The ARRIVE guidelines 2.0: author checklist The ARRIVE Essential 10 These items are the basic minimum to include in a manuscript. Without this information, readers and reviewers cannot assess the reliability of the findings.			
Item		**Recommendation**	**Section/line number, or reason for not reporting**
Study design	**1**	1 For each experiment, provide brief details of study design including: a. The groups being compared, including control groups. If no control group has been used, the rationale should be stated.	The details of the study design, injection site and cell concentration, and the experimental groups (the control group, radiation alone group, DDPs&RT group and APA&RT group) were detailed in **Section Experimental design/ line 2-11**.
		b. The experimental unit (e.g. a single animal, litter, or cage of animals).	The experimental unit was a cage of animals detailed in **Section Establishment of tumor-bearing mouse models / line 13-14.**
Sample size	**2**	a. Specify the exact number of experimental units allocated to each group, and the total number in each experiment. Also indicate the total number of animals used.	The total sample size of each study group, as well as the specific allocation and samples used were described in **Section Experimental design/ line 2-11**.
		b. Explain how the sample size was decided. Provide details of any *a priori* sample size calculation, if done.	The sample size was determined based on literature reports and statistical analysis in **Section Experimental design/ line 1-2**.
Inclusion and exclusion criteria	**3**	a. Describe any criteria used for including and excluding animals (or experimental units) during the experiment, and data points during the analysis. Specify if these criteria were established *a priori.* If no criteria were set, state this explicitly.	The experimental animals were selected for each group according to the inclusion requirements, and those whose body weight did not meet the inclusion requirements, whose general condition was poor after cell inoculation, and whose tumor growth did not meet the requirements were excluded. The inclusion criteria for experimental animals were described in **Section Establishment of tumor-bearing mouse**

			models / line 13-14.
		b. For each experimental group, report any animals, experimental units or data points not included in the analysis and explain why. If there were no exclusions, state so.	In each experimental group, the experimental animals whose general situation was poor, and tumor growth did not meet the requirements were not included in the data analysis, because data consistency would be affected.
		c. For each analysis, report the exact value of *n* in each experimental group.	The number of experimental animals in each group and their allocation had been described in **Section Establishment of tumor-bearing mouse models / line 13-14 and in the tables.**
Randomisation	4	a. State whether randomisation was used to allocate experimental units to control and treatment groups. If done, provide the method used to generate the randomisation sequence.	The experimental animals were numbered, and randomly grouped by number (as described in **Section Experimental design/ line 2-3**).
		b.Describe the strategy used to minimise potential confounders such as the order of treatments and measurements, or animal/ cage location. If confounders were not controlled, state this explicitly.	To reduce potential disturbance, laboratory animals were housed in standard animal rooms, and fed to SPF grade. Methods of experimental animals in each group were clearly described in **Section Establishment of tumor-bearing mouse models / line 15-17.**
Blinding	5	Describe who was aware of the group allocation at the different stages of the experiment (during the allocation, the conduct of the experiment, the outcome assessment, and the data analysis).	Under the guidance of corresponding author, the first three authors assisted to complete the experiment, including experiment allocation, experiment implementation, experiment result evaluation and data analysis, while the fourth and fifth authors assisted in data analysis and article writing.
Outcome measures	6	a. Clearly define all outcome measures assessed (e.g. cell death, molecular	The evaluation criteria of tumor metabolism, TGIR and

		markers, or behavioural changes).	survival,VEGFR-2, CD31, KI-67, γ-H2AX were respectively in the **section Micro-positron emission tomography/ computed tomography/ line 9-12**, the **section Tumor growth inhibition rate and survival/ line 3-9**, the **section VEGFR-2/ line 15-20**, the **section CD31, KI-67, γ-H2AX/ line 3-8, the section Apoptosis /line 7-9**.
		b. For hypothesis-testing studies, specify the primary outcome measure, i.e. the outcome measure that was used to determine the sample size.	No applicable. Our study was not a hy pothesis testing study.
Statistical methods	7	a. Provide details of the statistical methods used for each analysis, including software used.	The statistical methods and software for statistical methods were described in **Statistical analysis/line 1-5**.
		b. Describe any methods used to assess whether the data met the assumptions of the statistical approach, and what was done if the assumptions were not met.	The data were analyzed and evaluated by statisticians.
Experimental animals	8	a. Provide species-appropriate details of the animals used, including species, strain and substrain, sex, age or developmental stage, and, if relevant, weight.	Detailed informations on experimental animals (source, health, species, strain, sex, age, weight) were described in **Section Establishment of tumor-bearing mouse models / line 15-17.**
		b. Provide further relevant information on the provenance of animals, health/immune status, genetic modification status, genotype, and any previous procedures.	The provenance of animals was Chongqing tengxin biotechnology co. LTD (China. Certificate No: SCXK2014-0004), the other further relevant informations were provided in **Section Establishment of tumor-bearing mouse models / line 15-17.**
Experimental procedures	9	For each experimental group, including controls, describe the procedures in enough detail to allow others to replicate them,	The experimental process, methods and results had been described in **Section Methods**. Anyone can repeat this research

		including:	at any time and place.
		a. What was done, how it was done and what was used.	The details were described in **Sections Experimental design and Research assessment.**
		b. When and how often.	The details were described in **Sections Experimental design and Research assessment.**
		c. Where (including detail of any acclimatisation periods). d. Why (provide rationale for procedures).	The details were described in **Sections Experimental design and Research assessment.**
Results	10	For each experiment conducted, including independent replications, report: a. Summary/descriptive statistics for each experimental group, with a measure of variability where applicable (e.g. mean and SD, or median and range).	The experimental data in this study were expressed by mean ± S after one decimal point.
		b. If applicable, the effect size with a confidence interval.	No applicable. Our study strictly followed the ARRIVE guidelines and minimized the impact on experimental results.
The Recommended Set These items complement the Essential 10 and add important context to the study. Reporting the items in both sets represents best practice.			
Item		**Recommendation**	**Section/line number, or reason for not reporting**
Abstract	11	Provide an accurate summary of the research objectives, animal species, strain and sex, key methods, principal findings, and study conclusions.	We had described the research objectives, main methods and findings, and conclusions in **Section Abstract.**
Background	12	a. Include sufficient scientific background to understand the rationale and context for the study, and explain the experimental approach.	The background of this research had been explained in **Section Introduction/1-11, Discussion and Conclusions/1-5**.
		b. Explain how the animal species and	To provide reference for clinical

		model used address the scientific objectives and, where appropriate, the relevance to human biology	radiotherapy combined with anti-angiogenesistherapy for cervical cancer. But the study of human biology needs further research.
Objectives	13	Clearly describe the research question, research objectives and, where appropriate, specific hypotheses being tested.	Research questions and objectives were clearly described in **Section Introduction /1-13**.
Ethical statement	14	Provide the name of the ethical review committee or equivalent that has approved the use of animals in this study, and any relevant licence or protocol numbers (if applicable). If ethical approval was not sought or granted, provide a justification.	The Ethical statement was described in **Section Establishment of tumor-bearing mouse models /line 17-22** (Luzhou, China. No: swum20210388).
Housing and husbandry	15	Provide details of housing and husbandry conditions, including any environmental enrichment.	Laboratory animals were housed in a standard animal room, and fed according to SPF grade (described in **section Establishment of tumor-bearing mouse models /line 15-16**).
Animal care and monitoring	16	a. Describe any interventions or steps taken in the experimental protocols to reduce pain, suffering and distress.	The animals underwent micro-PET/CT scanning were euthanized with cervical dislocation (described in **section Micro-positron emission tomography / computed tomography/line 16-17**).
		b. Report any expected or unexpected adverse events.	No adverse events . Our study strictly followed the ARRIVE guidelines, and fully concerned about the safety of laboratory animals.
		c. Describe the humane endpoints established for the study, the signs that were monitored and the frequency of monitoring. If the study did not have humane endpoints, state this.	For humanized animal endpoints, The animals were euthanized with cervical dislocation in order to minimize the pain and sadness (described in **section Micro-positron emission tomography /computed tomography /line 16-17**).

Interpretation/ scientific implications	17	a. Interpret the results, taking into account the study objectives and hypotheses, current theory and other relevant studies in the literature.	In the **section discussion and Conclusions/line 1-5**, the results were fully explained in combination with literature reports, and the possible mechanisms were described in FIG 5.
		b. Comment on the study limitations including potential sources of bias, limitations of the animal model, and imprecision associated with the results.	As an exploratory study, this study only studied HeLa cells, and did not study the squamous cell cancer cell line, which was the limitation of this study (described in **section Conclusion//line 5-8**).
Generalisability/ translation	18	Comment on whether, and how, the findings of this study are likely to generalize to other species or experimental conditions, including any relevance to human biology (where appropriate).	This study is a basic study, and preliminary results. Whether the results can be applied to other species or experimental conditions requires further validation. Anthropological research requires ethics committee approval.
Protocol registration	19	Provide a statement indicating whether a protocol (including the research question, key design features, and analysis plan) was prepared before the study, and if and where this protocol was registered.	A protocol was prepared before the study without registration.
Data access	20	Provide a statement describing if and where study data are available.	We are willing to provide relevant research data if necessary.
Declaration of interests	21	a. Declare any potential conflicts of interest, including financial and non-financial. If none exist, this should be stated.	The authors have no competing interests to declare (described in **section Competing Interests/line 1-2**).
		b. List all funding sources (including grant identifier) and the role of the funder(s) in the design, analysis and reporting of the study.	This study was supported by 2 fundings (described in **section Funding/line 1-4**).

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