

# Clogged artery? Ticks might do the trick

Scientists find protein in saliva of ticks can stop blood from clotting

BY LIAW WY-CIN

BESIDES leeches, another blood-sucking parasite – the tick – is turning out to be quite the little medicinal wonder.

The saliva of the tick can keep blood smooth-flowing and thus prevent that heart attack or stroke arising from a clogged artery.

A team of international scientists, including two from the National University of Singapore (NUS), has found a substance in the saliva of European ticks which stops blood from clotting.

This protein is important in keeping blood flowing smoothly through vessels in the body. And it is the parasitic blood-sucking nature of leeches and ticks that allows them to do this.

Both have anti-clotting proteins in their saliva which allow them to continue to draw a smooth flow of blood from their hosts.

An anti-clot drug, called hirulog, derived from the hirudin protein in leech saliva, is already in the market.

The NUS scientists, Professor R. Manjunatha Kini, 51, and Mr Koh Cho Yeow, 28, and their team want to do the same with the tick saliva protein – called varieggin – they have found.

The parasite involved is a female tropical bont tick, known as *Amblyomma variegatum* and is found in Europe. Two European scientists on the team discovered the tick and roped

in Prof Kini's team to help with working on the protein.

The scientists believe the drug derived from the tick saliva protein is better than hirulog.

Each of the two proteins works by interacting with the clotting agent thrombin and stopping its clotting activity.

But Prof Kini said that hirulog loses its ability to interact with thrombin in 15 minutes. He said: "We have found that our protein, after 24 hours, is still about 30 per cent active against thrombin."

The scientists will now test the varieggin protein on animals in the United States. If all goes well, the medication derived from the protein will be used as a preventive treatment.

Said Prof Kini: "For example, someone with high blood pressure – meaning the vessels could be narrowed – can take this drug to prevent the blood from clotting and clogging the artery."

But it could still be at least 10 years before the drug hits the market as there are still several rounds of human trials to see how well it works.

And some doctors say drugs which inhibit thrombin have not reached widespread use, even after a decade.

Said Dr Lee Chung Yin, senior consultant at the department of cardiology at the National Heart Centre Singapore: "These drugs can cause potentially life-threatening bleeding. Any new medication will need to demonstrate a clear advantage – for example, lower mortality and less bleeding – before the physician will take up its use."

wycin@sph.com.sg