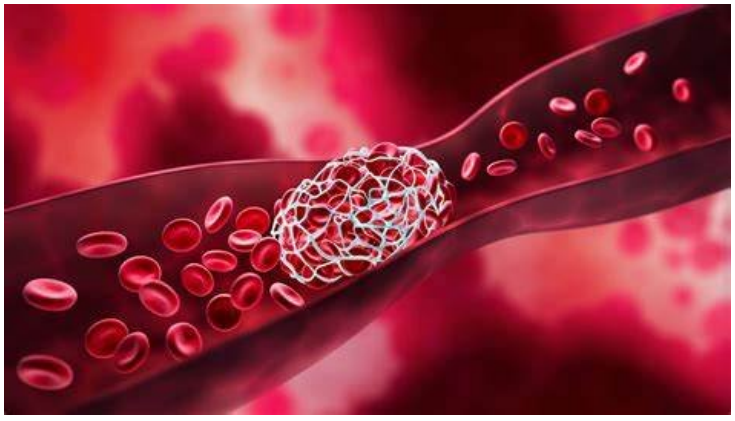
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IISc develops novel nanozyme to prevent excess blood clotting

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Exploring the efficacy of the nanozyme in preventing ischemic stroke



Researchers at the Indian Institute of Science (IISc), Bengaluru have developed an artificial metal-based nanozyme that can potentially be used to clamp down on abnormal blood clotting caused by conditions like pulmonary thromboembolism (PTE).

These “nanozymes” work by controlling toxic Reactive Oxygen Species (ROS) levels, thereby preventing the over-activation of platelets that leads to excess clot formation or thrombosis.

The team injected the nanozyme in a mouse model of PTE and found that it significantly reduced thrombosis and increased the animals’ survival rates. They also observed the weight, behaviour, and blood parameters of the animal for up to five days after injecting the nanozyme, and did not find any toxic effects.

Anti-platelet drugs that target thrombosis sometimes have side effects such as increased bleeding. “Unlike conventional anti-platelet drugs that interfere with physiological haemostasis, the nanozymes modulate the redox signalling and do not interfere with normal blood clotting. This means that they won’t cause bleeding complications that are a major concern with current therapies,” said the researchers.

The team now plans to explore the efficacy of the nanozyme in preventing ischemic stroke, which is also caused by clogging of blood vessels. “We are hopeful about clinical studies in humans because we have done our experiments with human platelets and they worked,” said the researchers.