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"We offer RNA sequencing services to hospitals, pharma, research institutions and CROs"

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Studies have revealed that the integration of RNA-sequencing and AI-driven precision diagnostics is revolutionising cancer treatment by enhancing the accuracy and precision of disease diagnosis and prognosis. While the collaboration of AI with RNA-sequencing technologies is paving the way for a more proactive and personalised approach to disease management globally, a new venture in Bengaluru, called Bayosthiti AI, is developing affordable RNA-sequencing and AI-driven precision-diagnostics approaches for the Indian population. During a recent interaction with BioSpectrum, Andrew Silvanus, Head of Sales & Partnerships, Bayosthiti AI, spoke about the companyâ??s new technology, and its growing engagements with the healthcare ecosystem in the country.

What led to the inception of Bayosthiti AI and why?

Bayosthiti AI was founded to address the underrepresentation of Indian populations in the molecular datasets used to develop diagnostic tools. Differences in genetics, disease patterns and clinical context make local evidence essential. We combine affordable RNA sequencing, AI and clinical research to support earlier, more personalised care. RNA captures biological activity associated with disease, inflammation and treatment response, giving us a foundation for investigating how health changes over time.

Please share details about your current products and projects?

We offer RNA sequencing services to hospitals, pharmaceutical companies, research institutions and contract research organisations (CROs), covering sample processing, quality control, library preparation, sequencing and analysis-ready data. Our proprietary BIRT™ (Barcode-Integrated Reverse Transcription) and PERD technologies process samples together, reducing library-preparation costs by approximately 70% compared with standard RNA-sequencing workflows. They support blood, tumour tissue and low-input or degraded RNA.

We are enriching a transcriptomic AI foundation model with Indian blood RNA data and developing five diagnostic programmes:

HF Forecaster™ targets heart-failure risk and major adverse cardiac events, supported by our Narayana Health collaboration.

LungRNA-Dx investigates immunotherapy benefits in driver-negative non-small-cell lung cancer.

BrCA-Rx examines chemotherapy benefit and recurrence risk in breast cancer, including cases where existing assessments leave uncertainty.

HemRNA-MRD explores minimal residual disease monitoring and prediction of treatment-free remission in blood cancers.

Autoimmune panels are longer-term research programmes in rheumatoid arthritis, inflammatory bowel disease and type 1 diabetes.

These programmes remain in research and validation and are not commercially launched tests. We are also developing a pan-cancer database, beginning with retrospective analysis of more than 2,000 solid-tumour samples linked to anonymised clinical histories.

How much funding have you raised so far?

We have raised $2 million, with backing from Accel Partners and angel investors.

What are the major plans in store for the next 5 years? How do you plan to strengthen your presence in the healthcare market, in India and globally?

Our aim is to build the AI infrastructure and biological evidence needed to predict future states of biology, using repeat sampling over time or population-based measurements linked to subsequent clinical outcomes. We want to establish whether molecular patterns can anticipate disease, treatment response and recovery, and guide earlier intervention. Our roadmap targets HF Forecaster™ and LungRNA-Dx in 2028, HemRNA-MRD in 2029, and BrCA-Rx in 2030, with autoimmune applications from 2030 onward. These timelines depend on successful clinical validation and applicable regulatory approvals. In India, we plan to expand hospital, diagnostic, academic and pharmaceutical partnerships to increase sequencing access and generate data for validation. Our Bengaluru laboratory supports this work, and we are working toward NABL and CAP accreditation. International expansion will involve research collaborations and validation in each population and healthcare setting.

What are the current challenges facing the RNA diagnostics market in India, and how is Bayosthiti AI addressing them?

The main barriers are cost, sample quality, interpretation and clinical evidence. Our sequencing services reduce the infrastructure institutions need, while our technology accommodates challenging samples. Careful collection, preservation and quality control remain essential. To address the need for Indian data, our Narayana Health collaboration was announced as a planned 12,000-patient cardiovascular study. We are combining sequencing with AI-assisted analysis to identify clinically relevant patterns. Adoption will require independent validation, prospective evidence, clear reporting and a workable payment model.

How has entrepreneurship evolved within the healthcare industry over the years, especially with the growth of emerging technologies such as AI?

Healthcare entrepreneurship has expanded from hospitals, medicines and devices into biotechnology, digital services and AI. Electronic records, telemedicine and connected devices widened access and created new sources of health data. AI adds opportunities in biological interpretation, research, clinical decision support and administration. My long-term ambition is to help make proactive healthcare accessible to a much broader population. What excites me is the combination of affordable molecular measurements and AI, which could enable earlier detection and ongoing monitoring. Building a prototype has become easier; proving clinical value still demands evidence, reliable performance across populations and integration into everyday care. I believe successful companies will make advanced technology affordable and useful to patients and clinicians.

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