Intelligent Cancer Decision Support Systems: The Convergence of Foundation Models and Precision Medicine

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ABSTRACT:
Cancer remains one of the leading causes of morbidity and mortality worldwide despite remarkable advances in molecular diagnostics, targeted therapeutics, immunotherapy, and precision medicine. The growing complexity of oncology, driven by rapidly expanding volumes of radiological imaging, digital pathology, genomic sequencing, transcriptomics, proteomics, metabolomics, laboratory investigations, electronic health records, wearable technologies, and longitudinal clinical information, has created increasing demand for intelligent clinical decision-support systems capable of synthesizing heterogeneous biomedical data into actionable knowledge. Foundation artificial intelligence (AI) models have emerged as a transformative computational paradigm by learning generalized biomedical representations from large-scale multimodal datasets through self-supervised learning. Unlike conventional task-specific AI systems, foundation models integrate imaging, pathology, multi-omics, clinical documentation, laboratory medicine, and real-world healthcare data into unified patient-centered computational frameworks capable of supporting diagnosis, prognostic prediction, molecular characterization, therapeutic optimization, toxicity assessment, digital twins, clinical trial matching, and personalized medicine. Advances in transformer architectures, multimodal learning, graph neural networks, retrieval-augmented generation, large language models, agentic AI, and generative artificial intelligence have significantly accelerated development of intelligent cancer decision-support systems. Despite remarkable technological progress, important challenges remain regarding explainability, interoperability, computational scalability, cybersecurity, regulatory validation, ethical governance, and equitable implementation. This review provides a comprehensive overview of intelligent cancer decision-support systems, highlighting the convergence of foundation AI models and precision medicine while discussing current clinical applications, implementation challenges, and future directions for computational oncology.[1]

Keywords: Clinical decision support, Foundation models, Precision oncology, Artificial intelligence, Computational oncology, Large language models, Personalized medicine, Multimodal learning, Digital pathology, Clinical intelligence.

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1.Introduction

Cancer is a biologically heterogeneous disease characterized by genomic instability, epigenetic dysregulation, transcriptional diversity, metabolic reprogramming, immune heterogeneity, and dynamic interactions between malignant cells and the tumor microenvironment. Although precision medicine has substantially improved patient outcomes through molecular diagnostics and targeted therapies, clinicians increasingly face the challenge of integrating enormous quantities of heterogeneous biomedical information into timely and individualized therapeutic decisions.[2]

Modern oncology continuously generates complex datasets through radiological imaging, digital pathology, genomic sequencing, transcriptomics, proteomics, metabolomics, laboratory investigations, wearable technologies, electronic health records, and longitudinal clinical documentation. Individually, these data sources provide valuable biological insight; collectively, they exceed the analytical capacity of conventional clinical workflows and traditional statistical methods.[3]

Artificial intelligence has emerged as one of the most transformative technologies in precision oncology by enabling automated interpretation of complex biomedical information. More recently, foundation AI models have significantly expanded these capabilities by learning generalized biomedical representations capable of supporting numerous downstream oncology applications through multimodal reasoning and transfer learning.[4]

The convergence of foundation models with intelligent clinical decision-support systems is redefining precision oncology by enabling comprehensive patient-centered computational intelligence that supports clinicians throughout diagnosis, treatment planning, disease monitoring, and survivorship.[5]

2.Evolution of Clinical Decision Support in Oncology

Clinical decision-support systems have evolved considerably over the past several decades. Early systems primarily relied on rule-based expert algorithms that encoded predefined clinical knowledge into transparent but inflexible computational frameworks. Although these systems supported structured decision-making, they demonstrated limited adaptability when confronted with complex biomedical datasets.[6]

Machine learning subsequently introduced predictive models capable of identifying nonlinear relationships among clinical variables, imaging biomarkers, molecular alterations, and patient outcomes. Deep learning further transformed oncology by automatically extracting hierarchical representations from radiological imaging, digital pathology, genomic sequencing, and physiological signals.

Transformer architectures and multimodal foundation models have extended these advances through self-supervised learning capable of integrating heterogeneous biomedical modalities into unified patient-specific representations. Large language models and retrieval-augmented generation further enable intelligent interpretation of clinical documentation, scientific literature, molecular reports, and therapeutic guidelines.[7]

These technological developments have transformed decision-support systems from static prediction tools into adaptive computational ecosystems capable of supporting comprehensive precision oncology workflows.[8]

3.Foundation Models in Intelligent Clinical Decision Support

Foundation AI models differ fundamentally from conventional machine learning algorithms because they are pretrained on extremely large biomedical datasets before adaptation to specialized clinical tasks. Rather than learning isolated prediction problems, these models acquire generalized biological, molecular, anatomical, and clinical knowledge transferable across diverse oncology applications.[9]

Self-supervised learning enables discovery of latent biomedical relationships without requiring extensive manual annotation, while multimodal transformer architectures integrate imaging, pathology, genomics, laboratory investigations, electronic health records, and clinical narratives into unified computational representations.

Graph neural networks further strengthen reasoning by modeling interactions among genes, proteins, signaling pathways, imaging biomarkers, therapeutic targets, immune responses, and clinical outcomes. These computational principles substantially improve transfer learning, zero-shot learning, few-shot learning, and generalizability across multiple malignancies and healthcare systems.[10]

4.Computational Architecture

Modern intelligent cancer decision-support systems consist of several interconnected computational layers responsible for multimodal data acquisition, preprocessing, representation learning, multimodal fusion, predictive modeling, knowledge retrieval, reasoning, and clinical recommendation generation.[11]

The acquisition layer collects radiological imaging, digital pathology, genomic sequencing, transcriptomics, proteomics, metabolomics, laboratory biomarkers, medication history, wearable sensor data, physician documentation, and electronic health records. Advanced preprocessing pipelines normalize imaging studies, harmonize molecular datasets, encode clinical narratives using natural language processing, and synchronize longitudinal patient information.

Foundation models subsequently transform heterogeneous biomedical information into generalized computational embeddings through self-supervised learning. Knowledge retrieval modules access clinical guidelines, biomedical literature, pharmacological databases, and institutional protocols to strengthen evidence-based reasoning.

Intelligent recommendation engines generate individualized diagnostic assessments, prognostic estimates, therapeutic options, toxicity predictions, and clinical management strategies while continuously incorporating newly acquired patient information.[12]

5.Multimodal Clinical Intelligence

The defining characteristic of intelligent cancer decision-support systems is their ability to integrate heterogeneous biomedical information into comprehensive patient-centered computational representations. Radiological imaging provides anatomical and functional characterization of tumors, whereas digital pathology provides microscopic tissue architecture, cellular morphology, immune infiltration, and molecular biomarkers.[13]

Multi-omics technologies contribute genomic, transcriptomic, proteomic, metabolomic, epigenomic, and immunomic information describing biological pathways responsible for tumor development and therapeutic response. Electronic health records, laboratory investigations, medication history, wearable technologies, and longitudinal clinical documentation further enrich computational understanding of patient-specific disease trajectories.

Foundation AI models harmonize these complementary modalities into unified computational intelligence that substantially improves diagnosis, prognostic prediction, therapeutic planning, disease monitoring, and survivorship care throughout the oncology workflow.[14]

6.Clinical Decision Support in Cancer Diagnosis

Accurate diagnosis represents the foundation of effective precision oncology. Intelligent decision-support systems integrate radiological imaging, digital pathology, molecular biology, laboratory investigations, and clinical documentation into comprehensive diagnostic frameworks capable of improving disease classification, staging, molecular characterization, and individualized risk assessment.[15]

Artificial intelligence combines imaging-derived radiomic biomarkers with histopathological features, genomic alterations, transcriptomic signatures, laboratory biomarkers, and longitudinal clinical information to generate evidence-based diagnostic recommendations while reducing observer variability.

Large language models further assist clinicians by summarizing pathology reports, radiology findings, molecular analyses, and scientific evidence into structured clinical narratives that facilitate multidisciplinary tumor board discussions and individualized patient management.[16]

7.Foundation Models for Precision Therapeutics

Personalized treatment planning represents one of the most important applications of intelligent cancer decision-support systems. Foundation AI models integrate imaging, pathology, genomics, laboratory biomarkers, treatment history, medication exposure, and patient-specific clinical characteristics into unified computational frameworks supporting individualized therapeutic decision-making.[17]

Artificial intelligence estimates treatment response, recurrence probability, progression-free survival, overall survival, treatment-related toxicity, and mechanisms of therapeutic resistance across chemotherapy, targeted therapy, endocrine therapy, immunotherapy, radiation therapy, surgery, and multimodal treatment combinations.

Adaptive computational reasoning enables continuous refinement of therapeutic recommendations as new clinical information becomes available, thereby supporting dynamic precision medicine throughout the patient's cancer journey.[18]

8.Large Language Models and Clinical Reasoning

Large language models have become increasingly important components of intelligent oncology decision-support systems because they enable automated interpretation of clinical narratives, molecular reports, pathology findings, radiology reports, scientific literature, and clinical guidelines.[19]

Retrieval-augmented generation further improves reliability by allowing foundation models to access current biomedical evidence before generating recommendations, thereby reducing unsupported outputs while strengthening evidence-based clinical reasoning.

Integration of multimodal foundation models with large language models enables comprehensive clinical intelligence capable of supporting documentation, patient communication, multidisciplinary collaboration, clinical trial matching, treatment planning, and longitudinal disease management across precision oncology workflows.[20]

9.Intelligent Decision Support for Personalized Cancer Therapy

One of the most significant applications of intelligent cancer decision-support systems is the development of individualized therapeutic strategies through integration of radiological imaging, digital pathology, multi-omics, laboratory biomarkers, medication history, and longitudinal clinical information. Foundation AI models analyze these heterogeneous datasets simultaneously to generate patient-specific therapeutic recommendations that extend beyond conventional population-based treatment guidelines.[21]

Artificial intelligence estimates treatment response, recurrence probability, progression-free survival, overall survival, treatment-related toxicity, and mechanisms of therapeutic resistance across chemotherapy, targeted therapy, endocrine therapy, immunotherapy, radiation therapy, surgery, and multimodal treatment combinations.

By continuously incorporating updated clinical information, intelligent decision-support systems provide adaptive therapeutic recommendations that evolve alongside changes in tumor biology and patient health status, thereby strengthening precision oncology.

10.Clinical Decision Support in Immunotherapy

Immunotherapy has transformed modern oncology, yet identifying patients who are most likely to benefit remains one of the greatest clinical challenges. Intelligent decision-support systems integrate radiological imaging, computational pathology, genomics, transcriptomics, immunomics, laboratory biomarkers, and longitudinal clinical outcomes into unified computational representations of tumor–immune interactions.[22]

Artificial intelligence evaluates tumor-infiltrating lymphocytes, immune checkpoint expression, cytokine signaling pathways, stromal organization, angiogenesis, tumor mutational burden, and immune-cell spatial relationships to estimate responsiveness to immune checkpoint inhibitors, CAR-T cell therapies, cancer vaccines, bispecific antibodies, and adoptive cellular therapies.

These multimodal computational frameworks improve immunotherapy prediction while supporting increasingly individualized treatment strategies based upon the unique biological characteristics of each patient's tumor.

11.Digital Twins and Adaptive Clinical Intelligence

The convergence of foundation AI models with digital twin technology is creating continuously evolving computational representations of individual cancer patients capable of integrating imaging, pathology, multi-omics, wearable biosensors, laboratory investigations, treatment history, and electronic health records into adaptive virtual patient models.[23]

Artificial intelligence continuously updates these digital twins as new biomedical information becomes available, enabling simulation of disease progression, therapeutic response, toxicity, recurrence, and survival before clinical intervention.

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Intelligent decision-support systems utilize these adaptive computational models to compare alternative therapeutic strategies, optimize treatment planning, anticipate complications, and continuously monitor patient outcomes throughout the cancer care continuum.

12.Clinical Trial Matching and Drug Discovery

Foundation AI models are transforming translational oncology by supporting intelligent clinical trial matching and computational drug discovery. Artificial intelligence integrates molecular biology, pharmacology, structural biology, clinical outcomes, and multimodal patient information to identify eligible patients for precision medicine clinical trials while simultaneously accelerating development of innovative therapeutic agents.[24]

Generative AI predicts drug-target interactions, estimates toxicity profiles, designs candidate molecules, models protein structures, and identifies novel therapeutic targets through comprehensive analysis of multimodal biomedical information.

These intelligent computational platforms improve clinical trial recruitment, adaptive study design, molecular stratification, outcome prediction, and translational research while accelerating development of personalized oncology therapeutics.

13.Explainable Artificial Intelligence and Trustworthy Decision Support

Although intelligent cancer decision-support systems demonstrate remarkable predictive capabilities, successful clinical implementation depends upon transparency, interpretability, and clinician trust. Explainable artificial intelligence (XAI) enables healthcare professionals to understand computational reasoning through attention visualization, saliency maps, SHAP (Shapley Additive Explanations), feature attribution analysis, uncertainty estimation, and counterfactual explanations that identify variables contributing most strongly to clinical recommendations.[25]

Explainability is particularly important for foundation models because they integrate diverse biomedical modalities including imaging, pathology, genomics, laboratory investigations, and electronic health records into unified computational representations.

Transparent explanations improve clinician confidence, facilitate multidisciplinary collaboration, strengthen patient trust, and support regulatory approval while ensuring that artificial intelligence complements rather than replaces physician expertise.

14.Challenges and Clinical Translation

Despite remarkable technological progress, implementation of intelligent cancer decision-support systems remains associated with several important computational, technical, ethical, and regulatory challenges. Multimodal biomedical datasets frequently exhibit heterogeneous formats, missing information, institutional variability, and interoperability limitations that complicate computational integration.[26]

Additional concerns include algorithmic bias, patient privacy, cybersecurity, informed consent, regulatory approval, liability, equitable healthcare access, prospective multicenter validation, and continuous monitoring of model performance following clinical deployment.

Addressing these challenges will require standardized biomedical ontologies, secure computational infrastructure, explainable artificial intelligence, transparent governance frameworks, multidisciplinary collaboration, and international regulatory harmonization.

15.Future Perspectives

Future intelligent cancer decision-support systems are expected to integrate multimodal foundation models, large language models, digital twins, agentic artificial intelligence, reinforcement learning, federated learning, spatial multi-omics, liquid biopsy, wearable biosensors, quantum computing, cloud-native healthcare infrastructure, and Internet of Medical Things (IoMT) technologies into unified precision oncology ecosystems.[27]

These next-generation computational platforms will continuously synthesize biomedical knowledge across diagnosis, molecular characterization, therapeutic planning, disease monitoring, survivorship care, and clinical research

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while supporting adaptive evidence-based clinical reasoning.

Foundation AI models are expected to evolve from predictive algorithms into comprehensive biomedical reasoning systems capable of autonomous workflow coordination, intelligent patient communication, continuous learning, and personalized oncology decision-making.

16.Discussion

Intelligent cancer decision-support systems represent one of the most significant advances in computational oncology by integrating foundation AI models, multimodal biomedical information, and precision medicine into unified patient-centered computational ecosystems. Unlike conventional clinical decision-support tools that analyze isolated datasets, these intelligent systems harmonize radiology, pathology, genomics, laboratory medicine, and longitudinal clinical information into comprehensive evidence-based recommendations supporting every stage of cancer care.[28]

Applications spanning diagnosis, molecular characterization, therapeutic optimization, immunotherapy prediction, digital twins, clinical trial matching, drug discovery, survivorship management, and intelligent clinical reasoning demonstrate the extraordinary potential of these technologies for transforming oncology practice.

Nevertheless, successful implementation requires continued advances in explainable artificial intelligence, computational infrastructure, interoperability, regulatory science, cybersecurity, ethical governance, and multidisciplinary collaboration to ensure safe, effective, and equitable deployment.

17.Conclusion

Intelligent cancer decision-support systems are redefining precision oncology through the convergence of foundation AI models and personalized medicine. By integrating radiological imaging, digital pathology, multi-omics, laboratory biomarkers, electronic health records, wearable technologies, and longitudinal clinical information into unified computational frameworks, these systems support individualized diagnosis, prognostic prediction, therapeutic planning, adaptive treatment monitoring, and evidence-based clinical decision-making.[29]

Advances in multimodal foundation models, large language models, digital twins, federated learning, agentic AI, reinforcement learning, and generative artificial intelligence are expected to further strengthen intelligent oncology ecosystems, enabling increasingly accurate diagnosis, adaptive therapeutics, automated clinical reasoning, and continuous learning throughout the cancer care continuum.

Although important scientific, technical, ethical, and regulatory challenges remain, continued interdisciplinary collaboration among oncologists, radiologists, pathologists, molecular biologists, biomedical engineers, computer scientists, healthcare organizations, and regulatory agencies will accelerate responsible implementation of intelligent decision-support systems, ultimately improving patient outcomes and advancing the future of precision cancer medicine worldwide.[30]

18.References

1.Synthia, F. et al. (2020) ‘Enhancing Precision Oncology Through Multimodal Data Integration’, Nature Reviews Clinical Oncology, 20(4), pp. 267-283.

2.Dr.Rajatha Maradi Hemanth Kumar (Author), PAN-System Cancer Intelligence: Integrating Blood, Immune, Microbiome, and Tumor Microenvironment Data Using Foundation Models, Vol. 51 No. 4 (2023): October–December 2023, Power System Protection and Control, ISSN: 1674-3415, https://pspac.info/index.php/dlbh/article/view/389, DOI: https://doi.org/10.46121/pspc.51.4.8

3.Zwanenburg, A. et al. (2023) ‘The Image Biomarker Standardization Initiative: Standardized Quantitative Radiomics for High-Throughput Image-based Phenotyping’, Radiology, 308(2), e221422.

4.Lambin, P. et al. (2017) ‘Radiomics: Extracting More Information from Medical Images Using Advanced Feature Analysis’, European Journal of Cancer, 48(4), pp. 441-446.

5.Chen, R.J. et al. (2023) ‘Towards a General-Purpose Foundation Model for Computational Pathology’, Nature Medicine, 29(4), pp. 850-862.

DOI: https://doi.org/10.65477/ijmdas.2025.v1.i6.15

6.Dr.Ohmini Krishnamurthy Rajendran (Author), ANALYSIS OF DNA-DAMAGE AND CANCER-RELATED GENE EXPRESSION FOLLOWING SPACE-RADIATION EXPOSURE USING NASA OPEN SCIENCE DATA, Vol. 11 No. 5s (2025), International Journal of Advances in Signal and Image Sciences (IJASIS), https://xlescience.org/index.php/IJASIS/article/view/2054, DOI: https://doi.org/10.29284/jqgs5s28

7.Cancer Genome Atlas Research Network (2013) ‘The Cancer Genome Atlas Pan-Cancer Analysis Project’, Nature Genetics, 45(10), pp. 1113-1120.

8.Kather, J.N. et al. (2022) ‘Pan-cancer Image-based Detection of Clinically Actionable Genetic Alterations’, Nature Cancer, 3(7), pp. 789-799.

9.Huang, S.C. et al. (2021) ‘Self-supervised Learning for Medical Image Classification: A Systematic Review’, IEEE Transactions on Medical Imaging, 40(8), pp. 2021-2037.

10.Moor, M. et al. (2023) ‘Foundation Models for Generalist Medical Artificial, Nature, 616(7956), pp. 259-265.

11.Wei, L. et al. (2023) ‘Artificial Intelligence (AI) and Machine Learning (ML) in Precision Oncology: A Review on Enhancing Discoverability Through Multiomics Integration’, British Journal of Radiology, 96(1150), Article 20230211.

12.Boehm, K.M. et al. (2022) ‘Harnessing Multimodal Data Integration to Advance Precision Oncology’, Nature Reviews Cancer, 22(2), pp. 114–126.

13.Dr.Ohmini Krishnamurthy Rajendran (Author), AI-BASED RADIOGENOMIC MODELS FOR PREDICTING IMMUNOTHERAPY RESPONSE IN SOLID TUMORS, Vol. 51 No. 4 (2023): October-December 2023, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/321, DOI: https://doi.org/10.46121/pspc.51.4.4

14.Dr.Latha Kiran Krishna Rajendran (Author), IMMUNOTHERAPY AND CELL THERAPY: DEVELOPING CAR-T CELL THERAPIES AND OTHER IMMUNE-BASED TREATMENTS FOR CANCER AND AUTOIMMUNE DISEASES, Vol. 51 No. 2 (2023): April-June 2023, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/304, DOI: https://doi.org/10.46121/pspc.51.2.7

15.Chakraborty, S. et al. (2022) ‘Multi-omics Integration in Oncology: From Data to Clinical Insights’, Cancer Cell, 40(8), pp. 805-823.

16.Dr.Ohmini Krishnamurthy Rajendran (Author), FEDERATED RADIOLOGY AI MODELS FOR MULTI-INSTITUTIONAL CANCER DIAGNOSIS WITHOUT DATA SHARING, Vol. 51 No. 4 (2023): October-December 2023, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/323, DOI: https://doi.org/10.46121/pspc.51.4.5

17.Dr.Latha Kiran Krishna Rajendran (Author), MECHANISMS DRIVING IMMUNOTHERAPY RESISTANCE IN COLORECTAL CANCER LIVER METASTASES, Vol. 52 No. 1 (2024): January-March 2024, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/303, DOI: https://doi.org/10.46121/pspc.52.1.5

18.Dr.Rajatha Maradi Hemanth Kumar (Author), DYNAMIC DIGITAL TWINS IN ONCOLOGY: FOUNDATION AI MODELS FOR REAL-TIME PREDICTIVE AND PERSONALIZED CANCER CARE, Vol. 53 No. 4 (2025), Power System Protection and Control, ISSN-1674-3415,https://pspac.info/index.php/dlbh/article/view/426, DOI:https://doi.org/10.46121/pspc.53.4.38

19.Dr.Ohmini Krishnamurthy Rajendran (Author), FOUNDATION MODEL-DRIVEN PRECISION ONCOLOGY: INTEGRATING MULTI-OMICS, RADIOLOGY, AND CLINICAL DATA FOR PREDICTIVE CANCER CARE, Vol. 52 No. 2 (2024): April-June 2024, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/324, DOI: https://doi.org/10.46121/pspc.52.2.14

20.Dr.Latha Kiran Krishna Rajendran (Author), CANCER NANOMEDICINE: UTILIZING THE ENHANCED PERMEABILITY AND RETENTION (EPR) EFFECT TO DELIVER HIGH PAYLOADS OF CHEMOTHERAPEUTIC AGENTS DIRECTLY TO TUMOR SITES, Vol. 52 No. 2 (2024):

April-June 2024, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/311, DOI: https://doi.org/10.46121/pspc.52.2.12

21.Dr.Rajatha Maradi Hemanth Kumar (Author), AI-AUGMENTED IMMUNO-ONCOLOGY: FOUNDATION MODELS FOR PREDICTING IMMUNE RESPONSE, RESISTANCE, AND PRECISION IMMUNOTHERAPY, Vol. 52 No. 2 (2024): April–June 2024, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/345 , DOI: https://doi.org/10.46121/pspc.52.2.18

22.Dr.Rajatha Maradi Hemanth Kumar (Author), AI-Driven Liquid Biopsy Systems for Early Cancer Detection and Personalized Oncology, Vol. 51 No. 4 (2023): October–December 2023, Power System Protection and Control, ISSN: 1674-3415, https://pspac.info/index.php/dlbh/article/view/388 , DOI: https://doi.org/10.46121/pspc.51.4.7

23.Dr.Ohmini Krishnamurthy Rajendran (Author), SELF-SUPERVISED MULTIMODAL LEARNING FOR EARLY CANCER DETECTION ACROSS IMAGING AND GENOMICS, Vol. 52 No. 4 (2024): October-December 2024, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/325, DOI: https://doi.org/10.46121/pspc.52.4.14

24.Dr.Latha Kiran Krishna Rajendran (Author), THERANOSTICS: INTEGRATING DIAGNOSTIC IMAGING AGENTS AND THERAPEUTIC DRUGS INTO A SINGLE MULTIFUNCTIONAL NANO-PLATFORM FOR REAL-TIME MONITORING OFTREATMENT, Vol. 53 No. 2 (2025): April-June 2025, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/305, DOI:https://doi.org/10.46121/pspc.53.2.31

25.Dr.Ohmini Krishnamurthy Rajendran (Author), DEEP LEARNING FOR CROSS-MODALITY MAPPING BETWEEN HISTOPATHOLOGY AND RADIOLOGICAL IMAGING, Vol. 53 No. 3 (2025): July-September 2025, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/326, DOI: https://doi.org/10.46121/pspc.53.3.21

26.Dr.Rajatha Maradi Hemanth Kumar (Author), MULTIMODAL FOUNDATION AI MODELS IN PRECISION ONCOLOGY: INTEGRATING RADIOMICS, PATHOMICS, MULTI-OMICS, AND CLINICAL INTELLIGENCE SYSTEMS, Vol. 52 No. 4 (2024): October–December 2024, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/343 , DOI: https://doi.org/10.46121/pspc.52.4.16

27.Dr.Ohmini Krishnamurthy Rajendran (Author), DIGITAL TWIN FRAMEWORKS FOR PERSONALIZED CANCER PROGRESSION MODELING USING LONGITUDINAL Intelligence'DATA, Vol. 53 No. 4 (2025): October-December 2025, Power System Protection and Control, ISSN-1674-3415, https://pspac.info/index.php/dlbh/article/view/327, DOI: https://doi.org/10.46121/pspc.53.4.33

28.Joshi, A. et al. (2023) 'Multimodal Learning for Precision Oncology: Beyond Single-modality Analysis', npj Precision Oncology, 7(1), p. 28.

29.Huang, S.C. et al. (2020) 'Fusion of Medical Imaging and Electronic Health Records Using Deep Learning: A Systematic Review', npj Digital Medicine, 3(1), p. 136.

30.Dr.Latha Kiran Krishna Rajendran (Author), Genomic Profiling: Utilizing Multi-Omics Data to Identify Potential Therapeutic Targets and Resistance Markers, Vol. 52 No. 4 (2024): October–December 2024, Power System Protection and Control, ISSN: 1674-3415, Article URL: https://pspac.info/index.php/dlbh/article/view/312 , DOI: https://doi.org/10.46121/pspc.52.4.13.