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ORIGINAL ARTICLE

LncRNA PANDAR is a Novel Prognostic Biomarker in Patients with Cancer: a Meta-Analysis

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SUMMARY

Background: **Mounting evidence from recent studies has revealed the association of lncRNA PANDAR expression levels with outcomes in several types of cancer. However, inconsistent results have also been reported, which rationalized a meta-analysis of available data to analyze the prognostic value of lncRNA PANDAR.**
Methods: **From inception to May 26, 2018, electronic literature databases including PubMed (medline), the Cochrane Library, ScienceDirect, Springer, ISI Web of Knowledge, Wiley Online library, BioMed Central, and Embase were searched for literature collections. The hazard ratios (HR) with 95% confidence interval (95% CI) were utilized to calculate pooled effect size.**
Results: **A total of 1,132 cancer patients were enrolled in the present meta-analysis to assess the prognostic value of PANDAR in various carcinomas. Promoted PANDAR expression was demonstrated to significantly predict unfavorable OS (HR = 1.77, 95% CI: 1.12 - 2.80, p = 0.014) by the random effects model. According to the stratified analyses and meta-regression results, the heterogeneity of present analysis may be attributed to the differences of cancer resources. Furthermore, over-expression of PANDAR was revealed to be effectively predictive of cancer progression (HR = 1.70, 95% CI: 1.41 - 2.05, p < 0.00001) and LNM (HR = 1.71, 95% CI: 1.39 - 2.10, p < 0.00001).**
Conclusions: **The present findings indicate that increased PANDAR is associated with poor OS in patients with general carcinomas and may serve as a useful clinical prognostic biomarker.**
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Supplementary Table

Table S1. MOOSE checklist.

Reporting of background should include	
Problem definition	Background (Page 3)
Hypothesis statement	Background (Page 3)
Description of study outcome(s)	OS, LNM, TNM stage
Type of exposure or intervention used	Various cancers (Page 3)
Type of study designs used	Meta-analysis (Page 3)
Study population	Global (Page 3)
Reporting of search strategy should include	
Qualifications of searchers (e.g., librarians and investigators)	Investigator (Page 4)
Search strategy, including time period included in the synthesis and keywords	Search strategy and selection criteria (Page 3 - 4)
Effort to include all available studies, including contact with authors	We contacted authors and searched reference lists and citations (Page 4)
Databases and registries searched	Methods (Page 3 - 4)
Search software used, name, and version, including special features used (e.g., explosion)	IE 8
Use of hand searching (e.g., reference lists of obtained articles)	Search strategy and selection criteria (Page 4)
List of citations located and those excluded, including justification	Flow diagram in Figure 1. (Page 5)
Method of addressing articles published in languages other than English	Search strategy and selection criteria (Page 4)
Method of handling abstracts and unpublished studies	Method (Page 4)
Description of any contact with authors	Method (Page 4)
Reporting of methods should include	
Description of relevance or appropriateness of studies assembled for assessing the hypothesis to be tested	Method (Page 4)
Rationale for the selection and coding of data (e.g., sound clinical principles or convenience)	Methods (Page 4)
Documentation of how data were classified and coded (e.g., multiple raters, blinding, and interrater reliability)	Methods (Page 4)
Assessment of confounding (e.g., comparability of cases and controls in studies where appropriate)	Methods (Page 4)
Assessment of study quality, including blinding of quality assessors; stratification or regression on possible predictors of study results	Methods (Page 4)
Assessment of heterogeneity	Methods (Page 4)
Description of statistical methods (e.g., complete description of fixed or random effects models, justification of whether the chosen models account for predictors of study results, dose-response models, or cumulative meta-analysis) in sufficient detail to be replicated	Methods (Page 4)
Provision of appropriate tables and graphics	Methods and Results (Page 4)
Reporting of results should include	
Graphic summarizing individual study estimates and overall estimate	Figure 2, 3, 4, 5, 6, and 7
Table giving descriptive information for each study included	Table 1
Results of sensitivity testing (e.g., subgroup analysis)	Meta-analysis (Page 6)
Indication of statistical uncertainty of findings	Discussion (Page 7)

Table S1. MOOSE checklist (continued).

Reporting of discussion should include	
Quantitative assessment of bias (e.g., publication bias)	**Results (Page 6)**
Justification for exclusion (e.g., exclusion of non-English-language citations)	**Discussion (Page 7)**
Assessment of quality of included studies	**Quality Assessment (Page 4)**
Reporting of conclusions should include	
Consideration of alternative explanations for observed results	**Discussion (Page 7 - 8)**
Generalization of the conclusions (i.e., appropriate for the data presented and within the domain of the literature review)	**Discussion (Page 7 - 8)**
Guidelines for future research	**Discussion (Page 8)**
Disclosure of funding source	**Grant Support (Page 9)**

Table S2. PRISMA checklist.

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	**1**	**Identify the report as a systematic review, meta-analysis, or both**	**1**
ABSTRACT			
Structured summary	**2**	**Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number**	**2**
INTRODUCTION			
Rationale	**3**	**Describe the rationale for the review in the context of what is already known**	**3**
Objectives	**4**	**Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS)**	**3**
METHODS			
Protocol and registration	**5**	**Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number**	**NA**
Eligibility criteria	**6**	**Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale**	**4**
Information sources	**7**	**Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched**	**4**
Search	**8**	**Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated**	**4**
Study selection	**9**	**State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis)**	**4**
Data collection process	**10**	**Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators**	**4**
Data items	**11**	**List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made**	**4**

Table S2. PRISMA checklist (continued).

Risk of bias in individual studies	**12**	**Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis**	**6**
Summary measures	**13**	**State the principal summary measures (e.g., risk ratio, difference in means)**	**6**
Synthesis of results	**14**	**Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis**	**6**
Risk of bias across studies	**15**	**Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies)**	**6**
Additional analyses	**16**	**Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified**	**6**
RESULTS			
Study selection	**17**	**Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram**	**5**
Study characteristics	**18**	**For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations**	**5**
Risk of bias within studies	**19**	**Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12)**	**6**
Results of individual studies	**20**	**For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot**	**6**
Synthesis of results	**21**	**Present results of each meta-analysis done, including confidence intervals and measures of consistency**	**5 & 6**
Risk of bias across studies	**22**	**Present results of any assessment of risk of bias across studies (see Item 15)**	**6**
Additional analysis	**23**	**Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16])**	**6**
DISCUSSION			
Summary of evidence	**24**	**Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers)**	**7 & 8**
Limitations	**25**	**Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias)**	**8**
Conclusions	**26**	**Provide a general interpretation of the results in the context of other evidence, and implications for future research**	**8**
FUNDING			
Funding	**27**	**Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review**	**8**

From: **Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097.**
For more information, visit: www.prisma-statement.org.