Patent Search

Invention Title	AI-ENABLED IDENTIFICATION OF BREAST CANCER PATIENTS FOR GPR54 RECEPTOR-TARGETED THERAPY
Publication Number	29/2025
Publication Date	18/07/2025
Publication Type	INA
Application Number	202521055061
Application Filing Date	07/06/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G16H50/20, C12Q1/6886, G01N33/574, G06N3/08

Inventor

Name	Address	Country
Sumitra Sureliya	Assistant Professor, Department of Computer Science and Engineering, Medicaps University, Indore, Madhya Pradesh, India - 453331.	India
Ganga Rama Koteswara Rao	Professor, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh, India - 522302.	India
B Ramana Reddy	HOD-Department of Computer Science and Engineering, CIC&C (Data Science), Annamacharya Institute of Technology and sciences, Tirupati, Andhra Pradesh, India - 516126.	India
Dr P.Venkatachalam	Assistant Professor in Microbiology, Sengunthar Arts and Science College (Autonomous), Tiruchengode, Namakkal, Tamil Nadu, India - 637205.	India
Dr.V.Sreedevi	Assistant Professor, Department of Zoology, Government City College (A), Nayapul, Hyderabad, Telangana – 500002, India.	India
K.Laxminarayanamma	Institute of Aeronautical Engineering, Dundigal, Medichal – 500043, Telangana, India.	India
RVS Praveen	Director/ Digital Engineering and Assurance, LTIMindtree, Houston, Fort Bend, Texas, 77478, United States of America.	India
Sudhakar Parmeshwar Sarkate	Research scholars, Department of Applied Electronics, Sant Gadge Baba Amravati University, Amravati, Maharashtra – 444602, India.	India
Ms. Shrestha Sankar Kulsi	Assistant Professor, Department of Civil Engineering, Asansol Engineering College, Asansol, Paschim Bardhaman, West Bengal – 713305.	India
Dr. Vishnu Kiran Manam	Senior Scientist/DGM - R&D, IB Group, Rajnandgaon, Indamara, Chhattisgarh – 491411, India.	India
Mr.Prabhu T	Assistant Professor, SNS College of Pharmacy and Health Sciences, Coimbatore – 641035, Tamil Nadu, India.	India
Sivakumar S	Assistant Professor, Department of Electrical and Electronics Engineering, OMR, Chennai, Kanchipuram – 600119, Tamil Nadu, India.	India

Applicant

Name	Address	Country
Sumitra Sureliya	Assistant Professor, Department of Computer Science and Engineering, Medicaps University, Indore, Madhya Pradesh, India - 453331.	India
Ganga Rama Koteswara Rao	Professor, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh, India - 522302.	India
B Ramana Reddy	HOD-Department of Computer Science and Engineering, CIC&C (Data Science), Annamacharya Institute of Technology and sciences, Tirupati, Andhra Pradesh, India - 516126.	India
Dr P.Venkatachalam	Assistant Professor in Microbiology, Sengunthar Arts and Science College (Autonomous), Tiruchengode, Namakkal, Tamil Nadu, India - 637205.	India
Dr.V.Sreedevi	Assistant Professor, Department of Zoology, Government City College (A), Nayapul, Hyderabad, Telangana – 500002, India.	India
K.Laxminarayanamma	Institute of Aeronautical Engineering, Dundigal, Medichal – 500043, Telangana, India.	India
RVS Praveen	Director/ Digital Engineering and Assurance, LTIMindtree, Houston, Fort Bend, Texas, 77478, United States of America.	U.S.A.
Sudhakar Parmeshwar Sarkate	Research scholars, Department of Applied Electronics, Sant Gadge Baba Amravati University, Amravati, Maharashtra – 444602, India.	India
Ms. Shrestha Sankar Kulsi	Assistant Professor, Department of Civil Engineering, Asansol Engineering College, Asansol, Paschim Bardhaman, West Bengal – 713305.	India
Dr. Vishnu Kiran Manam	Senior Scientist/DGM - R&D, IB Group, Rajnandgaon, Indamara, Chhattisgarh – 491411, India.	India
Mr.Prabhu T	Assistant Professor, SNS College of Pharmacy and Health Sciences, Coimbatore – 641035, Tamil Nadu, India.	India
Sivakumar S	Assistant Professor, Department of Electrical and Electronics Engineering, OMR, Chennai, Kanchipuram – 600119, Tamil Nadu, India.	India

Abstract:

The method for the development of an AI-enabled approach for identifying patients with breast cancer who would benefit from GPR54 receptor-targeted therapy is p this article. Potential as a potential therapeutic target, the GPR54 receptor is implicated in tumour growth and metastasis suppression. Through the integration of mu data, such as imaging features, clinical biomarkers, and gene expression profiles, our machine learning model correctly stratifies patients according to GPR54 recepto Through the use of deep neural networks, ensemble learning, and feature selection, the system exhibits strong predictive performance, making it possible to classify patients with increased sensitivity and specificity. The suggested method speeds up clinical decision-making while also improving individualized treatment planning. T powered approach provides a major breakthrough in precision oncology, establishing the foundation for receptor-specific treatments that have the potential to signif enhance the management of breast cancer. FIG.1

Complete Specification

Description:[0002] The breast cancer is still one of the most common and fatal tumors that affect women globally. The diverse nature of breast cancer makes it to choose the best individualized treatments, even with major advancements in early diagnosis, diagnostic tools, and therapeutic approaches. The intricate molecul landscape of cancers is sometimes missed by conventional diagnostic methods, which results in less-than-ideal therapy choices. Precision medicine has become a g changer in this regard, customizing treatment plans according to the molecular traits of certain cancers.

[0003] The G-protein-coupled receptor 54 (GPR54), commonly referred to as the kisspeptin receptor, is one promising biomarker being studied for targeted thera Through pathways linked to cell migration, invasion, and adhesion, GPR54 plays a crucial role in controlling the spread of cancer cells. Research has shown that in a of malignancies, including breast cancer, tumor growth is associated with deregulation of the kisspeptin-GPR54 signaling axis. Since different subtypes of breast car express the receptor differently, it may be a good target for biomarker-driven therapy. However, there is an increasing need for sophisticated computational algorit can precisely identify patients who can benefit from GPR54-targeted medicines because of the complexity of tumor heterogeneity and the shortcomings of traditior biomarker identification techniques. Oncology could undergo a significant transformation thanks to artificial intelligence (AI), especially machine learning (ML) and d learning (DL) techniques, which make it possible to analyze large, complicated datasets including genomic sequences, histopathological pictures, and patient clinica AI models have recently been created to recognize molecular subtypes, forecast the results of treatments, and spot minute patterns that would be missed by huma order to help stratify patients with breast cancer for receptor-specific treatments, artificial intelligence (AI) can assist in identifying the expression patterns and signa pathways linked to GPR54 by combining multi-omics data, such as transcriptomics, proteomics, and genomes.

[0004] Molecular biology and artificial intelligence can be combined to create predictive models that can identify patients who are likely to express GPR54 and rea

View Application Status

Department of Industrial Policy and Promotion
Government of India