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R-ODAF-Shiny : A Web-Based Tool for RNA-seq Analysis and Reporting

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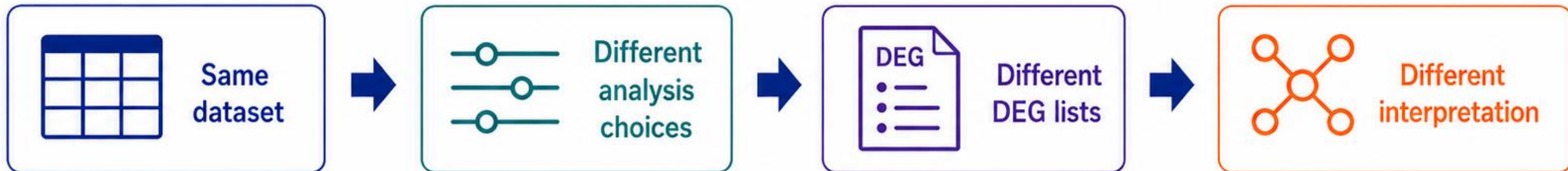


BACKGROUND

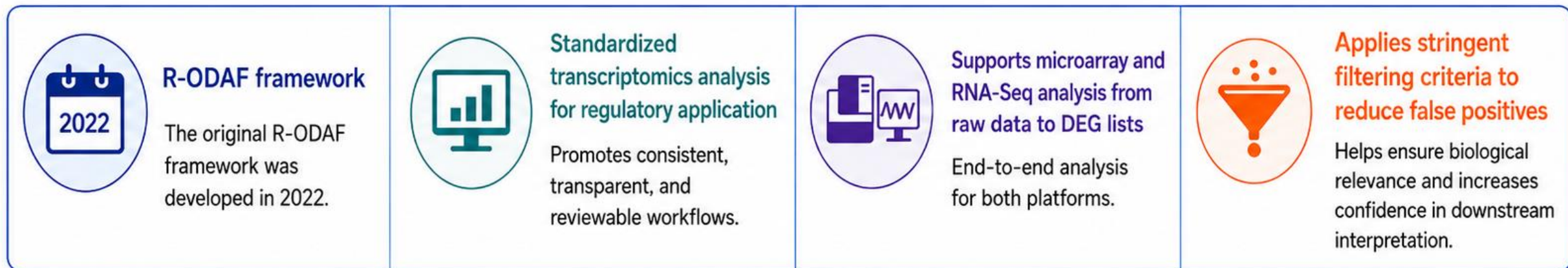


Transcriptomics is increasingly used in NAMs, mechanistic toxicology, and NGRA, so standardized analysis is needed.

THE PROBLEM



THE SOLUTION



Standardization reduces variation and improves reproducibility.



Building on the R-ODAF Framework

This study adds **R-ODAF-Shiny**: an interactive web interface for differential expression analysis.

WHAT THIS STUDY ADDS



User-friendly web interface

Intuitive interface for seamless analysis without programming.



Fixed R-ODAF logic

Consistent, validated analysis with fixed methodology and parameters.



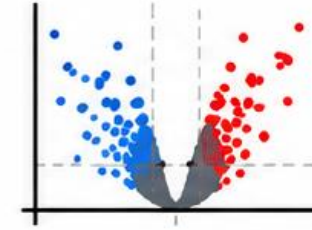
Multi-dataset handling

Analyze and compare multiple datasets within a unified workflow.



Quality control & outlier review

QC metrics, PCA plots, and sample flagging to support data quality assessment.



DEG analysis

Differential expression analysis with robust statistics and multiple testing correction.



Reporting & export

Export results, figures, and session information in reproducible formats.



Impact: Empowers researchers to perform standardized, reproducible differential expression analysis through an accessible, web-based platform.

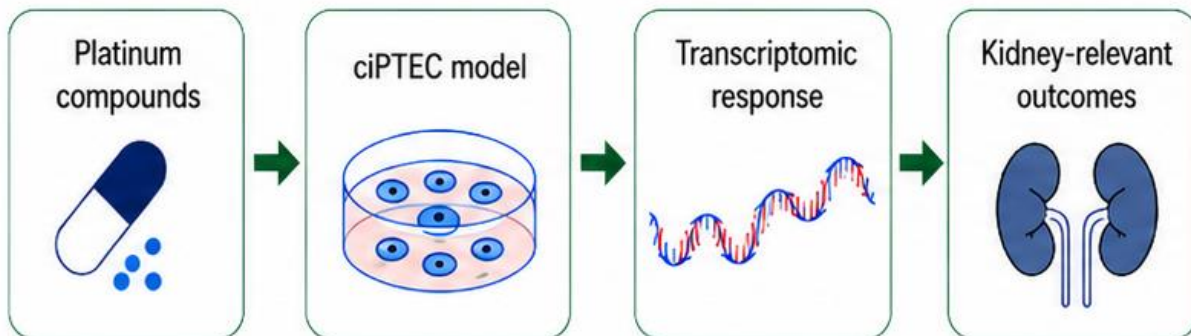
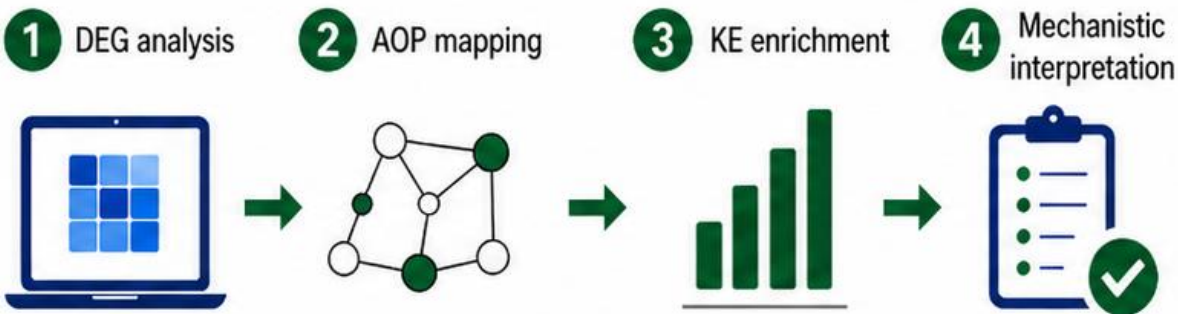


CURRENT DEVELOPMENTS AND FUTURE APPLICATIONS

Extending toward broader NAM and NGRA workflows

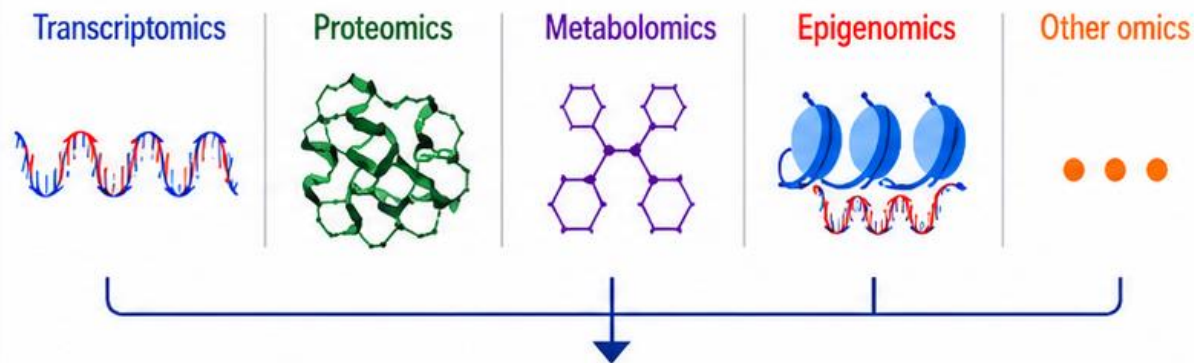
1. TRANSCRIPTOMICS TO AOPs

Kidney case study example



Links early gene expression changes to key events and adverse outcomes.

2. MULTIOMICS INTEGRATION



Integrated interpretation



Cross-omics
comparison



Biomarker
discovery



Mechanistic
insight



Supports a more complete understanding of biological responses.



Acknowledgements

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<https://platform.vhp4safety.nl/>
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