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Precision Medicine The Clinical Relevance of Patient Specific Biomarkers Used to Optimize Cancer Treatment

Manjula Selvam*, Arunambigai Ramesh, M.Ramachandran, Sathishkumar Mani

REST Labs, Kaveripattinam, Krishnagiri, Tamil Nadu, India

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ABSTRACT

Precision medicine in cancer treatment represents a groundbreaking approach that customizes medical treatments based on each patient's unique genetic makeup a patient's tumor. This innovative strategy aims to maximize treatment effectiveness while minimizing side effects by leveraging advancements in genomics and molecular biology. The process involves thorough genomic profiling to identify specific genetic mutations or alterations within the cancer cells. Based on this information, Specific medications aim to disrupt the specific molecules responsible for the growth and advancement of the tumor. Furthermore, immunotherapy is frequently a crucial element of cancer treatment because it uses the immune system of the patient to fight the disease precision medicine. The success of these approaches is evaluated through parameters such as genomic profiling accuracy, therapeutic target precision, immunotherapeutic responsiveness, and overall clinical outcomes. Precision medicine in cancer treatment holds immense significance in reshaping the landscape of oncology research and patient care. At its core, precision medicine emphasizes a personalized approach, leveraging detailed genomic information to tailor treatments to the distinct features of every person's cancer. This method differs from the conventional one-size-fits-all cancer treatment, offering the potential for more effective and targeted therapies.

1. INTRODUCTION

Precision medicine in cancer treatment revolutionizes the conventional approach to battling this complex disease by customizing therapies based on individual genetic and molecular profiles. Through genetic profiling, specific mutations and biomarkers unique to a patient's cancer are identified, paving the way for targeted therapies that address the root causes of tumour growth with greater precision. Personalized treatments include targeted therapies and immunotherapy, both designed to minimize harm to healthy cells while maximizing the impact on cancerous ones. Advanced diagnostic tools such as sophisticated imaging techniques and liquid biopsy provide comprehensive insights into tumour characteristics and aid in real-time monitoring of disease progression. Predictive modelling, often powered by artificial intelligence, enables clinicians to anticipate treatment responses and adjust interventions dynamically [1]. Adaptive treatment plans allow for continuous refinement, ensuring that therapies evolve alongside changes in the cancer's behaviour. Collaboration among multidisciplinary teams and active patient involvement further enhance the decision-making process, incorporating individual preferences and values. Clinical trials and data sharing initiatives contribute to ongoing research, fostering innovation and expanding our understanding of cancer genetics and treatment efficacy [2]. In the realm of ancient Egyptian

*Corresponding author: Manjulaselvam2016@gmail.com

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mummies, cancer emerges as an age-old affliction, with the term "carcinoma" being coined by Hippocrates circa 400 BC to denote this ancient malady. The comprehension of cancer mechanisms commenced with John Bennett and Rudolph Virchow around 1845, when aberrations were observed in patients, revealing the accumulation of white blood cells, a seminal discovery discernible through microscopy and constituting one of the earliest instances of cancer identification. In stark contrast to the extensive historical narrative of illness, the use of molecules or cells in both the detection and treatment of cancer is a relatively new approach. Although the field of oncology has undergone significant expansion, encompassing diverse developments, the quest for a singular drug capable of universally healing all cancer patients remains elusive. Heterogeneity emerges as a defining characteristic of cancer, not only manifesting between distinct patients but also within the cells of a single patient, elucidating the complexity of the disease [3]. Cancer, now recognized as a highly heterogeneous condition, underscores the considerable distinctions not only between cancer cells across various patients but also within the spectrum of cancer cells within an individual. Consequently, the concept of precision medicine, a comparatively recent approach, assumes paramount importance in the oncological landscape. The Department of Oncology has witnessed dramatic advancements, yet the quest for a universal panacea persists [4]. In the current scenario, the understanding of cancer as a chronic ailment necessitates effective strategies tailored to combat this formidable adversary. Precision medicine, as a paradigm and practice, emerges as a crucial method aimed at defeating cancer and other such diseases with precision and efficacy. The focal point of precision oncology or precision medicine in cancer lies in the meticulous customization of treatments, seeking to provide accurate and effective interventions for each cancer patient [5]. Crucially, the essence of every cancer patient in recognizing individuality as well there is precision medicine. The genetic profile of individuals with cancer varies, and this profile may evolve over time. Thus, adapting treatment strategies to align with the distinct genetic characteristics of each patient becomes imperative. This approach rejects the notion of a "one-size-fits-all" treatment for cancer, emphasizing the need for tailored interventions that acknowledge and respond to the individual nuances of each case [6]. Precision in cancer treatment relies on utilizing medical outcomes and care results to guide individualized treatment methods at the genetic level. Advances in genetic technologies have significantly enhanced the precision of treatment approaches, allowing for efficient forecasting tailored to specific patients. Recent developments, particularly in the Department Biological databases, genomics, Proteomics, Metabolomics, improved cellular assays and site-specific analyses such powerful methods using the patient's tumors affordable to classify and increased reliability. Calculation tools are then employed to analyze large omics datasets, revolutionizing cancer landscape studies and facilitating the identification of major oncogenic drivers, as well as inter- and intratumoral gene diversity [7]. The Cancer Genetics initiative aims to build a comprehensive resource base for guiding clinical practice, particularly in the context of targeted therapy. Targeted therapy involves the detection of with specific cancers relatively unique molecular Abnormalities, Germ and physiological abnormalities includes both. These mutations impact disease outcomes, response to treatment, and prognosis, which can be related to disease outcome or drug response. the selection of a specific anti-cancer agent is crucial, focusing on actionable targets and interfering with cancer cell growth or function [8]. Understanding mutations, physiological copy number changes, and major genetic variations provides valuable information about the impact of medicines on metabolism. Existing polymorphisms aid in designing new targeted cancer therapies, emphasizing individual advances in medicine importance of cancer genetics. In precision oncology medically relevant biomechanics and molecular importance of specification this review underscores that the first section, Markers, drug-target pairs and Relevant diagnostic tests will focus on Investigates in predictive bioengineering. The second section is medicine Susceptibility/Resistance, Metabol Relating to change and toxicity including biomarkers Emphasizes prediction. [9]. Treatment options for invasive diseases, particularly in the case of prostate cancer, are constrained. Active surveillance is an option for localized disease, while radiation therapy is considered for more confined cases. In situations of advanced disease, a combination of surgery and cytotoxic therapy is often employed. Prostate cancer is deemed curable if it remains localized, but if it spreads beyond the prostate to bones or other sites, a multifaceted approach, including hormone therapy, chemotherapy, radiation therapy, and immunotherapy, may be necessary. Clinical outcomes are influenced by factors such as age, underlying health conditions, cancer histology, and the extent of the disease [10]. Androgen Deprivation Therapy (ADT), specifically through suppressing androgen receptor (AR) signaling, is a primary therapeutic approach for metastatic disease. The benefits of ADT were initially reported by Charles Huggins in 1941. Presently, ADT is achieved through surgical or medical means, commonly referred to as castration, regardless of whether anti-androgen drugs are

included. Hormonal agonists, luteinizing hormone-releasing hormones, and antagonists are part of this therapeutic regimen. Despite the initial high success rates, progression often occurs, leading to castration-resistant prostate cancer (CRPC) and eventual recurrence [11]. CRPC encompasses a spectrum from asymptomatic disease to metastatic CRPC (mCRPC). In mCRPC, overexpression of AR leads to cancer-promoting downstream effects, with cells typically spreading to bones and lymph nodes. Unfortunately, these patients develop resistance to various treatments, including anti-androgen therapy, cytotoxic drugs, or radioactive medicine, resulting in limited options and a bleak prognosis [12]. Metastatic bone disease, a common complication, may necessitate radiation therapy to alleviate PCa-related pain and address fractures and spinal cord compression. This often requires orthopedic surgery, significantly impacting the patient's quality of life. Given that approximately one-fifth of the global population is estimated to be over 60 years old, with projections indicating an even older demographic by 2050, the socio-economic implications of the disease and the urgency to develop new treatment methods are underscored [13]. In tumors with BRCA deficiencies, the induction of synthetic lethality through PARP inhibition has been a motivating avenue of research. While individual studies have independently demonstrated the efficacy of PARP inhibitors in BRCA-mutated tumors, these mutations serve as biomarkers, being the first to predict the response to PARP inhibitors. This concept was first tested in a clinical trial (NCT00298675) where the initial PARP inhibitor, PSI-201 (Iniparib) by Sanofi and its collaborator Piper Sciences, was evaluated in 2006. A subsequent phase II trial (NCT00540358) reported a positive response to Iniparib in triple-negative metastatic breast cancer patients in 2009. However, a subsequent clinical trial (NCT00938652) raised questions about the significance of Iniparib as it did not meet specified criteria [14]. Despite the setbacks in clinical trials, researchers and doctors have reevaluated the clinical potential of PARP inhibitors. Olaparib, another PARP inhibitor developed by AstraZeneca, received FDA approval in late 2014 based on positive results in phase II trials for with BRCA1/2 mutations ovarian cancer patients. currently, PARP inhibitors more than 200 included clinical trials have been completed or ongoing, ovarian cancer and triple-negative including breast cancer spread various types of cancer (TNBC) [15].

2. MATERIALS AND METHOD

GenoCare Precision Therapy: If "GenoCare Precision Therapy" is a specific entity or product, I recommend checking official sources such as their website, press releases, or reputable news articles for the latest and most accurate information. You might also consider reaching out to the company directly or consulting recent medical literature and databases for any updates on precision therapy developments. Oncogenix Targeted Solutions: If "Oncogenix Targeted Solutions" is a specific entity or product, I recommend checking official sources such as their website, press releases, or reputable news articles for the latest and most accurate information. You might also consider reaching out to the company directly or consulting recent medical literature and databases for any updates on targeted solutions in oncology. ImmunoGen Insights: A molecule, known as an immunogen, is introduced into an animal through injection. This molecule, distinct from an antigen, interacts with antibodies, forming a binding capability. It's crucial to distinguish between an immunogen and an antigen, as the former has the potential to elicit an immune response, while the latter may contain binding sites where antibodies can attach, but it doesn't necessarily provoke a response. NeoThera Personalized Oncology: Net editorial team, the concept of "Personalized Medicine" is likely familiar to you. Essentially, this refers to tailoring medical care to your individual genetic makeup and the particular characteristics of your disease. Your genes play a crucial role in determining how cells in your body grow and develop. It is pertinent to note that a considerable amount of information indicates that many cancers are associated with specific genes or involve them in some way. CancerGen Connect: UT Southwestern established CancerGene Connect, a cloud-based system designed to enhance the integration of healthcare services. This system focuses on patients and provides a more comprehensive approach to healthcare by incorporating health information, risk assessments, and automatic report generation. Through a secure online portal, patients have the opportunity to input their own information before appointments, enabling healthcare providers to not only save time but also obtain a more accurate understanding of the patients' health and their family history. Therapix Precision Oncology: The emphasis is on the development of treatments based on cannabinoids, with a specific focus on creating therapeutic solutions for pain. A pharmaceutical company, specializing in medical therapeutics, is investing in this area to devise innovative approaches. The company has established a new, wholly-owned subsidiary that operates with precision under its affiliate, ensuring a

thorough and medically expansive approach. PrecisOncol Therapeutics: PrecisOncol Therapeutics is a real entity, it could be involved in the development of therapeutic solutions, particularly in the field of oncology. Companies in this sector often focus on advancing precision medicine approaches for cancer treatment, utilizing genetic and molecular information to tailor therapies to individual patients. To obtain the most accurate and up-to-date information about PrecisOncol Therapeutics, I recommend checking their official website or recent news sources in the field of oncology and therapeutics. GenomeGuard Cancer Solutions: Precision medicine involves determining the treatment for a patient's tumor through genetic modifications. This approach, also known as cancer precision medicine, utilizes genetic information specific to individual patients to tailor the diagnosis and treatment strategies to be best suited for their tumors. Biomarker Identification: The identification of biomarkers plays a crucial role in various fields such as medicine, healthcare, and research. In medicine, biomarkers can be used for disease diagnosis, prognosis, and monitoring treatment responses. In drug development, biomarkers help researchers assess the effectiveness and safety of potential therapies. Additionally, biomarkers are instrumental in understanding the underlying mechanisms of diseases and developing targeted and personalized treatment strategies. Targeted Therapies: Targeted therapies are a type of medical treatment that specifically targets and interferes with the molecular processes involved in the growth and survival of cancer cells. Unlike traditional chemotherapy, which affects both cancerous and healthy cells, targeted therapies are designed to selectively act on specific molecules or pathways that play a crucial role in the development and progression of cancer. Immunotherapy Response: Immunotherapy response refers to the reaction of a patient's immune system to immunotherapeutic treatments, particularly in the context of cancer treatment. Immunotherapy is a type of treatment that harnesses the body's immune system to identify, target, and eliminate cancer cells. The response to immunotherapy can vary among individuals and types of cancer, and it is a critical aspect of evaluating the effectiveness of this treatment approach. Clinical Outcomes: Clinical outcomes refer to the observable and measurable results of medical treatments, interventions, or healthcare practices on individuals or populations. These outcomes provide important information about the effectiveness, safety, and impact of healthcare interventions on patients' health and well-being. Clinical outcomes play a crucial role in assessing the success of medical treatments, guiding decision-making, and informing future healthcare practices. Method: The ARAS approach is employed in complex decision-making, aiming to identify superior alternative choices. It involves simplifying the evaluation process using indicators such as volume. Seeking an improved solution, the ARAS method highlights distinctions between alternatives, and its measurement eliminates the influence of units [16]. The ARAS technique finds applicability in solving typical Multiple Criteria Decision Making (MCDM) problems characterized by limited diversity. The approach involves sorting various options, each representing a distinct choice. Following the ARAS method, criteria are clearly defined, and an application fee is determined based on the potential opportunity. This facilitates a concurrent assessment of the relative performance of the options within the problem [17]. Transport companies' overall performance is assessed using the Ratio Rating (ARAS) Scaled approach, which involves evaluating performance indicators. The assessment is based on 20 overall performance indicators, and the results are obtained through a 3-phase method established during the sensitivity assessment [18]. The ARAS approach, fundamentally, is applied in the context of complex international events, simplifying criteria to enhance understanding. The argument revolves around the application of normal and weighted scales in the assessment of alternatives [19]. In the evaluation of sustainability indicators for renewable energy systems (such as Polysilicon Solar PV Energy, solid oxide fuel cell, phosphoric acid fuel cell, and offshore wind energy systems), the ARAS hybrid method is employed. This method, a new proposed mixed approach, integrates advanced technology considerations in areas like economy, management, organization, production, layout and architecture, policy and environment, and sustainability. It introduces a novel subjectivity through the standards-weighting technique, which finds broad application in various fields [20]. In the Aras Valley, winter temperatures are only slightly lower, and the valley predominantly cultivates fruits from the rosacea family, including apples, apricots, pears, peaches, plums, cherries, berries, strawberries, and mulberries. Under natural conditions, wild apricot fruits are abundant, with hundreds of varieties. However, in selected years chosen by humans, smaller fruit yields are more common [21]. For decision-making in the Aras Valley, the ARAS (Additive Ratio Assessment) method is employed using gray numbers. This approach, different from classical ARAS, is a technical solution for addressing Multiple Criteria Decision Making (MCDM) problems. It introduces a new technique that relies on optional values and functions. Initially, the method involves a Test Maker feature where prices are compared, and a better alternative is determined. Ambiguity in decision-making is addressed through good judgment and the incorporation

of gray concepts. The Gray Addiction Assessment (ARAS-G) method, where ARAS is integrated with gray principles, combines texture with color in a technical principle. Although the ARAS method is relatively new in the literature, it has found application in various fields and sectors through several studies [22]. In the context of flash-lamp photolysis, ARAS measures parameters such as 1, 9, and 101, representing the onset of photosynthesis. However, during the first 150 picoseconds of the PS test time, data becomes unusable due to flash circuit oscillations. Modifications in existing tests involve the removal of interference caused by the excimer flash, utilizing PMT intensity monochromating and electronic isolation for all trigger signals, employing optical isolators, and achieving perfect protection through the use of an excimer laser [23]. Ambiguity and subjectivity, stemming from uncertain, incomplete, and potentially complex information, are not hindrances for the ARAS method. Instead, they are viewed as advantageous aspects that the method effectively considers when dealing with unknown and intricate conditions. This characteristic makes the ARAS method particularly well-suited for handling uncertainty [24]. In the ARAS method, when sequencing options or analyzing specific events, it specializes in addressing the unique characteristics of the facts involved. By employing this approach, individuals making decisions can express positive, pessimistic, or prudent attitudes. This method offers an opportunity to evaluate and select options, particularly in the context of e-learning pathway development. The effectiveness of the ARAS method lies in its ability to compare the status of various components of the curriculum, determining necessary development and identifying the most satisfactory aspects. The integrated software proposed for this method is not only cost-effective but has also been validated as suitable for this purpose [25].

3. RESULTS AND DISCUSSION

TABLE 1. Precision Oncology Performance Metrics

Company	Biomarker Identification	Targeted Therapies	Immunotherapy Response	Clinical Outcomes
Geno Care Precision Therapy	250	56	189	78
Oncogenic Targeted Solutions	200	48	296	45
Immunogenic Insights	140	75	202	129
NeoThera Personalized Oncology	150	85	105	170
Cancer Gen Connect	240	145	120	150
Therapix Precision Oncology	350	150	285	300
PrecisOncol Therapeutics	163	145	136	147
GenomeGuard Cancer Solutions	190	170	180	165

Table 1shows the Precision Medicine in Cancer Treatment is Evaluation Biomarker Identification, Targeted Therapies, Immunotherapy Response and Clinical OutcomesGeno. Alternative Parameters Care Precision Therapy, Oncogenic Targeted Solutions, Immunogenic Insights, NeoThera Personalized Oncology, Cancer Gen Connect, Therapix Precision Oncology, PrecisOncol Therapeutics and GenomeGuard Cancer Solutions. Biomarker Identification in Therapix Precision Oncology (350) is showing the Highest Value for Immunogenic Insights (140) is showing the lowest value Targeted Therapies in Therapix Precision Oncology (150) is showing the Highest Value for Oncogenic Targeted Solutions (48) is showing the lowest value Immunotherapy Response in GenomeGuard Cancer Solutions (285) is showing the Highest Value for NeoThera Personalized Oncology (105) is showing the lowest value Clinical Outcomes in Therapix Precision Oncology (300) is showing the Highest Value for Oncogenic Targeted Solutions (45) is showing the lowest value

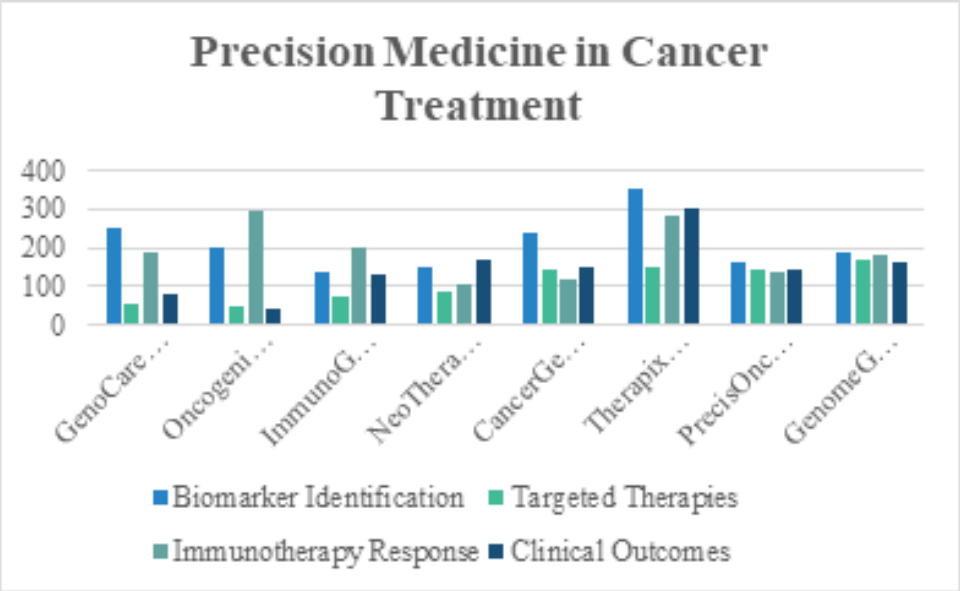

FIGURE 1. Precision Medicine in Cancer Treatment

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$$X_{\max} = \max(X_1, \ldots, X_n) \tag{1}$$

TABLE 2. Calculation of Maximum Value

Company	Biomarker Identification	Targeted Therapies	Immunotherapy Response	Clinical Outcomes
Max	350	170	296	300
Geno Care Precision Therapy	250	56	189	78
Oncogenic Targeted Solutions	200	48	296	45
Immunogenic Insights	140	75	202	129
NeoThera Personalized Oncology	150	85	105	170
Cancer Gen Connect	240	145	120	150
Therapix Precision Oncology	350	150	285	300
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Table 2 shows the Calculation of maximum value Precision Medicine in Cancer Treatment is Evaluation Biomarker Identification, Targeted Therapies, Immunotherapy Response and Clinical OutcomesGeno. Alternative Parameters Care Precision Therapy, Oncogenic Targeted Solutions, Immunogenic Insights, NeoThera Personalized Oncology, Cancer Gen Connect, Therapix Precision Oncology, PrecisOncol Therapeutics and GenomeGuard Cancer Solutions are derived by using the formula (1).

$$X_{1\text{nor}} = \frac{X_1}{\sum_{i=1}^{n} X_i} \tag{2}$$

TABLE 3. Normalized Matrix

Company	Biomarker Identification	Targeted Therapies	Immunotherapy Response	Clinical Outcomes
Max	0.172159	0.162835	0.163626	0.202156
Geno Care Precision Therapy	0.122971	0.05364	0.104478	0.052561
Oncogenic Targeted Solutions	0.098377	0.045977	0.163626	0.030323
Immunogenic Insights	0.068864	0.071839	0.111664	0.086927
NeoThera Personalized Oncology	0.073783	0.081418	0.058043	0.114555
Cancer Gen Connect	0.118052	0.138889	0.066335	0.101078
Therapix Precision Oncology	0.172159	0.143678	0.157546	0.202156
PrecisOncol Therapeutics	0.080177	0.138889	0.07518	0.099057
GenomeGuard Cancer Solutions	0.093458	0.162835	0.099502	0.111186

Table 3 shows the normalised matrix for Precision Medicine in Cancer Treatment is Evaluation Biomarker Identification, Targeted Therapies, Immunotherapy Response and Clinical OutcomesGeno. Alternative Parameters Care Precision Therapy, Oncogenic Targeted Solutions, Immunogenic Insights, NeoThera Personalized Oncology, Cancer Gen Connect, Therapix Precision Oncology, PrecisOncol Therapeutics and GenomeGuard Cancer Solutions Normalised matrix values are derived by using the formula (2).

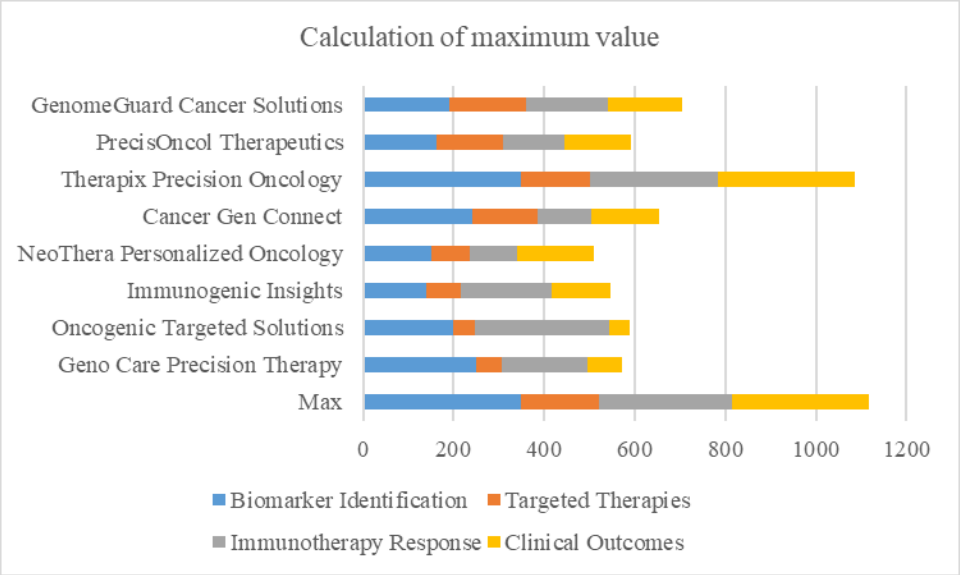


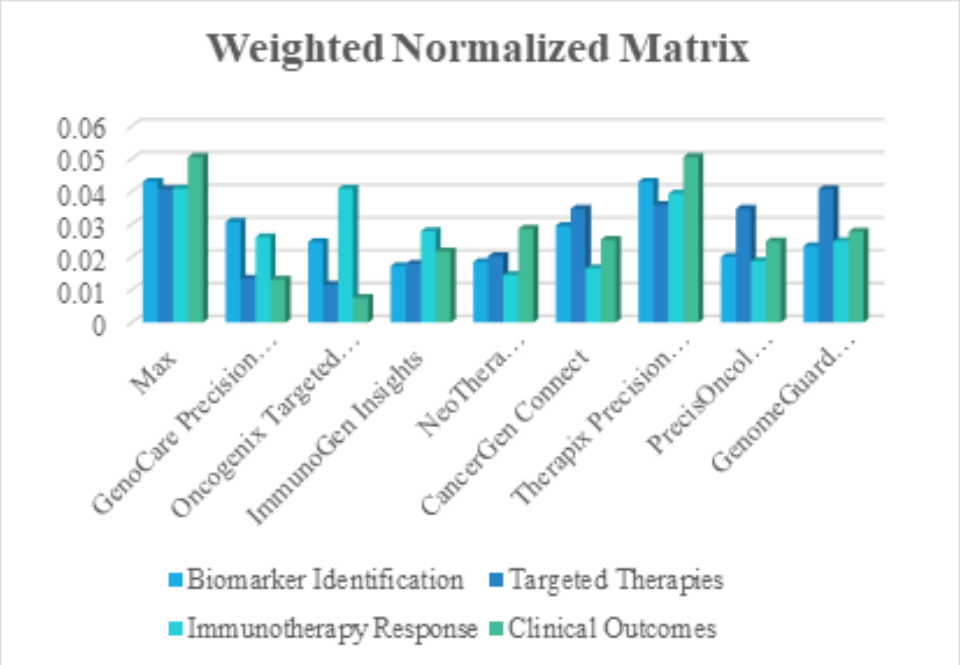
FIGURE 2. Normalised matrix

Figure 2 shows the normalised matrix for Precision Medicine in Cancer Treatment is Evaluation Biomarker Identification, Targeted Therapies, Immunotherapy Response and Clinical OutcomesGeno. Alternative Parameters Care Precision Therapy, Oncogenic Targeted Solutions, Immunogenic Insights, NeoThera Personalized Oncology, Cancer Gen Connect, Therapix Precision Oncology, PrecisOncol Therapeutics and GenomeGuard Cancer Solutions Normalised matrix values.

TABLE 4. Weighted Normalized Matrix (Weights: 0.25 each)

Company	Biomarker Identification	Targeted Therapies	Immunotherapy Response	Clinical Outcomes
Weights	0.25	0.25	0.25	0.25
Max	0.04304	0.040709	0.040907	0.050539
Geno Care Precision Therapy	0.030743	0.01341	0.026119	0.01314
Oncogenic Targeted Solutions	0.024594	0.011494	0.040907	0.007581
Immunogenic Insights	0.017216	0.01796	0.027916	0.021732
NeoThera Personalized Oncology	0.018446	0.020354	0.014511	0.028639
Cancer Gen Connect	0.029513	0.034722	0.016584	0.02527
Therapix Precision Oncology	0.04304	0.03592	0.039386	0.050539
PrecisOncol Therapeutics	0.020044	0.034722	0.018795	0.024764
GenomeGuard Cancer Solutions	0.023364	0.040709	0.024876	0.027796

Table 4 shows the weighed normalized matrix for Precision Medicine in Cancer Treatment is Evaluation Biomarker Identification, Targeted Therapies, Immunotherapy Response and Clinical OutcomesGeno. Alternative Parameters Care Precision Therapy, Oncogenic Targeted Solutions, Immunogenic Insights, NeoThera Personalized Oncology, Cancer Gen Connect, Therapix Precision Oncology, PrecisOncol Therapeutics and GenomeGuard Cancer Solutions Weighted normalised matrix values are derived by using the formula (3).



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$$S_i = \sum(X_1 + Y_1 + \cdots + Z_n) \tag{4}$$

$$K_i = \frac{X_{w\text{nor}1}}{\sum(X_{w\text{nor}1} + X_{w\text{nor}2} + \cdots + X_{w\text{nor}n})} \tag{5}$$

TABLE 5. Final Result

Company	S_i	K_i	Rank
Max	0.175194	1	-
Geno Care Precision Therapy	0.083412	0.476113	7
Oncogenic Targeted Solutions	0.084576	0.482755	6
Immunogenic Insights	0.084823	0.484168	5
NeoThera Personalized Oncology	0.08195	0.467764	8
Cancer Gen Connect	0.106089	0.605548	3
Therapix Precision Oncology	0.168885	0.963986	1
PrecisOncol Therapeutics	0.098326	0.561237	4
GenomeGuard Cancer Solutions	0.116745	0.666377	2

Table 4 shows the final result and rank of the Precision Medicine in Cancer Treatment in Additive Ratio Assessment

method. And it shows the SI , KI, Rank. SI values are derived by using the formula(4), And KI values are derived by using the formula (5).

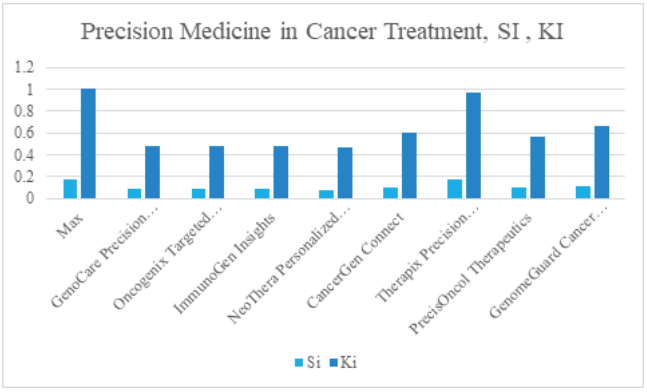

FIGURE 4. Precision Medicine in Cancer Treatment, SI, KI

Figure 4 shows the weighted normalised matrix in Precision Medicine in Cancer Treatment. As shown in figure 4 In SI method Therapix Precision Oncology is showing the highest value and NeoThera Personalized Oncology is showing the lowest value for KI method Therapix Precision Oncology is showing the highest value and NeoThera Personalized Oncology is showing the lowest value.

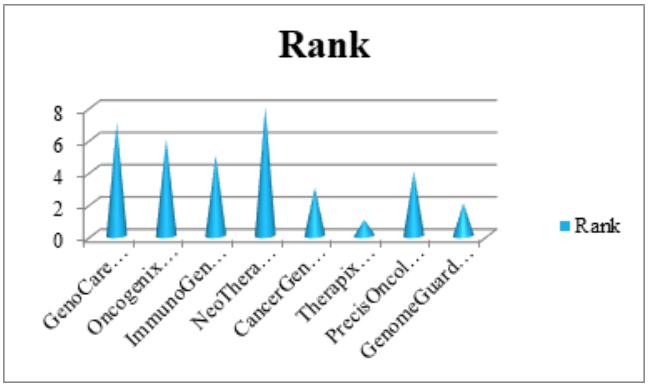

FIGURE 5. Rank

Figure 5 shows the Rank Precision Medicine in Cancer Treatment for Additive Ratio Assessment method. Therapix Precision Oncology is showing the highest value of rank whereas NeoThera Personalized Oncology is showing the lowest value.

4. CONCLUSION

Precision medicine in cancer treatment revolutionizes the conventional approach to battling this complex disease by customizing therapies based on individual genetic and molecular profiles. Through genetic profiling, specific mutations and biomarkers unique to a patient's cancer are identified, paving the way for targeted therapies that address the root causes of tumour growth with greater precision. Personalized treatments include targeted therapies and immunotherapy, both designed to minimize harm to healthy cells while maximizing the impact on cancerous ones. Advanced diagnostic tools such as sophisticated imaging techniques and liquid biopsy provide comprehensive insights into tumour characteristics and aid in real-time monitoring of disease progression. Predictive modelling, often powered by artificial intelligence, enables clinicians to anticipate treatment responses and adjust interventions dynamically. Adaptive treatment plans allow for continuous refinement, ensuring that therapies evolve alongside changes in the cancer's behaviour. Collaboration among multidisciplinary teams and active patient involvement further enhance the decision-making process, incorporating

individual preferences and values. Clinical trials and data sharing initiatives contribute to ongoing research, fostering innovation and expanding our understanding of cancer genetics and treatment efficacy. If "GenoCare Precision Therapy" is a specific entity or product, I recommend checking official sources such as their website, press releases, or reputable news articles for the latest and most accurate information. You might also consider reaching out to the company directly or consulting recent medical literature and databases for any updates on precision therapy developments. If "Oncogenix Targeted Solutions" is a specific entity or product, I recommend checking official sources such as their website, press releases, or reputable news articles for the latest and most accurate information. You might also consider reaching out to the company directly or consulting recent medical literature and databases for any updates on targeted solutions in oncology. The ARAS approach is employed in complex decision-making, aiming to identify superior alternative choices. It involves simplifying the evaluation process using indicators such as volume. Seeking an improved solution, the ARAS method highlights distinctions between alternatives, and its measurement eliminates the influence of units. The ARAS technique finds applicability in solving typical Multiple Criteria Decision Making (MCDM) problems characterized by limited diversity. GenoCare Precision Therapy, Oncogenix Targeted Solutions, ImmunoGen Insights, NeoThera Personalized Oncology, CancerGen Connect, Therapix Precision Oncology, PrecisOncol Therapeutics and GenomeGuard Cancer Solutions and Biomarker Identification, Targeted Therapies, Immunotherapy Response and Clinical Outcomes. the Rank Precision Medicine in Cancer Treatment for Additive Ratio Assessment method. Therapix Precision Oncology is showing the highest value of rank whereas NeoThera Personalized Oncology is showing the lowest value.

5. CONCLUSION

To improve the overall quality of your home, several considerations must be taken into account. The first and foremost priority should be ensuring that the entire house is adequately insulated. A comfortable interior atmosphere may be maintained, and energy efficiency can be considerably increased by upgrading the insulation in walls, the attic, and the flooring. Windows and doors are essential for enhancing the condition of a residence. Reduce draughts and increase insulation with the installation of energy-efficient windows and doors with low-emissivity coatings, leading to higher energy savings and overall comfort. Ability to Adapt to Changing Needs: Living conditions and wellbeing: Flexibility in housing design can enhance liability. Sustainable and Efficient Affordability and Cost-effectiveness: Adaptability and Disaster Reduction to achieve their objectives, people and organisations must decide which course of action is best given the circumstances. Almost every academic discipline is represented in the multidisciplinary subject of decision-making research. Utilising scientific techniques is equally crucial as using intelligence, intuition, and experience in decision-making. neutral for the decoration, the potential for a different floor plan, changing the form of apartments, flexibility in modernization, Flexibility of character and flexibility of floor plan have taken the top two spots.

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