Supplementary

Appendix 1 Search formula

Search the Web of Science Core Collection on April 5, 2026 (n=5,119)

#1

TS=("Medical Imag*" OR "Diagnostic Imag*" OR "Quantitative Imag*" OR "Radiological" OR "imagiologic" OR "Radiology" OR "Radiography" OR "Radiomi*" OR "X-ray*" OR "Roentgen Ray*" OR "X Radiation*" OR "CT" OR "MRI" OR "PET" OR "SPECT" OR "Magnetic Resonance Imaging" OR "Computed Tomography" OR "Compute Tomography" OR "Positron Emission Tomography" OR "Ultrasound" OR "Ultrasonography" OR "Echotomography" OR "Echography")

#2

TS=("Tumor Microenvironment*" OR "Cancer Microenvironment*" OR "TME" OR "Tumor Immune Microenvironment*" OR "Cancer Immune Microenvironment*")

#3 #1 AND #2

The wildcard character (*) was used to replace any other character and allowed for variable endings of keywords.

Table S1 The top 20 authors ranked by publications

Rank	Citations	Year	Title	Author	Journal
1	85	2018	A radiomics approach to assess tumour-infiltrating CD8 cells and response to anti-PD-1 or anti-PD-L1 immunotherapy: an imaging biomarker, retrospective multicohort study	*Sun, Roger*	The Lancet Oncology
2	78	2021	Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries	*Sung, Hyuna*	CA: a Cancer Journal for Clinicians
3	76	2016	Radiomics: Images Are More than Pictures, They Are Data	*Gillies, Robert J.*	Radiology
4	72	2011	Hallmarks of Cancer: The Next Generation	*Hanahan, Douglas*	Cell
5	69	2017	Radiomics: the bridge between medical imaging and personalized medicine	*Lambin, Philippe*	Nature Reviews Clinical Oncology
6	67	2019	^{68}Ga-FAPI PET/CT: Tracer Uptake in 28 Different Kinds of Cancer.	*Kratochwil, Clemens*	Radiology Imaging Cancer
7	61	2017	Computational Radiomics System to Decode the Radiographic Phenotype	*van Griethuysen, Joost J. M.*	Cancer Research
8	57	2018	89Zr-atezolizumab imaging as a non-invasive approach to assess clinical response to PD-L1 blockade in cancer	*Bensch, Frederike*	Nature Medicine
9	56	2009	New response evaluation criteria in solid tumours: revised RECIST guideline (version 1.1)	*Eisenhauer, E. A.*	European Journal of Cancer
10	53	1999	Estimating kinetic parameters from dynamic contrast-enhanced t1-weighted MRI of a diffusable tracer: Standardized quantities and symbols	*Tofts, Paul S.*	Journal of Magnetic Resonance Imaging

https://dx.doi.org/10.21037/tcr-2026-1-0308

Table S2 Information of countries/regions cooperative relations

Rank	Countries/regions 1	Countries/regions 2	Link strength
1	Peoples R China	USA	39
2	Germany	USA	28
3	Germany	Italy	16
4	Japan	USA	13
5	Italy	USA	10
6	Austria	Germany	9
7	Canada	USA	9
8	France	Germany	9
9	Netherlands	USA	8

Table S3 Information of top 20 institutions

Rank	Centrality	Count	Institutions
1	0.17	42	University of California System
2	0.15	33	Johns Hopkins University
3	0.12	16	Stanford University
4	0.11	40	Chinese Academy of Sciences
5	0.11	34	Institut National de la Sante et de la Recherche Medicale (Inserm)
6	0.11	33	Fudan University
7	0.09	30	NIH National Cancer Institute (NCI)
8	0.08	28	Memorial Sloan Kettering Cancer Center
9	0.08	18	University System of Ohio
10	0.07	30	Sun Yat Sen University
11	0.06	36	National Institutes of Health (NIH) – USA
12	0.06	30	Helmholtz Association
13	0.05	25	Southern Medical School – China
14	0.05	14	Cornell University
15	0.05	7	Duke University
16	0.05	19	Harvard Medical School
17	0.05	30	Harvard University
18	0.05	28	Harvard University Medical Affiliates
19	0.05	5	Norwegian University of Science & Technology (NTNU)
20	0.05	28	University of Texas System

https://dx.doi.org/10.21037/tcr-2026-1-0308

Table S4 The information of top 20 keywords

Rank	Count	Centrality	Keywords
1	413	0.09	Tumor microenvironment
2	317	0.04	Tumors
3	194	0.05	Positron emission tomography
4	168	0.11	Magnetic resonance imaging
5	160	0.15	Breast tumors
6	156	0.10	Expression
7	109	0.02	Therapy
8	98	0.06	Cells
9	91	0.02	Survival
10	82	0.09	In vivo
11	70	0.06	Hypoxia
12	59	0.02	Immunotherapy
13	55	0.10	Angiogenesis
14	54	0.04	Molecular imaging
15	51	0.04	Computed tomography
16	50	0.04	Chemotherapy
17	49	0.01	Growth
18	49	0.02	Hepatocellular carcinoma
19	47	0.02	Machine learning
20	47	0.04	Prostate cancer

Table S5 The information of the 12 clusters

Cluster ID	Size	Silhouette	Mean (year)	Label (LLR)
0	96	0.282	2020	PD-1
1	71	0.336	2016	Tumor hypoxia
2	59	0.525	2021	Artificial intelligence
3	58	0.517	2015	Hepatocellular carcinoma
4	46	0.604	2015	Brain tumor
5	43	0.641	2019	Fibroblast activation protein
6	40	0.608	2014	Tumor microenvironment
7	38	0.498	2015	Prostate cancer
8	33	0.583	2018	Drug delivery
9	33	0.633	2014	Molecular imaging
10	25	0.762	2014	Glioblastoma
11	15	0.885	2011	Lung cancer

https://dx.doi.org/10.21037/tcr-2026-1-0308

Table S6 The top 19 journals related to this field

Rank	Journal	IF (2023)	Number of publication	Cited average per publication
1	*Cancers*	4.4	73	11.32
2	*Frontiers in Oncology*	3.3	57	12.14
3	*Journal of Nuclear Medicine*	9.1	44	35.82
4	*Theranostics*	13.3	29	41.31
5	*Frontiers in Immunology*	5.9	27	14.44
6	*Clinical Cancer Research*	10.2	26	35.92
7	*European Journal of Nuclear Medicine and Molecular Imaging*	7.6	26	32.58
8	*Journal of Translational Medicine*	7.5	24	13.83
9	*Scientific Reports*	3.9	23	18.09
10	*NMR in Biomedicine*	2.7	20	24.05
11	*Molecular Imaging and Biology*	2.5	17	15.41
12	*PLoS One*	2.6	17	36.65
13	*International Journal of Molecular Sciences*	4.9	16	8.44
14	*Journal for Immunotherapy of Cancer*	10.6	16	30.69
15	*Magnetic Resonance in Medicine*	3	15	49.8
16	*BMC Cancer*	3.4	14	9.79
17	*Cancer Research*	16.6	13	76.85
18	*Journal of Magnetic Resonance Imaging*	3.5	12	15.25
19	*Molecular Pharmaceutics*	4.5	12	22.5

https://dx.doi.org/10.21037/tcr-2026-1-0308

Table S7 The table shows the literature of the first ten co-citations

Rank	Citations	Year	Title	Author	Journal
1	85	2018	A radiomics approach to assess tumour-infiltrating CD8 cells and response to anti-PD-1 or anti-PD-L1 immunotherapy: an imaging biomarker, retrospective multicohort study	Sun, Roger	*The Lancet Oncology*
2	78	2021	Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries	Sung, Hyuna	*CA: a Cancer Journal for Clinicians*
3	76	2016	Radiomics: Images Are More than Pictures, They Are Data	Gillies, Robert J.	*Radiology*
4	72	2011	Hallmarks of Cancer: The Next Generation	Hanahan, Douglas	*Cell*
5	69	2017	Radiomics: the bridge between medical imaging and personalized medicine	Lambin, Philippe	*Nature Reviews Clinical Oncology*
6	67	2019	^{68}Ga-FAPI PET/CT: Tracer Uptake in 28 Different Kinds of Cancer.	Kratochwil, Clemens	*Radiology Imaging Cancer*
7	61	2017	Computational Radiomics System to Decode the Radiographic Phenotype	van Griethuysen, Joost J. M.	*Cancer Research*
8	57	2018	89Zr-atezolizumab imaging as a non-invasive approach to assess clinical response to PD-L1 blockade in cancer	Bensch, Frederike	*Nature Medicine*
9	56	2009	New response evaluation criteria in solid tumours: revised RECIST guideline (version 1.1)	Eisenhauer, E. A.	*European Journal of Cancer*
10	53	1999	Estimating kinetic parameters from dynamic contrast-enhanced t1-weighted MRI of a diffusable tracer: Standardized quantities and symbols	Tofts, Paul S.	*Journal of Magnetic Resonance Imaging*

https://dx.doi.org/10.21037/tcr-2026-1-0308