



CTERIA WARRIORS: (From left) Prof Ding with research team members Patricia Ng and Agnes Le Saux. Their discovery will help people fight off infections. ST PHOTO: EDWIN KOO

Infection fight: Crab blood link leads to NUS team's breakthrough

BY LIAW WY-CIN

SCIENTISTS here have made a breakthrough in understanding how a particular protein – found both in humans and in the sapphire-blue blood of the horseshoe crab – helps people fight off bacterial infections.

And this can impact how doctors can fight dangerous infections in people.

The protein – called the “C-reactive protein” in scientist-speak – seems to act much like a diplomat in fighting off infections.

Scientists here have found that the C-reactive protein works like a good diplomat – it allies itself with and gets other naturally occurring proteins in the bloodstream to work together with it. Together, they attach themselves onto the surface of the bacterium cell.

This, in turn, triggers a cascade of chemical events, which makes

the bacterium irresistible to the white blood cells, which gobble up the bugs in short order.

The discovery by the National University of Singapore researchers was published last month in the European Molecular Biology Organization journal.

Professor Ding Jeak Ling from the Department of Biological Sciences, and Professors Ho Bow and Lu Jinhua from the Microbiology Department, made the discovery.

Prof Ding said scientists first found this behaviour in the C-reactive protein in the blood of the horseshoe crab. But it turned out that the human liver also produces this C-reactive protein, and it exhibits this behaviour in human blood too.

Whenever doctors find high levels of C-reactive in the blood of their patients, they know they have an infection on their hands. The levels can also indicate the severity of the infection.

But, very little about how the protein works, or why it is present in larger amounts in these circumstances, had been known before.

Said Prof Ding: “Previously, research had focused on the protein in isolation. Now, we know we have to look at its other partner proteins as well.”

Armed with the new knowledge, scientists may also find independent and separate drugs to turn on these “partner” proteins as well, she explained.

Complications arising from infection are not to be taken lightly.

With Singapore’s population ageing, more people will be susceptible, as the elderly are less able to stave off infection, said Dr Gerald Chua, a specialist in intensive care medicine at the National University Hospital (NUH). At NUH, for example, the number of deaths from septicemia – blood poisoned by bacteria – increased from 60 in 2005 to 99 last year.