

Vector-borne diseases are human illnesses caused by parasites, viruses, and bacteria that are transmitted by blood-sucking vectors (mosquitoes, ticks, flies, sandflies, fleas, mites, triatomine bugs, snails, and lice). Among vector-borne diseases, scrub typhus (mite-borne typhus or Tsutsugamushi disease) caused by obligate intracellular Gram-negative pathogenic bacterium, *Orientia tsutsugamushi* (*Ott*) is an acute infectious disease that is emerging and re-emerging in so-called “*tsutsugamushi triangle*” including South-East Asia and the south-western Pacific region. Moreover, there were evidences of scrub typhus infections are broader geographical distribution including even Africa, Chile, and Dubai (*Orientia chuto*). It can have a case-fatality rate of up to 30% if untreated, which is more than dengue. Moreover, the infection can lead to acute encephalitis syndrome, Parkinson’s disease, and various neurological complications.

Scrub typhus is one of the most under-reported diseases requiring much basic and applied researches related to its infection and survival mechanism, control, and vaccine development. Antibiotics including doxycycline, macrolides, azithromycin, and rifampicin available for the treatment of this infection, but both side effects by such medications and the identification of multidrug resistant strains make *Ott* hard to treat. Moreover, no effective vaccine against *Ott* is available at current according to Centre for Disease Control and Prevention. Currently, some outer membrane proteins have been known to be involved in *Ott*.

In this special issue (**Protein-based approaches to combat tsutsugamushi disease**) of *Current Protein & Peptide Science*, we invite you to send contributions either review or research articles concerning the identification, expression, characterization, molecular mechanism, diagnosis, and utilization for known as effector proteins to combat for scrub typhus. I hope these topics enables researchers to give a clue to develop new therapeutic strategies to prevent or eradicate scrub typhus.

Keywords: *Orientia tsutsugamushi* (*Ott*), vector-born disease, metabolic pathways, scrub typhus, Host defence peptides, Multi-drug resistant bacteria,