JIF PERCENTILE
2025	52/356	Q1	85.5
2024	51/352	Q1	85.7
2023	69/354	Q1	80.6

Rank by JIF before 2023 for CHEMISTRY, MEDICINAL

EDITION
Science Citation Index Expanded (SCIE)

JCR YEAR	JIF RANK	JIF QUARTILE	JIF PERCENTILE
2022	20/60	Q2	67.5
2021	16/63	Q2	75.40
2020	9/62	Q1	86.29

Rank by JIF before 2023 for PHARMACOLOGY & PHARMACY

EDITION
Science Citation Index Expanded (SCIE)

JCR YEAR	JIF RANK	JIF QUARTILE	JIF PERCENTILE
2022	71/278	Q2	74.6
2021	69/279	Q1	75.45
2020	38/276	Q1	86.41

Rank by Journal Citation Indicator (JCI)

Journals within a category are sorted in descending order by Journal Citation Indicator (JCI) resulting in the Category Ranking below. A separate rank is shown for each category in which the journal is listed in JCR. Data for the most recent year is presented at the top of the list, with other years shown in reverse chronological order. Learn more

CATEGORY

CHEMISTRY, MEDICINAL

17/72

JCR YEAR	JCI RANK	JCI QUARTILE	JCI PERCENTILE
2025	17/72	Q1	77.08
2024	18/72	Q1	75.69
2023	18/72	Q1	75.69
2022	20/70	Q2	72.14
2021	23/72	Q2	68.75
2020	19/71	Q2	73.94
2019	19/70	Q2	73.57

CATEGORY

PHARMACOLOGY & PHARMACY

74/356

JCR YEAR	JCI RANK	JCI QUARTILE	JCI PERCENTILE
2025	74/356	Q1	79.35
2024	74/353	Q1	79.18
2023	71/354	Q1	80.08
2022	85/366	Q1	76.91
2021	88/361	Q1	75.76
2020	73/357	Q1	79.69
2019	84/353	Q1	76.35

Citation network

Cited Half-life

3.0 years

The Cited Half-Life is the median age of the items in this journal that were cited in the JCR year. Half of a journal's cited items were published more recently than the cited half-life.

TOTAL NUMBER OF CITES

44,567

NON SELF-CITATIONS

43,360

SELF-CITATIONS

1,207

Citing Half-life

6.3 years

The Citing Half-Life is the median age of items in other publications cited by this journal in the JCR year.

TOTAL NUMBER OF CITES

156,416

NON SELF-CITATIONS

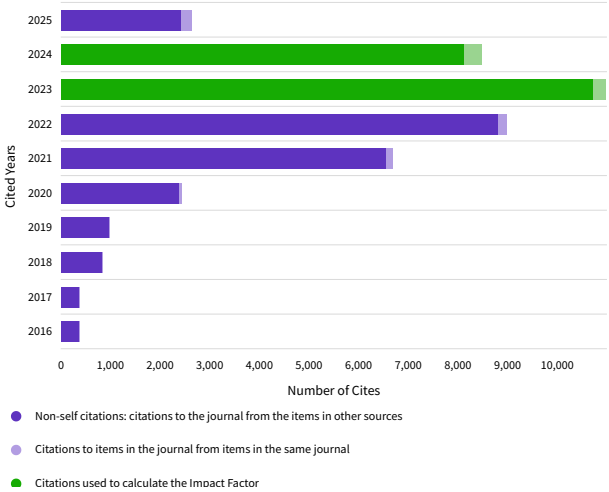
155,209

SELF-CITATIONS

1,207

Cited Half-life Data | Citing Half-life Data

Export

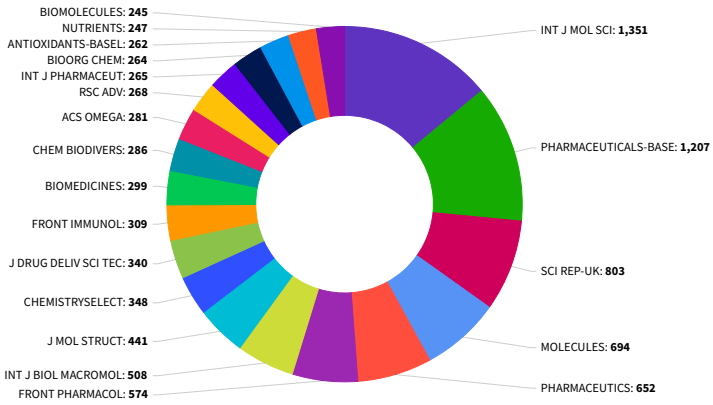


CITED YEAR	# OF CITES FROM 2025	CUMULATIVE %	# OF CITING SOURCES
All years	**44,567 citations**	**100.00%**	**4,830 sources**
2025	2,633 citations	5.91%	890 sources
2024	8,482 citations	24.94%	2,118 sources
2023	10,969 citations	49.55%	2,620 sources
2022	8,981 citations	69.70%	2,326 sources
2021	6,675 citations	84.68%	2,091 sources
2020	2,433 citations	90.14%	1,118 sources
2019	977 citations	92.33%	577 sources
2018	840 citations	94.22%	542 sources
2017	380 citations	95.07%	263 sources
2016	371 citations	95.90%	283 sources
Older	1,826 citations		

Journal Citation Relationships

Cited Data | Citing Data

Top 20 journals citing PHARMACEUTICALS-BASE by number of citations



Content metrics

Source data

This tile shows the breakdown of document types published by the journal. Citable Items are Articles and Reviews. For the purposes of calculating JIF, a JCR year considers the publications of that journal in the two prior years. Learn more

1,919 total citable items

	ARTICLES	REVIEWS	COMBINED(C)	OTHER DOCUMENT TYPES(O)	PERCEI
NUMBER IN JCR YEAR 2025 (A)	1,349	570	1,919	74	96%
NUMBER OF REFERENCES (B)	75,198	80,606	155,804	612	100%
RATIO (B/A)	55.7	141.4	81.2	8.3	

Average JIF Percentile

Export

The Average Journal Impact Factor Percentile takes the sum of the JIF Percentile rank for each category under consideration, then calculates the average of those values. Learn more

ALL CATEGORIES AVERAGE
82.0

CHEMISTRY, MEDICINAL
78.5

PHARMACOLOGY & PHARMACY
85.5

Contributions by organizations

Export

Organizations that have contributed the most papers to the journal in the most recent three-year period. Learn more

RANK	ORGANIZATION	COUNT
1	EGYPTIAN KNOWLEDGE BANK (EKB)	301
2	KING SAUD UNIVERSITY	193
3	INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE (INSERM)	80
4	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)	72
5	PRINCESS	69

Contributions by country/region

Export

Countries or Regions that have contributed the most papers to the journal in the most recent three-year period. Learn more

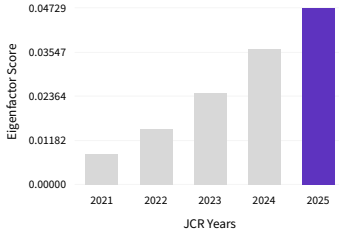
RANK	COUNTRY / REGION	COUNT
1	CHINA MAINLAND	831
2	USA	686
3	SAUDI ARABIA	617
4	ITALY	520
5	BRAZIL	380
6	POLAND	325
7	SOUTH KOREA	314
8	EGYPT	309
9	GERMANY (FED REP GER)	245

Additional metrics

Eigenfactor Score

0.04729

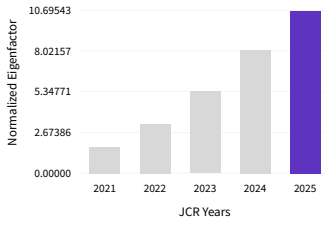
The Eigenfactor Score is a reflection of the density of the network of citations around the journal using 5 years of cited content as cited by the Current Year. It considers both the number of citations and the source of those citations, so that highly cited sources will influence the network more than less cited sources. The Eigenfactor calculation does not include journal self-citations. Learn more



Normalized Eigenfactor

10.69543

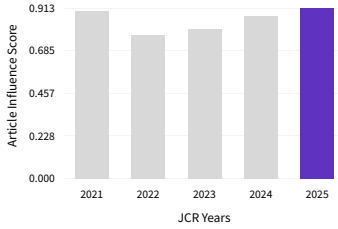
The Normalized Eigenfactor Score is the Eigenfactor score normalized, by rescaling the total number of journals in the JCR each year, so that the average journal has a score of 1. Journals can then be compared and influence measured by their score relative to 1. Learn more



Article influence score

0.913

The Article Influence Score normalizes the Eigenfactor Score according to the cumulative size of the cited journal across the prior five years. The mean Article Influence Score for each article is 1.00. A score greater than 1.00 indicates that each article in the journal has above-average influence. Learn more



5 Year Impact Factor

5.5

View Calculation

The 5-year Impact Factor is the average number of times articles from the journal published in the past five years have been cited in the JCR year. It is calculated by dividing the number of citations in the JCR year by the total number of articles published in the five previous years. Learn more

Immediacy Index

1.4

View Calculation

The Immediacy Index is the count of citations in the current year to the journal that reference content in this same year. Journals that have a consistently high Immediacy Index attract citations rapidly. Learn more