Business Standard

IANS | Kochi September 22, 2013 Last Updated at 16:54 IST

Nano-medicine for blood cancer developed

Coinciding with the 60th birthday of Mata Amritanandamayi, the Kochi-based Amrita Centre for Nanosciences and Molecular Medicine has developed a nano-medicine for drug-resistant blood cancer.

This is expected to dramatically improve the treatment of drug-resistant chronic myelogenous leukemia (CML), when used in combination with Imatinib, the standard drug for the disease.

In another significant invention, the 2006-founded Amrita Centre has devised a mechanism that can effectively prevent recurrence of glioma or brain tumour.

This deadly disease affects about four out of every 100,000 people in India. The life expectancy of high-grade glioma patients is about one to two years.

The two projects will be formally unveiled Sep 26 at Amritavarsham60, the 60th birthday celebrations of the hugging saint or Amma as she is popularly referred to by her devotees.

CML annually affects approximately two out of every 100,000 Indians. Almost 40 per cent of these cases are resistant to Imatinib. For such patients, treatment options are extremely limited.

"What we have done at Amrita is to take a particular 'small-molecule inhibitor' class of anti-cancer drug, currently available in the market and encapsulate it into a protein nano-capsule," said Shantikumar Nair, the centre's director.

"This allows the drug to be absorbed directly into the cancer cells circulating in the patient's bloodstream. This has a marked increase on its efficacy in killing cancer cells. Further, the circulation lifetime of the drug in the blood is increased, which also enhances its efficacy," he added.

The nano-encapsulated version of the drug has shown itself to be non-toxic in healthy mice in tests conducted by his department, and it has similarly demonstrated itself to be effective in tests involving blood samples of people with Imatinib-resistant CML.

Manzoor Koyakutty, professor at the Centre, says the next step is to evaluate its efficacy in fighting CML in mice. "If it continues to remain non-toxic and effective, we can move on to clinical trials," added the expert and drug co-inventor.